

# Case and Markedness in Tlapanec

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## Abstract

This paper provides an analysis of the typologically unusual patterns of case assignment in Tlapanec. The theoretical approach relies on a sub-analysis of the markers and on postulating an interaction of markedness constraints. These constraints are implemented in a more general concept of grammar in which morphology applies after syntax, as is the case in Distributed Morphology. According to this theory the output of syntax can be impoverished before the lexical insertion of concrete vocabulary items takes place. The framework of DM is slightly modified in the account proposed here, insofar as the step of impoverishment of morpho-syntactic features is designed as an optimality theoretic competition of possible output candidates. I will show that all of the constraints that are crucial for this competition emerge from independently established prominence scales by a modified version of harmonic alignment. Thereby the process of impoverishment is given a typologically/conceptually more plausible base.

## 1. Introduction

The typological literature describes Tlapanec, a member of the Subtiaba-Tlapanec family spoken in Mexico, as a language that exhibits some uncommon behavior regarding the assigning of case to verbal arguments (see Wichmann (2005, 2007)). Tlapanec is a head-marking language; its verbs agree with their arguments according to number, person, and case. The typologically unusual aspects of this agreement,

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as stated by Wichmann (2005), are: a zero-marked ergative, a marked absolutive, a novel case ‘pegative’ (that encodes the external argument of a less affecting action, the ‘source’ or ‘stimulus’), and a split ergative marking for at least one very specific configuration (i.e., an animate 3<sup>rd</sup> person singular object of a less affecting action).

The analysis in this paper tries to cover these facts completely by a sub-analysis of the markers and by postulating an interaction of markedness constraints. These constraints are implemented in a more general concept of grammar in which morphology applies after syntax, as is the case in Distributed Morphology (DM, see Halle and Marantz (1993)). According to this theory the output of syntax can be impoverished before the lexical insertion of concrete vocabulary items takes place. The framework of DM is slightly modified in the account proposed here, insofar as the step of impoverishment of morpho-syntactic features is designed as an optimality theoretic competition of possible output candidates (Prince and Smolensky (1993)). In some aspects, the proposals of this paper are thus in line with the framework of Minimalist Morphology (Wunderlich (1997, 2004)). I will show that all of the constraints that are crucial for this competition emerge from independently established prominence scales by a modified version of harmonic alignment. Thereby the process of impoverishment is given a typologically/conceptually more plausible base.

Moreover, it can be stated that the typological oddities of Tlapanec case marking emerge from a more general observation that (at least some) languages tend to use more marked constructions to mark deviations from the norm (Aissen (1999), Stiebels (2002), Trommer (2006)).

This paper is structured as follows: In the next section, a brief overview of the typological profile of Tlapanec and the observed patterns of case assignment is given. In section 3, the theoretical framework for the analysis is established in more detail. In the fourth section, the concrete data of Tlapanec are applied to the theoretical machinery established before. Section 5 contains a short summary of the paper.

## **2. Case Assignment in Tlapanec – The Data**

This section gives a brief outline of the typological profile of Tlapanec and the observed patterns of case assignment. As Wichmann (1996a; 1996b; 2005; 2007) has observed in his extensive work on Tlapanec,

some features of its case assignment can be described as rare from a typological perspective.

Tlapanec is a head-marking language. This means that the verb agrees with (some of) its complements in person, number, and case.<sup>1</sup> All three of these features are marked by verbal suffixes with portman-teau behavior: In traditional analyses, case, person, and number are expressed by a single morpheme.

Animacy is an important factor for the realization of arguments in Tlapanec. Arguments encoded on the verb always have to be animate: inanimate entities are never morphologically encoded. Thus, in addition to a distinction of transitivity vs. intransitivity of verbs, a more important distinction is made regarding the number of animate arguments. Verbs can be grouped according to whether the predicate takes:

- *no animate argument*  
one inanimate argument (I) (no case marking at all)
- *one animate argument*  
'mono-personals': one animate argument (A), or one animate and one inanimate argument (AI)
- *two animate arguments*  
'di-personals': two animate arguments (AA), or two animate arguments and one inanimate argument (AAI)
- *three animate arguments*  
'tri-personals': (AAA)<sup>2</sup>

In addition, the morphological case marking that takes place via suffixation allows for only one case marking suffix on the verb at a time. Thus, the number of arguments case-marked on the verb is limited to one. The complex algorithm that decides which of the (animate) arguments is represented by a certain suffix involves different factors.

