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When "You" and "I" mess around with the hierarchy: a comparative study of Tupi-Guarani hierarchical indexing systems

Quando "Tu" e "Eu" se mexem na hierarquia: um estudo comparativo de sistemas de indexação hierárquica Tupí-Guaraní

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Abstract: This paper deals with the person indexing system of Tupi-Guarani languages. Past literature has claimed that the relative position of the arguments of a transitive verb on a supposed person hierarchy 1 > 2 > 3 determines what argument is marked on the verb and how. It is also commonly believed that the morphosyntax of individual Tupi-Guarani languages is very comparable. This paper surveys in detail the encoding of arguments on transitive verbs in 28 Tupi-Guarani languages. It shows that the prior assumptions about indexing in Tupi-Guarani languages either do not hold strongly, or need to be stated in more nuanced ways. The study also shows that these languages are not as similar morphosyntactically as is often assumed. Importantly, they display a great variation in the domain of local configurations (i.e., when the two speech act participants interact), the arguments of which are often encoded in a non-transparent manner. This leads us to reject the 1 > 2 hierarchy as operative in governing indexing in all languages of the group.

Keywords: Person hierarchy. Person indexing. Tupi-Guarani. Comparative linguistics. Amazonia. Inverse.

Resumo: Este artigo trata do sistema de indexação da pessoa em línguas Tupi-Guarani. A literatura existente tem afirmado que a posição relativa dos argumentos de um verbo transitivo em uma suposta hierarquia da pessoa 1 > 2 > 3 determinaria qual argumento é marcado no verbo, e como. Também se acredita em geral que a morfossintaxe de línguas Tupi-Guarani individuais seja bastante semelhante. Este artigo estuda em detalhe a codificação de argumentos em 28 línguas Tupi-Guarani, mostrando que hipóteses anteriores sobre a indexação em línguas Tupi-Guarani ou não são tão válidas assim, ou têm que ser formuladas numa maneira mais matizada. O estudo também mostra que estas línguas não são morfossintaticamente tão semelhantes como se supõe muitas vezes. Um aspecto importante é que elas mostram uma variação grande de configurações locais (quer dizer, quando dois participantes do ato de fala interagem), nas quais os argumentos muitas vezes não são codificados em uma maneira transparente. Isto nos lida a rejeitar a hierarquia 1 > 2 como válida para determinar a indexação nas línguas deste grupo todo.

Palavras-chave: Hierarquia de pessoa. Indexação de pessoa. Tupí-Guaraní. Linguística comparativa. Amazônia. Inverso.

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INTRODUCTION

The Tupi-Guarani branch of the Tupi family is a major language group of South America. It comprises around forty languages that are considered very similar morphosyntactically while very dispersed geographically (Jensen, 1999). Their typologically most frequently discussed feature is a hierarchical person indexing system, where the relative position of the arguments of an independent transitive verb on a supposed person hierarchy 1 > 2 > 3 determines what argument is marked on the verb and how[1]. The seminal analysis of hierarchical systems in Tupi languages by Monserrat and Soares (1983) was used as a model in subsequent works, among others the often cited reconstruction by Jensen (1990). A simplified version of the description of the hierarchical system was then repeated over time in individual descriptions and typological studies (such as Payne, 1994). While the main goal of the original work by Monserrat and Soares was to stress the variation found in the 'local' configurations (when first and second person interact) within the family, this variationist perspective has long been forgotten and the differences from the idealized system are often underemphasized in both individual language descriptions and comparative works[2]. The fair number of recent descriptions of Tupi-Guarani languages and the typological interest on local configurations (Heath, 1998; Zuniga, 2008; Junker, 2011) led us to undergo a new comparative study on that topic.

The terminology in Table 1 follows typological practice when studying the effect of the person value of the arguments of a transitive clause on their encoding.

Most typological studies on person indexing present a hierarchy 1 > 2 > 3 (Dixon, 1994; Givon, 2001). The basis for this hierarchy is the assumption that speakers are optimally interested in themselves, then in their interlocutors, then in any other person or object. It is nevertheless typologically common that the 1 > 2 > 3 hierarchy works clearly with respect to mixed configuration (3 ↔ 1, 2) but less so for local configurations when the two speech act participants (SAPs) are involved (1 ↔ 2) (Zúniga, 2006). As a consequence, the hierarchy between the SAPs and third person is universally accepted (1, 2 > 3) while the hierarchy between the two SAPs is debatable. Some authors consider that first and second persons are not universally hierarchized, their relative order fluctuating from one language to the other (Silverstein, 1976; Delancey, 1981). More rarely, other authors claim that the universal hierarchy is 2 > 1 (Junker, 2011). There is no universally-valid functional motivation for the ranking of the SAPs on the hierarchy. Local configurations indeed constitute a domain where pragmatics play a major role. In many languages, therefore, first or second person pronominals are replaced in discourse by impersonal, third-person or plural forms such as the French *vous*, the Spanish *usted* or the German *Sie* instead of a transparent second person singular pronominal ***tu/tú/du***.

Throughout this paper, I will refer to a study by Heath (1998). Heath argues that transparent person indexation combining markers for both first and second persons in transitive configurations are avoided in many languages. A transparent person indexation for a transitive configuration is when the person markers for the two arguments of the transitive clause

Table 1. Transitive configurations according to the person value of the arguments[3].

mixed configuration	3 ↔ 1, 2
local configuration	1 ↔ 2
non-local configuration	3 ↔ 3

[1] *1 > 2* reads '1st person is higher than 2nd person on a grammaticalized person hierarchy'. When the number is not specified, both singular and plural are implied.

[2] The idealized system is often just used as a starting point for the description of individual systems, and then the divergences with it are merely stated but rarely discussed.

[3] *1 ↔ 2* reads '1st and 2nd person are interacting'.

are overt, occur in separate morphological slots and do not interact (Heath, 1998, p. 84). "In other words, maximally transparent 'I saw you', 'you saw me', etc. […] are often replaced by some opaque surface forms" (Heath, 1998, p. 84). Siewierska (2004) relates the pragmatically sensitive transitive situation involving two speech-act participants to the notion of 'face threatening act' in the politeness theory (Brown; Levinson, 1987). Heath provides a list of twelve different strategies to avoid transparent combinations of first and second persons, based on data from diverse Australian and Native American languages (Table 2). He briefly discusses some Guarani data, identifying Strategies 3, 4 and 10[4]. Non-transparent person indexing in Tupi-Guarani languages was also previously explicitly linked to politeness rules, such as the avoidance of face threatening acts, in studies on Emerillon (Rose, 2002; 2003b; 2011). The present study identifies in the Tupi-Guarani language group seven out of Heath's twelve strategies (in bold in Table 2) used to avoid maximal transparency in the encoding of $1 \leftrightarrow 2$. It further suggests an additional 13th strategy. The specific operation of these strategies in the Tupi-Guarani languages is discussed from the third to the sixth sections of this article, which challenge the various assumptions.

Based on empirical examination of situations involving the two speech-act participants, this paper will conclude that we need to revise the analysis of hierarchical systems within the Tupi-Guarani group, and more specifically the earlier-proposed $1 > 2 > 3$ hierarchy. This study is based on data from 28 Tupi-Guarani languages representative of the eight subgroups. They are in bold in Table 3 with their reference sources. In the paper, language names will be cited with their subgroup number in Roman numerals.

Table 2. Strategies to avoid maximal transparency in local configurations (based on Heath, 1998) (Bold items correspond to Tupi-Guarani strategies).

