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Dissecting Alignment in South America

Hierarchical Cross-Referencing Systems in the Guaykuruan Languages

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Abstract

The Guaykuruan language family consists of four living languages – Kadiwéu, Toba, Pilagá and Mocoví – and Abipon, which is now extinct. All these languages are (or were, in the case of Abipon) spoken in the South American Gran Chaco region, which extends from the south of Brazil, over the southeast of Bolivia and the west of Paraguay to the north of Argentina. The Guaykuruan languages have typically been described in the literature as belonging to the 'hierarchical alignment' type, an alignment system which is cross-linguistically rare, but well-represented in South America. Additionally, Toba, Pilagá and Mocoví are all known as active-inactive or split-S languages, whereas Kadiwéu has typically been seen as an ergative language.

The aim of the present thesis is to nuance these analyses, and come to a more detailed, fine-grained image of the alignment patterns found in the verbal cross-referencing systems in declarative main clauses of the Guaykuruan languages. The methodology used in this endeavour is twofold. On the one hand, I examine whether or not the Guaykuruan languages adhere to four characteristics posited in the literature as defining features of hierarchical systems: referential hierarchy effects, obviation, explicit direction marking, and the maintenance of transitivity in inverse scenarios.

On the other hand, I approach alignment from a construction-specific, person-by-person and morpheme-by-morpheme point of view. This makes it possible to express the alignment system of every grammatical person in a language in terms of subsystems which conform to classical nominative-accusative, ergative-absolutive or other alignment patterns. By averaging the percentages of the alignment systems of every separate person for which these subsystems account, the total alignment system of a language can be calculated.

The application of this methodology to the Guaykuruan languages led to several interesting findings. Firstly, it was noted that Pilagá and Toba each have a number of morphemes which align [Sa, O] vs. [So, A], an alignment system not noted before in the literature on any language, as far as I know. Secondly, two continuums were found in the data. On the one hand, the geographical location of the Guaykuruan languages seems to be a reliable predictor for the strength of ergative and active-inactive characteristics. Both systems are strongest in Kadiwéu, the northernmost language, and diminish in strenght the further one goes to the south.

Hierarchical characteristics and accusative alignment, on the other hand, do not conform to this same continuum. There is still a clear divide between Kadiwéu and the three other languages, with Kadiwéu showing by far the strongest hierarchical effects and the weakest accusative alignment. The internal variation between Mocoví, Pilagá and Toba, however, corresponds to the Guaykuruan family tree rather than to their geographical location.

In the last part of this thesis, I propose that the geographical effects visible in the distribution of alignment systems in the Guaykuruan languages can be plausibly explained by recurring to language contact. In particular, it is not inconceivable that Kadiwéu maintained ergativity and hierarchical effects to a stronger degree than the three other languages because of its close relationships to a number of Arawakan and Tupí-Guaraníian languages. The stronger presence of accusativity in Toba, Pilagá and Mocoví, then, I attribute to the influence they plausibly experienced from the Matacoan languages, and in particular Wichí. The accuracy of these posited areal effects is an interesting topic for further research, as is a possible explanation for the internal differences between Toba, Pilagá and Mocoví.

List of Abbreviations

A	most agentive argument of a transitive clause
ABS	absolutive
ACC	accusative
ADV	adverb
AL	allative
APPL	applicative
ART	article
ASP	aspectual marker
ATEL	atelic
AUX	auxiliary
BEN	benefactive
CAUS	causative
CLT	clitic
COL	collective
COMP	complementiser
COND	conditional
CONJ	conjunction
COORD	coordinator
COP	copula
DEIC.COME	deictic 'coming'
DEIC.GO	deictic 'going'
DEM	demonstrative
DEM.ABS	demonstrative 'absent'
DEM.DIST	demonstrative 'distal'
DEM.PRES	demonstrative 'present'
DEM.PRX	demonstrative 'proximity'
DEM.SIT	demonstrative 'sitting'
DEM.STAND	demonstrative 'standing'
DET	determiner
DIM	diminutive

DIR	direct
DOM	differential object marking
DRC	direction marker
DRC.DOWN	directional 'downwards'
DRC.IN	directional 'inwards'
DRC.OUT	directional 'outwards'
DRC.UP	directional 'upwards'
DU	dual
DUR	durative
E	non-core argument of an (in)transitive clause
EMPH	emphasis
EP	epenthetic segment
ERG	ergative
EXPL	expletive
F	feminine
FUT	future tense
INV	inverse
INV2	inverse in ditransitive clause
IS	indefinite subject
LOC	locative
M	masculine
MID	middle voice
N/A	not applicable
NEG	negation
NF	non-feminine
NOM	nominative
NONSP	non-specific
NP	noun phrase
O	least agentive argument of a transitive clause
OBL	oblique
OBV	obviative
PAUC	paucal
PFV	perfective
PL	plural
POSS	possessive
PRO	personal pronoun
PROG	progressive
PST	past tense
PTCP	participle
REC.PST	recent past

RES	resultative
S	single argument of an intransitive clause
Sa	single argument of an agentive intransitive clause
SAP	speech act participant (first or second person)
SG	singular
So	single argument of a patientive intransitive clause
SUB	subordinator
TOP	topic
TR	transitiviser
V	verb
VAL	valency-changing morpheme
1	first person
2	second person
3	third person
3'	obviative third person
I	set I cross-reference marker
II	set II cross-reference marker
III	set III cross-reference marker
IV	set IV cross-reference marker
>	outranks
=>	acts upon

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Part 1: Introduction

Chapter 1   The Gran Chaco and the
Guaykuruan Languages

The present thesis provides a comparative study of the argument marking patterns in declarative main clauses of the four living languages of the South American Guaykuruan[1] language family, with special attention to referential hierarchy effects. In this first part, I introduce the Guaykuruan languages, situate them within their geographical and linguistic context, and describe them in terms of their typological characteristics. Additionally, I present the research objectives of the present investigation, and lay out the structure of this thesis.

1.1   The Gran Chaco region

The South American continent has been argued to be the home of over 400 languages pertaining to over a hundred different linguistic stocks,[2] thus constituting one of the most linguistically diverse regions on earth (Aikhenvald 2011: 171; Campbell 2012: 59). The Gran Chaco region, which extends from the southwest of Brazil over the southeast of Bolivia and the west of Paraguay, and into the northeast of Argentina, is one of the focal points of this linguistic diversity and interaction. In this area, up to 29 languages are spoken according to some estimates (Durante 2011: 119).[3] These languages show certain phonological, grammatical and lexical similarities, arguably because of the close contacts underheld throughout history by the ethnic groups by which they are spoken (Campbell 2013; Comrie, Golluscio, González & Vidal 2010; Golluscio & Vidal 2009-10).

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[1] Also written Guaycurúan, Waikuruan, or other orthographic variations.

[2] Language isolates are counted as linguistic stocks in their own right.

[3] All information, quotations, and paraphrases from sources originally in languages other than English (Dutch, German, French, Portuguese and Spanish, in particular), have been translated by myself. Should any errors have resulted from this, these are entirely my own.

Figure 1: The Gran Chaco region (Durante 2011: 118)

Next to the Indo-European languages Spanish and Portuguese, which are the official languages of respectively Bolivia, Paraguay and Argentina on the one hand; and Brazil on the other hand, the languages of the Chaco belong to at least seven language families. Some of the largest linguistic stocks of South America, such as the Tupí-Guaraníán and Arawakan languages, have representatives in this area, whereas other languages belong to smaller stocks, such as the Enlhet-Enenlhet, Zamucoan, Lule-Vilela, Matacoan, or Guaykuruan families. Still other languages, such as Chiquitano and Guató, are unclassified at the present time, and are arguably isolates (Golluscio & Vidal 2010: 3-4). The languages of the (relatively small) Guaykuruan family are the focus of this thesis.

1.2   The Guaykuruan languages

The Guaykuruan family consists of four living languages – Kadiwéu, Toba, Pilagá and Mocoví – and at least one extinct language, Abipon.[4] In the 16th century, the ethnic groups of (former) hunter-gatherers who speak these languages dominated the Chaco region, thanks to their early acquisition of horses and iron weaponry (Saeger 1999: 257-60; Vidal 2001: 3, 10). Nowadays, however, all four of these languages are to a certain extent endangered, receiving a score of 6b (threatened) or 7 (shifting) on *Ethnologue*'s language endangerment scale (Lewis, Simons & Fennig 2016).

The Toba language, four regional varieties of which can be distinguished, has the largest number of speakers: between 36,000 and 60,000 (Carpio 2007: 7). These mainly reside in the Argentinean pro-

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[4] According to the currently accepted genetic classification, see 1.3.

vinces of Chaco, Formosa, and Salta; sectors of the cities Rosario and Buenos Aires; and some communities in Paraguay and Bolivia (Carpio 2007: 6-7; Klein 1973: 1). Toba still has a number of monolingual speakers, mainly in rural areas and in the oldest generations. Most speakers, however, are proficient in both Toba and Spanish, and a number of young Toba in urban environments only have a passive understanding of Toba, favouring instead Spanish (Carpio 2007: 9-10).

Figure 2: Geographical location of the Guaykuruan languages
(Hammarström, Forkel, Haspelmath & Bank 2016)

The Mocoví ethnic group, secondly, consists of 2,000 to 12,000 people depending on the source, mainly in the Argentinean provinces of Chaco and Santa Fé (Citro 2006: 140; Grondona 1998: 1; Gualdieri 1998: 16). Despite the low number of speakers, a revalorisation movement of the Mocoví culture and ethnic identity has been on the rise in the Chaco province since the 1990s (Gualdieri 1998: 17).

Pilagá, subsequently, has around 4,000 speakers, all situated in the Argentinean province of Formosa (Vidal 2001: 7); and Kadiwéu, lastly, has the smallest number of speakers (about 1,500), all located in the Brazilian state of Mato Grosso do Sul (Sandalo 1995: 2). Figure 2 shows the geographical locations of the Guaykuruan languages. From north to south, the dots roughly represent the location of the speakers of Kadiwéu, Toba, Pilagá, and Mocoví; and the location where Abipon was formerly spoken.

1.3   Genetic relationships of the Guaykuruan languages

Concerning the genetic classification of the Guaykuruan languages, a number of hypotheses have been put forward over the years. In the late 19th and early 20th century, for example, genetic links were proposed between the Guaykuruan languages and the Matacoan languages (Hunt 1913: 37), or even between the Guaykuruan languages and the Tupí-Guaranían language Tapiete (Henry 1939: 86). These claims were mainly based on a number of shared lexical items between the languages concerned.

Recently, several of these proposals have been revisited with increased evidence. Viegas Barros (2013), for example, notes a considerable number of correspondences between Guaykuruan and Matacoan languages in their respective phonologies and nuclear lexicons,[5] leading him to revalorise the hypothesis of a macro-relation between Matacoan and Guaykuruan. Furthermore, he includes the now extinct languages Payaguá and Guachí within his postulated Macro-Guaykuruan stock (Viegas Barros 2005: 1-2), and he even tentatively suggests genetic links between Macro-Guaykuruan and the Macro-Jê family, based on a list of 12 grammatical similarities (Viegas Barros 2005: 13-4). Other authors, like Nonato and Sandalo (2007: 105), attribute the (lexical) similarities found between these language families (at least between Guaykuruan, Matacoan and Bororoan), to intense language contact over the centuries rather than to common descent.
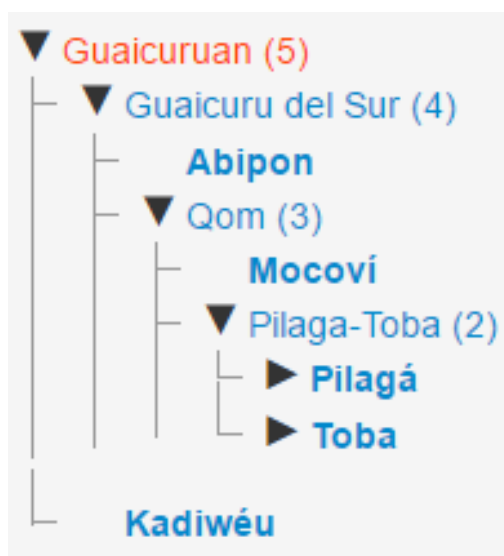
Figure 3: Guaykuruan family tree (Hammarström et al. 2016)

The internal structure of the Guaykuruan language family is more agreed upon. Since the 1990s, Kadiwéu has been proven to differ significantly from the other Guaykuruan languages (Ceria & Sandalo 1995: 181). This has led scholars to posit a division between a Northern Guaykuruan and a Southern Guaykuruan branch of the family, the northern one containing Kadiwéu (and its predecessor Mbaya), the southern one containing Toba, Pilagá, Mocoví and Abipon. Within this southern branch, Toba, Pilagá and Mocoví together form the Qom group. This term derives from the autodenomination *qom* (the lexeme for 'people' and the first person plural independent pronoun) which all three groups use, as opposed to the word *mbaya* used by the groups of the northern branch (Fabre 2006: 2; Vidal

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[5] Lexical items referring to body parts, family members, movements etc. Lexemes belonging to these semantic domains have been argued to be more resistant to borrowing than most other lexemes. As a consequence, significant correspondences between two languages in this part of the lexicon can be taken to point towards genetic relationships between the two languages.

2001: 5). On an even lower level, Pilagá and Toba are more closely related internally than are either Pilagá and Mocoví or Toba and Mocoví, to the extent that they have at times been treated as dialects of one language (Klein 1973: 15). In general, present-day scholars more or less agree upon a Guaykuruan family tree as presented in figure 3.

1.4   Typological characteristics

Before moving on to the research objectives of this thesis, I give a brief sketch of some relevant typological characteristics shared by the Guaykuruan languages. Firstly, all Guaykuruan languages have been argued to show a relatively free constituent order, with a preference for AVO[6] in transitive clauses and SV in intransitives. Toba is the only language for which VS is more common in intransitive clauses (Carpio 2007: 28-9; Griffiths 1991 via Sandalo 1995: 64; Grondona 1998: 13; Vidal 2001: 26). Sentences (1a-2a) exemplify this basic AVO order for respectively Mocoví and Kadiwéu, in (2b-c) two variations on this pattern can be seen from Kadiwéu.

(1)   Mocoví (Guaykuruan, Carrió 2013: 44)[7,8]

      a) *so   l-ateeʔ   Ø-keʔe-Gan-tak   so   i-iale-ek*

          DET   3.POSS-mother   3SG.I-eat-CAUS-PROG   DET   1.POSS-son-M

          'That woman is feeding my son.'

(2)   Kadiwéu (Guaykuruan, Sandalo 1995: 64-5)

      a) *Maria y-n-nad-d   Gatodi*[9]

          Mary   3SG.I-MID-see-ATEL   toucan

          'Mary sees a toucan.'

      b) *y-n-nad-d   Gatodi   Maria*

          3SG.I-MID-see-ATEL   toucan   Maria

          'Mary sees a toucan.'

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[6] See section 3.1 for the definitions assumed in this thesis for the grammatical roles S, A, and O.

[7] For all example sentences, the ortography from the original source has been taken over. All glosses have been standardised, and might as a consequence differ from the original sources. If no source is given, the example is my own.

[8] The first line of every example provides a morpheme-by-morpheme breakdown of the sentence. The second line contains a morpheme-by-morpheme gloss, and the third line is a translation in English.

[9] The *n-* prefix is sometimes treated as marking middle voice (Messineo 2002), and sometimes glossed 'hither' (Grondona 1998, for instance). For the sake of standardisation, I gloss it as a middle voice marker in this thesis.

c) *Gatodi   y-n-nad-d   Maria*
   toucan   3SG.I-MID-see-ATEL Maria
   'Mary sees a toucan.'

Since the Guaykuruan languages also lack overt case-marking on NPs (Vidal 2001:78), the main means they have at their disposal to mark grammatical roles is verbal cross-referencing. All Guaykuruan languages have two distinct sets of cross-referencing affixes. In transitive clauses, the first set is typically used to indicate the subject, the second set to indicate the direct object. For the subjects of intransitive clauses, which set is used typically depends on the semantics of the verb: verbs with agentive semantics usually select set I morphemes, verbs with inagentive semantics select set II. Sentences (3a-d) exemplify this distribution for the cross-reference markers of Pilagá. As a consequence of the distribution of these two series of affixes, the Guaykuruan languages have typically been described as showing active-inactive alignment.[10] Kadiwéu is, to my knowledge, the only one which has typically been treated as an ergative language (see for instance Nevins & Sandalo 2011: 354; Sandalo 2005: 48). Additionally, all Guaykuruan languages have been described in terms of hierarchical alignment.[11] The accuracy of these claims is the main topic of this thesis, and is assessed in parts four and five.

(3)   Pilagá (Guaykuruan, Vidal 2001: 144-5; 179; 184)

   a) *se-taqa-tak*
      1.I-speak-PROG
      'I am speaking'

   b) *ñi-tonavak*
      1.II-be.happy
      'I am happy'

   c) *an-se-lota*
      2.II-1.I-look
      'I look at you'

   d) *ñi-aw-lota*
      1.II-2.I-look
      'You look at me'

All Guaykuruan languages have been treated in the literature as 'pronominal argument languages', meaning that the pronominal cross-referencing affixes serve as verbal arguments, and that the NPs referring to these arguments function instead as adjuncts (Sandalo 1995: 77; Vidal 2001: 26). Conse-

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[10] For the definition of active-inactive alignment assumed in this thesis, see section 3.2.

[11] See section 4.1 for the definition of hierarchical alignment assumed in this thesis.

quently, a verb with its cross-reference markers can function as a complete sentence, without necessarily co-occuring with explicit NPs, as in (3a-d).

When explicit NPs referring to the verbal arguments do occur, the fact that they do not function as arguments explains both their lack of a fixed position, and the observation that they can be discontinuous (as in 4a, where *l-woqo-adi* and *apaqa-co-adi*, which together form a constituent, are separated from each other).

(4)   Kadiwéu (Guaykuruan, Sandalo 1995: 67)

  a) *iga:* *me* *l-woqo-adi* *a-n-na-d-i*   *apaqa-co-adi*

   how COMP 3.POSS-number-PL 2SG.I-MID-see-ATEL-PL rhea-animal-PL

   'How many rheas do you see?'

The last aspect of the Guaykuruan languages that I treat in this section is their agglutinative morphology. Although nouns, on the one hand, do not exhibit explicit case-marking, they can be marked for possession, gender (or, alternatively, noun class), number, and diminutive. Additionally, there is a morphological process of noun compounding, where a noun can be used to classify another one (5a-b). Lastly, a number of derivational morphological processes can form, for example, nouns on the basis of verbs (Carpio 2007: 16-7; Grondona 1998: 43-4; Sandalo 1995: 56-61; Vidal 2001: 78-104).

(5)   Pilagá (Guaykuruan, Vidal 2001: 97)

  a) *pyo-lapavat*

   flea-insect

   'flea'

  b) *delak-lapavat*

   worm-insect

   'worm'

The Guaykuruan verb, lastly, contains a number of morphemes next to the stem and the cross-reference markers. These categories include, amongst others, valency-changing affixes, morphemes expressing aspect and mood (but no tense), middle voice, negation, evidentiality, and markers for indefinite subject (Grondona 1998: 93; Sandalo 1995: 40-1; Vidal 2001: 132). One last specific category that can be indicated on the verb, that of location and directionality, has received considerable scholarly attention over the years, with a number of studies dedicated specifically to this topic (Carrió 2013 for Mocoví; Klein 1981 for Toba; Vidal 2006 for Pilagá). With the Guaykuruan languages sufficiently introduced, I move on to laying out the research rationale of this thesis.

Chapter 2   Research Objectives and Structure of this Thesis

2.1   Research objectives

This thesis focuses on the verbal cross-referencing systems of the four living Guaykuruan languages. Although rather detailed fieldwork[1] (the data of which this study builds on) has already been carried out on each of these languages and their argument marking systems, a comparative study of all cross-referencing systems within the Guaykuruan family has, to my knowledge, not been made yet. The present study attempts to fill that void.

My first objective is to compare the hierarchical systems that have been argued to be present in all four languages under scrutiny. Whereas until now, it has simply been said that Kadiwéu, Toba, Pilagá and Mocoví *display* hierarchical systems – without making any distinctions in strength – I argue that these four systems can be ranked from more hierarchical to less hierarchical. In this endeavour, I take Fadden's (2000) thesis as an example, using the criteria proposed by her and Klaiman (1992) to rank hierarchical systems. Using this methodology, I aim to provide a more fine-grained analysis of the Guaykuruan hierarchical systems than what has been presented in the literature so far.

Secondly, I use the methodology proposed by Witzlack-Makarevich, Zakharko, Bierkandt & Bickel (2010) to dissect[2] the alignment of the Guaykuruan cross-referencing systems in declarative main clauses. Rather than presenting every language as displaying only one type of alignment (in this case, active-inactive alignment for Toba, Pilagá and Mocoví, and ergative alignment for Kadiwéu), I break down their alignment systems into smaller subsystems. In this way, I hope to not only establish a more detailed image of the alignment systems of the Guaykuruan languages, but also to prove that this methodology is very promising with respect to discovering heretofore unnoticed alignment subsystems in any language.

The third approach followed in this thesis is a historic, language contact-based one. Once the complete alignment system for every Guaykuruan language has been established, I provide a first incentive

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[1] See references for the example sentences in section 1.4 and throughout the thesis.

[2] This term is taken over from Witzlack-Makarevich et al. (2010), together with their methodology. For a complete explanation of the methodology, see section 5.2.

towards explaining how these systems came into being. In this respect, I propose a number of languages and language families with which the Guaykuruan languages might conceivably have been in contact, and examine how plausible it is that the influence of said languages played a role in shaping the alignment systems of the Guaykuruan languages.

2.2   Structure of this thesis

After having provided an introduction to the Guaykuruan languages and their geographical and linguistic context in this first part of my thesis, I move on in the second part to discussing the theoretical concepts and analytical tools that lie at the core of this thesis. Vital amongst these are the notions of grammatical roles, grammatical relations, and alignment, which are the subject matter of chapter 3, and the referential hierarchy, which is discussed in chapter 4. In that fourth chapter, I furthermore explain the definition of 'hierarchical alignment' that is assumed in this thesis. The diagnostic criteria for hierarchical systems introduced there simultaneously serve as methodology for assessing the strength and presence of hierarchical effects in the Guaykuruan languages.

In chapter 5, then, I lay out the methodology proposed by Witzlack-Makarevich et al. (2010), which is taken over in this thesis in order to dissect the alignment systems of the Guaykuruan languages. Chapters 6 through 9, subsequently, see these two methodologies applied to the argument marking patterns of Kadiwéu, Toba, Pilagá and Mocoví, respectively, assessing both their hierarchical characteristics and the alignment of their cross-referencing systems.

Tentative explanations for these results are proposed in the fifth part of the thesis. Chapter 10, firstly, compares the alignment systems and hierarchical effects discovered in each language. After making some general observations and noting a number of trends in the data, I attempt to explain these trends in chapter 11. I do so mainly by positing language contact as a driving force behind these tendencies. Chapter 12, ultimately, summarises the findings and explanations presented before, draws conclusions from them, and offers suggestions for further research.

Part 2: Theoretical Overview

Chapter 3   Grammatical Roles and
Grammatical Relations

Before presenting my analysis of the argument marking patterns of individual languages, a presentation of the core concepts used in this analysis is in order. Firstly, the basic notions of grammatical roles, grammatical relations and alignment are treated. In the next chapter, I discuss the referential hierarchy, and exemplify the ways in which this hierarchy can affect argument marking in a language. Lastly, I discuss the status of this hierarchical argument marking, concluding that it should not be treated as an alignment system on a par with, for example, nominative-accusative alignment, but rather as a condition that can create split alignment systems.

3.1   Grammatical roles

I base my treatment of grammatical roles on a revised version of Dixon's (1979) SAO model. Dixon (1979: 60) distinguished three grammatical roles, which have been argued to be semantic-syntactic primitives. He uses the labels A, O and S for the 'underlying transitive subject', 'underlying transitive object', and 'underlying intransitive subject', respectively. Dixon and Aikhenvald (2000), Mithun and Chafe (1999), and Zúñiga (2006) later revised this model, however, doubting its accuracy as "a theory of universal clause-argument structure" (Zúñiga 2006: 11).

A specific concern raised by these authors is Dixon's (1979) analysis of S as primitive and universal. At least for some languages, this posited grammatical role can arguably be further subdivided into an Sa role – the single argument of an intransitive predicate with agentive semantics – and an So role – the single argument of an intransitive predicate with patientive semantics. Additionally, because of the controversy entailed by the terms *subject* and *object*,[1] A and O can be redefined on a semantic basis as the most agentive and most patientive argument of a transitive predicate, respectively (Zúñiga 2006: 5).

Furthermore, a fifth grammatical role is added. Whereas A, O, Sa and So are core arguments, and "must either appear overtly or be understood for the clause to be meaningful" (Zúñiga 2006: 5), an E

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[1] See section 3.2 on grammatical relations.

argument is added as optional extension to the core. In intransitive clauses, this can be an adjunct – typically an adverbial referring to location in time or space. In transitive clauses, however, it typically expresses a dative or beneficiary (Dixon & Aikhenvald 2000: 3; Zúñiga 2006: 5). The five grammatical relations and their definitions proposed in this model are taken over in this thesis.