Strategy 1	Marker disguised by partial phonological distortion
Strategy 2	**One of the two markers is expressed by isolated suppletive allomorph**[5]
Strategy 3	One of the two markers (elsewhere non-zero) is expressed by zero
Strategy 4	**Number neutralization, sometimes including use of pl for semantic sg**
Strategy 5	**1st or 2nd marker merged with (or replaced by) 3rd person marker**
Strategy 6	**Entire combination expressed by unanalyzable portmanteau**
Strategy 7	Entire combination expressed by zero (special case of portmanteau)
Strategy 8	**Inclusive marker replaces 1st or 2nd marker, or entire combination**
Strategy 9	Merged 1st / 2nd person marker is part of both $1 \rightarrow 2$ and $2 \rightarrow 1$ combinations[6]
Strategy 10	**Subject and object markers compete for a single slot**
Strategy 11	**Co-occurring 1st and 2nd markers are widely separated**[7]
Strategy 12	Combinations with identical segments differ in tones
+ Suggested *Strategy 13*	**Double marking of one of the arguments. The other one is unexpressed**

[4] *Strategy 3* is a consequence of *Strategy 10* in the Tupi-Guarani languages: if a single slot is available for person marking and it is filled to encode one argument in a transparent manner, the other argument must be zero-marked.

[5] One of the argument is not encoded by a regular person marker but by a person marker specific to this configuration of persons.

[6] *1 → 2* reads 'a 1st person argument is acting on a 2nd person argument'. The number preceding the arrow corresponds to the person of A (the canonical agent of a transitive verb), while that following the arrow corresponds to the person of P (the canonical patient of a transitive verb).

[7] By *Strategy 11*, Heath means that the markers for the two arguments are physically distant, for example when both a prefix and a suffix are involved.

Table 3. Distribution of the languages of the study based on (Rodrigues and Cabral, 2002).

I	• Guaraní Antigo • **Kaiwá (Taylor; Taylor, 1966)**, Ñandeva, Guarani Paraguayo, **Jopara (Kallfell, 2011)**, **Guarani correntino (Cerno, 2013)** • **Mbyá-Guarani (Dooley, 2006)** • **Xetá (Cabral; Rodrigues *et al*., 2005)** • **Tapieté (González, 2005), Bolivian Guarani (Dietrich, 1986), Ava-Guarani (De Andrade Freitas, 2011)** • **Achê (Roessler, 2008)**
II	• Guarayu • **Siriono (Hemmauer, 2006; Dahl, to appear)**, Jora • **Yuki (Villafañe, 2004)**
III	• Tupi, Língua Geral Paulista • **Tupinambá (Rodrigues, 2010)**, **Nheengatu (Da Cruz, 2011)** • **Kokama (Vallejos, 2010)**, **Omagua (O'Hagan, 2011)**
IV	• **Tapirapé (Praça, 2007)** • **Asuriní do Tocantins (Vieira, 1993)**, Parakanã • Suruí • **Avá-Canoeiro (Borges, 2006)** • **Tembé / Guajajára** / Turiwára (Tenetehara) (Bendor-Samuel, 1972; Harrison, 1986; Duarte, 2005)
V	• **Araweté (Solano, 2009)**, Ararandewá- Amanajé, **Anambé do Cairari (Julião, 2005)** • Asuriní do Xingu
VI	• **Kayabí (Dobson, 1997)** • Apiaká • Parintintín, Tupí-Kawahíb • Juma
VII	• Kamaiurá (Seki, 2000)
VIII	• **Wayampi of French Guiana (Copin, 2012)**, Wayapípukú, **Emérillon (Rose, 2011), Zo'é (Cabral, 2009)** • **Urubu-Ka'apór (Kakumasu, 1986; Garcia Lopes, 2009)** • Anambé de Ehrenreich • **Guajá (Magalhães, 2007)** • Awré e Awrá • Takoapé

The comparative data will be used to question the grammaticalized relative ranking of SAPs on the person hierarchy for the argument indexing system of the Tupi-Guarani languages. After briefly presenting the 'idealized' Tupi-Guarani hierarchical system in the next section, this paper will underline the variation among individual languages and the many discrepancies with the 'idealized' model (third to sixth sections of this article, challenging the various assumptions). It will more precisely focus on the local configurations. At the end of the article, we will develop two conclusive ideas: first, there is no unique hierarchical system within the Tupi-Guarani language group, but much variation (section: Conclusion 1); second, the person hierarchy really involved in these systems is reduced to a 1, 2 > 3 hierarchy (section: Conclusion 2).

THE 'IDEALIZED' TUPI-GUARANI HIERARCHICAL SYSTEM

Since Silverstein's pioneering work, it is known that hierarchies of features can play a major role in argument encoding systems (Silverstein, 1976). This author highlighted the role of semantic properties of nominals on case-marking and agreement (more specifically in the domain of ergative or split-ergative systems). The term 'person hierarchy' used in the present paper corresponds roughly to designations for such hierarchies used by others, such as 'empathy hierarchy' (Delancey, 1981), 'referential or inherent topicality hierarchy' (Givón, 1994), and 'indexability hierarchy' (Bickel; Nichols, 2007).

The fundamental idea behind the invocation of such hierarchies is iconicity: the more referential/topical/animate or semantically salient a participant is, the more likely it will have access to morphosyntactic slots. A first explicit definition of indexing systems entirely based on such hierarchies is Nichols (1992, p. 66), who says that in hierarchical systems: "Access to inflectional slots for subject and/or object is based on person, number, and/or animacy rather than (or no less than) on syntactic relations". In practice, this means that the participant that is higher on the hierarchy is favored over the lower one[8]. The person hierarchy that is often considered relevant for hierarchical systems is 1 > 2 > 3 (Siewierska, 2004). However, the literature on several language families rather posit a 1, 2 > 3 hierarchy, because 1st and 2nd persons cannot be hierarchized in a simple manner (see for example Macaulay, 2009, on Algonquian; Gildea, 2012, on Cariban).

The argument indexing system on independent transitive verbs in Tupi languages (including the Tupi-Guarani branch) constitutes a telling example of the role of a person hierarchy (Monserrat; Soares, 1983; Jensen, 1998). This section summarizes the usual presentation of this system as found in Proto-Tupi-Guarani reconstructions (Jensen, 1990; Schleicher, 1998) or in most individual descriptions. This analysis is repeated (often in a simplified version) in typological studies (Dixon, 1994, p. 107; Payne, 1994; Payne, 1997, p. 214). The debate on the definition of such systems as inverse is left aside here (for a discussion see Payne, 1994; Rose, 2009). Table 4 lists four assumptions found in the above-mentioned sources with respect to the hierarchical argument encoding system.

The Tupi-Guarani hierarchical system claimed to exist in independent transitive verbs is described below. A more detailed description can be found in Jensen (1990). There is a sole person slot on the verb; this slot precedes the stem and it is obligatory filled. There are two sets of person markers that qualify for it, called Set I and Set II after Jensen's (1990) comparative work[9]. Table 5 presents the pronominal paradigms that have been reconstructed.

Table 4. Four assumptions on the hierarchical indexing system.

Assumption 1	There is only one slot for person indexing on Tupi-Guarani verbs
Assumption 2	Portmanteau forms are used for the 1 → 2 configuration
Assumption 3	The 1 > 2 hierarchy is justified by first person indexing when 2 → 1
General Assumption	Access to the sole person slot follows from a 1 > 2 > 3 hierarchy

Table 5. Suggested reconstructions for the person markers (Jensen, 1999, p. 147).

	Set I	Set II	Set III[10]	Set IV (with 1A)	Free pronouns
1SG	*a-*	*ʧé*	*wi-*		*itʃé*
1EXCL	*oro-*	*oré*	*oro-*		*oré*
1INCL	*ja-*	*jané*	*jere-*		*jané*
2SG	*ere-*	*né*	*e-*	*oro-*	*ené*
2PL	*pe-*	*pé*	*peje-*	*opo-*	*pe…ẽ*
3	*o-*	*i-,ts-,t-*	*o-*		

[8] Among the hierarchical systems, inverse systems indicate specifically whether the direction of the action is, or is not, respecting the hierarchy. Direct/inverse systems mark the difference between a situation where the agent is higher than the patient in the hierarchy (direct), and one where the patient is higher (inverse).

[9] In the glosses of the examples, *1SG.II* reads 'first person singular marker of Set II'.

[10] Set III is not relevant for this paper, since it is not used in independent clauses. It is used to mark coreference of either the possessor in a nominal phrase, or the subject in a dependent clause, with the subject (of the main clause).

Jensen reconstructs Set I as prefixes and Set II as pronominal words (realized as pronouns, clitics or prefixes depending on the languages)[11]. Their distribution is summarized in Table 6. Set I marks A (as well as S_A on active intransitive verbs). Set II marks P (as well as S_P on stative intransitive predicates, possessor of nouns and object of postpositions). The person value of Set I and Set II forms on transitive verbs is unambiguous given their person value on other root classes.

The central point of the prior claims about the system is that the participant that is higher in the 1 > 2 > 3 person hierarchy is the one that systematically gets access to the unique index slot on the verb. In mixed configurations (involving a third person and an SAP), the SAP is therefore predicted to always be indexed on the verb. If the participant to be encoded is the A, it is indexed by Set I, as shown in example (1). If it is the P, it is indexed by Set II, as in example (2). In non-local configurations (3 → 3), the person hierarchy is irrelevant. The A argument is systematically indexed on the verb (3)[12], whatever the other semantic characteristics of the two arguments might be, and their relative topicality. The encoding of the two local configurations (SAP → SAP) is more complex. When a second person acts on a first person (2 → 1), whatever their number, it is said that the first person patient is indexed by virtue of being higher on the person hierarchy (4)[13]. When a first person (whatever its number) acts on a second person (1 → 2), Jensen (1990) says that a special set of markers (Set IV) is used. This Set IV consists of portmanteau forms indexing the person value of both A and P (whatever the number of A). They are reconstructed as **oro-* (1 → 2SG (5)) and **opo-* (1 → 2PL (6)).

Kamaiurá VII (Seki, 2000, p. 137-140)

(1) 1SG → 3
a-pyhyk
1SG.I-catch
'I catch him/her/them/it.'

(2) 3 → 1SG
je=pyhyk
1SG.II=catch
'He/she/they catch me.'

(3) 3 → 3
o-etsak
3.I-see
'He/she/they/it see(s) him/her/them/it.'

(4) 2 → 1SG
je=pyhyk
1SG.II=catch
'You (SG/PL) catch me.'

(5) 1 → 2SG
oro-etsak
1 → 2SG-see
'I/we see you (SG).'

(6) 1 → 2PL
opo-pyhyk
1 → 2PL-catch
'I/we catch you all.'

In Proto-Tupi-Guarani and a few descendant languages, a third person P is additionally systematically marked by a Set II prefix following the Set I prefix for A; see the reconstructed forms (marked by '*') in examples (7) and (8).

Table 6. Distribution of person markers in Proto-Tupi-Guarani.

	S_A	A	P	S_P	Poss	O of POSTP
Set I	x	x				
Set II			x	x	x	x

[11] It is noticeable that the Set II person markers correspond closely to the free pronouns.
[12] It is induced that, in this configuration, the person index marks A rather than P, because this marker is used elsewhere to index S_A (and therefore belongs to Set I).
[13] Thus 2 → 1 and 3 → 1 are identically encoded (compare (4) with (2)).

Proto-Tupi-Guarani (Jensen, 1998, p. 518-522)

(7) SAP → 3

**a-i-potár*

1SG.I-3P-like

'I like him/her/them/it.'

(8) 3 → 3

**o-i-potár*

3.I-3P-like

'He/she/they/it like(s) him/her/them/it.'

The four assumptions presented above are rarely challenged in the literature[14]. Admittedly, Monserrat and Soares (1983) do consider *Assumption 2* a 'leak' in their proposed hierarchical system. Monserrat and Soares identify five types of encoding for the 1 → 2 configuration, on the basis of a small number of languages. The portmanteau analysis presented above for the configuration 1 → 2 also acknowledges that the 1 > 2 hierarchy is not operative in this configuration[15]. The fundamental idea behind a portmanteau analysis is that the form encodes a whole configuration and not one argument over the other. Consequently, portmanteau forms do not support any hierarchy. The hierarchy 1 > 2 therefore applies only to the configuration 2 → 1, to which some authors add the configuration 1PL → 2SG (Monserrat; Soares, 1983; Payne, 1994; Seki, 2000). This will be discussed in the section 'Challenging the General Assumption'. The present paper will now re-consider the suggested 1 > 2 hierarchy by challenging each of the four assumptions of Table 4, in the respective sections below.

Before that, it must be noted that 23 languages among the 28 Tupi-Guarani languages of the study are described as displaying a hierarchical system, whereas five are not: Achê I, Nheengatu III, Kokama III and Omagua III, and Urubu-Ka'apor VIII. It is generally considered that these five languages lost the hierarchical indexing system reconstructed for Proto-Tupi-Guarani. This is quite plausible due to the specific genesis of each of these languages (Cabral, 1995; Jensen, 1998, p. 497, citing a personal communication from Aryon Rodrigues; Roessler, 2008; Da Cruz, 2011). These five languages will not be discussed in the remaining sections.

CHALLENGING ASSUMPTION 1: MULTIPLE INDEXING

Assumption 1 - There is only one slot for person indexing on Tupi-Guarani verbs

The literature on Tupi-Guarani languages often stresses the fact that only one argument is marked with an index on the verb, even with transitive verbs. Indexes include affixes, clitics and weak pronouns[16], and are distinct from free pronouns that are "morphologically and syntactically independent expressions of person" (Siewierska, 2003). This section reviews three counterexamples to the 'only one index' rule (first three lines of Table 7). A fourth possible counterexample is discussed, in the use of some special pronominal forms that could also be considered person indexes (last line of Table 7).

[14] An exception is Dietrich (2001, p. 30-31), who considers that whenever the patient is 1st or 2nd person, the syntax of the clause is like that of a predicate nominal clause. This means that the word including the verb root and its person prefix should be analyzed as an existential predicate, comparable with expressions of possession. Dietrich's analysis precisely does not explain the local configurations on which this paper focuses. Nominal predicates indeed do not show the same variation and forms in person encoding when SAPs interact as those on verbs, examined in this paper.

[15] The hierarchy 1 > 2 could be supported only if the supposed portmanteaus were analyzed as A markers (as partially done in Seki, 2000, on Kamaiurá; Dooley, 2006, on Mbya).

[16] See note 20.

Table 7. Counterexamples to the 'only one index' rule.

Argument	Illustrative languages
Two person indexes (with 3P)	Tupinambá III, Mbyá I (Guarani correntino I, Chiriguano I, Ava I)
Bi-morphemic analysis of so-called "portmanteaus"	Emerillon VIII, Guajajara IV, Kaiwá I, Kamaiurá VII, Siriono II, Tapieté I, Tapirapé IV, Tupinambá III
Two person indexes for 2 → 1	Tapieté I (variant)
Special pronominal forms for 2 → 1	Asurini do Tocantins IV, Guajajara IV, Kayabi VI, Tapirapé VII, Tupinambá III, Emerillon VIII, Wayampi VIII

A first counterexample to *Assumption 1* is the above-mentioned marking of a third person object by a Set II prefix ***i-** ~ ***ts-**[17] between the root and the Set I prefix in some languages (for instance in Mbyá I and Tupinambá III) as well as in the reconstruction suggested by Jensen (1990). The verb shows a succession of two obligatory person markers.

(9) 1 → 3 (Mbyá I, Dooley, 2006, p. 18)
***a-i-**pota*
1SG.I-3.II-want
'I want it.'

(10) 1 → 3 (Tupinambá III, Jensen, 1999)
***a-s-**ekár*
1SG.I-3.II-seek
'I sought it.'