3.2   Grammatical relations and alignment

With these definitions in place, I turn to the concept of grammatical relations, or "relations between a clause or a predicate and its arguments" (Witzlack-Makarevich 2010: 1). In earlier scholarship, 'subject', 'direct object' and 'indirect object' grammatical relations (corresponding to the [Sa, So, A], [O], and [E] roles, respectively) have been assumed to be universal, as a consequence of the fact that nominative-accusative alignment systems were found in many of the Indo-European languages traditionally in the centre of scholarly interest (Du Bois 1987: 808).

In these systems, Sa, So and A arguments are all treated alike, whereas Os are treated differently. Sentences (6a-b; 7a) exemplify this pattern: NPs in the S or A role receive a nominative suffix, whereas O NPs receive an accusative morpheme. Additionally, only S and A trigger verbal agreement. Verbal agreement and case-marking in Latin thus show nominative-accusative alignment, have an S/A pivot, and are said to form two grammatical relations in monotransitive clauses:[Sa, So, A] and [O].

(6)   Latin (Romance, Zúñiga 2006: 8)

      a) *Domin-us*   *curri-t.*

         lord-NOM.M.SG   run-3SG.I

         'The lord runs.'

      b) *Domin-us*   *serv-os*   *lauda-t.*

         lord-NOM.M.SG   servant-ACC.M.PL   praise-3SG.I

         'The lord praises the servants.'

(7)   Latin (Romance)

      a) *Domin-um*   *serv-i*   *lauda-nt.*

         lord-ACC.M.SG   servant-NOM.M.PL   praise-3PL.I

         'The servants praise the lord.'

With the discovery of ergativity, however, it became clear that this [Sa, So, A] subject grouping is not necessarily universal. In ergative systems, S aligns with O instead of with A, which means that these systems have an [Sa, So, O] grammatical relation and an [A] grammatical relation. The classic example of an ergative language is the isolate Basque. As illustrated in (8a-b), S and O NPs receive

the same case-marking (a zero morpheme for absolutive case), whereas A NPs are marked with a *-k* suffix for ergative case: Basque nominal case-marking has an S/O pivot.

(8)   Basque (Isolate, Bickel & Nichols 2009: 304)

     a) *Gizona-Ø etorr-i   da.*
       man-ABS   arrive-PFV.PTCP   AUX.3SG.I
       'The man has arrived.'

     b) *Gizona-k mutila-Ø ikus-i   du.*
       man-ERG boy-ABS   see-PFV.PTCP   AUX.3SG.I=>3SG.II
       'The man has seen the boy.'

Many languages around the world group the grammatical roles in still different ways, however. Firstly, a substantial number of languages – 84 out of Siewierska's (2013) sample of 380 – display neutral alignment. As shown in (9a-b), S, A, and O NPs are all zero-marked for case, showing no distinction along either nominative-accusative or ergative-absolutive lines. Although Bickel and Nichols (2009) do not elaborate on the word order of this language, these two sentences possibly point towards constituent order having an accusative pivot: S and A behave in the same way in that they precede the verb, whereas O follows it.

(9)   Ju|'hoan (Ju, Dickins n.d. as cited in Bickel & Nichols 2009: 316)

     a) *Jú   n!ànì   tsí*
       people three   come
       'Three people have come.'

     b) *Dà'ábí |óá   ho   n!àmà*
       children   NEG   find   road
       'The children did not find the road.'

On the other extreme, languages can treat all three core arguments differently. In these (relatively rare) tripartite alignment systems, O receives accusative case, A is ergative, and S is marked with a third set of morphemes, called either nominative or absolutive. In (10a-b), S is zero-marked, the ergative suffix is *-m* and the accusative suffix is *-na*.

(10)   Nez Perce (Sahaptian, Phinney 1934, as cited in Zúñiga 2006: 8-9, via Mithun 1999, via Rude 1985)

     a) *X̣áx̣aac   hi-wéhyem.*
       Grizzly   3SG.I-came
       'Grizzly came.'

     b) *'Óykalo-m   titóoqan-m   páaqa'ancix   x̣áx̣aas-na.*
       all-ERG   people-ERG   respect.3PL.I=>3SG.II   Grizzly-ACC
       'All people respect Grizzly.'

Double-oblique alignment, ultimately, is another relatively rare and seemingly uneconomical argument marking pattern. Here, A and O arguments are marked in the same way, as opposed to S ar-

guments. In (11a-b), for example, demonstratives with an A or O grammatical role receive oblique case-marking, whereas S receives absolute case.

(11)   Rošani (Pamir, Payne 1980: 155, as cited in Zúñiga 2006: 9)

    a) *Duf   xawrič-ēn um   kitōb   šeyt.*
       these.OBL boy-PL   that.OBL   book   read.PST
       'These boys read that book.'

    b) *Dāδ   xawrič-ēn=an   tar Xaraɣ   sat.*
       these.ABS boy-PL=3PL   to Xorog   go.PL.PST
       'These boys went to Xorog.'

It must be noted, however, that these alignment systems hardly ever occur consistently in a language: many languages exhibit a split system. One of the most common splits is called 'split-S alignment', or 'active-inactive alignment'. Here, Sa behaves in the same way as A, patterning accusatively, whereas So patterns ergatively, behaving in the same way as O. This can be seen for the Pilagá first person singular in (12a-d), where both the So of the patientive intransitive verb *tonavak* 'to be happy' and the O of the transitive verb *lota* 'look' are marked with a *ñi-* prefix, as opposed to the Sa of *'alaq* 'shout' and the A of *e'et* 'wake up', which receive an *s-* prefix.

(12)   Pilagá (Guaykuruan, Vidal 2001: 144-5; 175; 179)

    a) *s-'alaq*
       1SG.I-shout
       'I shout'

    b) *ñi-tonavak*
       1SG.II-be.happy
       'I am happy'

    c) *an-s-e'et*
       2SG.II-1SG.I-wake.up
       'I wake you up'

    d) *ñi-aw-lota*
       1SG.II-2SG.I-look
       'You look at me'

These different types of alignment and the existence of split systems have prompted several scholars to adopt a framework where grammatical relations are seen as language-specific groupings of grammatical roles rather than universal ones, and within each language as construction-specific (Witzlack-Makarevich 2010). Under such an analysis of alignment, case-marking and constituent order, for instance, can show different alignment types within the same language. This view of grammatical relations is used as a framework for this thesis. In the next chapter, I move on to the type of argument marking that forms one of the two main topics of this thesis: hierarchical alignment.

Chapter 4   The Referential Hierarchy and Hierarchical Alignment

4.1   The referential hierarchy

In languages with hierarchical alignment, argument marking is influenced by a hierarchy which has been formulated in different forms and under different names. Silverstein (1986) first proposed the idea of a hierarchy governing relations between predicates and their arguments. He originally observed that many alledgedly ergative case-marking systems show a person-based split, with some grammatical persons patterning accusatively and others ergatively (Silverstein 1986: 163-4). Hale's (1970: 776) observation that a frequent pattern in these splits is one where pronouns (especially first and second person) are organised accusatively and common nouns ergatively, prompted Silverstein (1986: 176) to posit a semantic hierarchy as organising principle.

Silverstein's (1986: 171) proposed hierarchy is based on the binary opposition of two semantic features: [+/- participant] – whether or not an NP refers to a Speech Act Participant (SAP) – and [+/- ego] – whether or not an NP refers to the speaker. Third persons lack both traits and as such rank lowest on the hierarchy. Both SAPs possess the [+participant] trait, but the [+/- ego] trait distinguishes between first person [+ego] and second person [-ego]. Whether first or second person ranks highest on the semantic hierarchy is language-specific (Silverstein 1986: 171): both 1 > 2 > 3 and 2 > 1 > 3 are relatively common in hierarchical languages.

Other scholars, such as Bossong (1985: 3) and Dixon (1994: 85) have since elaborated their own versions of these hierarchies, emphasising different characteristics (such as topicality or animacy) and giving them different names – from 'salience hierarchy' over 'nominal hierarchy' to 'referential hierarchy', the term used in this thesis (Birchall 2014: 73). Nevertheless, the basic structure of all these hierarchies remains the same, with SAPs outranking third persons. The criteria used for internally ranking SAPs are language-specific, as are those used for ranking two third person participants.[1] The consensus among researchers is that higher-ranking arguments on the referential hierarchy are more suited for A roles in transitive clauses, whereas lower-ranking arguments are prototypical Os.

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[1] See section 4.2 on obviation for details on the internal ranking of third person arguments.

The aforementioned theory which explains person-based splits in ergative alignment systems based on the referential hierarchy has largely been disproven by Bickel (2008: 196) and Bickel and Witzlack-Makarevich (2008: 30), showing that this is an areal phenomenon rather than a universal one. There are, however, at least two other phenomena that have been attributed to the referential hierarchy.

The first one is that of Differential Object Marking. Spanish, for example, largely follows an accusative argument marking pattern. There is no case-marking on full NPs, and verbal cross-referencing is used to indicate the grammatical person and number of S and A, but not O. In transitive clauses (13a), word order is relatively free, although a tendency towards AVO can be observed.

(13)   Spanish (Romance)

a) *El   hombre   vio   la   casa.*
ART.M.SG   man   see.PST.3SG.I ART.F.SG house
'The man saw the house.'

b) *El   hombre   vio   a   la   mujer*
ART.M.SG   man   see.PST.3SG.I to ART.F.SG woman
'The man saw the woman.'

In some cases, however, the O is not zero-marked. As can be seen in (13b), some O arguments are marked with the preposition *a*, normally reserved for E arguments. An explanation offered for this DOM is that the O in (13b) ranks unusually high on the referential hierarchy. In (13a), *la casa* is an inanimate, third person, full NP and as such well-suited for the O role. *La mujer* in (13b), however, is animate, and ranks equally high on the referential hierarchy as the A, *el hombre*. Because the referential hierarchy can here not be used to determine which NP is the A and which is the O, the preposition *a* is added to the O NP to avoid confusion (Enghels 2015).

The second way in which referential hierarchies influence argument marking constitutes the core of this thesis. The next section deals with what has been called 'hierarchical alignment' or 'inverse alignment': systems in which the verbal cross-referencing of arguments depends on the referential hierarchy.

4.2   Hierarchical alignment

Hierarchical alignment systems, although cross-linguistically rare – only 11 out of the 380 languages in Siewierska's (2013) sample show this type of argument marking – are very common both in North America (Mithun 2006; 2012) and in South America (Birchall 2014: 72).

The Algonquian languages were the first ones in which a system of this kind was discovered, and are consequently oft-cited examples. The languages of this family make use of verbal cross-reference markers to indicate the grammatical roles of arguments. Plains Cree, for instance, has a number of affixes at its disposal to cross-reference S, A, and O arguments.

In hierarchical systems, the argument that ranks highest on the language-specific referential hierarchy "receives special treatment, the details of which vary from language to language" (Siewierska 1998: 10). Plains Cree, for one, follows a 2 > 1 > 3 hierarchy: if a second person is present in a transitive clause, it is invariably prefixed on the verb, whether it occurs as A or as O (Fadden 2000: 3). Similarly, when first and third person interact (14a-b), the first person receives special treatment in that it is prefixed, whereas the third person is fused with the direct or inverse marker. Since the first person outranks the third person, it is twice indicated on the verb with the *ni-* prefix.

The element that allows one to determine whether this first person functions as A or O is the directional suffix[2] (also called 'theme sign', Klaiman 1992: 230). The *-âw* in (14a) expresses 'direct' direction: the higher-ranking argument (the first person) has the A role, the lowest-ranking one (the third person) is the O. In (14b), on the other hand, the *-ik* suffixes expresses 'inverse' direction: the action proceeds from the lowest-ranking argument to the highest ranking one.[3] The listener can infer that the implicit co-argument here is a third person: if it were a second person, the 2 > 1 hierarchy would have led to the second person argument being indicated on the verb instead of the first person.

(14)   Plains Cree (Algonquian, Dahlstrom 1986: 38-41, as cited in Fadden 2000: 1)

      a) *ni-wâpam-âw*
         1SG-see-3.DIR
         'I see him/her'

      b) *ni-wâpam-ik*
         1SG-see-3.INV
         'He/she sees me'

Although Plains Cree has an overt direct marker, many hierarchical languages only use an overt inverse marker, the absence of which implies a direct scenario. Because explicit directional morphemes are present in the Algonquian languages, they have often been seen as a prerequisite to classify a language as hierarchical, some scholars even going so far as to use the term 'inverse alignment' (Fadden 2000; Jacques & Antonov 2014).

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[2] Not to be confused with the category of direction markers which indicate the physical trajectory of a referent (here glossed DRC).

[3] It has been argued that scenarios where two equally ranked arguments interact fall in the inverse categorie as well (Payne 1994: 316).

When looking beyond the Algonquian family, however, it becomes clear that specialised directional morphology is by no means a requirement for hierarchical languages. In Ikpeng, there are two sets of person prefixes: one used to mark As and one for Os. The system largely functions in the same way as explained before: the person ranking highest on the Ikpeng referential hierarchy (1 > 2 > 3) is always marked. If this argument functions as A (15a), the set I prefix is used, compared to the set II prefix if it functions as O (15b). In systems of this kind, it can be said that the person affixes act as direction markers: set I combines the function of person marking with that of direct marking, whereas the set II morphemes are simultaneously person marker and inverse morpheme.

(15)   Ikpeng (Carib, Pachêco 2001: 70-71, as cited in Birchall 2014: 76)

   a) *m-eneŋ-lɨ*

   2SG.I-see-REC.PST

   'you saw him'

   b) *o-eneŋ-lɨ*

   2SG.II-see-REC.PST

   'he saw you'

As can already be seen from the Plains Cree and Ikpeng examples, hierarchical systems show considerable variety. Therefore, a number of criteria have been proposed to test the strength of any given hierarchical system, which are taken over in this thesis. Combining the diagnostics put forward by Fadden (2000) and Klaiman (1992), I use four criteria to determine the extent to which the referential hierarchy regulates verbal cross-referencing in the Guaykuruan languages.

The influence of the referential hierarchy on cross-referencing and the presence of direct and/or inverse marking just discussed are the first two diagnostics of hierarchical languages adopted in this thesis. The third characteristic is obviation (Aissen 1997; Fadden 2000). Obviation is a term stemming from Algonquian linguistics, used for systems which make a distinction between two different types of third person arguments (Aissen 1997: 705). In languages which exhibit such a system, third persons can be either proximate (more salient) or obviative (less salient), with a maximum of one proximate argument per clause. The proximate argument outranks the obviative one, and is typically cross-referenced when both A and O are third person. Which argument is proximate depends, once again, on a language-specific hierarchy which can be determined by semantic traits of the arguments (such as animacy), definiteness, topicality, or an interplay of these factors (Aissen 1997: 705).

In Plains Cree, obviation is based on discourse salience: when two third person arguments interact, the proximate is the one that has been introduced earlier in the previous discourse, has been focussed recently, or is otherwise more topical (Fadden 2000: 4). Proximate and obviative arguments are distinguished in two ways. On the one hand, there is an overt case-marking morpheme for obviative NPs as opposed to a zero mark for proximates. On the other hand, the directional morphology indicates whether the higher-ranking proximate third person (cross-referenced on the verb) functions as A or O.

The verb obtains direct marking when the proximate acts upon the obviative (16a), whereas it receives inverse marking when the obviative acts upon the proximate (16b).

This is not the case in all hierarchical languages: 3 => 3 scenarios are often obligatorily direct (in the Tupí-Guaraní family for instance, see Birchall 2014: 83 and Rose 2009: 66 on Emerillon Teko). If this is the case, it can be said that obviation does not influence the cross-referencing system of a language, and consequently, it lacks this third diagnostic of hierarchical systems.

(16)   Plains Cree (Algonquian, Fadden 2000: 5)

      a) *Ø-pakamahw-êw awasis-a*

        3-hit-3'.DIR   child-OBV

        'She/he (prox.) hit the child (obv.).'

      b) *Ø-pakamahw-ik awasis-a*

        3-hit-3'.INV   child-OBV

        'The child (obv.) hit her/him (prox.).'

The fourth and last important point in the definition of inverse systems is that inverse clauses are not, although they have often been confused with, passives (Fadden 2000: 7-8). The passive is a valency-reducing operation, which detransitivises an active transitive clause by promoting the original O to S, and demoting the original A so that it is no longer a core argument. Inversion, however, maintains the predicate's original transitivity. Although some controversy exists about the exact mechanism of inversion, the most plausible explanation is that it reverses the relations between the grammatical roles hierarchy and the referential hierarchy. Whereas usually, A ranks highest on the referential hierarchy and O ranks lowest, the inverse allows the lowest ranking argument to function as A, as shown in figure 4. It does not, however, remove the original A from the core (Zúñiga 2006: 24).

$$
\begin{array}{cc}
\text{SAP} > 3 & \text{SAP} > 3 \\
\diagdown \quad \diagup & \diagtimes \\
\text{A} > \text{O} & \text{A} > \text{O} \\
\text{Direct} & \text{Inverse}
\end{array}
$$
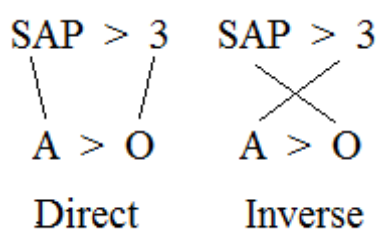
Figure 4: Mapping of referential hierarchy to grammatical functions in direct/inverse clauses

With these four characteristics – referential hierarchy effects, direct/inverse marking, obviation, and the maintenance of transitivity – all explained, a sufficiently fine-grained definition of hierarchical systems is in place. Important to note is that a language need not conform to all four characteristics to be considered hierarchical. The presence of hierarchical alignment in a language should be interpreted as forming a spectrum from strong to weak, rather than in absolute terms of presence or absence. For the purposes of this thesis, a language is considered to show hierarchical argument marking if it possesses on the one hand the 'referential hierarchy' and/or the 'obviation' characteristic, and on the other

hand expresses inverse scenarios with transitive rather than obligatorily detransitivised clauses. The other characteristics can but need not be present, allowing us to distinguish between strong hierarchical systems with all characteristics, and weaker systems which lack some properties.

4.3   The status of hierarchical systems

A number of authors treat hierarchical systems as alignment systems in their own right, on a par with the systems discussed in section 3.2 (Nichols 1992; Siewierska 1998; 2013). Witzlack-Makarevich et al. (2010), however, argue against this analysis. According to them, positing a hierarchical alignment type next to accusative and ergative types "results in an inconsistent definition of alignment" (Witzlack-Makarevich et al. 2010: 3).

A vital part of the definition of a hierarchical system rests on the interaction of A and O: if a language has a 1 > 2 > 3 hierarchy, for example, second person arguments can behave differently depending on whether their co-argument is a first or a third person (Witzlack-Makarevich 2010: 186). Since interactions of this kind play no role in the conventional alignment types discussed in section 3.2 (where the behavior of an argument depends only on its own grammatical person and role, not on that of its co-argument), it is argued that hierarchical alignment has no place in this list.

Instead, Bickel (2008) and Witzlack-Makarevich (2010) propose, following Dixon (1994: 84-97), an analysis of hierarchical systems as conditions on argument marking, which create alignment subsystems conforming to regular accusative, ergative, or other patterns. Bickel (2008:198-9), for example, proposes such an analysis for Puma. Based on the phonological forms of the person markers, he argues that second person arguments align neutrally, first persons align ergatively and third persons accusatively. This is exemplified in (17a-d) for the first person: the *-oŋ* suffix is used for S and O (17a-c), whereas the *-ŋ* suffix is used for A (17d).

(17)   Puma (Sino-Tibetan, Bickel 2008: 198)

        a) *puks-oŋ*

           go-1SG.II.PST

           'I went'

        b) *pʌ-pukd̪-oŋ*

           3.I-take-1SG.II.PST

           'he/she took me'

        c) *tʌ-pukd̪-oŋ*

           2.I-take-1SG.II.PST

           'you took me'

d) *pukḏ-u-ŋ*

    take-3SG.II-1SG.I

    'I took him/her'

e) *puk-na-a*

    take-1=>2-PST

    'I take you'

When the first person is an O (17a-c), the person of the co-argument makes no difference: the *-oŋ* suffix is always used. When, as in (17d-e), the first person is an A, the co-argument can make a difference: in 1 => 3 scenarios, we see the straightforward ergative patterning that we expect, the first person A being marked with a different suffix than the first person S and O. In 1 => 2 scenarios, on the other hand, a portmanteau suffix *-na* is used which cannot be segmented into a morpheme for first person and one for second person.

In order to account for these effects of the referential hierarchy on alignment, Witzlack-Makarevich et al. (2010). have developed a more sophisticated approach to discovering traces of regular alignment patterns in hierarchical systems. In this approach, the distribution of every morpheme is determined for every possible combination of S, A and O arguments, resulting in a quantified statement about which alignments are present in a hierarchical system and to what extent. I explain and exemplify the exact details of this methodology in chapter 5.

4.4   Summary

In this chapter, I introduced a number of concepts central to the topic of this thesis, and the tools that are employed in the analysis of the linguistic data. Firstly, five grammatical roles were defined: Sa, So, A, and O were called the core arguments. The extension to the core, typically a locative adverbial in intransitive clauses and a recipient in transitive clauses, was labelled E.

Subsequently, grammatical relations were defined as language-specific and construction-specific ways in which grammatical roles align: if two grammatical roles behave in the same way in a certain construction, they are said to align, form a grammatical relation, or form the pivot of this construction. The six most well-documented ways in which arguments can align were then presented: [S, A] vs. [O] (accusative); [S, O] vs [A] (ergative); [S] vs [O] vs [A] (tripartite); [S, A, O] (neutral); [S] vs [A, O] (double-oblique) and [Sa, A] vs [So, O] (active-inactive or split-S).

In chapter 4, then, a group of languages were introduced that do not at first sight display any of these alignment types. Instead, the marking of an argument depends on its co-argument, and the relative positions of both arguments on a language-specific referential hierarchy. Four characteristics were taken as diagnostics of hierarchical languages, based on Aissen (1997), Fadden (2000), and Klaiman

(1992). Firstly, there is a language-specific version of the referential hierarchy ranking the grammatical persons, so that the highest-ranking argument receives special treatment. In practice, it is virtually always marked on the verb, whereas the lower-ranking argument is not.

The second property is obviation: languages can make a distinction between two third person arguments based on a semantic or pragmatic hierarchy. Again, the higher-ranking one (proximate) is typically indexed on the verb whereas the lower-ranking one (obviative) is not. Thirdly, there is directionality: hierarchical languages need a way to indicate whether the indexed argument is the A or the O. This can be done either through specialised direct/inverse morphemes, or through fusing the function of direction marking with that of person marking in two distinct sets of cross-referencing morphemes. When the A is cross-referenced, direct morphology is used, as opposed to inverse morphology for the O.

Fourthly, there is the preservation of transitivity: contrarily to the passive, the inverse has two core arguments, which means that the opposition between direct and inverse clauses is not one of valency. In what follows, these characteristics are used to determine whether a system is hierarchical, and if so, how strongly the hierarchy affects argument marking.

Ultimately, I discussed the status of hierarchical systems, arguing that they should not be seen as alignment systems in their own right, but rather as conditions creating subsystems which present the more canonical alignment possibilities discussed earlier. I briefly touched upon the way in which these subsystems can be discovered and described, and elaborate on this methodology in the next chapter.

Part 3: Methodology

Chapter 5   Dissecting Alignment Systems

5.1   Introduction

As mentioned in chapter 2, the present investigation has two objectives: on the one hand, to decide for every language under scrutiny whether it can be classified as a hierarchical system – and if so, how strongly hierarchical – and on the other hand, to dissect the complex cross-referencing systems of these languages into subsystems which behave along the lines of the basic alignment patterns described in section 3.2. To answer the second part of this research question, I recur to the methodology laid out by Witzlack-Makarevich (2010) and Witzlack-Makarevich et al. (2010), which was briefly touched upon in the previous chapter. In what follows, I explain this methodology in detail and illustrate it by applying it to one specific example: the first person plural in Kadiwéu.

Witzlack-Makarevich et al. (2010: 4) argue, in the same vein as Bickel and Nichols (2009: 320), that representing languages with hierarchical effects as monolithic blocks exhibiting one alignment type – 'hierarchical alignment' – obscures many subtleties of these languages' argument marking systems. Therefore, these languages must be divided into subsystems which show basic alignment types.

The first difficulty for discerning these subsystems in a hierarchical language is the idea that one must compare the behaviour of grammatical roles under identical conditions (Witzlack-Makarevich et al. 2010: 10). For instance, comparing the treatment of the A argument in past tense clauses with the treatment of the O argument in non-past clauses does not yield valid results. Since a language might have an alignment split based on tense – treating arguments differently in past and non-past clauses – argument marking under these two different conditions is incomparable (Witzlack-Makarevich et al. 2010: 10).

(18)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 368)

    a)   *Ga-d:-eman-i*
       2.II-INV-want/love-2PL
       'we love you (sg. or pl.)'

    b)   *Go-d:-ema*
       1PL.II-INV-want/love
       'we love him/her/it'

One of the conditions influencing the behaviour of core arguments in a hierarchical language is, as mentioned in section 4.3, the co-argument. This can be seen for Kadiwéu in (18a-b): the first person plural A is zero-marked when it acts upon a second person O (18a), but it is marked with the *Go-* prefix when it acts upon a third person O (18b). Since a first person plural A always occurs with an O co-

argument, and a first person plural O always occurs with an A co-argument, it can even be said that a first person A and a first person O never occur under identical conditions, and thus are incomparable (Witzlack-Makarevich et al. 2010: 15).

5.2   Dissecting alignment in hierarchical systems

The solution proposed by Witzlack-Makarevich et al. (2010), is to simply compare the marking of this first person plural in all scenarios it can possibly occur in. Table 1 shows all forms used to express a scenario containing the first person plural in Kadiwéu. Kadiwéu has two sets of person affixes, one to mark Sa arguments and one to mark So arguments. These are seen in the first two columns of the table. The last two columns respectively show the forms used when the first person plural is an A (with all four possible co-arguments)[1], or an O (with all four possible co-arguments).

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[1] Reflexive scenarios, i.e. scenarios where a first person plural acts upon or is acted upon by a first person singular or plural, are not taken into account here. As a consequence, first person singular and plural each have 16 combinatorial possibilities: they can act upon and be acted upon by a third person singular or plural and a second person singular or plural. The same goes, *mutatis mutandis,* for second person singular and plural. For third person arguments, this restriction does not hold: since 3 => 3 scenarios need not be reflexive, third person arguments have 36 combinatorial possibilities.

Grammatical role: Co-argument:	Sa	So	A	O
N/A	*j*-*aloqon*-**aGa** 1.I-swim-PL 'we swim'	***Go***-*d:-iki* 1PL.II-INV-heal 'we heal' OR *i*-*d:-acodi*-**Ga**[2] 1.II-INV-descend-PL 'we descend'		
2SG			<u>Ga</u>-*d:-eman-*<u>i</u> 2.II-INV-love-2PL 'we love you (sg.)'	***Go***-*d:-ema* 1PL.II-INV-love 'you (sg.) love us'
3SG			*j*-*eman*-**aGa** 1.I-love-PL 'we love him/her'	***Go***-*d:-ema* 1PL.II-INV-love 'he/she loves us'
2PL			<u>Ga</u>-*d:-eman-*<u>i</u> 2.II-INV-love-2PL 'we love you (pl.)'	***Go***-*d:-ema* 1PL.II-INV-love 'you (pl.) love us'
3PL			*j*-*eman*-**aGa** 1.I-love-PL 'we love them'	***Go***-*d:-ema* 1PL.II-INV-love 'they love us'

Table 1: Verbal forms referring to first person plural in Kadiwéu[3,4]

There are 16 possible combinations of first person plural Sa, So, A, and O. Every cell in the third column must be compared to every cell in the fourth column, and then to the Sa and So columns. These comparisons are visualised in table 2. Each cell contains two entries: the morpheme(s) used for a first person plural A in a certain scenario (all cells in the first row contain the morphemes for a first person plural acting on a second person singular, for instance), and the morpheme(s) used for a first

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[2] Although the verb *acodi* 'to descend' can be said to be semantically agentive, Sandalo (1995: 154) classifies it as an unergative verb, meaning that its sole argument is semantically inagentive. I take over this analysis and classify the argument of *acodi* as an So, since the *i-* prefix used in *i-d:-acodi-Ga* is the first person set II prefix, used on inagentive intransitive verbs. If *acodi* were an agentive transitive in Kadiwéu, it would take the *j-* prefix instead.

[3] The morphemes referring to the first person plural are in boldface, those referring to the co-argument are underlined.

[4] All forms in table 1 and the data in table 2 are from Nevins and Sandalo (2011: 354-6, 368), except for *i-d:-acodi-Ga* which is from Nonato and Sandalo (2007: 94).

person plural O in a certain scenario (all cells in the first column contain the morphemes for a first person plural O with second person singular A co-argument). Since Sa and So arguments never occur with a co-argument, their expression remains the same across the board. The forms used to express first person plural Sa and So are therefore shown separately in the fifth and sixth rows. In this way, every cell corresponds to one of the 16 combinatorial possibilities.

A co-argument:	2SG	3SG	2PL	3PL
O co-argument:				
2SG	A: *Ø-...-Ø*		O: *Go-...-Ø*	
3SG	A: *j-...-aGa*		O: *Go-...-Ø*	
2PL	A: *Ø-...-Ø*		O: *Go-...-Ø*	
3PL	A: *j-...-aGa*		O: *Go-...-Ø*	
Sa	*j-...-aGa*			
So	*Go-/i-...-Ø/-aGa*			

Table 2: Morpheme distribution for Kadiwéu first person plural[5,6]

When one only considers the full forms displayed in table 1 for comparison, one inevitably misses out on traces of basic alignment patterns presented by separate morphemes (Witzlack-Makarevich et al. 2010: 26). Under such an approach, for example, the *Ø-...-Ø*[7] and the *Go-...-Ø* forms would be seen as different, whereas both contain a zero suffix. Therefore, I follow Witzlack-Makarevich et al. (2010: 27) in determining the distribution of every morpheme separately. This means that, for the Sa form, for instance, the *j-* person prefix and the *-aGa* plural suffix are treated separately, as are the *Go-* prefix and zero suffix for So arguments.

The next step consists in calculating the alignment ratios of the morphemes present in all of the 16 comparisons of first person plural forms. In cell (1,1), for example (comparing first person plural Sa, first person plural So, first person plural A acting upon second person singular, and first person plural

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[5] Cells with the same contents are merged wherever possible. In this case, for example, the four cells in the first row of table 2 all contain the same morphemes, so these contents are only shown once. The same is done for the second, third and fourth rows.

[6] The cells in tables of this kind will be referred to in the format (*x*, *y*), *x* being the number of the row the cell is in, and *y* being the number of the column it is in. Cell (2,3), for example, is the third cell of the second row.

[7] I assume every form to contain both a prefix and a suffix referring to all of its arguments. Therefore, the form *Ga-d:-eman-i* from table 1 is taken to show a *Ga-* prefix and *-i* suffix referring to the second person, and a zero prefix and zero suffix referring to its first person argument. Consequently, the cells in the first and third rows of table 2 contain this zero prefix and suffix for a first peron plural A argument acting upon a second person.

O being acted upon by second person singular), six morphemes are present. The *j-*, *i-*, *-aGa*, *Ø-*, *- Ø*, and *Go-* morphemes thus all account for 16,66% of the alignment pattern of this cell.

As can be seen, the *j-* morpheme only occurs in Sa role: its alignment can be represented as [Sa] vs. [So, A, O]. The zero suffix has the exact opposite distribution: it can be used to mark So, A and O, but never Sa. Consequently, its alignment is the same. The *Go-* prefix is used for So and O arguments, aligning [So, O] vs. [Sa, A], whereas the zero prefix is only used to mark A arguments, aligning [A] vs. [Sa, So, O]. The *-aGa* suffix, next, is used both for Sa and So arguments, but never for A and O, aligning [Sa, So] vs. [A, O]. The *i-* prefix, lastly, is only used for [So] arguments, aligning [So] vs. [Sa, A, O]. It can consequently be said that, within this cell, 33,33% of morphemes align [Sa] vs. [So, A, O]. The four other patterns – [So] vs. [Sa, A, O], [Sa, A] vs. [So, O], [Sa, So] vs. [A, O] and [A] vs. [Sa, So, O] – each account for 16,66% of the alignment of this cell. Eight of the 16 cells in table 2 – those in the first and third rows – show the same distribution.

The morphemes in the cells in the second and fourth rows show a different distribution, however. In cell (2,1), which compares the marking for first person plural A acting upon third person singular, first person plural O being acted upon by second person singular, and first person plural Sa and So, only five morphemes are present. The *j-*, *Go-* and zero suffix here align [Sa, A] vs. [So, O]. The *i-* and *-aGa* morphemes show [So] vs. [Sa, A, O] and [O] vs. [Sa, So, A] alignment, respectively. The eight cells in these two rows thus show 60% [Sa, A] vs. [So, O] alignment, 20% [So] vs. [Sa, A, O] alignment and 20% [O] vs. [Sa, So, A] alignment.

In order to calculate the total alignment ratios of Kadiwéu first person plural, one must average the alignment ratios found in all 16 cells. [Sa, A] vs. [So, O] alignment, firstly, is present in 60% of the alignment of eight cells, and 16,66% of alignment of the other eight cells. This makes for an average of 38,33% across all cells. [So] vs. [Sa, A, O] alignment, secondly, accounts for 20% of the alignment of eight cells, and 16,66% of the alignment of the other eight cells. In total, this pattern thus explains 18,33% of the data. The four other alignment patterns noted only occur in one of the two types of cells, which means that the percentage of alignment they account for in that group of cells must be divided by two. The complete breakdown of the first person plural alignment system in Kadiwéu is summarised in table 3.

Alignment	Ratio
[Sa, A] vs. [So, O]	38,33%
[So] vs. [Sa, A, O]	18,33%
[Sa] vs. [So, A, O]	16,66%
[O] vs. [Sa, So, A]	10%
[A] vs. [Sa, So, O]	8,33%
[Sa, So] vs. [A, O]	8,33%

Table 3: Alignment ratios for Kadiwéu first person plural

To obtain a complete picture of the cross-referencing alignment system of a language, this process must be repeated for every grammatical person. For Kadiwéu, this means that tables representing the morpheme distributions across the grammatical roles (modelled on table 2) must be established for first, second and third person singular and plural. In this way, one can calculate the alignment ratios for every grammatical person. One can then, for every alignment pattern, take the average of the ratios obtained for every grammatical person, and establish the total percentage of Kadiwéu data this pattern accounts for.

5.3 Limitations

It must be noted that, although the methodology just presented can express the alignment system of a language in terms of percentages, it is not strictly speaking a quantitative methodology. I do not take the usage frequency of any of the cross-referencing morphemes into account. This means that, whenever a grammatical person can be expressed in two different ways in a certain scenario, both these morphemes are given the same weight in calculating the total alignment pattern for this person. In actual language usage, however, it is possible that one morpheme is more frequent than the other, which arguably means that this morpheme should be counted more heavily.

In table 1, for example, it is shown that a first person plural So in Kadiwéu can be expressed with a *Go-* prefix and a zero suffix, or an *i-* prefix and a *-Ga* suffix. In the present methodology, these morphemes are all treated the same. If in actual language usage the *Go-...-Ø* pattern would prove to be used in, say, 80% of the cases compared to 20% for the *i-...-Ga* pattern, the present methodology would be unable to reflect this skewing. Therefore, frequency studies of the usage of all person mark-

ing patterns in the Guaykuruan languages could, in my opinion, provide a useful addition to the quantitative study of alignment, and allow the construction of even more detailed images of alignment systems.

Now that the methodological tools for determining the presence and strength of the referential hierarchy effects in a language, and the different types of alignment at work in a language have been outlined, it is time to apply them to the linguistic data. In the next part of this thesis, I present and analyse the verbal cross-referencing systems of the Guaykuruan languages, in order to answer the proposed research questions.

Part 4: Alignment in the Guaykuruan

Languages: Data

Chapter 6   Kadiwéu

6.1   Argument marking

6.1.1   Introduction

In the fourth part of this thesis, I discuss the living Guaykuruan languages in terms of their verbal cross-referencing systems. I treat the languages from northernmost to southernmost, starting with Kadiwéu, over Toba and Pilagá, and ending with Mocoví.

Kadiwéu, as mentioned before, is the only living member of the northern branch of the Guaykuruan family. It uses verbal morphology to convey aspect and mood (but not tense), negation, and location and direction of motion. Furthermore, verbal morphemes are used for semantic role marking (including inverse marking), and person and number marking (Sandalo 1995: 40).

Intransitive and monotransitive verbs in Kadiwéu can indicate the person and number of their S, A, and O arguments, but only one argument can be marked at any given time. Which argument this is has been explained, for example, in terms of phonological constraints (Braggio 1981), but Sandalo's (1995, 2005, 2009) account of Kadiwéu cross-referencing in terms of the referential hierarchy has largely disproven the former. This section presents the data on Kadiwéu cross-referencing (and, to some extent, constituent order) in intransitive, monotransitive and ditransitive clauses (based on Sandalo 1995, 2005 and 2009; Nevins & Sandalo 2011; Nonato & Sandalo 2007) and determine whether or not the system should indeed be analysed as hierarchical.

6.1.2   Intransitive clauses

Intransitive clauses, firstly, are subdivided into two categories along the lines of a typical split-S system. Verbs with agentive semantics, such as *aloqon* 'swim', show morphological agreement with their Sa argument, as can be seen in (19a-e). Generally, person is expressed through prefixes and number through suffixes.

Anomalies are seen in the second person singular and third person plural forms. The third person singular prefix (which has a *w-* and a *y-* allomorph, 19c-d),[1] firstly, differs from the prefix *n-* used for third person plural (19f).

(19)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 254-5)

        a) *j-aloqo*

           1.I-swim

           'I swam'

        b) *a-loqon-i*

           2.I-swim-2PL

           'you (sg. or pl.) swam'

        c) *w-aloqo*

           3SG.I-swim

           'he/she swam'

        d) *y-i-gaa*

           3SG.I-EP-sing

           'he sang'

        e) *j-aloqon-aGa*

           1.I-swim-PL

           'we swam'

        f) *n-aloqon-aGa*

           3PL.I-swim-PL

           'they swam'

Second persons, secondly, carry both an *a-* prefix and an *-i* suffix, regardless of their number (19b). According to Nevins and Sandalo (2011: 353), this could be a remnant of a grammaticalised honorification system in verbal morphology, much like the French second person plural pronoun *vous* and the accompanying verbal forms being used to respectfully adress a second person singular.

Inactive intransitives, such as *ikil* 'heal, get better', also show agreement with their only argument (an So), but they use a different set of cross-reference markers[2] (20a-e; 21a-b). Again, a number of anomalies can be detected. As was the case with agentive intransitives, second person markers always seem to be formally plural (20b), and third person singular and plural prefixes show a mismatch (20c,e). Additionally, the first person plural So argument can be encoded in two ways: either, as would

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[1] This allomorphy might be phonologically or morphologically conditioned (Nevins and Sandalo 2011: 355).

[2] The cross-reference markers used in Kadiwéu for Sa and A arguments will be referred to as set I morphemes, those used to mark So and O arguments will be referred to as set II morphemes. Set III morphemes are those used to mark the E arguments of ditransitive clauses.

be expected, with the first person set II prefix *i-* and plural suffix *-aGa* (21a), or with the specialised first person plural set II prefix *Go-* (20d).

(20)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 355-6)
        a) *i-d:-iki*
           1.II-INV-heal
           'I healed'
        b) *Ga-d:-ikil-i*
           2.II-INV-heal-2PL
           'you (sg. or pl.) healed'
        c) *Ø-iki*
           3.II-heal
           'he/she healed'
        d) *Go-d:-iki*
           1PL.II-INV-heal
           'we healed'
        e) *n-ikil-aGa*
           3PL.II-heal-PL
           'they healed'

(21)   Kadiwéu (Guaykuruan, Nonato & Sandalo 2007: 94-5)
        a) *i-d:-acodi-Ga*
           1.II-INV-descend-PL
           'we descend'
        b) *Ø-d:-apiqo*
           3.II-INV-be.warm
           'it is warm'

Next to the person markers, an interesting feature of Kadiwéu inactive intransitives is the *d:-* prefix that appears in all forms with a first or second person argument. In third person forms, it is optional: in (21b) it is present, in (20c) it is not. This morpheme is glossed 'inverse' by Sandalo (2005, 2009) and Nevins and Sandalo (2011), mainly because of its function in transitive clauses.[3] Here however, an analysis as inverse marker is out of the question, since only transitive clauses can be inverse.

What is more, any analysis trying to account for the distribution of this morpheme by recurring to the referential hierarchy fails. One could, for example, try to explain this morpheme in terms of

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[3] See section 6.1.3.

DOM,[4] hypothesising that it marks So arguments which rank unusually high on the referential hierarchy, and are thus atypical patients. Under such conditions, one would expect the *d:-* morpheme to occur when the So argument is, for example, an animate third person. In (20c; 21b), the reverse is true: when the So argument refers to animate 'he' or 'she', the *d:-* is absent, whereas it is present with an impersonal verb. Therefore, an analysis of *d:-* as being a 'semantic role marker' in intransitive clauses, simply indicating that the argument cross-referenced on the verb is inactive (Sandalo 1995) is more plausible.

6.1.3   Transitive clauses

Kadiwéu transitive verbs can best be treated in terms of the three different kinds of configurations or scenarios often mentioned when discussing hierarchical systems (see, for instance, Rose 2015; Zúñiga 2006): mixed scenarios (between a SAP and a third person), local scenarios (between two SAPs) and non-local scenarios (between two third persons).

In mixed configurations, firstly, whenever a SAP acts upon a third person, it is marked on the verb with a set I morpheme, whereas the O is not explicitly marked (22a-c). When, on the other hand, a third person acts upon a SAP, it is still the SAP that is marked, this time with a set II morpheme. Additionally, the *d:-* morpheme, here a genuine inverse marker, appears (23a-c).

(22)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 356-7, 368)

      a) *j-emaa*
         1.I-love
         'I love her'

      b) *a-emaan-i*
         2.I-love-2PL
         'you love her'

      c) *j-eman-aGa*
         1.I-love-PL
         'we love her'

(23)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 357, 368)

      a) *i-d:-emaa*
         1.II-INV-love
         'she loves me'

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[4] See section 4.1.

b) *Ga-d:-emaan-i*

    2.II-INV-love-2PL

    'she loves you'

c) *Go-d:-ema*

    1.PL.II-INV-love

    'he/she/they love(s) us'

These data point towards a clear hierarchical divide between SAPs and third persons: SAPs outrank third persons on the referential hierarchy, so whenever one is present, it is indicated regardless of its grammatical role. With the inverse morpheme *d:-*, overt direction-marking is also present in Kadiwéu.

In non-local scenarios, it is invariably the third person A that is indicated on the verb (24a-b) with a set I marker. Third person plural As are expressed by combining the third person singular *y-* prefix with the specialised third person plural prefix *o-* rather than the typical plural suffix *-aGa*. Non-local scenarios are always formally direct, regardless of which of the two third person arguments is more salient. Therefore, Kadiwéu does not seem to make use of obviation in its verbal cross-referencing.

(24)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 357-8)

        a) *y-i-gidi*

           3.I-EP-answer

           'she answers him/her/them'

        b) *o-y-i-gidi*

           3PL-3.I-EP-answer

           'they answered him/her/them'

In local scenarios, ultimately, not only the person, but also the number of the arguments influences the choice of whether to cross-reference A or O. Second persons, as mentioned before, always show plural morphology, but they interact differently with singular and plural first persons. In scenarios between a second person and a first person singular, the second person is always indexed on the verb, pointing towards a 2 > 1 > 3 hierarchy. When the second person is an A (25a), the set I marker is used, as opposed to the set II marker for a second person O (25b). Additionally, the inverse morpheme *d:-* is present both in (presumably inverse) 1 => 2 scenarios and in (presumably direct) 2 => 1 scenarios.

(25)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 357)

        a) *a-d:-emaan-i*

           2.I-INV-love-2PL

           'you love me'

         b) *Ga-d:-emaan-i*

           2.II-INV-love-2PL

           'I love you'

When taking first person plural into account, a different picture emerges. The posited 2 > 1 > 3 hierarchy remains active when a first person plural acts upon a second person: the first person still loses the competition for the single person marking slot, and the second person is marked with a set II morpheme (26a). When the first person plural functions as O, acted upon by a second person, one would expect the same form as for a second person acting upon a first person singular. What is seen, however, is a form consisting of the set II first person plural marker *Go-*, inverse marker *d:-*, and the verb stem (26b). This seemingly implies that the referential hierarchy in Kadiwéu must be adapted to include a dimension of number and one of grammatical role, resulting in 1PL.O > 2 > 1PL.A/1SG > 3 (Nevins & Sandalo 2011: 352).

(26)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 368)

      a) *Ga-d:-emaan-i*
         2.II-INV-love-2PL
         'we love you'

      b) *Go-d:-emaa*
         1PL.II-INV-love
         'you love us'

6.1.4   Ditransitive clauses

Ditransitive predicates in Kadiwéu, then, are derived by adding the applicative marker *-ta* to a transitive verb stem such as *eloGodi* 'tell' or *iqeen* 'introduce'. A and O arguments are marked in exactly the same way as with monotransitives, and the E argument is suffixed after the applicative marker with a suffix from set III (27a-d). What is striking is that an extra inverse morpheme *-wa* appears on a number of ditransitive forms. Whereas *d:-* appears in all scenarios with a SAP O (27c-d), in ditransitives the suffix *-wa* appears in all scenarios with a SAP E (Nevins & Sandalo 2011: 360), as in (27b). This use of inverse marking to indicate a high-ranking non-core argument is not unique to Kadiwéu: Adelaar (2009: 171) argues that it occurs in some languages of the Quechuan family as well.

(27)   Kadiwéu (Guaykuruan, Nevins & Sandalo 2011: 360)

      a) *j-eloGodi-Ø-ta-Ø*
         1.I-tell-3.II-APPL-3.III
         'I tell it to him.'

      b) *j-eloGodi-Ø-ta-Ga-wa*
         1.I-tell-3.II-APPL-2.III-INV2
         'I tell it to you.'

      c) *Ga-d:-iqueen-i-ta-Ø*
         2.II-INV-introduce-2PL-APPL-3.III
         'I introduce you to him.'

d) *a-d:-iqueeni-ta-Ø*

2.I-INV-introduce-2PL-APPL-3.III

'You introduce me to him.'

6.1.5 Constituent order

Ultimately, an observation must be made with respect to the positions of the (optional) NPs coreferential with the S, A and O affixes. NPs referring to first and second person O arguments always precede the verb (28a), whereas NPs referring to third person Os typically follow it (28b). Constituent order thus seems to provide additional proof for the effects of the SAP > 3 referential hierarchy on the treatment of verbal arguments in Kadiwéu (Sandalo 2005: 50).

(28)   Kadiwéu (Guaykuruan, Sandalo 2005: 51; 55)

a) *Goti   aqa:m-i   Ga-d:-ema:n-i*

Goti   2PRO-PL   2.II-INV-want/love-2PL

'Goti loves you (pl.).'

b) *Goti   y-ema:n   Ekode*

Goti   3.I-want/love Ekode

'Goti loves Ekode.'

c) *Ecabigo   Ekode y-ema:*

Ecabigo   Ekode 3.I-love/want

'Ecabigo loves *Ekode* (not somebody else).'

It is, however, possible for third person NPs to appear preverbally. When the third person O is contrastively focused – as in (28c), where the speaker wants to make its clear that it is *Ekode* that Ecabigo loves, and not someone else – it often precedes the verb. This could possibly be seen as a trace of obviation. Focused third person arguments are more salient than non-focused third persons. As such, the former outrank the latter, and are treated similarly to SAPs, occuring in the position usually reserved for SAPs. If it were a fully-fledged obviation system, however, sentences like (28c), where the O argument is the proximate, would appear with the inverse morpheme on the verb.[5]

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[5] See section 10.2.3 about the connection between constituent order and obviation in the Guaykuruan languages.

6.2 Evaluation: hierarchical effects

When analyzing these data, it becomes clear that Kadiwéu conforms, to a certain extent, to all four diagnostics for hierarchical systems. Firstly, a referential hierarchy regulates which argument is marked on the verb. The SAP > 3 hierarchy operates consistently (concerning verbal cross-referencing and the position of argument NPs with respect to the verb), but the verbal morphology in local scenarios shows a certain degree of confusion: whereas second person usually outranks first person, first person plural O arguments do take precedence over second person co-arguments.

This blurring of the hierarchical borders between SAPs is not unique to Kadiwéu. According to Heath's (1998: 84-7) pragmatic skewing hypothesis, languages typically avoid maximally transparent forms to express 1 <=> 2 scenarios since both the first person and the second person forms refer to participants of the speech act. Since the transparent expression of both SAPs in one clause is often seen as blunt or familiar, many languages strive to obscure the expression of these scenarios (Heath 1998: 84-5). Next to Kadiwéu, mechanisms to create opaque 1 <=> 2 forms have amongst others been noted in Tupí-Guaranían languages (Rose 2015), Cariban languages such as Tiriyó (Meira 1999: 283-4), and the Araucanian language Mapudungun (Adelaar 2009: 181-2; Smeets 2008: 157).

Secondly, Kadiwéu does not obligatorily detransitivise clauses expressing inverse scenarios: Sandalo (2005: 54) confirms that Kadiwéu inverse scenarios are typically expressed in transitive clauses, since they do not contain any detransitivising morphology, as does for example the antipassive construction, nor is any argument demoted from the core.

Thirdly, although the *d:-* morpheme could be argued to not be a true inverse marker due to its presence on intransitive verbs, there are still two clear instances of direction marking in Kadiwéu. Firstly, there is the second, ditransitive inverse marker *-wa*, which indicates that E outranks A. Secondly, there is the fact that Kadiwéu uses different sets of person markers for O and A. Consequently, even if the analysis of *d:-* as an inverse marker is rejected, the "sheer *choice* between Set [I] and Set [II fulfills] the same function as would use of a distinct inverse marker", as argued by Payne (1994: 318, emphasis original) about Tupí-Guaranían.

The last characteristic, obviation, is the only one absent from Kadiwéu cross-referencing: non-local scenarios are always direct, indicating the absence of a distinction between salient and non-salient third person arguments. In constituent order however, there are traces of obviation. Salient third person O arguments behave like SAPs in that they precede the verb, whereas non-salient third person arguments follow the verb.