A possible second counterexample to *Assumption 1* lies in the reconsideration of the analysis of the so-called portmanteau forms used in the local configuration 1 → 2PL as a sequence of two morphemes. The bi-morphemic analysis is developed in the section challenging *Assumption 2*.

A third potential counterexample to *Assumption 1* is very marginal. Tapieté I normally follows the regular pattern for 2 → 1 but some speakers use a instead a sequence of Set I and Set II markers referring respectively to A and P (11).

(11) 2SG → 1SG (Tapieté I, González, 2005, p. 151)
nde ***nɨ-shɨ-**ngɨye*
PRO.2 2SG.I-1SG.II-fear
'You have scared me.'

Finally, some specific pronominal forms are used in the local configuration 2 → 1 that could disprove *Assumption 1* as well. In the local configuration 2 → 1, the first person P is indexed on the verb as expected, since it is higher on the person hierarchy. But in seven languages (see last line of Table 7) a special pronominal form also follows the verb (14). It is unknown to what extent *Assumption 1* holds for these languages given the lack of information about these pronominal forms. I suspect that *Assumption 1* has the effect of downgrading the importance of the reconstructed pronominal forms ***epe** and ***peyepe**, which are unexpectedly almost never presented in the tables with the other

[17] The allomorphic distribution of ***i-** and ***ts-** depends on the lexical class of the root. Other allomorphs ***jo-** and ***jots-** are found before monosyllabic stems. ***i** ~ ***ts** is not analyzed as a P marker in some descriptions (Dietrich, 1986, p. 89-91; De Andrade Freitas, 2011; Kallfell, 2011; Cerno, 2013). It never occurs on independent transitive verbs in other languages, such as Anambé IV, Emerillon VIII and Xeta I.

pronominal paradigms[18]. These special pronominal forms, often neglected in the descriptions, differ from the regular free pronouns presented in Table 5. They are probably considered to be "pronouns", i.e. independent words, due to their lack of phonological or morphological interaction with the verb. From the scarce data presented, it nevertheless seems that these pronominal forms could be considered as post-verbal indexes, due to their placement right after the verb and their (apparent) obligatoriness[19]. More information is needed to evaluate whether they could be considered to be 'weak pronouns'[20], i.e. a type of person index. The variation in these special pronominal forms will be discussed in the following section. They could maybe be considered to be post-verbal person indexes used additionally to the pre-verbal ones.

(12) 2PL → 1SG (Kayabi VI, Dobson, 1997, p. 53)

je=	*nupã*	***pejepe****.*
1SG.II	hit	2PL

'You all hit me.'

There are thus at least three (or four) reasons to nuance *Assumption 1*, claiming that there is only one slot for person indexing on Tupi-Guarani verbs. While in most cases there is only one obligatory prefix/clitic on the verb, some configurations call for two morphemes.

CHALLENGING ASSUMPTION 2. AGAINST THE PORTMANTEAU ANALYSIS

Assumption 2- Portmanteau forms are used for the 1 → 2 configuration

In seventeen languages, the pronominal forms used for 1 → 2 can be analyzed as reflexes of ****oro-*** for 1 → 2SG (Jensen, 1990, p. 120) and of ****a-poro-*** for 1 → 2PL (Cabral, 2001), previously reconstructed as ****opo-*** (Jensen, 1990, p. 120). These forms are analyzed as portmanteau forms in most of the descriptions, in accordance with Heath's (1998) *Strategy 6*[21].

Strategy 6- Entire combination expressed by an unanalyzable portmanteau form.

The reflexes of ****oro-*** for 1 → 2SG are strikingly homonymous with the first person exclusive Set I markers in fourteen languages, i.e. all the languages of Table 8 except the three languages at the bottom of the table.

Economy leads to analyzing ****oro-*** as a transparent A marker in the configuration 1EXCL → 2SG (13). P is left unexpressed, as it also is in the mixed configuration 1EXCL → 3 where A is higher than P on the person hierarchy (14). Indeed, there is no formal distinction between these two configurations in most languages. Another argument for analyzing ****oro-*** for 1EXCL → 2SG as an A marker is that no ***r-*** relational marker is present in (13) as it should be if ****oro-*** was a Set II marker (15). The so-called "relational marker" is indeed found on some verbal roots when preceded by a P argument expressed either as a nominal phrase preceding the verb or as a SAP Set II prefix. The use of ****oro-*** in

[18] The basic paradigm of free pronouns is, in contrast, often presented as a basic pronominal paradigm, although this paradigm is not filled for each person.

[19] Whether these pronominal forms are obligatory is almost never discussed, except in Praça (2007, p. 103), where they are said to be used by older Tapirapé speakers, but less frequently in the youngsters' speech.

[20] 'Weak pronouns' are defined as "free forms, neither phonologically nor morphologically bound to another constituent, but they do not receive primary sentence accents. […] they differ from free pronouns in form and syntactic distribution." (Bresnan, 2001).

[21] In certain other descriptions they are analyzed as P markers (Dietrich, 1986; Cabral, 2001; Kallfell, 2011; Copin, 2012), As A Markers (Dooley, 2006), or as a sequence of an A marker and a P marker (Villafañe, 2004; González, 2005; Rose, 2011).

local and mixed configurations can be distinguished only in languages where a third person Set II prefix for P is active (compare Tupinambá III examples (16) and (17)).

(13) 1EXCL → 2SG (Kamaiurá VII, Seki, 2000, p. 140)
oro-etsak
1EXCL.I-see
'We (EXCL) see you.'

(14) 1EXCL → 3 (Kamaiurá VII, Seki, 2000, p. 139)
oro-etsak
1EXCL.I-see
'We (EXCL) see (it/him/her).'

(15) 3 → 1EXCL (Kamaiurá VII, Seki, 2000, p. 139)
ore=r-etsak
1EXCL.II-REL-see
'He/her/it sees us (EXCL).'

(16) 1EXCL → 2SG (Tupinambá III, Rodrigues, 1953, p. 131)
oré *oro-epîák*
PRO.1EXCL 1EXCL.I-see
'We (EXCL) see you.'

(17) 1EXCL → 3 (Tupinambá III, Rodrigues, 1953, p. 132)
oro-îo-súb
1EXCL.I-3.II-visit
'We (EXCL) visit him/her.'

Table 8. Comparison of indexing for 1 → 2SG with 1EXCL.I.

	1 → 2SG	1EXCL.I
Asurini do Tocantins	*oro-*	*oro-*
Ava	*ro-*	*ro-*
Chiriguano	*ro-*	*ro-*
Emerillon	*oro-*	*oro-*
Guajajara	*uru-*	*uru-*
Guarani correntino	*ro-*	*ro-*
Jopara	*ro-*	*ro-*
Kaiwa	*oro-*	*oro-*
Kamaiurá	*oro-*	*oro-*
Mbya	*ro-*	*ro-*
Tapirapé	*ara-*	*ara-*
Tupinambá	*oro-*	*oro-*
Wayampi	*olo-*	*olo-*
Zo'é	*oro-*	*oro-*
Tapieté	*ari-* ~ *iri-*	*-ha*[22]
Siriono	*are-*	*ure-*
Yuki	*are-*	*ore-*

[22] Tapieté does not use a reflex of ***oro-*** for 1EXCL.A (González, 2005, p. 146). A first person exclusive subject is encoded with the third person prefix plus the suffix ***-ha*** 'EXCL': 1EXCL (→ 3): ***o-ho-ha*** (3.A-go-1EXCL) 'We (EXCL) go.'

The reflexes of ***oro-*** extend to express the configuration 1SG → 2SG in the same fourteen languages, as exemplified in (18). In Mbya I and Asurini do Tocantins IV, the meaning of ***oro-*** extends to 1 → 2PL as well.

(18) 1SG → 2SG (Tupinambá, Rodrigues, 1953, p. 131)
xé ***oro-epîák***
PRO.1SG 1EXCL.I-see
'I see you.'

These two meaning extensions suppose number neutralization. Using a plural form for a singular is a common strategy in the expression of speech act participants, illustrating Heath's (1998) *Strategy 4*. It is, for example, at work in the polite use of *vous* '2PL' for a singular addressee in French, a strategy called 'plurification' in Heine and Song's paper on the development of personal pronouns (Heine; Song, 2011). Using an inclusive form to refer to two local arguments is another pattern attested cross-linguistically (Heath's *Strategy 8*). Yuki II possibly uses a comparable strategy for 1 → 2PL. In Yuki II, this configuration is expressed with ***ya-***, a form identical with the inclusive marker (Villafañe, 2004, p. 209).

Strategy 4- Number neutralization, sometimes including use of PL for semantic SG.

Strategy 8- Inclusive marker replaces 1st or 2nd marker, or entire combination.

In three languages (among which the two members of subgroup II), the forms used for 1 → 2SG are less easily derivable from ***oro-***; these are Siriono II ***are- ~ ane-***, Yuki II ***are-*** and a variant of Tapieté I ***ari- ~ andi-*** for 1SG → 2SG. In these three languages the pronominal encoding can plausibly be analyzed as two morphemes ***a-*** '1SG.I' plus ***re- ~ ne-*** that could be formally related to the second singular Set II index (see Table 5). Assuming that ***oro-*** is the correct reconstruction for 1 → 2SG, the commonalities in 1 → 2SG marking for these three Bolivian Tupi-Guarani languages could be considered an innovative pattern via the reanalysis of ***oro-*** as a more transparent encoding for 1 → 2SG. Tapieté I additionally shows a specific and transparent encoding for the 1EXCL→ 2 configuration. This construction shows multiple indexing, with both a 2nd person Set II prefix for P (also encoding number) and the ***-ha*** EXCL suffix for A (see note 22).

(19) 1EXCL → 2SG (Tapieté I, González, 2005, p. 151)
ndi-wohi-ha
2SG.II-carry-1EXCL
'We (EXCL) take you (SG).'

Now, regarding the forms for 1 → 2PL, it is striking that the earlier reconstruction ****opo-*** (Jensen, 1990, p. 120) does not easily account for the synchronic forms of the supposed portmanteaus for 14 languages in the database (Table 9). Moreover the forms used for 1 → 2PL can be transparently parsed as two morphemes in many Tupi-Guarani languages: ****a-*** '1SG.I' and ****poro-*** 'generic human' (20). The morpheme ****poro-*** is used in many languages to refer to a generic human referent (21)[23].

[23] Tupinambá, Tembé, Guaráyo, Chiriguano, Paraguayan Guarani, Old Guarani, Kayabí, Parintintin, Mbya (Cabral, 2001, p. 135-139); Emerillon (Rose, 2011, p. 62-63). In Emerillon, ***poro-*** can be considered a member of Set II.

(20) 1 → 2PL (Emerillon VIII, Rose, 2009, p. 69)

a-poro-*nupã-tar*

1SG.I-GEN.HUM.P-hit-FUT

'I/we will hit you both.' (told by a father furious at his misbehaving daughters)

(21) *poro-* as Set II for generic human (Emerillon VIII)

o-ʔu-tar	*kui*	***poro-****mõ-maʔam*
3.I-come-FUT	one.day	GEN.HUM.P-CAUS-stand.up

'He will come one day to raise all men (from the dead).'

Cabral (2001) therefore proposes a bi-morphemic reconstruction, consisting of ***a-** 1SG.I and ***poro- ~ po-** 'generic human', for the configuration 1 → 2PL, in which the morpheme for a generic human referent is used to refer to a second person plural referent. In line with Heath (1998), the use of ***a-** 1SG.I for configurations with a first person plural agent can be explained as number neutralization (*Strategy 4*), while the use of the indefinite expression ***poro-** to refer to a second person plural argument corresponds to *Strategy 5*. The use of an indefinite pronoun (derived from a generic noun) as a second person plural marker has already been described as cross-linguistically common (Heine; Song, 2011).

Strategy 4- Number neutralization, sometimes including use of PL for semantic SG.

Strategy 5- 1st or 2nd marker merged with (or replaced by) 3rd person marker.

Cabral's (2001) analysis accounts for the synchronic encodings in 12 of the 14 languages that do not express either a first person A or a second person plural P transparently. Table 9 shows that some languages use reflexes of the two morphemes; others use only a reflex of ***poro** (***po-** in subgroup I); and the relevant forms in yet two other languages show no link with ***poro***[24].

Among the languages that use only a reflex of ***poro**, the languages of subgroup I (Avá, Chiriguano, Guarani correntino, Jopara) show the reflex ***po-** for 1 → 2SG (22), and Table 8 shows that they use the prefix ***ro-** for 1 → 2SG.

(22) 1 → 2PL (Jopara I, Kallfell, 2011, p. 109)

che / ore	***po-****hecha*
PRO.1SG/PL	2PL.II-see

'I/we see you all.'

The prefixes ***po-** and ***ro-** are considered P markers in the synchronic descriptions of those languages, but without specific arguments supporting the claims (Dietrich, 1986; Kallfell, 2010). It is clear only in Tupinambá that ***opo-** has been reanalyzed as a Set II marker (Cabral, 2001, p. 135). It indeed shows the regular morphosyntactic distribution of Set II markers (see Table 6). It is used as a possessive prefix on nouns for instance. Table 9 shows that only Guajajara and Kaiwa have developed a distinction between 1SG → 2PL and 1EXCL → 2PL with a transparent encoding of a first person

[24] Only Siriono and Yuki do not conform to this reconstruction. Yuki's use of 1INCL for 1 → 2PL has been discussed above in this section. Siriono shows either ***are-**, as for 1 → 2SG, or ***haẽ-**, possibly analyzed as a sequence of ***a-** 1SG.A and ***hẽ-** 2PL. P with some metathesis maybe related to regular deletion of internal ***h*** (Hemmauer, 2006, p. 97). This form would thus illustrate *Strategy 1* - Marker disguised by partial phonological distortion.

Table 9. Encoding of 1 → 2PL[25].

Reflexes of both **a-* '1SG.I' and **poro-* 'generic human'	Emerillon	VIII	*a-poro-*
	Guajajara	IV	*apu-* 1SG → 2PL / *urupu-* 1EXCL → 2PL
	Kaiwá	I	*apo-* 1SG → 2PL / *oropo-* 1EXCL → 2PL
	Kamaiurá	VII	*opo-*
	Tapieté	I	*apiri-*
	Tapirapé	IV	*ãpa-*
	Tupinambá	III	*opo-*
Reflexes of just **poro-* 'generic human'	Ava	I	*po-*
	Chiriguano	I	*po-*
	Guarani correntino	I	*po-*
	Jopara	I	*po-*
	Zo'é	VIII	*poro-*
No reflexes of either **a-* '1SG.I' or **poro-* 'generic human'	Siriono	II	*aẽ-*
	Yuki	II	*ya-*

exclusive A in the expression of 1EXCL → 2PL. In this configuration, *Strategy 4* on number neutralization does not apply. The reflex of **oro-* 1EXCL.I is used instead of **a-* '1SG.I' before **poro-*.

This section offered a new reconstruction for 1 → 2 replacing the previous analysis that involved portmanteau forms (*Assumption 2*). The expression of 1 → 2SG is reconstructed with **oro-* 1EXCL.I. This use of a 1EXCL.I marker can be explained as a replacement of a transparent combination of a first and a second person markers with a single inclusive marker (*Strategy 8*) and by neutralization of number since the 1EXCL.I marker can express a configuration with a first person singular A (*Strategy 4*). The expression of 1 → 2PL is reconstructed with **a-* '1SG.I' and **poro-* GEN.HUM.P. The use of **a-* '1SG.I' for configurations with a first person plural A can be explained as number neutralization (*Strategy 4*), while the use of the indefinite expression **poro-* to refer to a second plural argument corresponds to *Strategy 5*.