Displaying three of the characteristics of hierarchical systems in verbal cross-referencing, and arguably one more in constituent order, Kadiwéu can be said to show a relatively strong hierarchical system. In the next section, I determine the alignment subsystems into which these hierarchical effects divide Kadiwéu cross-referencing.

6.3 Alignment systems

6.3.1 Data

Nevins and Sandalo (2011: 354) classify Kadiwéu as an ergative language, based on the fact that the language has an antipassive – a detransitivising construction that removes the O argument from the core – which arguably only occurs in ergative languages (Tallerman 2015: 239). In accordance with the construction-specific definition of alignment assumed here, I do not agree in labelling Kadiwéu's whole argument marking system as ergative because of this one factor. Within the present framework, Kadiwéu rather makes use of an ergative pivot in this construction, but the alignment system in regular (in)transitive clauses must be examined separately from this. With this goal, I now apply Witzlack-Makarevich et al.'s (2010) methodology for establishing alignment (sub)systems to Kadiwéu. Firstly, the 16 comparisons between all the scenarios in which a first person singular A or O can occur are presented in table 4.

A co-argument: O co-argument:	2SG	3SG	2PL	3PL
2SG	A: $\emptyset$-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: $\emptyset$-...-$\emptyset$ O: i-...-$\emptyset$	A: $\emptyset$-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: $\emptyset$-...-$\emptyset$ O: i-...-$\emptyset$
3SG	A: j-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: j-...-$\emptyset$ O: i-...-$\emptyset$	A: j-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: j-...-$\emptyset$ O: i-...-$\emptyset$
2PL	A: $\emptyset$-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: $\emptyset$-...-$\emptyset$ O: i-...-$\emptyset$	A: $\emptyset$-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: $\emptyset$-...-$\emptyset$ O: i-...-$\emptyset$
3PL	A: j-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: j-...-$\emptyset$ O: i-...-$\emptyset$	A: j-...-$\emptyset$ O: $\emptyset$-...-$\emptyset$	A: j-...-$\emptyset$ O: i-...-$\emptyset$
Sa	j-...-$\emptyset$			
So	i-...-$\emptyset$			

Table 4: Morpheme distribution for Kadiwéu first person singular[6]

Table 4 shows four different kinds of cells. In cells (1,1), (1,3), (3,1) and (3,3), the *j-* and *i-* prefixes are only used to mark Sa and So, respectively, thus aligning [Sa] vs. [So, A, O] and [So] vs. [Sa, A, O]. The zero suffix occurs in all forms, aligning [Sa, So, A, O], and the zero prefix is only used for A

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[6] All the data in the tables in sections 6.3, 7.3, 8.3 and 9.3 can be found in the example sentences presented respectively in sections 6.1, 7.1, 8.1 and 9.1. The references to the respective sources are also cited there.

and O arguments, aligning [Sa, So] vs. [A, O]. Each of these alignment types accounts for 25% of the alignment of these four cells. In cells (2,1), (2,3), (4,1) and (4,3), the *i-* prefix and the zero suffix show the same distribution. The *j-* prefix, however, is used for the A role as well: it aligns [Sa, A] vs. [So, O], and the zero prefix now aligns [O] vs. [Sa, So, A]. In cells (1,2), (1,4), (3,2) and (3,4), the *i-* prefix aligns [So, O] vs. [Sa, A], compared to [Sa] vs. [So, A, O] for the *j-* prefix, neutral alignment for the zero suffix and [A] vs. [Sa, So, O] for the zero prefix. In cells (2,2), (2,4), (4,2) and (4,4), ultimately, only three morphemes are present: both *i-* and *j-* align [Sa, A] vs. [So, O], the zero suffix aligns neutrally.

When calculating the total alignment ratios for the first person singular, it becomes clear that [Sa, A] vs. [So, O] alignment accounts for the largest part (almost 30%) of the data, closely followed by neutral alignment. These alignment ratios, and those of the other patterns discerned in the data, are summarised in table 5.

Alignment	Ratio
[Sa, A] vs. [So, O]	29,17%
[Sa, So, A, O]	27,08%
[Sa] vs. [So, A, O]	12,5%
[So] vs. [Sa, A, O]	12,5%
[A] vs. [Sa, So, O]	6,25%
[O] vs. [Sa, So, A]	6,25%
[Sa, So] vs. [A, O]	6,25%

Table 5: Alignment ratios for Kadiwéu first person singular

For the second person singular, the results of all the possible comparisons of cross-referencing morphemes across all possible scenarios can be seen in table 6.

A co-argument:	1SG 3SG 1PL 3PL
O co-argument:	
1SG	A: *a-...-i* O: *Ga-...-i*
3SG	
1PL	A: *Ø -...-Ø* O: *Ga-...-i*
3PL	A: *a-...-i* O: *Ga-...-i*
Sa	*a-...-i*
So	*Ga-...-i*

Table 6: Morpheme distribution for Kadiwéu second person singular

Here, there are only two types of cells: all 12 cells in the first, second and fourth rows are the same, as opposed to all the cells in the third row. In the former, three morphemes must be examined. The *a-* and *Ga-* prefixes align [Sa, A] vs. [So, O]. The *-i* suffix, however, occurs in all forms, aligning [Sa, So, A, O]. The former pattern accounts for 66,66% of the data of these cells, the latter for 33,33%. In the third row, there are two extra morphemes to take into account: the zero prefix and suffix, both aligning [A] vs. [Sa, So, O]. Additionally, the *a-* and *-i* morphemes behave differently here: they respectively align [Sa] vs. [So, A, O] and [A] vs. [Sa, So, O]. The *Ga-* prefix again aligns [Sa, A] vs. [So, O].

Alignment	Ratio
[Sa, A] vs. [So, O]	55%
[Sa, So, A, O]	25%
[A] vs. [Sa, So, O]	15%
[Sa] vs. [So, A, O]	5%

Table 7: Alignment ratios for Kadiwéu second person singular

Table 7 summarises the averages of all observed alignment patterns for second person singular. Again, a straightforward split-S system is most frequent, followed by neutral and ergative alignment. [Sa] vs. [So, A, O] alignment, lastly, accounts for 5% of the data. In table 8, subsequently, the morpheme distribution across the 36 combinatorial possibilities for third person singular is presented.

A co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
O co-argument:						
1SG						
2SG	A: *Ø-...-Ø*			O: *Ø-...-Ø*		
3SG	A: *w-...-Ø*			O: *Ø-...-Ø*		
1PL						
2PL	A: *Ø-...-Ø*			O: *Ø-...-Ø*		
3PL	A: *w-...-Ø*			O: *Ø-...-Ø*		
Sa	*w-...-Ø*					
So	*Ø -...-Ø*					

Table 8: Morpheme distribution for Kadiwéu third person singular

Only three morphemes are present for third person singular: the *w-/y-* pair of allomorphs, and the zero prefix and suffix. In the cells in the first, second, fourth and fifth rows (accounting for 66,66% of third person plural alignment), the *w-/y-* prefix only marks the Sa role whereas the zero prefix marks all other three roles. Both morphemes thus show [Sa] vs. [So, A, O] alignment. The zero suffix aligns neutrally. In the other two rows, the *w-/y-* prefix is used for the A role as well, whereas the zero prefix is only used in So and O role. Both morphemes consequently show [Sa, A] vs. [So, O] alignment, whereas the zero suffix again aligns neutrally. Table 9 summarises the total alignment ratios for third person singular, showing that here, [Sa] vs. [So, A, O] alignment is strongest, followed by neutral and split-S alignment.

Alignment	Ratio
[Sa] vs. [So, A, O]	44,44%
[Sa, So, A, O]	33,33%
[Sa, A] vs. [So, O]	22,22%

Table 9: Alignment ratios for Kadiwéu third person singular

The alignment of the first person plural in Kadiwéu has been extensively discussed in chapter 3 already. Additionally, every form that expresses a second person singular can also be used to express a second person plural, which means that the morpheme distribution and alignment ratios for second person plural are exactly the same as those for second person singular. For those reasons, I only repeat table 3 with the total alignment ratios for first person singular as table 10, and refer the reader to table 7 for the second person plural ratios.

Alignment	Ratio
[Sa, A] vs. [So, O]	38,33%
[So] vs. [Sa, A, O]	18,33%
[Sa] vs. [So, A, O]	16,66%
[O] vs. [Sa, So, A]	10%
[A] vs. [Sa, So, O]	8,33%
[Sa, So] vs. [A, O]	8,33%

Table 10: Alignment ratios for Kadiwéu first person plural

Third person plural, ultimately, like third person singular, has 36 possible combinations, presented in table 11.

A co-argument: O co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
1SG 2SG		A: *Ø-...-Ø*		O: *Ø-...-Ø*		
3SG		A: *o-y-...-Ø*		O: *Ø-...-Ø*		
1PL 2PL		A: *Ø-...-Ø*		O: *Ø-...-Ø*		
3PL		A: *o-y-...-Ø*		O: *Ø-...-Ø*		
Sa So			*n-...-aGa*			

Table 11: Morpheme distribution for Kadiwéu third person plural

In 66,66% of the cells – all those in the first, second, fourth and fifth rows – both the *n-* and the *-aGa* morphemes are only used for the Sa and So roles, whereas the A and O roles receive a zero prefix and suffix. These cells can thus be said to completely align [Sa, So] vs. [A, O]. In the other 12 cells, the *n-* and *-aGa* morphemes also align [Sa, So] vs. [A, O]. Both the *o-* and the *y-* morpheme are only used for the A role, aligning [A] vs. [Sa, So, O]. The zero prefix aligns [O] vs. [Sa, So, A], and the zero suffix [Sa, So] vs. [A, O]. Altogether, 75% of third person plural shows a pure double-oblique pattern, 16,66% aligns ergatively, and 8,33% aligns accusatively. These complete alignment ratios are summarised in table 12.

Alignment	Ratio
[Sa, So] vs. [A, O]	75%
[A] vs. [Sa, So, O]	16,66%
[O] vs. [Sa, So, A]	8,33%

Table 12: Alignment ratios for Kadiwéu third person plural

With the alignment ratios for the six grammatical persons in place, it is possible to compute an overall breakdown of the alignment system for Kadiwéu verbal cross-referencing. This result is shown in table 13.

Alignment	Ratio
[Sa, A] vs. [So, O]	33,29%
[Sa, So, A, O]	18,40%
[Sa, So] vs. [A, O]	14,93%
[Sa] vs. [So, A, O]	13,94%
[A] vs. [Sa, So, O]	10,21%
[So] vs. [Sa, A, O]	5,14%
[O] vs. [Sa, So, A]	4,10%

Table 13: Total alignment ratios for Kadiwéu verbal cross-referencing

6.3.2   Preliminary discussion and summary

The ratios in table 13 largely disprove Nevins and Sandalo's (2011) claim that Kadiwéu is an ergative language: only 10% of Kadiwéu data conforms to a canonically ergative [A] vs. [S, O] pattern. Canonically accusative characteristics are even weaker: only 4% of cross-referencing morphemes show [O] vs. [S, A] distribution. Instead, the most frequent alignment patterns in Kadiwéu seem to be neutral [S, A, O] alignment (good for almost 20% of the data), double-oblique alignment (with almost 15% of cases showing a pure [A, O] vs. [S] distribution), and split-S alignment (with 33% of the data presenting a clear [Sa, A] vs. [So, O] split).

When taking hybrid systems into account, the latter two patterns become even stronger. The [Sa] vs. [So, A, O] and the [So] vs. [Sa, A, O] patterns show both split-S and double-oblique characteristics: they treat Sa and So differently, and A and O in the same way. Therefore, I count them towards

both split-S and double-oblique alignment. When adding the percentages of these two systems to the aforementioned numbers, it can be said that roughly 52,5% of Kadiwéu verbal cross-referencing observes a split-S pattern, and almost 35% shows a double-oblique system.

In sum, this chapter showed that Kadiwéu argument marking is subject to relatively strong hierarchical effects, showing all four diagnostics of hierarchical systems to a greater or lesser extent. Furthermore, Nevins and Sandalo's (2011) claim about the general ergativity of Pilagá was refuted: instead, split-S and double-oblique are the most widespread alignment patterns throughout the verbal cross-referencing system, with ergative patterns only accounting for around 10% of the system.

Chapter 7   Toba

7.1   Argument marking

7.1.1   Introduction

Like Kadiwéu, Toba uses verbal affixes to cross-reference its arguments. Only one cross-referencing prefix can appear on the verb at any given time, but the combination of a cross-referencing prefix and suffix is possible. Because of this extensive cross-referencing, overt NP or pronominal arguments are only obligatory when they function as O, as S and A they are optional (Carpio 2007: 117).

Toba's argument marking system has been analysed in a number of different ways. Carpio (2007: 111), for instance, treats it as a split system conditioned by the referential hierarchy. According to her, SAPs align accusatively, with S and A being marked through a set of prefixes and O being indicated with a suffix. Third persons in her view show tripartite alignment, with different sets of prefixes for S and A, and again a suffix for O. Messineo (2002: 50), on the other hand, posits an active-inactive system, where Sa aligns with A and So with O. This section presents Carpio's (2007), Censabella's (2006), and Messineo's (2002) data on Toba argument marking in intransitive, monotransitive and ditransitive clauses, and discusses the referential hierarchy effects that can be perceived.

7.1.2   Intransitive clauses

Intransitives, firstly, are analysed by Messineo (2002: 50) as showing a split between agentive and inagentive. The standard pattern of the cross-referencing markers[1] for Sa arguments is illustrated in (29a-f). Singular SAPs are indicated through a prefix, plural SAPs through a combination of this prefix with a number marking suffix (29a-c; 30b).

Third person, according to Messineo's (2002: 53) and Carpio's (2007: 143) data, can receive a zero prefix or a *d-/r-* prefix. However, it is interesting to note the formal similarity between the Toba *d-* prefix and the Kadiwéu *d:-* inverse morpheme/semantic role marker. Because of this formal similarity, I propose to analyse the Toba intransitive forms with the *d-* morpheme as showing a zero person pre-

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[1] In Toba examples, set I morphemes are those used to refer to Sa and A arguments, set II morphemes refer to So and O arguments.

fix, and a semantic role marker *d-/r-* indicating that the argument cross-referenced on the verb is in a way affected by the action. Third person plural, lastly, is indicated with the zero prefix, optionally the *d-/r-* morpheme, and a number suffix (30a).

(29)   Toba (Guaykuruan, Messineo 2002: 52-3)

     a) *s-asot*

        1.I-dance

        'I dance'

     b) *'aw-asot*

        2.I-dance

        'you (sg.) dance'

     c) *qaw-asoch-i*

        2PL.I-dance-2PL.I

        'you (pl.) dance'

     d) *Ø-de-shiwaGan*

        3.I-INV-smoke

        'he/she smokes'

(30)   Toba (Guaykuruan, Carpio 2007: 115-9)

     a) *nache*   *Ø-r-atawe...-ʔ-...k^2*

        EXPL.CONJ   3.I-INV-flee-PL

        'Then they flee.'

     b) *sa-pya-q-ta-ñi*

        1.I-walk-PL-PROG-DRC.DOWN

        'we walk'

Additionally, three minor patterns appear. A number of verbs, firstly, use a *qo-* prefix for second person singular and plural instead of the regular *qaw-* prefix (31a-b). Third persons show two irregularities: on the one hand, verbs with semantics that involve locomotion can mark their third person Sa with a *t-* prefix (31c),[3] and on the other hand, third person plural Sa arguments sometimes occur without overt plural marking (31d).

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[2] When a morpheme is infixed within another morpheme, this is indicated by inserting the ellipsis mark (...) before and after the infix. In this example, the *-ʔ-* is infixed within the stem *atawek*. The first gloss ('flee') refers to the stem, the second one ('PL') to the infix.

[3] Although verbs of movement were taken in Kadiwéu to belong to the So-group, Carpio (2007: 143) includes them in the class of intransitives expressing a process, which typically take Sa arguments. Additionally, first and second person are always marked on these verbs with set I (agentive) morphemes rather than set II markers according to Carpio's (2007: 139-40) examples.

(31)   Toba (Guaykuruan, Carpio 2007: 126; 137-9)

    a) *qo-hek*

      2.ɪ-leave

      'you leave'

    b) *qo-hik-i*

      2.ɪ-leave-2PL.ɪ

      'You (pl.) leave'

    c) *t-a-wga*   *ra*   *Baigorria*

      3.ɪ-go-DRC.OUT.AL   DEM.STAND   Baigorria

      'He goes to Baigorria.'

    d) *Ø-r-oymi*   *ana*   *ʔayat*

      3.ɪ-INV-buzz DEM.PRX   mosquitoes

      'The mosquitoes buzz.'

When it comes to patientive intransitives, Toba displays two different marking patterns. On the one hand, SAP So arguments are, according to Carpio (2007: 113), standardly marked with the same morphemes as their Sa counterparts (32a-d), whereas third person So is always marked with the *w-* prefix (32e).

(32)   Toba (Guaykuruan, Carpio 2007: 141)

    a) *s-asow*

      1.ɪ-be.hurt

      'I am hurt'

    b) *s-aʔaw-aq*

      1.ɪ-be.first-PL

      'we go first'

    c) *aw-aron*

      2SG.ɪ-get.married

      'you are getting married'

    d) *qaw-asoʔo...-y-...lek*

      2PL.ɪ-be.guilty-2PL.ɪ

      'you (pl.) are guilty'

    e) *w-asoʔolek*

      3.ɪɪ-be guilty

      'he/she is guilty'

Messineo (2002: 51), on the other hand, observes that for some patientive intransitives, all grammatical persons receive different marking than they do for agentive intransitives (33a-f). What is inter-

esting here is that in all SAP prefixes (33a-d), the *d-* segment[4] occurs (first person singular *zi-* can according to Messineo (2002: 50) be seen as the fusion of first person singular set II marker *i-* and *d-*). Although both Carpio (2007) and Messineo (2002) see this *d-* as a part of the set II person morphemes, I believe it can be analysed as a separate morpheme, as was done for Kadiwéu. This observation strengthens the idea that *d-* is a semantic role marker in intransitive clauses rather than a third person morpheme.

For third person So, then, examples are found of this being zero-marked (with, optionally, the inverse suffix *d-/r-*) or receiving an *i-* prefix rather than the *w-* prefix (33e-f). For third person plural no examples are given, but Carpio (2007: 119) posits that the same prefixes can be used, with either a *-'* suffix or a zero suffix.

(33)   Toba (Guaykuruan, Messineo 2002: 50-4)
   a) *zi-lew*
      1.II.INV-die
      'I die'
   b) *'a-d-lew*
      2SG.II.INV-die
      'you die'
   c) *qa-d-lew*[5]
      1PL.II.INV-die
      'we die'
   d) *qa-d-lew-i*
      2PL.II.INV-die-2PL
      'you (pl.) die'
   e) *i-lew*
      3.II-die
      'he/she dies'
   f) *Ø-wetañi*
      3.II-be.under
      'it is downstairs'

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[4] The *d-* and the *r-* seem to be allophones of the same morpheme, or perhaps even ortographical variants used by the different authors referred to here. Carpio (2007) and Censabella (2006) consistently use the *qar-* and *ar-* forms, as opposed to the *qad-* and *ad-* forms in Messineo (2002).

[5] No examples of plural SAP So arguments with this set of markers are given in Messineo (2002). Therefore, example sentences (31c-d) were formed by applying the morphemes given in the table in Messineo (2002: 50) to the infinitives used by Messineo (2002: 51) for the examples with singular SAPs.

7.1.3 Transitive clauses

Moving on to transitive clauses, the majority of verbs only marks its A, both in direct and inverse configurations. This means that third person A arguments are always marked, even when they act on SAPs (34e-f). If the A only needs a prefix, as is the case in (34c), for example, the -'/-ʔ suffix can be used to mark plural number for the O. This pattern is exemplified in (34a-f) for mixed scenarios, in (35a-b) for non-local scenarios, and in (36a) for local scenarios (although Carpio 2007, Censabella 2006, and Messineo 2002 all provide little data concerning local scenarios).

(34)   Toba (Guaykuruan, Carpio 2007: 114-6)

    a) *s-akona   ara   i-tegete*

       1.I-take   DEM.STAND   1SG.POSS-rattle

       'I take my rattle.'

    b) *sa-cheg-en-aq-tak   na   mañik lapat*

       1.I-cut-TR-PL-PROG   DEM.PRX rhea   meat

       'We are eating the rhea meat.'

    c) *ʔaw-alawa...-ʔ-...t   nachika-waʔ*

       2SG-kill-3PL.II   EMPH.DEM.PRES-DU

       'You kill those two.'

    d) *qaw-aloñ-i   na   qare-leʔ*

       2PL.I-revive-2PL.I   DEM.PRX 1PL.POSS-fire

       'You (pl.) revive our fire.'

    e) *ʔam   y-alematan   na   nshaGa*

       PRO:2SG   3SG.I-annoy DEM.PRX mud

       'The mud annoys you.'

    f) *ayim   i-maqtak   na-maʒi-pi*

       PRO:1SG   3SG.I-despise DEM.PRX-3-COL

       'They despise me.'

(35)   Toba (Guaykuruan, Carpio 2007: 118)

    a) *ñi   nsoq y-akon-a   ka-m   fosforole-k*

       DEM.SIT youth 3.I-take-AL   DEM.ABS-TOP   match.DIM-M

       'The youngling takes a match.'

    b) *qa-y-sok   ana   ar-apike*

       IS-3.I-vaccinate   DEM.PRX 2SG.POS-arm

       'They vaccinated your arm.'

(36)   Toba (Guaykuruan, Carpio 2007: 117)

    a) *se-shit-aq   ra   qami   se-tawan-a...-ʔ-...q*
       1.I-can-PL   SUB   PRO:2PL   1.I-help-1PL.I-2PL.II
       'We can help you (pl.)'

It is, however, noted by Carpio (2007: 144), Censabella (2006: 96) and Messineo (2002: 50) that a second system exists as well. For a restricted class of verbs, the referential hierarchy influences cross-referencing in mixed scenarios. First person singular, first person plural, and second person singular O can here be cross-referenced with the set II markers in 3 => SAP scenarios, with the third person A argument being zero-marked. For second person plural, neither author provides data for this construction, and Carpio (2007: 144) implies that it is inexistent.

This pattern is exemplified in (37a-c). Once again, in all these constructions the morpheme *d-/r-* (or a trace of it, in the *zi-* morpheme) is present. Since it here indicates that the SAP cross-referenced on the verb is being acted upon by a third person (which ranks lower on the referential hierarchy), this morpheme can in transitive clauses be seen as a legitimate inverse marker. Consequently, a SAP > 3 hierarchy can be established for cross-referencing in this restricted class of Toba verbs. None of the authors gives examples or mentions the existence of this construction in local scenarios, which leads to the assumption that there is no internal hierarchy between first and second person.

(37)   Toba (Guaykuruan, Carpio 2007: 145)

    a) *Ø-zi-tawan*
       3.I-1.II-help
       'he/she helps me

    b) *Ø-'a-r-tawan*
       3.I-2.II-INV-help
       'he/she helps you (sg.)'

    c) *Ø-qa-r-tawan*
       3.I-1PL.II-INV-help
       'he/she helps us'

Carpio (2007: 144) argues that the forms in (37) are intransitive because of the absence of the third person A prefix *i-*, which according to her "indicates high transitivity". Since this prefix can also cross-reference third person So-arguments (see 33e), I do not agree with an analysis of this morpheme as an indicator of transitivity. Instead, I argue that since the O morphemes are added to the same verb stem as the A markers without the intervention of detransitivising morphemes, and since neither argument is removed from the core (judging from Carpio's (2007: 145) translations), these constructions retain their transitivity.

7.1.4 Ditransitive clauses

In ditransitive clauses, ultimately, the A is always prefixed to the verb, as in most monotransitive clauses. The O argument is never overtly cross-referenced, and a suffix *-i* appears on the verb to indicate the presence in the argument structure of an E argument (Carpio 2007: 151). When this E is a SAP, it is marked with the suffix *-ʔa* (38a), whereas third person Es are zero-marked (38b).

(38)   Toba (Guaykuruan, Carpio 2007: 152-3)

     a) *nache*   *ayim*   *y-añ-a*   *so-taʔe*   *alom-oleʔ*[6]

        EXPL.CONJ   PRO:1SG   3.I-give.BEN-SAP DEM.DIST-DIM   money-DIM

        'Then he gives me that little bit of money.'

     b) *nache*   *y-an*   *na*   *n-oGonaGat*   *y-añ-i*   *na*   *qom*

        EXPL.CONJ   3.I-give   DEM.PRX 3.POSS-weapon   3.I-give-BEN DEM.PRX native

        'Then they give weapons, they give them to the natives.'

7.1.5 Constituent order

Before assessing the the presence and strength of referential hierarchy effects in Toba, I will make some remarks about constituent order. According to Carpio (2007: 113), each transitive clause must contain an overt NP or pronoun referring to the O argument. She argues that whenever this O is a pronoun, regardless of its grammatical person, it precedes the verb (shown in 39a for a SAP pronoun), whereas lexical NPs follow it (39b).