Strategy 4- Number neutralization, sometimes including use of PL for semantic SG.

Strategy 5- 1st or 2nd marker merged with (or replaced by) 3rd person marker.

Strategy 8- Inclusive marker replaces 1st or 2nd marker, or entire combination.

CHALLENGING ASSUMPTION 3. ON 2 → 1

Assumption 3 - The 1 > 2 hierarchy is justified by first person indexing when 2 → 1

Information on this configuration is lacking for Yuki II. In all other languages of the study, except for Emerillon VIII and Wayampi VIII, the first person P argument is indexed on the verb with a Set II marker, while the second person A argument is expressed by a free pronoun (23)[26]. This construction is used regardless of the number of A and P.

[25] Table 9 does not include the languages which encode 1 → 2PL with a clear reference to just one of A or P (Ava-Canoiero IV, Kayabi VI, Anambé V, Araweté V, Guaja VIII and Xeta I), or in a similar way to how they code 1 → 2SG (Asurini do Tocantins IV, Mbyá I). A rare alternate form of *a-poro-* specifically for 1EXCL → 2PL is *oro-* in Emerillon VIII.

[26] Whether this pronoun is optional or obligatory is not always specified in the sources. The absence of a pronoun here makes the interpretation of the sentence ambiguous, with either a second or third person A.

(23) 2PL → 1EXCL (Guarani correntino I, Cerno, 2013, p. 146)

pende *ore-juhu*

PRO.2PL 1EXCL.II-meet

'You all meet us.'

Only two languages do not show a Set II index on the verb for 2 → 1: Emerillon and Wayampi. These two close members of subgroup VIII have diverged from the rest of the Tupi-Guarani languages. Instead of P, A is indexed on the verb, in non-conformity with a 1 > 2 hierarchy. In the two languages, pronominal forms are found after the verb but they are not cognate with each other. The entire constructions are given in Table 10. (The double second-person reference in two of the Emerillon examples will be discussed shortly.)

In Wayampi VIII, the system is almost transparent, with both A and P explicitly expressed: A as a Set I prefix on the verb, and P as a Set II prefix on an auxiliary. This auxiliary shows different forms depending on the number of P[27]. Person indexing on the verb is not conform with a 1 > 2 hierarchy, but the indexing on the auxiliary following the verb is.

In Emerillon VIII, the system is less transparent: both arguments are not always explicitly expressed. A is marked with a Set I prefix on the verb, but the post-verbal pronominal forms do not systematically refer to P. The forms ***ereŋ*** and ***peŋ*** are special second person pronominal forms, and they can only be interpreted here as referring to A as the meanings of the relevant examples in Table 10 are not reflexive but express a 2 → 1 configuration. These two pronominal forms are composed of a form similar to the Set I prefixes ***ere-*** '2SG' and ***pe-*** '2PL' and a final ŋ formative, a continuous clitic elsewhere in the language. This means that in two of the four 2 → 1 patterns in Emerillon, A is double marked, and P is unexpressed. In previous works (Rose, 2003a; Rose, 2008; 2009), I

Table 10. Constructions for 2 → 1 in Emerillon and Wayampi.

	Wayampi (Copin, 2012, p. 240-241)	Emerillon (Rose, 2009, p. 68)
2SG → 1SG	***ele-poanu pũwĩ e-jpa*** 2SG.I-cure INTER 1SG.II-aux 'Have you cured me?'	***ere-nũpã ereŋ*** 2SG.I-hit 2SG 'You hit me'
2SG → 1PL	***ele-poanu pũwĩ ole-kupa*** 2SG.I-cure INTER 1EXCL.II-aux 'Have you cured us?'	***ere-nũpã orone-kom*** 2SG.I-hit 1EXCL-PL 'You hit us'
2PL → 1SG	***pe-poanu pũwĩ e-jpa*** 2PL.I-cure INTER 1SG.II-aux 'Have you all cured me?'	***pe-nũpã peŋ*** 2PL.I-hit 2PL 'You all hit me'
2PL → 1PL	***pe-poanu pũwĩ ole-kupa*** 2SG.I-cure INTER 1EXCL.II-aux 'Have you all cured us?'	***pe-nũpã orone-kom*** 2PL.I-hit 1EXCL-PL 'You all hit us.'

[27] The singular form ***jpa*** of the auxiliary is used elsewhere as a progressive auxiliary, and the plural form ***kupa*** as a collective marker. Neither form can be used as a verb in an independent clause. This suggests that the pattern illustrated in Table 10 grammaticalized long ago.

hypothesized that this double-marking pattern could be explained by a change in SAP hierarchy from 1 > 2 in Proto-Tupi-Guarani to 2 > 1 in Proto-Emerillon. The new hierarchy would have affected the pronominal prefix on the verb, replacing a 1st person marker by a 2nd person marker. Some of the post-verbal pronominal forms for 2nd person A would have resisted the change (i.e. been retained as marking A), leading to double-marking of A. It is by no means a transparent pattern but still works as a distinctive and unambiguous way to express a specific configuration: there is no explicit and separate expression of both A and P, but double-marking is unequivocally associated with a 2 → 1 configuration. This constitutes a strategy to avoid transparent marking of local configurations that was not listed in Heath's (1998) work. I am suggesting an additional strategy, that I label *Strategy 13*.

Suggested *Strategy 13*- Double marking of one of the arguments. The other one is unexpressed.

Now going back to the languages that index P on the verb for 2 → 1, it was mentioned earlier that five of these languages belonging to three different subgroups use special pronominal forms in this situation (Tupinambá III, Kayabi VI, Tapirapé IV, Guajajara IV, and Asurini do Tocantins IV). These pronominal forms are placed after the verb (24), while free pronouns are clause-initial. They do not all refer transparently to second person. This non-canonical person marking is reminiscent of Heath's (1998) *Strategy 2* and *Strategy 11* to avoid transparent combinations of first and second persons.

Strategy 2- One of the two markers is expressed by isolated suppletive allomorph[28].

Strategy 11- Co-occurring 1st and 2nd markers are widely separated[29].

(24) 2PL → 1EXCL (Tupinambá III, Rodrigues, 1953, p. 152)

ore-r-epyák ***peyepé***

1EXCL.II-REL-see 2PL

'You all saw us.'

The special pronominal forms used for 2 → 1 are given in Table 11. They agree in number with the A. The two special A2 pronominal forms have been tentatively reconstructed as ****jepe*** 'A2SG', and ****pejepe*** 'A2PL' by Jensen (1998, p. 521-522), versus as ****epe*** 'A2SG' and ****epe(y)epe*** 'A2PL' by Schleicher (1998, p. 200-201).

A ***pe*** formative at the end of the forms can be identified in the five languages. It is noticeably identical in form with the reflex of the dative/locative postposition ****-pe*** in all these languages. In Guajajara IV and Asurini IV, this formative is invariably used for the four 2 → 1 configurations (i.e. 2SG → 1SG, 2SG → 1PL, 2PL → 1SG, and 2PL → 1PL). In Tupinambá III, Kayabi VI and Tapirapé IV, this element is combined with a preceding formative that

Table 11. Special pronominal forms used when 2 → 1.

	Tupinambá	Kayabi	Tapirapé	Guajajara	Asurini do Tocantins
A2SG → P1	*yepé*	*ape*	*xepe*	*pe*	*-ipe*
A2PL → P1	*peyepé*	*peyepe*	*pexepe*		
A2SG/PL → P1EXCL			*arepe*		

[28] See note 5.
[29] See note 7.

looks pronominal both in its function and its form. The ***pe*** or ***peye*** initial formative found in the configuration with a second person plural A corresponds to the 2PL in Set I and Set II (***pe***) or Set III (***peye-***) in the three languages (see Table 5)[30]. Altogether, these second person plural special pronominal forms are very likely made of a second person marker and a dative/locative postposition. The initial formative found in configuration with a second person singular A are formally similar to the 1SG Set I prefix in Kayabi and to the 1SG Set II prefix in Tapirapé. They thus index a first singular argument, making a second reference to P in this construction for the 2SG → 1 configuration. This double marking of P is also attested with the third pronominal form in Tapirapé IV. In Tapirapé IV, the pronouns corresponding to ****jepe*** and ****pejepe*** are restricted to configurations with a first person singular P. They are illustrated in examples (25) and (26). In addition, an extra form *arepe* is used for 2SG/PL → 1EXCL (27). It is apparently built on ***are***, the first person exclusive Set II marker plus the possible dative/locative ***-pe***. This etymology can be explained by analogy with an analysis of ***xe*** in ***xepe*** as the first person singular Set II pronoun visible sentence-initially in example (25).

Tapirapé IV (Praça, 2007, p. 104)

(25) 2SG → 1SG

xe=Ø-ma'ẽ	***xepe***
1SG.II-REL-teach	1SG

'You teach me.'

(26) 2PL → 1SG

peẽ	***xe=Ø-maky'ã***	***pexepe***
PRO.2PL	1SG.II=REL-make.dirty	2PL

'You all made me dirty.'

(27) 2SG/PL → 1EXCL

peẽ	***are=r-exãk***	***arepe***
PRO.2PL	1EXCL.II=REL-see	1EXCL

'You all saw us.'

There is consequently double marking of P and no marking of A in the clause when ***ape***, ***xepe*** and ***arepe*** are used (for 2 → 1SG, 2SG → 1SG and 2SG/PL → 1EXCL respectively)[31]. Interestingly, Tapirapé IV and Kayabi VI show double marking of P in the same configuration than Emerillon VIII shows double marking of A, namely when P is first person, i.e. in a highly face-threatening situation for the speaker. These three languages illustrate *Strategy 13*, double marking of either A or P, for expressing local configurations in a non-transparent manner. This strategy can therefore combine with either 1 > 2 or 2 > 1 local hierarchy in synchrony.

Suggested *Strategy 13*- Double marking of one of the arguments. The other one is unexpressed.

In summary, this section has shown that *Assumption 3*, which states that the marking in 2 → 1 configurations supports the 1 > 2 hierarchy, is challenged by features of two languages: by the marking on the lexical verb in Wayampi (though not by the auxiliary verb marking), and by Emerillon. The section also showed much variation in special pronominal forms, illustrating three different non-transparent strategies in the encoding of local configurations.

[30] Set II 2PL in Kayabi is ***pẽ***.

[31] Since the Tapirapé three special pronominal forms do not unequivocally all refer to just A or just P, Praça (2007, p. 103-104) considers them as portmanteau pronouns. Praça's gloss for the final pronouns of examples (25) to (27) is 2SG → 1SG, 2PL → 1SG, 2 → 1EXCL.

CHALLENGING THE GENERAL ASSUMPTION. DECONSTRUCTING THE 1 > 2 HIERARCHY

General Assumption - Access to the sole person slot follows from a 1 > 2 > 3 hierarchy

The present study underscores five arguments against a 1 > 2 hierarchy applicable to all Tupi-Guarani hierarchical indexing systems, based on data for local configurations. They are summarized in Table 12 and detailed below.

The first argument against a 1 > 2 hierarchy for all Tupi-Guarani languages considered as showing a hierarchical indexing system is that, among the languages that do not show reflexes of ***oro-** and ***a-poro-**, four languages in fact show no SAP hierarchy. These four languages, belonging to three different branches (Anambé V, Araweté V, Guajá VIII, Xeta I) index the second person P on the verb when 1 → 2 (28). This should fit a 2 > 1 hierarchy. However, P is also indexed in the other local configuration 2 → 1 (29). This supports the traditional 1 > 2 hierarchy as in the common system presented in the section on the 'idealized' TG hierarchical system. Thus no over-arching person hierarchy can be posited between the speech act participants in these four languages since each local configuration supports a different hierarchy. To summarize, P is indexed on the verb and A can only be expressed by a regular free pronoun, in the two local configurations of these languages. Their system thus favors P over A in terms of marking on the verb.

(28) 1SG → 2SG (Guajá VIII, Magalhães, 2007, p. 195)
jahá *ni=n-ixá*
PRO.1SG 2SG.II=REL-see
'I saw you.'

(29) 2SG → 1SG (Guajá VIII, Magalhães, 2007, p. 194)
nijã *ha=r-ixá*
PRO.2SG 1SG.II=REL-see
'You saw me.'

Second, this analysis of P-marking outranking A-marking can be replicated for languages whose descriptions view the forms used for 1 → 2 simply as P markers (see 'Challenging *Assumption 2*'). It is unclear how the hierarchy 1 > 2 can be supported in these cases, since the second person is the one that gets encoded on the verb, not the first person.

Third, following the reconstruction of 1 → 2 as ***oro-** and ***a-poro*** offered in the section 'Challenging *Assumption 2*', 1st person marking is favored only for 1 → 2SG. The two arguments are treated equally for 1 → 2PL. The 1 > 2 hierarchy thus applies only partially as far as the expression of 1 → 2 is concerned.

Table 12. Arguments against 1 > 2 in Tupi-Guarani hierarchical indexing languages.

Argument	Illustrative languages
P > A	Anambé V, Araweté V, Guajá VIII, Xeta I
P index *(**ro-** & **po-**)* for 1 → 2	Avá I, Chiriguano I, Guarani correntino I, Jopara I
Bi-morphemic analysis of ***a-poro-***	Emerillon VIII, Guajajara IV, Kaiwá I, Kamaiurá VII, Tapieté I, Tapirapé IV, Tupinambá III
Second person A indexed for 2 → 1	Emerillon VIII, Wayampi VIII
Non-transparent encoding for 1 → 2 and 2 → 1	Anambé do Cairari V, Araweté V, Asuriní do Tocantins IV, Ava I, Chiriguano I, Emérillon VIII, Guajá VIII, Guarani correntino I, Jopara I, Kaiwá I, Kamaiurá VII, Mbya-Guarani I, Siriono II, Tapieté I, Tapirapé IV, Guajajára IV, Tupinambá III, Wayampi of French Guiana VIII, Xeta I, Yuki II, Zo'é VIII

Fourth, Emerillon VIII and Wayampi VIII do not even favor the 1st person in the configuration 2 → 1 (Challenging *Assumption 2*), leaving no argument at all for operation of a 1 > 2 hierarchy in these two languages.

Fifth, the possible analysis of local configurations in terms of a hierarchical indexing system is obviously blurred by the non-transparent use of morphology. In our study, only two languages out of the 23 with a hierarchical system show highly transparent marking of the 1st person and the 2nd person arguments for both 1 → 2 (30) and 2 → 1 (31) configurations. Ava-Canoeiro IV and Kayabi VI systematically encode the 1st person in the verb prefix slot in local configurations, while the 2nd person is encoded by a free pronoun (apparently optional in Ava-Canoeiro; post-verbal in Kayabi). Only in these two languages it is completely relevant and useful to introduce an explanation of marking in terms of the person hierarchy 1 > 2 in the local configurations.

(30) 1SG → 2SG (Ava-Canoeiro IV, Borges, 2006, p. 158)

tʃĩ=tõ	*ni=tõ*	*a-kutuk*
PRO1=PART	PRO2=PART	1SG.I-pierce

'I pierced you.'

(31) 2SG → 1SG (Ava-Canoeiro IV, Borges, 2006, p. 159)

ni=tõ	*tʃĩ=kutuk*
PRO2=PART	1SG.II=pierce

'You pierced me.'