(39)   Toba (Guaykuruan, Carpio 2007: 114-5; 176)

     a) *ayim*   *i-maqtak*   *na-maʒi-pi*

        PRO:1SG   3SG.I-despise DEM.PROX-PRO:3-COL

        'They despise me.'

     b) *sa-cheg-en-aq-tak*   *na*   *mañik lapat*

        1.I-cut-TR-PL-PROG DEM.PROX   rhea   meat

        'We are eating the rhea meat.'

     c) *tʃaʔaʒe*   *so*   *i-keroʁonek-pi*   *sa-y-ʃet*   *neɣetʔona*

        COORD   DEM.DIST 1.POSS-old-COL NEG-3.I-can this

        'Because those old bosses of mine could not do this...'

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[6] According to Carpio (2007: 153), "the presence of the suffix *-i* 'recipient' can be inferred in [the form *y-añ-a*] from the palatalisation of the final consonant *-n* of the verb *y-an* 'give', which would not occur if only the [...] *-ʔa* suffix were present." Indeed, the palatalisation is absent from the from *y-an* in (38b), which lacks the *-i* suffix. Therefore, a better morpheme breakdown for the form *y-añ-a* would be *y-an-i-a*.

As in Kadiwéu, this could be seen as a trace of obviation: third person pronouns are typically more topical than full NPs, and as such behave like inherently more topical SAPs. Carpio does not, however, give any examples of clauses with third person pronoun O arguments in support of this claim. On the contrary, in (39c), taken from one of the stories Carpio (2007: 176) collected, the word *neɣetʔona*, glossed as the pronoun 'this', follows the verb *sayʃet* 'be unable to'. Therefore, this claim does not sound entirely convincing to me.

7.2   Evaluation: hierarchical effects

Most Toba verbs, according to Carpio (2007) and Censabella (2006: 85-6) follow a non-hierarchical system, marking Sa and So arguments in the same way, and marking only the A argument (and, when possible, the number of the O argument) in transitive clauses. A small subset of verbs, however, does show hierarchical effects: here, So arguments are treated differently from Sa arguments, and SAP O arguments in mixed scenarios are overtly cross-referenced with an So marker. Since verbs of this group, according to Censabella (2006: 86), are increasingly being adapted to those of the regular, non-hierarchical category, it can be assumed that these are remnants of an earlier hierarchical system that is disappearing at the moment.

The same conclusion can be drawn concerning the *d-/r-* prefix. This morpheme appears, amongst others, in inverse mixed scenarios with the aforementioned closed class of verbs, which is why I analyse it in these situations as an inverse marker. Its restricted use, and its seemingly high degree of integration with the patientive person marking prefixes (apparent from its fusion with the first person set II marker *i-*), lead me to conclude that this inverse marker is less vigourous in Toba than in Kadiwéu.

Thirdly, as mentioned and explained in 7.1.3, Toba maintains transitivity in inverse scenarios. Obviation, ultimately, is completely absent from verbal cross-referencing. Traces of it might be found in constituent order, if Carpio's (2007) claim concerning the position of third person pronouns is correct (which cannot be conclusively determined based on the limited evidence provided).

All in all, Toba cross-referencing conforms to three of the four diagnostics of hierarchical languages: referential hierarchy, maintenance of transitivity, and direction marking. Since direction marking and referential hierarchy effects are only present in a very limited class of verbs, this hierarchical system is rather weak in strenghth. In the next section, I move on to describing the alignment subsystems that are present in Toba.

7.3 Alignment systems

7.3.1 Data

Although it has been acknowledged by Messineo (2002: 50) and Carpio (2007: 111) that Toba cross-referencing is best defined as a split system, no fine-grained, morpheme-by-morpheme analysis of this system has been proposed yet. This is what I aim to do in the present section. The morpheme distribution for Toba first person singular is summarised in table 14.

A co-argument: O co-argument:	2SG	3SG	2PL	3PL
2SG				
3SG	A: *s-...-Ø*	A: *s-...-Ø*	A: *s-...-Ø*	A: *s-...-Ø*
2PL	O: *Ø-...- Ø*	O: *zi-/Ø-...-Ø*	O: *Ø-...- Ø*	O: *zi-/Ø-...-Ø*
3PL				
Sa	*s-...-Ø*			
So	*zi-/s-...-Ø*			

Table 14: Morpheme distribution for Toba first person singular

In the first and third columns (which account for half of the first person singular data), the *s-* prefix aligns [Sa, So, A] vs. [O], as does the zero prefix. The *zi-* prefix aligns [So] vs. [Sa, A, O], and the zero suffix aligns neutrally. In the other two columns, The only difference is that the *zi-* prefix aligns [Sa, A] vs. [So, O]. The average of these ratios equals the total alignment system for first person singular, as summarised in table 15.

Alignment	Ratio
[O] vs. [Sa, So, A]	50%
[Sa, So, A, O]	25%
[Sa, A] vs. [So, O]	12,5%
[So] vs. [Sa, A, O]	12,5%

Table 15: Alignment ratios for Toba first person singular

Five different morphemes are used to indicate the second person singular: the zero prefix and suffix, and the prefixes *a-, aw-*, and *qo-*. They are, as for the first person singular, distributed in two different ways when comparing all possible scenarios, as shown in table 16.

A co-argument:	1SG	3SG	1PL	3PL
O co-argument:				
1SG				
3SG	A: *aw-...-Ø*	A: *aw-...-Ø*	A: *aw-...-Ø*	A: *aw-...-Ø*
1PL	O: *Ø-...- Ø*	O: *a-/Ø-...-Ø*	O: *Ø-...- Ø*	O: *a-/Ø-...-Ø*
3PL				
Sa		*aw-/qo-...-Ø*		
So		*a-/aw-...-Ø*		

Table 16: Morpheme distribution for Toba second person singular

In half of the cells here – the first and third columns – the *aw-* and the zero prefix align [O] vs. [Sa, So, A]. The zero suffix aligns neutrally. The last two prefixes, *qo-* and *a-*, respectively align [Sa] vs. [So, A, O] and [So] vs. [Sa, A, O]. In the other half of the cells, the only difference is that *a-* aligns [Sa, A] vs. [So, O]. Table 17 summarises the whole alignment system for Toba second person singular.

Alignment	Ratio
[O] vs. [Sa, So, A]	40%
[Sa, So, A, O]	20%
[Sa] vs. [So, A, O]	20%
[Sa, A] vs. [So, O]	10%
[So] vs. [Sa, A, O]	10%

Table 17: Alignment ratios for Toba second person singular

The five morphemes used to cross-reference third person singular (*t-*, *i-*, *w-* and the zero prefix and suffix), then, again show two different distributions, as can be seen in table 18. The 12 cells in the third and the sixth rows account for 33,33% of the alignment pattern of this grammatical person, the 24 cells in the other four rows for the other 66,66%.

A co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
O co-argument:						
1SG						
2SG	A: *Ø-/i-...-Ø*			O: *Ø-...-Ø*		
3SG	A: *i-...-Ø*			O: *Ø-...-Ø*		
1PL						
2PL	A: *Ø-/i-...-Ø*			O: *Ø-...-Ø*		
3PL	A: *i-...-Ø*			O: *Ø-...-Ø*		
Sa	*Ø-/t-...-Ø*					
So	*Ø-/w-/i-...-Ø*					

Table 18: Morpheme distribution for Toba third person singular

In the latter group of cells, the zero prefix and suffix align neutrally, in that they can be used to mark every grammatical role. The *t-* and *w-* prefixes respectively align [Sa] vs. [So, A, O] and [So] vs. [Sa, A, O], whereas the *i-* prefix is used to mark the So and A roles only, aligning [So, A] vs. [Sa, O].

In the other third of the cells, all morphemes but the zero prefix align in the same way. Since this zero prefix cannot be used to mark a third person singular A acting on another third person O, it aligns [A] vs. [Sa, So, O] in these cases. Table 19 presents the total alignment system of this grammatical person.

Alignment	Ratios
[Sa, So, A, O]	33,33%
[Sa, O] vs. [So, A]	20%
[So] vs. [Sa, A, O]	20%
[Sa] vs. [So, A, O]	20%
[A] vs. [Sa, So, O]	6,66%

Table 19: Alignment ratios for Toba third person singular

First person plural, subsequently, can be expressed through six different morphemes: two overt prefixes (*s-* and *qa-*), two overt suffixes (*-q* and *-'*), and the zero prefix and suffix. As for the singular SAPs, two kinds of cells can be seen in table 20, both of which explain half of the alignment system for this person.

A co-argument:	2SG	3SG	2PL	3PL
O co-argument:				
2SG				
3SG	A: *s-...-q*	A: *s-...-q*	A: *s-...-q*	A: *s-...-q*
2PL	O: *Ø-...-'*	O: *Ø-/qa-...-'/-Ø*	O: *Ø-...-'*	O: *Ø-/qa-...-'/-Ø*
3PL				
Sa		*s-...-q*		
So		*s-/qa-...-Ø/-q*		

Table 20: Morpheme distribution for Toba first person plural

In the cells in the first and third columns, the *s-, Ø-, -q*, and *-'* morphemes all align [O] vs. [Sa, So, A]. The other two morphemes, *qa-* and *-Ø*, both align [So] vs. [Sa, A, O]. In the two other columns, *qa-* and *-Ø* can also be used to mark an O, aligning [Sa, A] vs. [So, O]. The average ratios of these alignment patterns across all cells for first person plural can be seen in table 21.

Alignment	Ratio
[O] vs. [Sa, So, A]	66,66%
[Sa, A] vs. [So, O]	16,66%
[So] vs. [Sa, A, O]	16,66%

Table 21: Alignment ratios for Toba first person plural

Second person plural, then, is the only person in Toba where no splits based on the grammatical person of the co-argument can be seen, since it does not, according to the available data, participate in the hierarchical system in which the other SAPs take part. Therefore, the morphemes used to indicate second person plural (*qaw-, qa-, qo-, Ø-, -i* and *-'*) align in the same way in every cell in table 22.

A co-argument:	1SG	3SG	1PL	3PL
O co-argument:				
1SG				
3SG		A: *qaw-...-i*		
1PL		O: *Ø-...-'*		
3PL				
Sa		*qaw-/qo-...-i*		
So		*qaw-/qa-...-i*		

Table 22: Morpheme distribution for Toba second person plural

Four of the six second person plural morphemes align in a straightforwardly accusative way: *qaw-,* and *-i* are used for all grammatical roles except for O, and *Ø-* and *-'* are, on the contrary, only used to mark the O role. The other two, *qo-* and *qa-*, respectively align [Sa] vs. [So, A, O] and [So] vs. [Sa, A, O]. This results in a pattern where accusative alignment accounts for 66,66% of second person plural data in Toba, whereas the two hybrid forms each explain 16,66% of this data, as summarised in table 23.

Alignment	Ratio
[O] vs. [Sa, So, A]	66,66%
[Sa] vs. [So, A, O]	16,66%
[So] vs. [Sa, A, O]	16,66%

Table 23: Alignment ratios for Toba second person plural

Third person plural, ultimately, is the only grammatical person for which there are four different ways in which the cross-referencing morphemes can be compared. The exact distribution of the six cross-referencing morphemes for third person plural in Toba (*i-*, *t-*, *w-*, *-'*, *Ø-* and *-Ø*) illustrated in table 24.

A co-argument:	1SG 2SG 3SG 1PL 2PL	3PL
O co-argument:		
1SG	A: *i-/Ø-...-'*	A: *i-/Ø-...-'*
2SG	O: *Ø-...-'*	O: *Ø-...-Ø*
3SG	A: *i-...-'/- Ø*	A: *i-...-'/- Ø*
	O: *Ø-...-'*	O: *Ø-...-Ø*
1PL	A: *i-/Ø-...-'*	A: *i-/Ø-...-'*
2PL	O: *Ø-...-'*	O: *Ø-...-Ø*
3PL	A: *i-...-'/- Ø*	A: *i-...-'/- Ø*
	O: *Ø-...-'*	O: *Ø-...-Ø*
Sa	*Ø-/t-...-Ø/-'*	
So	*Ø-/w-/i-...-Ø/-'*	

Table 24: Morpheme distribution for Toba third person plural

In twenty cells, those in the first five columns of the first, second, fourth and fifth rows, the zero prefix and the -*'* suffix align neutrally. The other morphemes all show different alignment patterns: *t-* aligns [Sa] vs. [So, A, O], the zero suffix aligns [Sa, So] vs. [A, O], *i-* aligns [Sa, O] vs. [So, A] and *w-* aligns [So] vs. [Sa, A, O]. The *t-*, *i-* and *w-* prefixes align in the same way in all cells, and will thus not be further discussed.

In the ten cells in the first 5 columns of the third and the sixth rows, the zero prefix aligns [A] vs. [Sa, So, O], the zero suffix aligns [O] vs.[Sa, So, A] and -*'* aligns neutrally. In the last cells of the first, second, fourth and fifth rows, (four out of the 36), the zero prefix and suffix respectively align neutrally and ergatively. The -*'* suffix aligns accusatively. In the last two cells, the sixth cells of the third and sixth columns, the zero prefix and suffix respectively align ergatively and neutrally. The -*'* suffix again aligns accusatively. Table 25 shows the total alignment ratios for this person.

Alignment	Ratio
[Sa, So, A, O]	26,85%
[Sa, O] vs. [So, A]	16,66%
[So] vs. [Sa, A, O]	16,66%
[Sa] vs. [So, A, O]	16,66%
[Sa, So] vs. [A, O]	9,26%
[O] vs. [Sa, So, A]	7,40%
[A] vs. [Sa, So, O]	6,48%

Table 25: Alignment ratios for Toba third person plural

Now the alignment subsystems for every grammatical person in Toba have been established, they can be averaged in order to create a picture of the alignment of Toba cross-referencing as a whole. This breakdown is presented in table 26.

Alignment	Ratio
[O] vs. [Sa, So, A]	38,46%
[Sa, So, A, O]	17,53%
[So] vs. [Sa, A, O]	15,42%
[Sa] vs. [So, A, O]	12,22%
[Sa, A] vs. [So, O]	6,53%
[Sa, O] vs. [So, A[	6,11%
[A] vs. [Sa, So, O]	2,19%
[Sa, So] vs. [A, O]	1,54%

Table 26: Total alignment ratios for Toba verbal cross-referencing

7.3.2   Preliminary discussion and summary

In Toba, accusativity is clearly the strongest alignment pattern: it accounts for almost 40% of the total system. Active-inactive patterns account for around a third of the data, and double-oblique pat-

terns for about 30%. Neutral alignment explains 17,5% of the Toba data, and ergative characteristics are nearly absent: they only constitute about 2% of the alignment system.

Additionally, Toba shows a number of morphemes, around 6%, aligning [Sa, O] vs. [So, A]. Specifically, the third person prefix *i-* can be used to mark So and A arguments as in (40a-b), but is never found marking Sa or O arguments.

(40)   Toba (Guaykuruan, Messineo 2002: 51-5)

        a) *i-lew*

          3.ɪɪ-die

          'he/she dies'

        b) *i-men*

          3.ɪɪ-buy

          'he buys (something)'

This alignment pattern has to the best of my knowledge not yet been noted in any language, and is discussed in further detail in section 10.1.2.

Chapter 8   Pilagá

8.1   Argument marking

8.1.1   Introduction

Pilagá, the third language under discussion, is closely related to Toba (with which it forms the Toba-Pilagá subbranch of the Southern Guaykuruan branch). Nevertheless, their cross-referencing systems differ considerably. Pilagá verbs, for instance, can cross-reference person and number of A and O arguments simultaneously (Vidal 2009-10: 162).[1]

Additionally, it must be noted that in some cases, intransitive arguments can be cross-referenced with possessive prefixes, rather than actual verbal person markers (41a). This anomalous pattern will, however, not be taken into consideration when dissecting the alignment system of Pilagá. The rest of this section exemplifies how exactly verbal cross-referencing in Pilagá operates in intransitive, monotransitive and ditransitive clauses.

(41)   Pilagá (Guaykuruan, Vidal 2001: 139)
      a) *le-wota-we*
         3.POSS-walk-DRC.IN
         'he gets into'

8.1.2   Intransitive clauses

The sole argument of an intransitive verb, firstly, can be cross-referenced with a person marker from one of two sets. In (42a-f), the set I markers are shown, which are generally used with verbs which imply agentivity and volition on the part of the participant (such as *kiyavan* 'listen'), or in other words, for typical Sa arguments.

---

[1] In Pilagá examples, set I morphemes refer to Sa and A arguments, set II morphemes are used for So and A arguments, and set III morphemes refer to O and E arguments.

(42)   Pilagá (Guaykuruan, Vidal 2001: 139-41)

        a) *se-kiyavan-tak*

           1.ɪ-listen-PROG

           'I am listening'

        b) *aw-kiyava(n)-tak*

           2.ɪ-listen-PROG

           'you are listening'

        c) *yi-kiyava(n)-tak*

           3.ɪ-listen-PROG

           'he/she is listening'

        d) *se-kiyavan-qa-tak*

           1.ɪ-listen-1PL-PROG

           'we are listening'

        e) *aw-kiyavan-i-tak*

           2.ɪ-listen-2PL-PROG

           'you (pl.) are listening'

        f) *yi-pičiči-di-ñi*

           3.ɪ-wake.up-PL-ASP

           'they woke up'

As in Kadiwéu and Toba, a number of additional, several exceptions are found. These include the use of the prefix *o-* instead of *aw-* for second person (43a), the use of *t-* (43b) or the zero prefix (43c) instead of *i-* for third person, the use of *-ʼ* instead of *-d* to mark plural number for third person (43d), and the use of *di-...-Ø* for third person plural (43e).

(43)   Pilagá (Guaykuruan, Vidal 2001: 140; 154; 157-8)

        a) *o-k...-y-...ewo*

           2.ɪ-go-PL

           'you (pl.) leave'

        b) *t-ačin-yi*

           3.ɪ-dive-DRC

           'he/she dived into'

         c) *Ø-ek*

           3.ɪ-go

           'he/she leaves'

         d) *ya-la...-ʼ-...q*

           3.ɪ-yell-PL

           'they yell'

         e) *di-kiyavan-tʼape*

           3PL.ɪ-listen-PROG

           'they are listening'

Set II markers, on the other hand, are typically used when the S is non-volitional or patientive and for some verbs of physical movement (44a-g). The only irregularity found here is that the third person plural can receive a zero suffix, rather than plural suffix *-d* (44g).

(44)   Pilagá (Guaykuruan, Vidal 2001: 141-42; 156)

         a) *ñ-obɨd*
            1.II-arrive
            'I arrive'

         b) *an-obɨ'*
            2.II-arrive
            'you arrive'

         c) *n-obɨ'*
            3.II-arrive
            'he/she arrives'

         d) *ñi-bɨed-qa-wo*
            1.II-come-PL-DRC
            'we arrive'

         e) *an-atovo-i-ge'*
            2.II-spit-PL-DRC
            'you (pl.) spit'

         f) *n-atovo-de-ge'*
            3.II-spit-PL-DRC
            'they spit'

         g) *n-ed-wo*
            3.II-come?[2]-DRC
            'they arrive'

This distinction between set I and set II roughly corresponds to the division between Sa and So as it was noted for Kadiwéu and the subset of verbs with hierarchical marking in Toba. According to Vidal (2001), however, there is a large class of verbs that can take both set I and set II morphemes, such as *noma* 'know', (45a-b).

(45)   Pilagá (Guaykuruan, Vidal 2001: 200)

         a) *ña-nom-ta*
            1.II-know-RES
            'I know'

---

[2] The question mark is taken over from the original source (Vidal 2001: 142).

b) *sa-noma*

1.ɪ-know

'I have knowledge (i.e. I am capable)'

8.1.3 Transitive clauses

In transitives,[3] subsequently, both A and O are typically cross-referenced, regardless of the type of scenario. A arguments are marked with set I or II prefixes – again, some verbs consistently occur with one set whereas others can vary – whereas a third set of morphemes (which sometimes, but not always, correspond to the set II morphemes) is used for O arguments. O prefixes precede A prefixes in the linear verb form.

In (46a-c), the pattern for direct mixed scenarios is shown. The SAP A is cross-referenced as if it were an S, and the third person O receives a zero prefix. According to Vidal (2001: 162), it can be marked for singular or plural through an *-a* or a *-lo* prefix, but she does not give any examples of this in mixed scenarios.

(46)　　　Pilagá (Guaykuruan, Vidal 2001: 144-6)

　　　　a) *Ø-ñi-čilan*

　　　　　3.ɪɪɪ-1.ɪɪ-wash

　　　　　'I wash him'

　　　　b) *Ø-s-e'et*

　　　　　3.ɪɪɪ-1.ɪ-fix

　　　　　'I fix him/her'

　　　　c) *Ø-aw-lota*

　　　　　3.ɪɪɪ-2.ɪɪ-look

　　　　　'you look at him'

In inverse mixed scenarios, the third person A is marked with the same morphemes that are used for third person S. When the O is a first or second person singular (47a-b), it can either receive an overt cross-referencing prefix (and, optionally, the singular suffix *-a*, again not exemplified in Vidal 2001), or it can be zero-marked on the verb and instead be expressed through a free pronoun (Vidal

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[3] Not all possible combinations of A and O morphemes in Pilagá transitive clauses will be exemplified here. This is partly for reasons of space, since there are too many different options to express the same scenario. A second person singular acting on a third person plural, for instance, can be indicated in six different ways: with either of the three second person singular morphemes *aw-*, *an-*, or *o-*, and with or without the optional plural O morpheme *-lo*. On the other hand, Vidal (2001), from which most data are taken, does not exemplify all these scenarios herself. In the morpheme distribution tables in section 8.3, however, all possible morphemes for every scenario can be seen.

2001: 143). If the O is a plural SAP, it is obligatorily expressed with a pronoun, and never receives an overt prefix (47c).

(47)   Pilagá (Guaykuruan, Vidal 2001: 144-6)

        a) *yi-n-qopita*
            1.III-3.II-like
            'he likes me'

        b) *an-i-lota*
            2.III-3.I-look
            'he looks at you (sg.)'

        c) *am'i   yi-lot...-d-...a*
            PRO:2PL   3.I-look-3PL.I
            'they look at you (pl.)'

In local scenarios, argument marking is rather similar: both A and O are typically cross-referenced (48a-c). Again, when the O is a plural SAP, it receives a zero prefix on the verb, although it can still receive the plural suffix *-lo* (48e). In these cases, the O is expressed with a personal pronoun. For singular SAP O arguments, either the pronoun or the cross-referencing affix can be used (48d).

(48)   Pilagá (Guaykuruan, Vidal 2001: 144-6, 165)

        a) *an-ñi-qotovon*
            2.III-1.II-wake.up
            'I wake you up'

        b) *an-s-e'et-aq*
            2.III-1.I-fix-1PL.I
            'we fix you'

        c) *ñi-aw-lota*
            1.III-2.I-look
            'you look at me'

        d) *hayem   Ø-aw-lota*
            PRO:1SG   1.III-2.I-look
            'you look at me'

        e) *qom'i   Ø-an-qopita-lo*
            PRO:1PL   1PL.III-2.II-like-1PL.III
            'you like us'

In non-local scenarios, ultimately, the third person O never receives an explicit person prefix. It can only be optionally marked for number, with the *-a* (49a) or *-lo* (49b) suffixes. The third person A is always overtly cross-referenced on the verb.

(49)   Pilagá (Guaykuruan, Vidal 2001: 163-4)

    a) *yi-ketap-sem-a*   *so'*   *yawo*

     3.I-point-DRC.UP-3SG.III CLT   woman

     'He pointed up to the woman (who was up in a tree).'

    b) *yi-ketapi-sem-lo*   *so'*   *yawo-dipi*

     3.I-point-DRC.UP-3PL.III CLT   womal-COL

     'He points up at the women.'

As was just illustrated, third person O arguments always receive a zero prefix. This is explained by Vidal (2001: 304) by recurring to the referential hierarchy: since SAPs outrank third persons, this would correctly predict the absence of an O morpheme in SAP => 3 scenarios. This analysis is contradicted by three facts, however.

Firstly, although third person O arguments never receive an overt prefix, their number can always be indicated through a suffix, as is the case for SAP O arguments. In 3 => SAP scenarios, secondly, the third person A is always indicated on the verb regardless of its being hierarchically inferior to the O, whereas in a typical hierarchical system only the SAP O would be present. Thirdly, SAP O arguments can also optionally be zero-marked, and are even obligatorily so when plural. This is the case even when their co-argument is a third person, so that it is possible to express a 3 => 1 scenario, for example, through only the third person A prefix. Therefore, I propose that the Pilagá third person O marker simply happens to be a zero morpheme by chance, rather than being suppressed because of its low position on the referential hierarchy.

8.1.4   Ditransitive clauses

Ditransitive clauses, then, are indicated with the verbal suffix *-em* on the verb, and can only cross-reference two of their three arguments. According to Vidal's (2009-10: 161-4) data, indicating the O is prohibited (50b), so that A and E are always cross-referenced.

(50)   Pilagá (Guaykuruan, Vidal 2009-10: 161-4)

    a) *yi-aw-an-em*   *so'*   *pan*

     1.III-2.I-give-BEN CLT   bread

     'You give me bread.'

    b) **an-sa-nem* *da's*   *iyavawa*

     2.III-1.I-give   CLT   person

     'I give you to that person.'

    c) *s-'aqtavan-em*   *so'*   *ñi-tesoqo*

     1.I-say-BEN   CLT   1.POSS-uncle

     'I say something to my uncle.'

The E argument is indicated with a set III prefix, compared to a set I or set II prefix for the A. Whenever the E is third person, it is zero-marked on the verb and lexicalised with a pronoun or an NP (50c).

8.1.5   Constituent order

A last point of attention is the order of constituents in transitive clauses. As in Kadiwéu, explicit third person O arguments typically follow the verb (51b) whereas explicit SAP O arguments always precede the verb (51a). This distribution might point towards a SAP > 3 hierarchy governing constituent order. The only case in which a third person O can precede the verb is when the A is an indefinite or unfocused third person (51c).

(51)   Pilagá (Guaykuruan, Vidal 2001: 304-5; 2009: 164)
         a) *amii'*   *si-yavana-lo*
            PRO:2PL   1.I-call-2PL.III
            'I call you (pl.)'
         b) *Ø-s-e'et*   *do-ho'*
            3.III-1.I-fix   CLT-DEM
            'I fix him.'
         c) *hadi'* *yawo*   *qo-y-alat*
            DEM.F woman   IS-3.I-kill
            'Somebody killed the woman.'

I propose to analyse this once again in terms of obviation: if the most salient, proximate, third person acts upon the least salient, obviative third person (a direct scenario), the O follows the verb. If, however, the proximate argument is being acted upon by the obviative, this third person can behave like higher-ranking, SAP O arguments and precede the verb instead.

8.2   Evaluation: hierarchical effects

With these data presented and explained, I now turn to evaluating whether or not Pilagá can be said to show a hierarchical system. The semantic hierarchy, firstly, does not seem to influence verbal cross-referencing. Although Vidal (2001: 304) argues that a hierarchy ranking SAPs over third persons is necessary to account for the zero-marking of third person O arguments, I have refuted this argument, instead simply positing that the set III prefix for third person singular and plural is always a zero mor-

pheme. In constituent order, however, this SAP > 3 hierarchy does seem to play a role: SAPs consistently occur in preverbal position, whereas most third persons appear postverbally.

Secondly, obviation is equally absent from verbal morphology. In non-local scenarios, no distinction between discourse-salient and non-discourse-salient is made, since it is always the A that is marked with a prefix. Once again, obviation does seem to be at work when examining constituent order: when the most salient (higher-ranking) third person NP is being acted upon, it can be treated similarly to a first or second person O and precede the verb rather than follow it.

In terms of direction-marking, thirdly, no single morpheme can be seen as indicating direct or inverse scenarios. This function is assumed only by the person markers of the different sets: set I and II for A arguments and set III for O arguments.

The fourth characteristic, the expression of both direct and inverse scenarios through transitive clauses, is present in Pilagá, since both A and O are typically cross-referenced on the verb, regardless of their grammatical person. Nevertheless, the absence of both obviation and referential hierarchy effects on verbal cross-referencing makes it hard to argue in favour of an analysis of Pilagá verbal cross-referencing as a hierarchical system. One provision must be made, however: constituent order in Pilagá possibly shows traces of both the effects of a SAP > 3 hierarchy and obviation.

Now that it has been established that Pilagá cross-referencing cannot be described as a hierarchical system, it is time to move on to the question of which basic alignment systems are present.

8.3   Alignment systems

8.3.1   Data

As was done for Kadiwéu and Toba, this subsection presents the tables with the morpheme distributions and alignment ratios of all six grammatical persons in Pilagá. The morpheme distribution for first person singular, to begin with, can be found in table 27.

A co-argument:	2SG	3SG	2PL	3PL
O co-argument:				
2SG				
3SG	A: *s-/ñ-...-Ø*			
2PL	O: *ñ-/y-/Ø-...-Ø/-a*			
3PL				
Sa	*s-...-Ø*			
So	*ñ-...-Ø*			

Table 27: Morpheme distribution for Pilagá first person singular

Since no hierarchical effects are at work on Pilagá verbal cross-referencing, the person of the co-argument does not have any influence on how the first person singular is marked. Consequently, all cells in table 27 are the same. This is the case for every grammatical person in Pilagá.

Six different morphemes can be used to mark first person singular. The *s-* prefix functions as Sa and A, aligning [Sa, A] vs. [So, O]. The *y-* and zero prefixes and the *-a* suffix all align [O] vs. [Sa, So, A]. The *ñ-* prefix aligns [Sa] vs. [So, A, O], and the zero suffix, lastly, aligns neutrally. These patterns are summarised in table 28.

Alignment	Ratio
[O] vs. [Sa, So, A]	50%
[Sa, So, A, O]	16,66%
[Sa] vs. [So, A, O]	16,66%
[Sa, A] vs. [So, O]	16,66%

Table 28: Alignment ratios for Pilagá first person singular

Second person singular makes use of six morphemes as well. The ways in which they are distributed are illustrated in table 29.

A co-argument:	1SG	3SG	1PL	3PL
O co-argument:				
1SG				
3SG	A: *aw-/an-/o-...-Ø*			
1PL	O: *an-/Ø-...-Ø/-a*			
3PL				
Sa	*aw-/o-...-Ø*			
So	*an-...-Ø*			

Table 29: Morpheme distribution for Pilagá second person singular

The *aw-* and *o-* prefixes consistently mark Sa arguments and can also mark A arguments, but never So or O arguments, aligning [Sa, A] vs. [So, O]. The zero prefix and the *-a* suffix, secondly, both only mark O arguments, aligning [O] vs. [Sa, So, A]. The last two morphemes, *an-* and the zero suffix, respectively align [Sa] vs. [So, A, O] and [Sa, So, A, O]. Table 30 shows the alignment ratios for which these patterns account.

Alignment	Ratio
[Sa, A] vs. [So, O]	33,33%
[O] vs. [Sa, So, A]	33,33%
[Sa] vs. [So, A, O]	16,66%
[Sa, So, A, O]	16,66%

Table 30: Alignment ratios for Pilagá second person singular

Third person singular is again expressed through six different morphemes. The 36 possible ways of comparing scenarios involving a third person singular are presented in table 31, illustrating once again that the co-argument does not influence the way in which an argument is marked.

A co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
O co-argument:						
1SG						
2SG						
3SG			A: *y-/t-/n-/Ø -...-Ø*			
1PL			O: *Ø-...-Ø/-a*			
2PL						
3PL						
Sa			*y-/t-/Ø-...-Ø*			
So			*n-...-Ø*			

Table 31: Morpheme distribution for Pilagá third person singular

The *y-* and *t-* prefixes are both only used for Sa and A arguments, aligning [Sa, A] vs. [So, O]. The four other morphemes all show different alignment patterns: the zero prefix and suffix respectively align [So] vs. [Sa, A, O] and [Sa, So, A, O], the *-a* suffix aligns accusatively, and the *n-* is used for So and A arguments only, aligning [Sa, O] vs. [So, A]. The percentages of third person singular data for which these patterns account are summarised in table 32.

Alignment	Ratio
[Sa, A] vs. [So, O]	33,33%
[O] vs. [Sa, So, A]	16,66%
[So] vs. [Sa, A, O]	16,66%
[Sa, So, A, O]	16,66%
[Sa, O] vs. [So, A]	16,66%

Table 32: Alignment ratios for Pilagá third person singular

Moving on to the plural persons, first person plural also has six different morphemes by which it can be expressed. Their distribution is summarised in table 33.

A co-argument:	2SG 3SG 2PL 3PL
O co-argument:	
2SG	
3SG	A: *s-/ñ-...-aq*
2PL	O: *Ø-...-Ø/-lo*
3PL	
Sa	*s-...-aq*
So	*ñ-...-aq*

Table 33: Morpheme distribution for Pilagá first person plural

The *s-* prefix has the same distribution as it did for first person singular: [Sa, A] vs. [So, O]. The *ñ-* prefix, however, does not occur as an O anymore: it now aligns [So, A] vs. [Sa, O]. The plural morpheme *-aq*, then, is used as Sa, So, and A, whereas the *-lo* plural suffix is only used as O. Both these morphemes thus align [Sa, So, A] vs. [O]. Ultimately, there are the zero morphemes: both the zero prefix and suffix align [O] vs. [Sa, So, O]. These alignment ratios are seen in table 34.

Alignment	Ratio
[O] vs. [Sa, So, A]	66,66%
[Sa, A] vs. [So, O]	16,66%
[Sa, O] vs. [So, A]	16,66%

Table 34: Alignment ratios for Pilagá first person plural

Second person plural, next, can expressed by no less than eight different morphemes, the distribution of which is presented in table 35.

A co-argument:	1SG 3SG 1PL 3PL
O co-argument:	
1SG	
3SG	A: *an-/aw-/o-...-i*
1PL	O: *Ø-...-Ø/-lo/-d*
3PL	
Sa	*aw-/o-...-i*
So	*an-...-i*

Table 35: Morpheme distribution for Pilagá second person plural

The *aw-* and *an-* prefixes, firstly have the same distributions as first person plural *s-* and *ñ-*: [Sa, A] vs. [So, O] and [So, A] vs. [Sa, O], respectively. The *o-* prefix shows the same distribution as *aw-:* [Sa, A] vs. [So, O]. All five other cross-referencing affixes either only mark O (the zero prefix and suffix, *-lo* and *-d*), or mark Sa, So, and A but never O (*-i*). They thus all align accusatively. These alignment patterns and their percentages are, once again, summarised in table 36.

Alignment	Ratio
[O] vs. [Sa, So, A]	62,5%
[Sa, A] vs. [So, O]	25%
[Sa, O] vs. [So, A]	12,5%

Table 36: Alignment ratios for Pilagá second person plural

Third person plural, ultimately, can be expressed by eight different morphemes as well. Table 37 presents their distribution.

A co-argument: O co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
1SG						
2SG						
3SG			A: *y-/t-/n-...-Ø/-d/*			
1PL			O: *Ø-...-Ø/-lo*			
2PL						
3PL						
Sa			*y-/t-/Ø-...-Ø/-d/-'*			
So			*n-...-Ø/-d*			

Table 37: Morpheme distribution for Pilagá third person plural

The alignment ratios, also summarised in table 38, are as follows. The *n-* and zero prefixes both align [So, A] vs. [Sa, O], compared to [Sa, A] vs. [So, O] for the *y-* and *t-* prefixes, and [O] vs. [Sa, So, A] for the *-lo* and *-d* suffixes. Number can be zero-marked in all grammatical roles, so the zero suffix aligns [Sa, So, A, O]. The *-'* suffix, lastly, aligns [Sa] vs. [So, A, O].

Alignment	Ratio
[Sa, A] vs. [So, O]	25%
[Sa, O] vs. [So, A]	25%
[O] vs. [Sa, So, A]	25%
[Sa, So, A, O]	12,5%
[Sa] vs. [So, A, O]	12,5%

Table 38: Alignment ratios for Pilagá third person plural

Now that the alignment subsystems for every grammatical person in Pilagá have been calculated, it is possible to compute the average ratio for each alignment type, and as such reach a statement about the total Pilagá alignment system with respect to verbal cross-referencing. This complete system is summarised in table 39.

Alignment	Ratio
[O] vs. [Sa, So, A]	42,36%
[Sa, A] vs. [So, O]	25%
[Sa, O] vs. [So, A]	11,80%
[Sa, So, A, O]	10,42%
[Sa] vs. [So, A, O]	7,64%
[So] vs. [Sa, A, O]	2,78%

Table 39: Total alignment ratios for Pilagá verbal cross-referencing

8.3.2   Preliminary discussion and summary

Again, these ratios lead to a number of preliminary observations. As in Toba, the alignment pattern that accounts for the largest part of Pilagá cross-referencing data – over 40% – is [O] vs. [Sa, So, A]: a straightforward accusative pattern.

Pure split-S alignment still shows a relatively strong presence as well, explaining 25% of Pilagá data. Combined with the two hybrid systems, it even accounts for over a third of Pilagá cross-referencing alignment. Pure double-oblique alignment, on the other hand, is absent from Pilagá (as is ergative

alignment). Even with [Sa] vs. [So, A, O] and [So] vs. [Sa, A, O] included, double-oblique alignment still only accounts for 10% of the Pilagá data, a percentage similar to that of neutral alignment.

Like Toba and unlike Kadiwéu, lastly, Pilagá shows a number of morphemes which are only used to mark So and A arguments but never for Sa and O arguments, and vice versa. This system accounts for about 12% of Pilagá cross-referencing alignment.

With the cross-referencing systems of three of the four living members of the Guaykuruan language family described and analysed, I turn in the next section to the last one: Mocoví.

Chapter 9   Mocoví

9.1   Argument marking

9.1.1   Introduction

Just like Kadiwéu, Toba and Pilagá, Mocoví makes use of pronominal affixes to cross-reference verbal arguments.[1] The alignment of these bound pronominals has generally been classified as active-inactive, with hierarchical effects (Grondona 1998: 9-11; Califa 2014: 15). In the same vein, Carrió (2015: 12) posits a person-based split system, where first person shows active-inactive alignment, and third person shows tripartite alignment. Based on her data, she finds it impossible to establish a clear alignment pattern for second person (Carrió 2015: 13). In this section, I present the verbal argument marking of Mocoví for intransitive, transitive and ditransitive clauses and determine whether it can indeed be classified as hierarchical. Afterwards, I carry out a more detailed analysis of the alignment subsystems, in order to refine the image presented in the literature.

9.1.2   Intransitive verbs

Intransitive verbs, firstly, are divided into two groups, each of which receives a different set of person markers. The main criteria that determine whether a verb receives Sa or So markers are the semantic affectedness of the participant and the inherent lexical aspect of the verb (Gualdieri 1998: 95). If an intransitive verb denotes a state or takes an argument that is semantically affected, as in (52a-d), it typically takes set II person markers (Gualdieri 1998: 95, Grondona 1998: 107).

(52)   Mocoví (Guaykuruan, Gualdieri 1998: 229-30)

      a) *i-d-esal*

         1.II-INV-vomit

         'I vomit'

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[1] In Mocoví examples, set I morphemes refer to Sa and A arguments, set II morphemes refer to So and O arguments and set III morphemes refer to E arguments.

b) *d-sal-id*

INV-vomit-2.II

'you vomit'

c) *qa-d-sal*

1PL.II-INV-vomit

'we vomit'

d) *d-sal-i:*

INV-vomit-2PL.II

'you (pl.) vomit'

First person So arguments are expressed through a prefix: *i-* for singular, *qa-* for plural. Second person, on the other hand, is suffixed: *-id* for singular and *-i:* for plural. It is important to note the *d-* prefix (or its allomorph *r-*) occurring in every form expressing a SAP So argument. This situation is similar to that in Kadiwéu and Toba. In transitives, I treat the *d-/r-* prefix as an inverse marker,[2] whereas in intransitives, I treat it as a semantic role marker indicating that the argument cross-referenced on the verb is semantically affected, a function ill-suited to its position on the referential hierarchy.

(53)   Mocoví (Guaykuruan, Gualdieri 1998: 223-33)

a) *i-ocaG*

3.II-be.fat

'he/she is fat'

b) *Ø-n-sal*

3.II-MID-vomit

'he/she vomits'

c) *Ø-n-sal-d*

3.II-MID-vomit-PAUC

'they vomit'

d) *Ø-po-gi-lo*

3.II-close-DRC-3PL.II

'they (e.g. the doors) close'

e) *i-lew-d*

3.II-die-3PL.II

'they die'

Third person can be expressed in a number of different ways: according to Grondona (1998: 108), there are four distinct third person So prefixes (*Ø-*, *n-*, *r-* and *i-*), the choice of which is lexically de-

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[2] See section 9.1.3 for transitive clauses in Mocoví.

termined for each verb. I follow Gualdieri (1998: 233) instead, analysing only the zero prefix (54a) and the *i-* prefix (53a) as person markers. The *r-* is, as mentioned before, an allomorph of the semantic role marker *d-* rather than a person prefix. Consequently, (54a) is seen as consisting of the zero morpheme for third person, the semantic role marker *r-*, and the verb stem.

(54)   Mocoví (Guaykuruan, Grondona 1998: 111)

        a) *Ø-r-alola*

            3.ii-inv-get sick

            'he gets sick'

The *n-*, on the other hand, is seen as a middle voice marker, marking participants that are both agentive and affected. As mentioned before, clauses marked for middle voice fall outside the scope of this thesis, so (53b-c) will not be considered further. Number for third person arguments is expressed with a suffix: (53d-e) demonstrate that both *-lo* and *-d* can express a third person plural.

Sa markers occur on verbs that typically denote an event (such as *koʔo*, 'give birth'), and whose arguments are typically agentive or in control of the action expressed by the verb (such as *taqa* 'speak'). In some cases, verbs that do not present any of those semantic characteristics, such as *laq* 'sleep', are included in this class as well. Their inclusion was arguably semantically motivated at an earlier point in time, but has, according to Gualdieri (1998: 95-6), become opaque through far-reaching lexicalisation of the combination between a lexical item (the verb) and a grammatical one (the person marker).

(55)   Mocoví (Guaykuruan, Gualdieri 1998: 96, 218-26)

        a) *s-taqa*

            1.I-speak

            'I speak'

        b) *ased-Gan-id*

            smoke-VAL-2SG.I

            'you (sg.) smoke'

        c) *Ø-laG*

            3.I-sleep

            'he sleeps'

        d) *t-a:-lek*

            3.I-go-LOC

            'he/she goes (above)'

        e) *s-ased-Gan-G*

            1.I-smoke-VAL-1PL.I

            'we smoke'

        f) *koʔo-i:*

            give.birth-2PL

            'you (pl.) give birth'

g) *Ø-koʔo-er*

3.I-give.birth-PL

'they give birth'

As illustrated in (55a,e), first person Sa arguments are indicated with different morphemes than their So counterparts: an *s-* prefix for singular, and the same prefix together with a *-G* suffix for plural. Second person Sa is, like So, indicated with a zero prefix and an *-id* or *-i:* suffix for singular or plural (55b,f). Third person, lastly, is zero-marked or receives a *t-* prefix (55c-d,g). According to Grondona (1998: 104), third person Sa arguments can also be marked with the *i-* prefix on a small number of verbs, such as *ayo* 'to fly', but she does not provide any examples. Third person plural can be marked with an *-er* suffix (55g).

9.1.3 Transitive clauses

When it comes to transitive clauses, the situation is more complicated. According to Grondona (1998: 11), Mocoví in principle indicates both A and O on the verb, but two conditions cannot be violated: firstly, no two overt, non-zero person prefixes can occur simultaneously. Secondly, two suffixes can only co-occur if one of them refers to the first person plural.

In mixed scenarios, firstly, the SAP is always cross-referenced on the verb, regardless of its grammatical role. When a first person acts upon a third person, as in (56a-e), both person and number of the A are marked using the same prefixes as for first person Sa, although it must be noted that the *i-* prefix, used for first person So, can be used as well according to Grondona's (1998: 119) data (56e). Third person O always receives a zero prefix, but it can receive an overt number suffix (as in 56b,d-e).

(56)   Mocoví (Guaykuruan, Grondona 1998: 113; 119)

a) *s-ečaG*

1.I-cut

'I cut him'

b) *s-ečaG-er*

1.I-cut-3PL.II

'I cut them'

c) *s-ečaG-aG*

1.I-cut-1PL.I

'we cut him/her'

d) *s-ečaG-aG-er*

1.I-cut-1PL.I-3PL.II

'we cut them'

e) *i-ewan-a*   *lwis*
  1.II-see-3SG.II Luis
  'I see Luis.'

When a second person acts upon a third person (57a-c), it is always the second person singular or plural set I suffix that appears. Both person and number of the O remain unmarked. The prohibition against the third person plural suffix co-occurring with a second person suffix could be expected based on Grondona's (1998: 11) constraints, since neither of those morphemes refers to the first person plural. Her constraints do not, however, predict the prohibition of the third person singular set II prefix *i-* to appear: second person is not expressed through an overt prefix, so there are technically no two prefixes competing for one slot.

Additionally, it must be noted that sentences such as (57c), where an overt enclitic *-lo* does refer to the third person plural O in a 2 => 3 scenario, do appear in Grondona (1998), seemingly contradicting the statement that second and third person cannot be marked simultaneously. A possible explanation lies in the observation that *-lo* is separated from the verb stem and other person markers by the aspectual and directional suffixes (*-tak* and *-igi* in 57c). The fact that *-lo* is not contiguous to the second person suffix *-ir* might explain why it is not suppressed, whereas the normal third person plural suffix *-er* is. In general, these facts point towards a 2 > 3 hierarchy: the second person is always indicated on the verb, whereas the third person cannot be marked with a prefix, and can only be marked with a suffix when this is not contiguous to the second person marker.

(57)   Mocoví (Guaykuruan, Grondona 1998: 113; 133)

   a) *Ø-ečaG-ir*[3]
      2.I-cut-2SG.I
      'you (sg.) cut him/them'

   b) *Ø-ečaG-i:*
      2.I-cut-2PL.I
      'you (pl.) cut him/them'

   c) *qamir*   *Ø-owaGan-ir-tak-igi-lo*   *na-wa*   *l-eči-l*   *so*   *lwis*
      PRO:2SG   2.I-hit-2SG.I-PROG-on-3PAUC.II   DEIC.COME-PL   3POSS-leg-PL   DEIC.GO   Luis
      'You are hitting Luis on the legs.'

Inverse scenarios with a third person acting upon a first person are exemplified in (58a-d). Just as in direct scenarios, person and number of the SAP is always marked, and the third person A receives a zero prefix. In 3PL => 1 scenarios, however, the *-er* suffix can appear in order to mark third person

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[3] Grondona (1998: 108) distinguishes a formal variant of the second person suffix *-ir*, and an informal variant *-i*. Since the register in which they are used seems to be the only difference between them, I only exemplify the use of *-ir*.

plural. Since it co-occurs with the first person plural suffix, it does not violate either of Grondona's two constraints (58c-d). Additionally, the *r-* prefix appears in all these scenarios, whereas it did not in SAP => 3 scenarios.

(58)   Mocoví (Guaykuruan, Grondona 1998: 113)

        a) *i-r-ečaG*

           1SG.II-INV-cut

           'he cuts me'

        b) *qa-r-ečaG*

           1PL.II-INV-cut

           'he cuts us'

        c) *i-r-ečaG-er*

           1SG.II-INV-cut-3PL.I

           'they cut me'

        d) *qa-r-ečaG-er*

           1PL.II-INV-cut-3PL.I

           'they cut us'

When the third person acts upon a second person, however, the *-er* plural suffix is barred from appearing. Since second person and third person plural are both expressed through a suffix, only one of them can appear overtly. From (59c-d), it can be seen that the second person suffix wins the competition for this slot. As in 3 => 1 scenarios, the *r-* prefix is present in all these scenarios.

(59)   Mocoví (Guaykuruan, Grondona 1998: 113)

        a) *r-ečaG-ir*

           INV-cut-2SG.II

           'he cuts you (sg.)'

        b) *r-ečaG-i:*

           INV-cut-2PL.II

           'he cuts you (pl.)'

        c) *r-ečaG-ir*

           INV-cut-2SG.II

           'they cut you (sg.)'

        d) *r-ečaG-i:*

           INV-cut-2PL.II

           'they cut you (pl.)'

Based on these data, a SAP > 3 hierarchy can be established: in those cases where two prefixes or two suffixes vie for one slot, the SAP always wins out, whereas the third person is zero-marked. For instance, a third person plural never receives the *-er* suffix when co-occurring with a second person,

since the second person outranks the third person and thus is the preferred option for this one suffix slot.

Additionally, in all inverse 3 => SAP scenarios, the *d-* or *r-* morpheme appears, whereas it does not in direct SAP => 3 scenarios. This leads me to analyse this morpheme in transitive clauses as an inverse marker, as was done in Kadiwéu and Toba.

In non-local scenarios, subsequently, no hierarchy is at work. As can be seen in (60a-b), it is difficult to unambiguously determine whether the cross-reference markers refer to the A or O argument, since both have the exact same phonetical form. The most economical solution here is to posit that the A is marked with the *i-* prefix (although it can also be zero-marked, as in 61a), and additionally receives the *-er* suffix if it is plural.

The O argument always receives the zero prefix, but it can receive the *-er* plural suffix if the A is singular and thus zero-marked for number. The reason why I assume that the *i-* prefix always cross-references the A, is that the inverse marker *d-/r-* would be expected to appear if only the O argument was indicated on the verb, as is the case in 3 => SAP scenarios. Since this inverse prefix is never present in mixed scenarios, it seems reasonable to assume that they are always formally direct, marking only their A argument. This also means that verbal cross-referencing makes no distinction between third person arguments in terms of discourse salience, and thus obviation plays no role.

(60)   Mocoví (Guaykuruan, Grondona 1998: 113)

      a) *i-ečaG*

          3.I-cut

          'he cuts him'

      b) *i-ečaG-er*

          3.I-cut-3PL.II

          'he cuts them / they cut him / they cut them'

(61)   Mocoví (Guaykuruan, Gualdieri 1998: 222)

      a) *Ø-kiyo*   *so*   *peget*

          3.I-wash   CLT   plate

          'He washes the plate.'

In local scenarios, lastly, both first and second person can always be explicitly expressed, since the first person marker is a prefix and the second person marker a suffix. Additionally, the first person plural suffix allows another suffix to co-occur, which means that in local scenarios neither of the arguments must be suppressed (62a-h). It can be argued, however, that first person outranks second person: the inverse morpheme *d- /r-* only occurs when a second person A acts upon a first person O (62e-h), not the other way around.