All other languages show a non-transparent marking when 1 → 2, which has led to widespread use of the term 'portmanteau' in the Tupi-Guarani literature. Tupi-Guarani data perfectly illustrate Heath's claim that languages avoid maximal transparency in the encoding of pragmatically sensitive combinations like the local configurations (Heath, 1998), and more specifically 1 → 2. This study has identified seven out of Heath's twelve strategies (in bold in Table 2) used to avoid maximal transparency in the encoding of 1 ↔ 2 . The study has further suggested an additional 13th strategy. This shows that the 1 > 2 hierarchy does not apply straightforwardly to all local configurations in all Tupi-Guarani languages with a hierarchical indexing system.

The present section precisely listed five arguments against a straightforward hierarchy 1 > 2 in Tupi-Guarani indexing systems (*General Assumption*). It can at best be stated that there is a partial preference for the first person over the second in most languages of the Tupi-Guarani group on the basis of marking in the configuration 2 → 1. If the 1 > 2 hierarchy was considered to be at work, one should explain why it is inactive in some of the configurations it is relevant for. If the effect of this hierarchy must be limited to specific configurations, the explanation it provides is first of all not an economic analysis and second, not a powerful functional explanation for the overall indexing system[32].

CONCLUSION 1- VARIATION

This comparative study has shown that Tupi-Guarani languages are not so similar morphosyntactically as is commonly asserted. Means of encoding local configurations vary a lot within the Tupi-Guarani group. This paper does not postulate a strong correlation between particular formal means and particular language subgroups (either subgroups already identified or hypothetical alternative groupings). For example, the four languages systematically favoring P over A marking for local configurations belong to various subgroups: Anambé V, Araweté V, Guajá VIII, Xeta I. These

[32] I question elsewhere (Rose, to appear) the relevance of the person hierarchy as a synchronic and diachronic functional explanation for the Tupi-Guarani indexing systems. That paper provides arguments for clearly distinguishing the use of hierarchies as a tool for describing synchronic stages of languages, and their (much weaker) use as functional motivation of synchronic and diachronic facts. It suggests that these systems do not result from the person hierarchy as a functional motivation. Instead, they may result from grammaticalization of pronominal paradigms lacking third person forms, and thus be an epiphenomenon of the noun/pronoun distinction.

four languages behave in a rather simple and homogenous way while other languages show great variation in their non-transparent encoding of the local configurations. On the one hand, the homogeneity in the four languages could well be due to common inheritance, and the variation in encoding in other languages would be explained as distinct innovations that each blur the transparent encoding of the local configurations. On the other hand, the homogeneity of the four languages could also be explained as innovations seeking more transparency in local configuration encoding. Data on languages from other Tupi branches should be examined to resolve what is an innovation versus a retention.

It is nevertheless interesting to note some correlations between some formal patterns and the groupings:

- In the expression of 2 → 1, three of the five languages using special pronominal forms belong to subgroup IV.
- In the expression of 2 → 1, the two languages with second person prefixes for A on the verb root belong to subgroup VIII.
- In the expression of 1 → 2, the reduced forms *ro-* and *po-* are shared by at least four of the 9 members of subgroup I.
- In the expression of 1 → 2, irregular encoding is illustrated by the two members of subgroup II.

Finally, some languages within the survey also show internal variation for local configurations: Emerillon VIII (Rose, 2011, p. 75) as described in note 25, Siriono II (Schermair, 1949, p. 332-333; cited in Cabral, 2001, p. 124-125) as described in note 24, Tapieté I (González, 2005, p. 150-151) as described in the sections challenging *Assumptions 1* and 2, and Tapirapé IV (Praça, 2007, p. 103) as described in the section challenging *Assumption 1*.

CONCLUSION 2 - WHAT IS LEFT OF THE HIERARCHY: SAP > 3

At this stage, an important conclusion can be drawn: the literature has offered an overgeneralized and simplified description of the Tupi-Guarani indexing systems. Previous sections have presented many counter-arguments to the supposed 1 > 2 hierarchy. Table 13 recapitulates how the four assumptions of Table 4 have been challenged in the above sections. The idealized hierarchy is obviously a fallacy, if it is taken as a rule supposedly governing all verb forms in all situations. In that idealized system, it applies only partially to the local configurations.

Given the challenges summarized in Table 13, what kind of hierarchy must more accurately be posited for the Tupi-Guarani indexing systems? Table 14 summarizes the findings regarding the hierarchies at play in the 28 languages of the study.

Table 13. How the four assumptions about the hierarchical indexing system are challenged.

	Assumption	Challenge
Assumption 1	One slot	Instances of multiple indexing
Assumption 2	Portmanteaus for 1 → 2	Possible analyses without portmanteaus
Assumption 3	1 > 2 when 2 → 1	2 → 1 marking does not always justify 1 > 2
General Assumption	1 > 2 > 3 hierarchy	No clear 1 > 2 > 3 in all configurations in most languages

Table 14. Summary of the hierarchies involved in Tupi-Guarani indexing systems.

No hierarchy	Achê I, Kokama III, Nheengatu III, Omagua III, Urubu-Kaapor VIII
1 > 2 > 3	Ava-Canoeiro IV, Kayabi VI
1,2 > 3 & P > A	Anambé V, Araweté V, Guajá VIII, Xeta I
1,2 > 3 & A > P	Emerillon VIII, Wayampi VIII
1,2 > 3	Asuriní do Tocantins IV, Ava I, Chiriguano I, Guarani correntino I, Jopara I, Kaiwá I, Kamaiurá VII, Mbya-Guarani I, Siriono II, Tapieté I, Tapirapé IV, Guajajára IV, Tupinambá III, Yuki II, Zo'é VIII

Five languages do not show any influence of any person hierarchy in their argument indexing system (cf. end of the section: The 'idealized' Tupi-Guarani hierarchical system). Only two (Ava-Canoeiro IV and Kayabi VI) show a transparent hierarchical system of person indexing based on a 1 > 2 > 3 hierarchy (section: Challenging the General Assumption). Six languages encode the local configurations independently from the person value of the two arguments, but do code with reference to the grammatical role of the arguments. Anambé V, Araweté V, Guajá VIII and Xeta I systematically encode P, while Emerillon VIII and Wayampi VIII systematically encode A in a prefix on the verb. All the other languages use some strategy to avoid transparent marking for 1 → 2, such as double-marking, the use of a single 1EXCL A marker for the 1 → 2SG configuration, or the use of generic ***poro-*** for a 2nd plural argument. There is no strong argument for stating that there is an underlying person hierarchy subsequently blurred by some pragmatic strategy. I therefore consider that no clear Tupi-Guarani-wide hierarchy between the SAPs determines the encoding of 1 → 2. The preferred encoding of 1st person P in 2 → 1 could just as well be explained as a sub-system of another type of indexing system (absolutive), or as obeying a hierarchy P > A. So that this configuration alone is not enough to strongly argue for a 1 > 2 hierarchy. Only the hierarchy SAP > 3 can be strongly posited for the common (i.e. widespread) Tupi-Guarani hierarchical system. It is very clearly operative in 23 languages out of the 28 investigated in the study. It is operative in a straightforward way: the participant that is higher-ranked is the one to be indexed on the verb. It determines almost exactly the encoding of the relevant participants[33]. The general lesson that must be drawn from the diversity of Tupi-Guarani indexing systems described in this paper is that linguists should pay more attention to how languages encode local configurations.

ABBREVIATIONS

> 'higher than' on a person hierarchy; ↔ interacting with; → acting on; 1.I first person Set I marker; A the canonical agent of a transitive verb; CAUS causative; EXCL exclusive; FOC focus; FUT future; GEN.HUM generic human; HORT hortative; INCL inclusive; INTENS intensive; P the canonical patient of a transitive verb; PART particle; PL plural; POSTP postposition; PRO pronoun; REL relational; SG singular

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[33] Except for the marking of third person patient that is present in some languages (cf. end of the section: The 'idealized' Tupi-Guarani hierarchical system).

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