(62)   Mocoví (Guaykuruan, Gondona 1998: 113)

       a) *s-ečaG-ir*

          1.I-cut-2SG.II

          'I cut you (sg.)'

       b) *s-ečaG-aG-ir*[4]

          1.I-cut-1PL.I-2SG.II

          'we cut you (sg.)'

       c) *s-ečaG-i:*

          1.I-cut-2PL.II

          'I cut you (pl.)'

       d) *s-ečaG-aG-i:*

          1.I-cut-1PL.I-2PL.II

          'we cut you (pl.)'

       e) *i-r-ečaG-ir*

          1SG.II-INV-cut-2SG.I

          'you (sg.) cut me'

       f) *i-r-ečaG-i:*

          1SG.II-INV-cut-2PL.I

          'you (pl.) cut me'

       g) *qa-r-ečaG-ir*

          1PL.II-INV-cut-2SG.I

          'you (sg.) cut us'

       h) *qa-r-ečaG-i:*

          1PL.II-INV-cut-2PL.I

          'you (pl.) cut us'

Grondona (1998: 113-4) makes a last important remark concerning monotransitives. It is, according to her data, always possible to suppress the O on the verb and express it through an independent pronoun.

(63)   Mocoví (Guaykuruan, Grondona 1998: 114)

       a) *φelisa i-r-etag-ñi*

          Felisa 1SG.II-INV-comb-DRC.DOWN

          'Felisa combs me.'

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[4] Grondona (1998: 113) gives the form *s-ecaG-ir* for the 1PL => 2SG configuration. Everything in her discussion of the examples, however, implies that this form should instead be *s-ecaG-aG-ir*, containing the first person plural set I suffix *-aG*. No explanation is given concerning why this morpheme would be absent from this form only, and not, for example, from (57d).

b) *φelisa i-etag-ñi*   *yim*

     Felisa   3SG.I-comb-DRC.DOWN   PRO:1SG

     'Felisa combs me.'

A clause like (63a), for example, where the first person O is explicitly marked on the verb and the third person A remains implicit, can, without difference in meaning, also be expressed as (63b), with the third person A explicitly marked on the verb, the O expressed pronominally, and without the inverse marker. This is, however, an infrequent pattern.

9.1.4   Ditransitive clauses

In ditransitive clauses, then, the suffix *-em* on the verb marks the presence of an E argument. Two of the three arguments can be indicated on the verb. Based on Gualdieri's (1998: 241-4) data, it seems that there are different ways to express these scenarios, perhaps corresponding to the different ways of expressing monotransitives as exemplified in (63a-b). In (64a), the argument ranking highest on the 1 > 2 > 3 referential hierarchy is indicated with a prefix (as was the case in 63a), whereas in (64b), it seems that a grammatical functions hierarchy A > E > O determines which argument is marked in the prefix slot (as in 63b).

Secondly, either the O is cross-referenced with a set II suffix, or the E, with a separate set III suffix. Not enough data is provided, however, to satisfactorily examine the intricacies of these marking patterns.

(64)   Mocoví (Guaykuruan, Gualdieri 1998: 243-4)

     a) *i-d-aʔcaGan-em-a*   *so*   *l-pelad-ed*

         1.II-INV-show-BEN-3.II   CLT   1.POSS-shoe-PAUC

         'She shows me her shoes.'

     b) *i-aʔcaGan-i-em*

         3.I-show-1SG.III-BEN

         'She shows me (something).'

9.2   Evaluation: hierarchical systems

Now that Mocoví cross-referencing has been laid out in detail, it is possible to evaluate whether or not it constitutes a hierarchical system. The first property, the possibility to express both direct and inverse scenarios transitively, is fulfilled: as can be seen in 9.1.3, both direct and inverse clauses (1PL => 3PL and 3PL => 1PL scenarios, for instance), can take two person marking affixes.

The referential hierarchy, secondly, is at work as well. In mixed scenarios, the SAP is always overtly expressed whenever a SAP morpheme and a third person morpheme are in competition for one slot, resulting in a SAP > 3 hierarchy. In local scenarios, first and second person morphemes never compete for the same spot. The 1 > 2 hierarchy is clear, however, because the inverse marker *d-/r-* appears whenever a second person acts upon a first person, but not the other way around. These facts make it possible to establish a 1 > 2 > 3 referential hierarchy governing argument marking in monotransitive clauses in Mocoví. In ditransitives, the referential hierarchy can also (but need not always) determine which arguments are marked on the verb. Mocoví does not, however, seem to show any word order patterns influenced by the referential hierarchy, unlike Kadiwéu, Toba, and Pilagá.

 Since several cross-referencing morphemes can co-occur, and a speaker can choose to not overtly mark an O on the verb even though it would be expected to be marked based on the referential hierarchy, the hierarchy does not always force a speaker to choose which argument to express on the verb. This observation leads me to believe that referential hierarchy effects on cross-referencing in Mocoví are weaker than in Kadiwéu, where the hierarchy does always force the speaker to mark the highest-ranking argument on the verb.

Obviation, as proven before, is absent from the verbal cross-referencing system in Mocoví: non-local scenarios are always direct. These scenarios make no distinction between third person arguments based on their semantic properties or discourse prominence, either in word order or in cross-referencing.

Direction marking, lastly, shows similar characteristics to Kadiwéu and Toba: there is a *d-/r-* morpheme that can plausibly be analysed as inverse marker, although it also appears on non-agentive intransitives. In contrast to Kadiwéu, however, there is no specialised inverse marker to express the relation between E arguments and core arguments in ditransitives.

All in all, Mocoví should be analysed as having a hierarchical cross-referencing system. The characteristics of maintenance of transitivity, referential hierarchy, and explicit direction marking are all present, albeit to a lesser extent than in Kadiwéu. Obviation is absent from Mocoví verbal cross-referencing, and, arguably in contrast to Kadiwéu, Pilagá, and Toba, also from constituent order. In the next section, I investigate which alignment patterns are the result of the hierarchical influence on cross-referencing in Mocoví.

9.3 Alignment systems

9.3.1 Data

This section presents the morpheme distributions for every grammatical person in Mocoví, and draws some preliminary conclusions about the alignment system. For first person singular there are four different morphemes (the *s-* and *i-* prefixes, and the zero prefix and suffix), the distribution of which is shown in table 40. As can be seen, all 16 cells are the same. This was to be expected: since first person outranks both second and third person, its expression does not depend on the co-argument.

A co-argument: O co-argument:	2SG 3SG 2PL 3PL
2SG	
3SG	A: *s-/i-...-Ø*
2PL	O: *i/Ø-...-Ø*
3PL	
Sa	*s-...-Ø*
So	*i-...-Ø*

Table 40: Morpheme distribution for Mocoví first person singular

The *s-* prefix aligns [Sa, A] vs. [So, O], marking only Sa and A arguments, whereas the *i-* prefix marks everything but Sa arguments, aligning [Sa] vs. [So, A, O]. All four grammatical roles are zero-marked for number: the zero suffix shows neutral alignment [Sa, So, A, O]. The zero prefix, lastly, can only be used to mark first person O arguments. It thus aligns [O] vs. [Sa, So, A]. The alignment ratios of these different patterns are summarised in table 41.

Alignment	Ratio
[O] vs. [Sa, So, A]	25%
[Sa, A] vs. [So, O]	25%
[Sa, So, A, O]	25%
[Sa] vs. [So, A, O]	25%

Table 41: Alignment ratios for Mocoví first person singular

For second person singular as well, all cells are the same (see table 42). Although second person is outranked by first person, these two grammatical persons never contend for one slot, which means that second person can always be expressed in local scenarios. Additionally, second person is marked in all mixed scenarios since it outranks third person.

A co-argument: O co-argument:	1SG 3SG 1PL 3PL
1SG	
3SG	A: *Ø-...-id*
1PL	O: *Ø-...-Ø/-id*
3PL	
Sa	*Ø-...-id*
So	*Ø-...-id*

Table 42: Morpheme distribution for Mocoví second person singular

Both the zero prefix and the *-id* suffix are used to mark second person singular in every grammatical role and in every scenario. These two morphemes align neutrally: [Sa, So, A, O]. The only morpheme that shows a different distribution is the zero suffix: this is only used to mark second person singular O arguments, and aligns [O] vs. [Sa, So, A]. In table 43, the percentage of second person singular alignment for which these two patterns account is summarised.

Alignment	Ratio
[Sa, So, A, O]	66,66%
[O] vs. [Sa, So, A]	33,33%

Table 43: Alignment ratios for Mocoví second person singular

Thirdly, because of the possibility to zero-mark SAP O arguments and instead overtly mark the third person A in mixed scenarios, third person arguments can be expressed in the same way in mixed configurations as they are in non-local situations. Consequently, all cells are once again the same, as can be seen in table 44. Third person singular has three overt person marking morphemes: the *t-* and *i-* prefixes, and the *-a* suffix. The former morpheme aligns [Sa] vs. [So, A, O], the latter two [O] vs. [Sa, So, A]. Both the zero prefix and the zero suffix can be used to mark all grammatical roles.

A co-argument: O co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
1SG						
2SG						
3SG			A: *i-/Ø-...-Ø*			
1PL			O: *Ø-...-Ø/-a*			
2PL						
3PL						
Sa			*i-/t-/Ø-...-Ø*			
So			*i-/Ø-...-Ø*			

Table 44: Morpheme distribution for Mocoví third person singular

The percentages of the alignment system of Mocoví third person singular that these patterns explain, are summarised in table 45.

Alignment	Ratio
[Sa, So, A, O]	40%
[O] vs. [Sa, So, A]	40%
[Sa] vs. [So, A, O]	20%

Table 45: Alignment ratios for Mocoví third person singular

First person plural, subsequently, can be indicated through three different overt morphemes: *s-*, *qa-* and *-aG*. Their distributions, and those of the zero prefix and suffix, are presented in table 46.

A co-argument: O co-argument:	2SG	3SG	2PL	3PL
2SG				
3SG		A: *s-...-aG*		
2PL		O: *qa-/Ø-...-Ø*		
3PL				
Sa		*s-...-aG*		
So		*qa-...-Ø*		

Table 46: Morpheme distribution for Mocoví first person plural

As can be seen, the *s-, -aG* and *qa-* morphemes and the zero suffix all align [Sa, A] vs. [So, O]: the former two are only used to mark Sa and A, the latter two only mark So and O. The zero prefix can, as was the case for first and second person singular, only be used to mark O arguments, aligning [O] vs. [Sa, So, A]. The percentages of first person plural data for which these alignment patterns account are summarised in table 47.

Alignment	Ratio
[Sa, A] vs. [So, O]	80%
[O] vs. [Sa, So, A]	20%

Table 47: Alignment ratios for Mocoví first person plural

Second person plural shows the exact same morpheme distribution as second person singular, except that the *-id* suffix is replaced by an *-i:*. Consequently, the alignment ratios are exactly the same as well. I do not repeat them here, but refer the reader to tables 42 and 43.

Third person plural, lastly, is the only person whose marking depends on the co-argument, because of the number suffix *-er*. Depending on whether the third person is A or O, and on the person and number of the co-argument, the use of this suffix to mark third person plural O is either optional or prohibited. The exact morpheme distribution for the third person plural markers is shown in table 48.

A co-argument: O co-argument:	1SG	2SG	3SG	1PL	2PL	3PL
1SG						
2SG						
3SG	A: *Ø-/i-...-er/-Ø*	A: *Ø-/i-...-er/-Ø*	A: *Ø-/i-...-er/-Ø*	A: *Ø-/i-...-er/-Ø*		
1PL	O: *Ø-...-er/-Ø/-lo*	O: *Ø-...-Ø/-lo*	O: *Ø-...-er/-Ø/-lo*	O: *Ø-...-Ø/-lo*		
2PL						
3PL						
Sa	*t-/Ø-/i-...-Ø/-er*					
So	*i-/Ø-...-Ø/-er/-lo*					

Table 48: Morpheme distribution for Mocoví third person plural

There are two different types of cells for third person plural. In half of the cells, those in the first, third and fourth columns, the *i-* and *t-* affixes respectively align [O] vs. [Sa, So, A] and [Sa] vs. [So, A, O], whereas the *-er* and *-lo* suffixes align [Sa, So, A, O] and [Sa, A] vs. [So, O]. The zero morphemes both align neutrally.

In the other half of the cells, the only difference is that the *-er* suffix is not used to mark O arguments, thus aligning accusatively rather than neutrally. The average alignment ratios across these two types of cells are summarised in table 49.

Alignment	Ratio
[Sa, So, A, O]	41,66%
[O] vs. [Sa, So, A]	25%
[Sa] vs. [So, A, O]	16,66%
[Sa, A] vs. [So, O]	16,66%

Table 49: Alignment ratios for Mocoví third person plural

With the separate alignment subsystems calculated for every grammatical person, it is possible to create a fine-grained picture of Mocoví cross-referencing alignment. These results are presented in table 50.

Alignment	Ratio
[Sa, So, A, O]	40%
[O] vs. [Sa, So, A]	29,44%
[Sa, A] vs. [So, O]	20,28%
[Sa] vs. [So, A, O]	10,28%

Table 50: Total alignment ratios for Mocoví verbal cross-referencing

9.3.2   Preliminary discussion and summary

Once again, some interesting preliminary conclusions emerge from this picture. Firstly, ergative alignment, the mixed system [So] vs. [Sa, A, O], and [Sa, O] vs. [So, A] alignment are completely absent in Mocoví.[5]

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[5] It must be noted, however, that the reason for the absence of [Sa, O] vs. [So, A] alignment in Mocoví is the inclusion of the third person prefix *i-* as Sa marker. If, as the absence of examples supporting Grondona's (1998: 104) seems to suggest, this *i-* morpheme is not used for Sa arguments, it would align [Sa, O] vs. [So, A] rather than [Sa, So, A] vs. [O].

Secondly, neutral alignment is the strongest pattern in Mocoví, accounting for 40% of the data, whereas it was rather modestly present (between 10 and 20% of the system) in the three other languages. Accusativity (almost 30%) accounts for a lower percentage of the data in Mocoví than in Pilagá and Toba, but a higher percentage than in Kadiwéu.

Split-S alignment accounts for about 30% of the Mocoví data, the hybrid system [Sa] vs. [So, A, O] included. Double-oblique alignment is absent in its pure [Sa, So] vs. [A, O] form, but the mixed [Sa] vs. [So, A, O] system accounts for around 10% of the data.

The findings concerning the hierarchical systems and alignment patterns in the Guaykuruan languages that I presented in this part are now discussed in the next part. Chapter 10, firstly, compares the data on both hierarchical effects and alignment systems, and discusses the tendencies found here. In chapter 11 I attempt to find a plausible explanation for these tendencies.

Part 5: Discussion

Chapter 10   Comparison of the Guaykuruan Languages

10.1 Alignment

10.1.1   General observations

In this chapter, I compare the four living Guaykuruan languages with respect to the main topics of this thesis: their alignment systems, and the presence or absence of hierarchical effects on cross-referencing. This first section compares the alignment systems established for each language, drawing attention to a number of tendencies that can be found here. Table 51 presents a breakdown of the alignment systems of the four Guaykuruan languages.

Alignment:	Active-inactive	Double-oblique	Accusative	Ergative	Neutral	[Sa, O] vs. [So, A]
Kadiwéu	52,37%	34,01%	4,10%	10,21%	18,40%	0%
Toba	34,17%	29,18%	38,46%	2,19%	17,53%	6,11%
Pilagá	35,42%	10,42%	42,36%	0%	10,42%	11,80%
Mocoví	30,56%	10,28%	29,44%	0%	40,00%	0%

Table 51: Alignment systems in the Guaykuruan languages[1]

Overall, active-inactive and nominative-accusative alignment are the systems with the strongest presence in the Guaykuruan languages. Active-inactive alignment is consistently strong across all languages (explaining at least 30% of the data in every language), whereas accusative alignment is conspicuously absent from Kadiwéu only. Additionally, double-oblique alignment shows a rather strong presence in Kadiwéu and Toba, and neutral alignment does so in Mocoví.

Also striking is the very weak presence of ergativity in all four languages. Even though South America, and Amazonia in particular, has been called "the most ergative area in the world"

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[1] The reason that the totals in every row are higher than 100%, is that [Sa] vs. [So, A, O] and [So] vs. [Sa, A, O] alignment were included twice, once under the category 'active-inactive' and once under the category 'double-oblique', for the reasons mentioned in section 6.3.2.

(Aikhenvald 2012: 203), ergativity accounts for at most 10% of the total alignment system of any Guaykuruan language, and it is absent in Pilagá and Mocoví.

10.1.2   [Sa, O] vs. [So, A] alignment

Furthermore, the Guaykuruan languages show an alignment pattern that has, to my knowledge, not been discussed in the literature before: in both Pilagá and Toba, a portion of the cross-referencing morphemes align [So, A] vs. [Sa, O]. This alignment pattern might seem counterintuitive and uneconomical from a semantic point of view, since both the [Sa, O] and the [So, A] grammatical relations in such a system contain an agentive and a patientive argument.

In double-oblique and neutral alignment systems, however, all grammatical relations group an agentive and a patientive argument together as well. The former groups together Sa and So as opposed to A and O, only making a distinction between the two transitive arguments and the two intransitive arguments while not taking semantics into account. The latter does not even make the distinction between transitive and intransitive arguments, grouping all four of them together.

What is more, neither neutral nor double-oblique alignment marks A and O arguments differently. Since A and O are the only two core arguments that can co-occur in a clause, the distinction between them is arguably more communicatively relevant than that between Sa and A, for instance. [Sa, O] vs. [So, A] systems, on the other hand, do make the distinction between A and O. Consequently, such a system is communicatively more transparent than a neutral or double-oblique system.

I additionally argue that tripartite [Sa, So] vs. [A] vs. [O] systems are also less economical than [Sa, O] vs. [So, A] systems, even though they do mark the [A] vs. [O] distinction. Tripartite alignment systems need three case-marking morphemes, or three sets of cross-referencing morphemes: one for S, one for A and one for O. By grouping So arguments together with A and Sa arguments together with O, the need for a third case-mark is in theory eliminated. Languages using such a system only need a mark for the [Sa, O] grammatical relation and one for the [So, A] relation.

All in all, I argue that [Sa, O] vs. [So, A] alignment is more economical from a certain point of view than more well-documented alignment systems such as [Sa, So] vs. [A, O]; [Sa, So, A, O] and [Sa, So] vs. [A] vs. [O] on two grounds. On the one hand, it marks the communicatively relevant distinction between A and O arguments that is not marked in the former two systems, and on the other hand it is more economical morphologically speaking than the latter system. Therefore, it should not be surprising that languages with [Sa, O] vs. [So, A] alignment exist. More research into this alignment pattern is necessary however, both theoretically and typologically.

10.1.3 Tendencies

Apart from the general remarks just made, I will discuss two different continuums that can be discerned in the data in table 51. Active-inactive alignment and ergative alignment, on the one hand, show similar tendencies. Both these alignment systems show the strongest presence in Kadiwéu (52% for active-inactive alignment and 10% for ergative alignment). In Pilagá and Toba, these percentages are considerably lower (but similar in both languages): active-inactive alignment accounts for around 35% of the total alignment system in both languages, ergative alignment for around 2% in Toba while it is completely absent in Pilagá. In Mocoví, ultimately, active-inactive alignment accounts for 30,5% of the data (even less than in Pilagá and Toba), and ergative alignment is, as in Pilagá, absent.

Accusative alignment, on the other hand, shows a different tendency. It is most strongly represented in Pilagá, shortly followed by Toba: these languages respectively show around 42,5% and 38,5% of accusative alignment. Mocoví shows a considerably lower degree of accusativity than the former two languages (about 30%) and Kadiwéu, ultimately, shows a far weaker presence of accusativity than Mocoví: only about 5%.

The next section discusses the presence and strength of hierarchical systems in the Guaykuruan languages. Afterwards, I move on to exploring the factors that might have caused the continuums just discussed to come into existence.

10.2 Hierarchy

10.2.1 Introduction

Table 52 summarises the degree of adherence of each Guaykuruan language to the four characteristics taken as diagnostics of hierarchical systems in this thesis. One characteristic, the maintenance of transitivity in inverse scenarios, is present in every language. None of them shows an obligatory detransitivising morpheme in clauses where a third person acts upon an SAP. Additionally, in Pilagá and Mocoví, the verb (optionally) receives two cross-referencing morphemes regardless of its being direct or inverse.

Requirement:	Maintenance of transitivity	Direction marking	Referential hierarchy	Obviation
Kadiwéu	+	+	+	(-)
Mocoví	+	+	+	-
Toba	+	(+)	(+)	(-)
Pilagá	+	(+)	(-)	(-)

Table 52: Hierarchical characteristics in the Guaykuruan languages

10.2.2 Direction marking in Guaykuruan

Overt direction marking, secondly, is also present to a certain degree in every Guaykuruan language. Kadiwéu, Mocoví and Toba all have a morpheme *d:-* (with, in Toba and Mocoví, an *r-* allomorph) that appears in transitive clauses whenever a lower-ranked argument acts upon a higher-ranked one. The analysis of this morpheme offered by the respective scholars studying these languages differs, however. For Kadiwéu, Sandalo (1995) analyses it in her earlier work as a 'semantic role marker' in all situations, indicating that the argument marked on the verb is a semantic patient. In her later work, she and Nevins (2011) analyse it as an inverse marker in transitive clauses, not only containing information about the semantics of the argument marked on the verb, but also about its position on the referential hierarchy relative to that of its co-argument.

For Mocoví and Toba, this morpheme has not before been analysed as an inverse marker. It is generally not even seen as a separate morpheme, but rather as a part of the set II (patientive) person markers (Censabella 2006: 96). There are two main reasons for this, arguably. Firstly, there is the observation that in Toba, the *d:-/r-* prefix is not present in verb forms with a first person singular O. Here, it has taken part in a process of reciprocal assimilation with the first person inactive marker *i-*, resulting in a *zi-* prefix (Messineo 2002: 50). Since it is, however, still clearly recognizable in the other set II morphemes (*qad-, 'ad-* and *qad-...-i*), and in the Mocoví forms *id-*, *qad-*, *d-...-id* and *d-...-i:* (in the latter two, it is not even contiguous to the second person marker *-id* or *-i:*), the fusion of this inverse morpheme with the person markers only seems to be in a very early stage. For now, I consequently propose an analysis of *d:-/r-* as a separate morpheme.

The second reason why researchers have been loathe to describe *d:-* as a true inverse marker, is the fact that it also occurs on a number of intransitive verbs when they have a SAP (or sometimes even a third person) as S argument. This phenomenon has, however, been noted in other language families as

well (see Payne 1994 for Tupí-Guaraní, for instance). Example (65a) shows the use of the Guajajara morpheme *r-*, analysed by Payne as an inverse marker,[2] to mark a first person singular So argument.

(65)   Guajajara (Tupí-Guaraní, Harrison 1986 via Payne 1994: 327)

   a) *he-r-urywete*
       1SG.II-INV-be.happy
       'I am happy'

In Payne's (1994) article, the presence of this morpheme on intransitive verb forms is seen as a remnant of its (possible) nominal origins, but this does not impede its being analysed synchronically as an inverse marker. All in all, I thus argue that the *d:-/r-* morpheme in the Guaykuruan languages is an inverse marker when it occurs in transitive clauses.

Kadiwéu uses this marker in all inverse scenarios, in combination with the set II morpheme referring to the highest ranking argument. Additionally, the morpheme *-wa*, which appears in ditransitive clauses whenever the E outranks the A, is arguably a second inverse marker. In Mocoví, *d-/r-* can be used in all inverse scenarios as well, although according to Grondona (1998: 114), it is not obligatory. Inverse scenarios are also (albeit very infrequently) expressed using simply a set I marker for the (lower-ranking) A argument and an NP for the (higher-ranking) O argument. Therefore, I argue that domain of the inverse marker in Mocoví is slightly more restricted than in Kadiwéu. In Toba, the *d:-/r-* morpheme can only occur on a limited class of verbs, which leads me to see an even weaker presence of direction marking in this language.

In Pilagá, the inverse marker *d-/r-* is absent. Here, all set II markers seem to contain an *n-* segment (Vidal 2001: 136), possibly a vestige of the middle voice marker *n-* that is present in Kadiwéu, Toba, and Mocoví as well. It is plausible that Pilagá chose to grammaticalise this middle marker rather than the inverse marker into its patientive set of cross-reference markers. Since these So markers can also be used to mark A arguments on many verbs, however, this *n-* morpheme cannot synchronically be seen as an inverse marker in Pilagá. Still, direction marking is not entirely absent here. The sheer presence of two separate sets of person markers for A and O arguments constitutes a direction-marking system in itself. All in all, I analyse Kadiwéu and Mocoví as having strong direction-marking, and Toba and Pilagá as having restricted, but present, direction marking in their verbal morphology.

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[2] There is, however, a great deal of controversy concerning the exact status of this *r-* prefix in Guajajara and the Tupí-Guaraníian language family in general. The analysis that is most generally accepted is that of *r-* as a 'relational morpheme', indicating that the word on which the *r-* occurs is part of the same phrase as the word before (Meira & Drude 2013: 2).

10.2.3   Referential hierarchy effects and obviation in Guaykuruan

Referential hierarchy effects, thirdly, are present in the cross-referencing systems of three of the four living Guaykuruan languages. Kadiwéu has a 1PL.O > 2 > 1PL.A/1SG > 3 hierarchy, which acts consistently in all monotransitive and ditransitive clauses. Only one cross-reference marker can be present on the verb, and this is always the one referring to the highest-ranking argument.

In Mocoví, there is a clear SAP > 3 hierarchy, in that SAPs are always indicated on the verb in mixed scenarios, whereas third persons can only be expressed on verbal forms that allow more than one cross-reference marker. Establishing a hierarchy between the SAPs cannot be done based on the presence or absence of person marking morphemes: in local scenarios, both participants are always cross-referenced. Since the inverse marker only appears in 2 => 1 scenarios, however, I assume a 1 > 2 > 3 hierarchy for Mocoví. It has been noted, however, that this hierarchy is getting lost: it is in most inverse, mixed scenarios possible to cross-reference a third person on the verb where one would expect the referential hierarchy to prevent this (Grondona 1998: 114).

In Toba, thirdly, there is a restricted class of verbs (the same class of verbs that takes explicit direction marking) which operates along a SAP > 3 hierarchy. When these verbs express a mixed scenario, only the SAP is cross-referenced while the third person remains implicit, regardless of its grammatical role. Since in local scenarios, the A argument is always marked with a set I prefix and no inverse morphology is present, there is no internal hierarchy between the two SAPs. Pilagá, fourthly, does not show any referential hierarchy effects in its cross-referencing system. Both arguments are consistently indicated on the verb, although in constituent order, referential hierarchy effects can be perceived. NPs referring to SAP arguments are treated differently from third person NPs: the former always precede the verb, the latter typically follow it.

Obviation, lastly, is absent from all four cross-referencing systems. None of the Guaykuruan languages makes a distinction between salient and non-salient third person arguments when it comes to verbal morphology. Kadiwéu, Toba, and Pilagá, however, arguably do show this distinction in their constituent order. Definite third person arguments (e.g. pronouns), can optionally precede the verb (as do SAPs), whereas full NPs always follow it.

One caveat concerning these word order patterns is in order, however. Although an analysis in terms of the referential hierarchy sounds plausible, it should not be ruled out that these patterns stem from more general cognitive constraints, such as that of 'end-weight'. It has long been assumed that speakers tend to position longer constituents towards the end of clauses, in order to facilitate processing on part of the listener (Wasow 1997: 348). In this light, it could be said that NPs typically tend to be longer than both pronouns and verbs, and as such naturally follow them in sentence structure. The Guaykuruan prohibition against preverbal O NPs could then be a grammaticalisation of this reflex. More research on this topic is necessary to discover which of these two factors accounts best for the Guaykuruan facts.

10.2.4 Summary

All in all, the Guaykuruan languages form a continuum from strong to weak hierarchical effects. These effects are strongest in Kadiwéu: it makes use of the most differentiated referential hierarchy (distinguishing four different levels: 1PL.O > 2 > 1PL.A/1SG > 3) on all of its verbs, shows obviation in its constituent order, and marks direction both through an inverse prefix and the use of different sets of person affixes.

The second language in this continuum is Mocoví, in which there are no traces of obviation even in constituent order, and the referential hierarchy shows less strenghth. It only clearly distinguishes between SAPs and third persons, since SAPs never compete for one morpheme slot. The 1 > 2 hierarchy between the SAPs can only be established based on the presence or absence of the inverse marker, which appears only in 2 => 1 scenarios. Both direction marking and the referential hierarchy are active in the complete inventory of verbs.

Toba, on the other hand, only has a limited class of verbs in which the SAP > 3 referential hierarchy and the inverse morpheme are used, thus showing an even weaker hierarchical system. In Pilagá, lastly, hierarchical systems can be argued to be completely absent: no person hierarchy or salience hierarchy between third persons can be established, and there is no direction marking morpheme. Since all referential hierarchy effects are absent from Pilagá cross-referencing, this language does not fulfil the minimum requirements for a hierarchical system.

It is interesting to note that this continuum largely corresponds to the one established in the previous section for accusative alignment, albeit in the opposite direction. The languages that show the strongest presence of accusativity have the weakest hierarchical systems, and vice versa. Possible explanations for the patterns noted in this section are offered in the next chapter.

Chapter 11   Proposed Explanations

11.1 North-south divide: language contact

11.1.1 Introduction

The two continuums which can be discerned in the presence of accusativity and hierarchical effects on the one hand, and the presence of ergativity and active-inactive alignment on the other hand, have one thing in common. Both the Kadiwéu – Pilagá/Toba – Mocoví continuum and the Pilagá/Toba – Mocoví – Kadiwéu continuum show a clear divide between Kadiwéu and the languages of the Southern Guaykuruan branch of the family. Even though Birchall's (2014: 217-8) findings suggest that linguistic differences in South America are typically most salient along the east-west axis (roughly corresponding to the divide between the Andes and Amazonia), the north-south axis seems to be a better predictor for the distribution of alignment characteristics within the Guaykuruan language family.

Consequently, I argue that the separate status of Kadiwéu within the Guaykuruan language family – showing consderably stronger ergativity, active-inactive alignment and hierarchical systems, and considerably weaker accusativity – might have to do with its geographical location close to the Amazon basin. According to Fabre (2006: 47) and Oberg (1949), the Kadiwéu were at an earlier point in their history in contact with ethnic groups which nowadays dwell as far to the north as Campo Grande in Brazil, such as the Terena. Since, according to Birchall's (2014: 202) data, the southern part of the Amazon region is the home of considerably more languages with ergative alignment than the Chaco region, it should not be surprising that the Guaykuruan language most involved with Amazonian languages displays most ergative characteristics.

Although a complete investigation of the ethnohistory of the Guaykuruan peoples falls outside the scope of this thesis, I now attempt to provide a first incentive towards a better understanding of the origins of the patterns discerned in the argument marking systems of the Guaykuruan languages. In particular, I look at the relations which the Guaykuruan languages might have had with languages from the Arawakan, Tupí-Guaranían and Matacoan language families.

11.1.2 Arawakan

Firstly, it has been noted that the Kadiwéu ethnic group came in contact with several Arawakan groups, such as the Kinikinao and the Terena, which they often subjugated. At times, these groups

even abandoned their native language and took over the dominant Guaykuruan language (Fabre 2006: 47). It would, as a consequence, not be inconceivable for these languages to have exerted some substratic effects on Kadiwéu.

Several Arawakan languages have been argued to show a number of active-inactive characteristics in their verbal cross-referencing. Baure, a language of the South Arawak branch spoken in Bolivia (relatively close to the homeland of the Kadiwéu), is one of these. On active intransitive verbs, the Sa argument is prefixed (66a), whereas on inactive intransitives, the So is suffixed (66b).

(66)   Baure (Arawakan, Danielsen 2005, no page numbers)

        a) *ni-šim*

            1SG-arrive

            'I arrive(d)'

        b) *mavi-wo-ni[1]*

            be.sick-COP-1SG

            'I am sick'

Additionally, Aikhenvald (1995: 156), for one, has argued that (syntactic) ergativity is not at all uncommon amongst the Arawakan languages. In Bare, for example, there is "a strong O/S pivot for co-referential NP deletion in clause linking" (Aikhenvald 1995: 156).

(67)   Bare (Arawakan, Aikhenvald 1995: 156)

        a) *kwati*   *i-kaɺuka*   *tʃinu* *i-baɺaka*

            jaguar   3SG.NF-bite   dog   3SG.NF-run

            'The jaguar bit the dog and it (the dog) ran.'

This can be seen in (67a). In the coordinated clause *ibaɺaka* 'and it ran', the S argument is not expressed with an explicit NP, and must thus be inferred from the cross-reference markers on the verb. The fact that this *i-* third person morpheme is coreferential with the O argument of the previous clause rather than its A, points towards an ergative pivot in this construction.

(68)   Terena (Arawakan, Butler 2003: 5-8)

        a) *Sîmo*   *ne*   *sêno*

            3.arrive   ART   woman

            'The woman arrives/arrived.'

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[1] In her later work, Danielsen (2007: 179) analyses stems like *mavi* 'be sick' as non-verbal. Under such an analysis all intransitive verbs are agentive, and mark their S argument in the same way. Since a split-S system is generally assumed for the Arawakan languages, however (see for instance Aikhenvald 1999: 89), that is the analysis taken over in this thesis.

b) *Komom-â-ti   sêno   ne   koyuhópe-ti*
   3.look-3.II-DUR woman ART book-NONSP.POSS
   'The/a woman is looking at the book.'

In Terena as well, a number of constructions operate along an S/O pivot. The determiner *ne*, for example, is only used for S and O arguments, but not for A arguments (68a-b). These data from Arawakan languages, in particular Baure and Terena, make it seem plausible that the relatively strong presence of active-inactive alignment and ergativity in Kadiwéu is in part due to the more intensive contact it experienced with Arawakan languages.

11.1.3 Tupí-Guaranían

Another language family with which the Kadiwéu might have been in contact, taking into account their geographical location, is Tupí-Guaranían. This family has also been widely analysed as making use of an active-inactive cross-referencing system (see Jensen 1990, for instance). Mbya Guaraní, for example, has two sets of person prefixes at its disposal, used for So and Sa arguments, respectively (Coutinho & Godoy 2015: no page numbers). Example sentences (69a-b) show that first person singular inagentive prefix *xe-* is used for So arguments, whereas Sa arguments receive an *a-* prefix.

(69)   Mbya Guarani (Coutinho & Godoy 2015: no page numbers)
       a) *a-manõ*
         1SG.I-die
         'I die'
       b) *xe-kane'õ*
         1SG.II-be.tired
         'I am tired'

Referential hierarchy effects and direction marking have been argued to be present in Tupí-Guaranían languages as well. Whenever a SAP and a third person interact in Mbya Guaraní, for example, the SAP is cross-referenced – with a set I prefix if it functions as A (70a), or a set II prefix when it functions as O (70b). The third person remains implicit.

(70)   Mbya Guaraní (Coutinho & Godoy 2015: no page numbers)
       a) *kuee   a-exa   João*
         yesterday 1SG.I-see João
         'I saw João yesterday.'
       b) *João   xe-r-exa   kuee*
         João   1SG.II-INV-see yesterday
         'João saw me yesterday.'

(71)   Guajajara (Tupí-Guaraní, Harrison 1986 via Payne 1994: 327)

        a) *he-r-urywete*

            1SG.II-INV-be.happy

            'I am happy'

As mentioned before, Tupí-Guaraníían languages have also been analysed to possess an *r-* prefix that functions as an inverse marker (Payne 1994: 321). The conditions under which this prefix is used, are remarkably similar to those of the *d-* prefix and its *r-* allomorph in Guaykuruan: it can appear on transitive clauses when a lower-ranking argument acts upon a higher-ranking one (70b), and on intransitive, patientive verbs with high-ranking So arguments (71a).

Thirdly, Tupí-Guaraníían languages have been said to show certain ergative characteristics as well. Whereas in main clauses, A arguments and O arguments are cross-referenced with the same markers as Sa and So, respectively, this is not the case in dependent clauses. Transitive verbs in dependent clauses always cross-reference their O argument, regardless of its position on the referential hierarchy (72a-b), and intransitives always indicate their Sa (72c) or So argument (72d). All three grammatical roles are marked with the set II morphemes, which are in main clauses only used for So and O arguments (Jensen 1990: 118).

(72)   Tupinambá (Tupí-Guaraní, Jensen 1990: 118)

        a) *syé-monó-reme-mo   a-só-mo*

            1SG.II-send-if-COND 1SG.I-go-COND

            'If he sent me, I would go.'

        b) *i-nupã-reme*

            3SG.II-hit-if

            'If (I/we/you/he/she/they) hit him.'

        c) *syé-só-reme*

            1SG.II-go-if

            'If I go.'

        d) *syé-katú-reme*

            1SG.II-be.good-if

            'If I am good.'

Although, according to Sandalo (1995: 10), insufficient data about the early ethnohistory of the Chaco region are available to make strong claims, it is not inconceivable that the Mbya Guaraní and the Kadiwéu were at one point in contact. Several observations point in this direction.

Firstly, the geographical locations of the Kadiwéu and the Mbya Guaraní around the Brazilian-Paraguayan border make the possibility of contact plausible. Both groups lived at some point in their history in the Brazilian Mato Grosso province (Sandalo 1995: 2 for Kadiwéu, Sušnik 1969 as quoted in Remorini 2001: 3 for the Mbya). Additionally, Kadiwéu ethnic groups were renowned for raiding

their Guaraní neighbours (Litaiff 2003: 81), which further increases the likelihood of the Kadiwéu having come in contact with the Mbya Guaraní.

Secondly, there is the observation that the Kadiwéu are the (only surviving) descendents of an ethnic group called the *Mbaya Guaykuru*. The remarkable similarity of this ethnonym to that of the Mbya Guaraní group mentioned before, and to the Guarani word for 'person', *mbya*, invites further speculation about possible contact and adstratic influence between these two groups. The fact that only the ethnic groups of the Northern Guaykuruan branch make use of the word *mbya* to refer to themselves, whereas the southern groups all use *qom*, the Guaykuruan word for 'person' (Vidal 2001: 5), might then be an extra indication that Kadiwéu experienced much stronger contact with the Tupí-Guaranían languages (and, arguably, Mbya Guaraní in particular) than Toba, Pilagá and Mocoví.

In sum, it is conceivable that Kadiwéu-speaking groups experienced relatively intensive contact situations with Tupí-Guaranían-speaking groups (the Mbya in particular), whereas this was less so for the Southern Guaykuruan languages. This Tupí-Guaranían influence may, next to the Arawakan influence proposed before, have led to the maintenance of hierarchical effects, the *r-/d-* inverse marker, active-inactive alignment, and ergative alignment in a relatively strong form in Kadiwéu.

11.1.4 Matacoan

For the Southern Guaykuruan languages, on the other hand, Métraux (1937) and Fabre (2006: 77) posit that they had stronger ties to more southern neighbouring groups such as Wichí and the other Matacoan languages. According to Golluscio and Vidal (2009-10: 22), Wichí shows largely accusative alignment.[2] This view is confirmed by Terraza (2014), although she notes the presence of split-S characteristics as well. In sentences (73a-b), these split-S characteristics can be seen: the S argument of the agentive intransitive verb *qatin* 'dance' receives a different morpheme than the S argument of the inagentive intransitive verb *palitsax* 'suffer'. A arguments, like S arguments, are cross-referenced with a prefix on the verb (although it is formally different, belonging to a third set), whereas O arguments are suffixed (73c). It can thus be said that Sa, So and A group together concerning the locus of the cross-referencing markers (an accusative pattern), whereas the semantic and syntactic properties of the verb determine the phonetic form of the markers (a split-S pattern).

(73)　　Wichí (Matacoan, Terraza 2014: 319-20)

　　　　a) *kʸe a-qu-xʷax*　　　*y-iɬ [...]*　　*a-palitsax-ila*

　　　　　if　2.POSS-mother-DIM　3-die　2.II-suffer-FUT

　　　　　'If your mum dies, you will suffer.'

---

[2] In Wichí examples, set I refers to Sa arguments, set II to So, set III to A and set IV to O.

b) *am   lata-qatin*

PRO:2SG   2.I-dance

'You are dancing.'

c) *am   la-sex-nu*

PRO:2SG   2.III-support-1.IV

'You support (feed) me.'

Hierarchical systems, lastly, seem absent from the Matacoan languages. In Wichí, for example, no hierarchy can be established between SAPs and third persons. As illustrated in (74a), both inverse and direct mixed scenarios simply mark the A with a prefix and the O with a suffix (a zero suffix for third person O), without an explicit direction marker being present.

(74)   Wichí (Matacoan, Terraza 2014: 325)

a) *ny-uq-hi   tat'e   wit   ela   y-ax-kʸo   tat'exʷis   tox   ela   hi-paxtit-nu*

1.III-bite-LOC eye   CONJ ADV   3-close-DIR   eyelash   SUB   ADV   3-crush-1.IV

'If I bite him in the eye, and if he closes it, his eyelash could crush me.'

11.1.5 Summary

Consequently, I propose that the different strength of ergative alignment, nominative alignment, and hierarchical effects in the Northern Guaykuruan and Southern Guaykuruan languages can be explained by language contact. Kadiwéu and its ancestor Mbaya were in close contact with Tupí-Guaranían and Arawakan languages throughout attested history. Tupí-Guaranían languages have been analysed as showing hierarchical, active-inactive, and ergative alignment (sub)systems, whereas ergative and split-S alignment are not uncommon in Arawakan languages either. Toba and Pilagá (and conceivably Mocoví) on the other hand, experienced stronger contact with the Matacoan languages, where accusative and active-inactive alignment are the norm. This plausibly explains why Kadiwéu shows stronger ergative and hierarchical traits than the southern branch, whereas the latter favours accusativity.

These contact situations do not, however, explain the differences in strength of active-inactive alignment between Kadiwéu on the one hand and the Southern Guaykuruan languages on the other hand. This system is present in all three aforementioned language families, so language contact does not seem to provide an obvious solution here. More research is necessary in order to clarify this matter.

11.2 Internal divide in Southern Guaykuruan: Genetic relationships

Next to not explaining the differences between Kadiwéu and the Southern Guaykuruan languages concerning split-S alignment, the areal factors proposed in 11.1 provide no explanation for the internal differences within the southern branch of the language family. It is interesting to see, however, that the presence of hierarchical effects and accusativity corresponds to a different continuum than the presence of split-S alignment and ergativity. The latter corresponds to the geographical positions of the languages: the more northern the language, the stronger the ergative and split-S traits. Consequently, the lower degree of ergativity in Mocoví and Pilagá than in Toba can plausibly be explained by assuming that the former two experienced even less contact with Tupí-Guaraníaan and Arawakan languages than the latter.

This is not the case for the hierarchical and accusative systems, however. The continuum seen in the strength of these two systems corresponds to the genetic relationships within the Guaykuruan family instead of their geography. Accusativity is strongest in the Pilagá-Toba subbranch, followed by Mocoví, which together with Pilagá and Toba forms the Qom branch. Kadiwéu, the most distantly related family member, shows the weakest accusativity. Hierarchical effects correspond to the same continuum, but in the opposite direction: they are weakest in the Pilagá-Toba subbranch, followed by Mocoví and ultimately Kadiwéu.

This observation might suggest that in order to explain the differences in hierarchical and accusative alignment between Pilagá and Toba on the one hand, and Mocoví on the other hand, one should look for language-internal, genetic effects rather than language-external, areal ones. To find out which factors exactly were involved in the differentiation of the alignment systems of Mocoví and the Pilagá-Toba subbranch, more (diachronic) research into their cross-referencing systems is needed. A promising approach would be, for example, to examine the fifth language of the family, Abipon. Genetically, this language is situated between Kadiwéu and Mocoví (see section 1.3). Therefore, it would be worthwhile to investigate whether the Abipon cross-referencing system corroborates the continuums proposed here, and forms a middle ground between that of Kadiwéu and that of Mocoví when it comes to hierarchical effects and accusative alignment.

Part 6: Summary and Conclusion

Chapter 12   Summary

12.1 Hierarchical systems

In this thesis, I scrutinised the verbal cross-referencing systems of the four living Guaykuruan languages (Kadiwéu, Toba, Pilagá and Mocoví), aiming to provide a more detailed account of their hierarchical effects and alignment systems than what had until now been offered in the literature. Concerning hierarchical systems, my analysis served to refine the idea that all Guaykuruan languages show hierarchical alignment. I argued that Pilagá does not show hierarchical cross-referencing, since neither the referential hierarchy nor obviation can be said to influence argument marking on the verb. Kadiwéu, Toba and Mocoví all confirmed the literature, since they do, to a certain extent, show hierarchical systems. Hierarchical effects are most robust in Kadiwéu: they obligatorily influence cross-referencing on every verb. In Mocoví, the use of hierarchical marking can be used on every verb but it is optional, and in Toba it only occurs on a closed class of verbs.

I tentatively explained the observation that Kadiwéu shows a stronger hierarchical system than the Southern Guaykuruan languages by recurring to language contact. It is possible that Kadiwéu maintained this system because of contacts with other languages with hierarchical systems, whereas the southern branch lacked these contacts and consequently started losing the hierarchical effects. Specifically, I propose that the contact Kadiwéu had with Tupí-Guaraníán languages (Mbya Guaraní in particular) supported the preservation of hierarchical effects in Kadiwéu, whereas instead the influence from non-hierarchical languages like Wichí caused the gradual decay of the hierarchical systems in the Southern Guaykuruan languages.

12.2 Alignment

With respect to their alignment systems, then, all four Guaykuruan languages show a relatively large number (at least 30%) of morphemes aligning along an active-inactive pattern. For Toba, Pilagá, and Mocoví, this corroborates the analysis of these languages generally accepted in the literature. For Kadiwéu, however, this strong split-S system contradicts analyses by Sandalo (1995; 2005; 2009) of Kadiwéu as an ergative language. Again, the differences between Kadiwéu and the Southern Guaykuruan branch were clear, the former showing a far stronger active-inactive subsystem. Here,

language contact with Tupí-Guaraníán, Arawakan, or Matacoan languages does not provide a straightforward explanation, however, since active-inactive alignment is a feature of all these families. Therefore, an alternative explanation needs to be sought for this pattern.

Other notable tendencies found in the alignment patterns of the Guaykuruan languages include that of the strength of ergative alignment, which is considerably stronger in Kadiwéu than in Toba, and completely absent in Pilagá and Mocoví. Accusative alignment, on the other hand, is strongest in Pilagá and Toba, considerably weaker in Mocoví, and almost absent in Kadiwéu. In both these continuums, the differences seen between Kadiwéu and the Southern Guaykuruan branch are stronger than those within the southern branch. Once again, language contact provides a tentative explanation. The Arawakan and Tupí-Guaraníán language families, in contact with Kadiwéu, show a number of ergative characteristics, as do many other Amazonian languages spoken in close proximity to the area where the Kadiwéu used to dwell. The more southern Matacoan languages, on the other hand, show stronger nominative-accusative alignment, possibly influencing Pilagá, Toba and Mocoví.

The last striking feature of the alignment systems of the Guaykuruan languages is that both Pilagá and Toba show a number of morphemes which align [Sa, O] vs. [So, A], grouping the grammatical roles into two grammatical relations which both consist of a semantically agentive and a semantically patientive grammatical role. Although this alignment pattern seems counterintuïtive at first, I argued that it is actually more economical than tripartite, neutral, and double-oblique systems. What is more, this alignment type has, to the best of my knowledge, never before been discussed in the literature – neither for the Guaykuruan languages nor for any other language that I know of.

Chapter 13   Conclusions and Suggestions for Further Research

13.1 Theoretical results

All in all, this thesis has proven useful both from a theoretical and a descriptive point of view. On the theoretical side, firstly, it demonstrated that a construction-specific, morpheme-by-morpheme approach to alignment, as proposed by Witzlack-Makarevich et al. (2010) and taken over here, leads to more finegrained representations of alignment systems than the more traditional approach of labelling a language as a whole 'ergative' or 'accusative'. I have no doubt that, were this methodology to be applied to other (hierarchical) languages, and optionally combined with studies into the usage frequency of the morphemes found, alignment subsystems that have heretofore gone unnoticed would be discovered in many of them.

One of the subsystems that was discovered by virtue of this methodology, was the [Sa, O] vs. [So, A] pattern. It would be very interesting to examine whether, when analysed with this methodology, languages outside of the Guaykuruan family have morphemes with the same distribution. If so, this could lead to important new typological insights. Additionally, research into the cognitive motivations that could underlie a system structured in this way would be most valuable.

Furthermore, the approach taken in this thesis – treating hierarchical systems as a continuum rather than in terms of absolute presence or absence – made it possible to rank the Guaykuruan languages from strongly to weakly hierarchical. This made it possible to seek more specific explanations for the distribution of hierarchical characteristics across the four languages, rather than attempt to comprehensively explain the presence or absence of these systems in the whole language family. Once again, applying this methodology to other languages which show hierarchical effects could enhance our understanding of these typologically rare argument marking systems.

13.2 Descriptive results

The second result of this thesis is of a descriptive-comparative kind. This study provided a detailed description and comparison of the alignment systems of all four living Guaykuruan languages. As

such, it contributed to our understanding both of these languages individually, and of the geographical and genetic relations within the language family.

To further this effort, it would be worthwhile to apply the methodology of this thesis to the data that are available on Abipon argument marking. In this way, the validity of the continuums proposed in chapter 10 could be put to the test. Based on the findings of the present investigation, cross-referencing in Abipon would be expected to show fewer active-inactive characteristics than Mocoví, and no ergative characteristics. Since Abipon was spoken to the south of Mocoví, it should exhibit more 'extreme' behaviour than Mocoví in both these respects if the geographical continuum posited here is valid. Concerning the characteristics that conform to the genetic continuum (accusativity and hierarchical effects), on the other hand, Abipon is expected to occupy a middle ground between Mocoví and Kadiwéu. The reason for this is that Abipon forms, together with Pilagá, Mocoví and Toba, the southern branch of the family; but unlike these three it does not pertain to the Qom subbranch.

Next to examining the alignment system of Abipon in a quantitative way, the same should be done for a number of other languages in or near the Chaco region. By applying the present methodology to, for example, Wichí, Terena, and Mbya Guaraní (respectively Matacoan, Arawakan and Tupí-Guaraníian), one could shed light both on the genesis and evolution of the present-day alignment systems of the Guaykuruan languages, and on the extent of areal effects in the languages of the Chaco. Combined with more ethnographic and ethnohistorical research into the past migrations of and contacts between the ethnic groups of the Chaco region, research of this kind could lead to a better understanding of linguistic interaction in one of the most linguistically dense regions on earth.

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