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<sup>1</sup>As Wichmann notes, the feature 'person' is also expressed by other processes of the grammar as well. Among these are tonal alternations and – in certain contexts – additional prefixation. Thus, in Tlapanec a multiple exponence of features can be observed. (For the problem of primary and secondary exponence of features see e.g. Noyer (1992)).

<sup>2</sup>Tri-personal (AAA) verbs are derived from the di-personals (by adding a suffix *-i* indicating the presence in the argument structure of an animate theme) and are therefore not considered in further detail in this analysis.

Besides animacy and the factor of grammatical relation (external argument, i.e. ‘subject’, vs. internal argument, i.e. ‘object’), Tlapanec crucially distinguishes between highly and lowly affecting actions. This distinction in turn is reflected in both the morpho-phonological form of the (case-)marker and in the distribution of markers in certain syntactic contexts.

Tlapanec is generally classified as showing ergative alignment, i.e., the sole (animate) argument of intransitive (monopersonal) verbs exhibits the same marker as the internal argument (object) of transitive (dipersonal) verbs as the following examples<sup>3</sup> illustrate:

- (1) *intransitives: one A-argument, subject marked with Abs*  
 a. *dask-á*  
 smell.bad-3ABS  
 ‘S/he smells bad’
- (2) *transitives: one A-argument, subject marked with Erg*  
 a. *na-ndrehm-é iya?*  
 IPFV-sprinkle-3G.ERG<sub>i</sub> water  
 ‘S/he<sub>i</sub> is sprinkling water’
- (3) *(di)transitives: two A-arguments, object marked with Abs*  
 a. *na-ndrihm-á iya?*  
 IPFV-sprinkle-3G>3ABS<sub>i</sub> water  
 ‘S/he is sprinkling water on her/him<sub>i</sub>’

This ergative case alignment interacts with the factor ‘degree of affectedness’. Thus a cross-classification of ‘grammatical relation’ and ‘affectedness’ leads to four distinct morpho-phonological instantiations of case markers, including the novel ‘pegative’ case<sup>4</sup>. This interaction of factors is sketched in table 1. Turning now to the question of which argument of a verb is represented by a certain suffix attached to the stem, all of the three factors mentioned above have to be considered

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<sup>3</sup>The notion ‘G’ in the glossing of the examples stands for ‘given’ and refers to a discourse-pragmatically known entity.

<sup>4</sup>The label ‘pegative’ for the external argument of less affecting verbs is suggested by Wichmann (2005: 135): “I have based the term ‘Pegative’ on the Greek *πηγή*, which means ‘origin, source, emanation, etc.’, to provide a name for a case that proto-typically refers to a giver as opposed to a recipient.”

affectedness	grammatical relation	
	external argument	internal argument
high	Ergative	Absolutive
low	Pegative	Dative

Table 1. interaction of grammatical relation and degree of affectedness

again: animacy, grammatical relation, and degree of affectedness. As stated earlier, only animate arguments qualify for agreement and case marking on the verb. Thus, in mono-personal verbs the sole animate argument is coded via suffixation, regardless of whether it is an internal or external argument. This is illustrated in examples (4) – (7).

- (4) na-*iyaʔdí*  
 impf-sow.3ERG<sub>i</sub>  
 'S/he<sub>i</sub> is sowing it'
- (5) *dask-á*  
 smell.bad-3ABS  
 'S/he smells bad'
- (6) na-*kâš-ú*  
 impf-skinning-3PEG<sub>i</sub>  
 'S/he<sub>i</sub> is skinning it'
- (7) *bamš-ó*  
 be.nude-3DAT  
 'S/he is nude'

If there is more than one animate participant, the arguments are in competition for the single possible inflectional position. Normally it is always the internal argument that triggers agreement and case marking:

- (8) *default marking of di-personals:*
- na-*ndrihm-á*      *iyaʔ*  
 IPFV-sprinkle-3ABS<sub>i</sub> water  
 'S/he is sprinkling water on her/him<sub>i</sub>'

This generalization is violated in at least one special configuration: If the internal argument (the object) of a *less affecting action* is *third person singular animate*, then it is the external argument (the subject) that is marked instead (with the peegative case):

(9) *marking in special configuration:*

- a. na-ndrihm-ú            iyaʔ   in-ũ            šabù  
 IPFV-sprinkle-3PEG<sub>i</sub> water face-3N.DAT man  
 ‘S/he<sub>i</sub> is sprinkling water on the face of the man’<sup>5</sup>

The difference between examples (8) and (9) is that while in example (8) there is a highly affecting action involving the whole man and triggering an absolutive marking of the object, the action in example (9) is less (in this case ‘partly’) affecting, leading to agreement with and case marking of the subject (with pegative case).

Thus, the algorithm accounting for the distribution of case/agreement markers on Tlapanec verbs can be summarized as follows:

(10) General rules of case assignment in Tlapanec:

- case is assigned only to animate arguments
- maximally one argument is marked with case
- the (animate) object is marked
- marking is sensitive to the degree of affectedness
- if the object is 3<sup>rd</sup> person singular, animate and the verb is lowly affecting, then the subject is marked

These fundamental typological facts of case alignment in Tlapanec are accompanied by another remarkable observation regarding the actual instantiation of (the inventory of) markers: markers representing ergative case are always zero-markers, whereas on the other hand, markers standing for absolutive case display the phonologically richest forms within the set of case markers. This contrasts with the more general typological observation that in absolutive-ergative systems, the ergative forms tend to be morphologically marked, and the absolutive forms tend to be less marked or unmarked. The full paradigm of case markers in Tlapanec is given in table 2 (see Wichmann (2007)). As the distribution of markers in table 2 shows, the ergative markers stand in sharp contrast to all other case markers, because ergative is never expressed overtly.

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<sup>5</sup>Dative-marking here does not signal a relation between ‘face’ and the predicate ‘to sprinkle’, but rather the relation between the possessed item, ‘face’, and the possessor, ‘man’. The verbal argument is the entire noun phrase ‘the man’s face’, see Wichmann (2007).

		Ergative	Absolutive	Pegative	Dative
sg	1	-∅	-ũʔ	-u / <sup>a</sup> -o	-uʔ / -oʔ
	2	-∅	-ĩʔ / -ãʔ	-a / -i	-aʔ
	3N <sup>b</sup>	-∅	-i / -a	-u / -o	-u / -o
pl	1	-∅	-ãʔ	-a / -i	-aʔ
	2	-∅	-ãʔ	-a / -i	-aʔ
	3N	-∅	-ĩ	-a / -i	-ũ

<sup>a</sup>The slash symbol ‘/’ here indicates a phonologically driven alternation.

<sup>b</sup>N here stands for ‘new’ (versus G for ‘given’, see footnote 3 above). The G form is derived from the N form by tonal affixation and, for verbs subcategorizing for ergative, additionally by a suffix *-i* which merges with the stem vowel.

*Table 2.* case markers in Tlapanec

This leads to a first hypothesis according to which the ergative marker might be actually deleted on the morpho-phonological surface. On the other hand, the system shows various instances of syncretisms. Identity of forms can be observed both within different instances of one case (intra-paradigmatic, e.g. ‘*a/i*’ in the peegative case for 2<sup>nd</sup> singular and 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> plural) and between different cases (inter-paradigmatic, e.g. ‘*u/o*’ for 3<sup>rd</sup> singular in peegative and dative). Moreover, a closer look at the paradigm reveals partial syncretisms, as the forms of some markers seem to be derived from other markers. The ‘*aʔ*’ of dative forms for instance leads to a corresponding absolutive form by nasalization of the vowel. This observation in particular, and the subsequent demand for further sub-analysis of the markers will be focused on in detail in the later sections of this paper.

So far, the striking facts of the case marking system in Tlapanec can be summarized as follows:

- (11)
- zero-marked ergative
  - (highly) marked absolutive
  - a novel case ‘peegative’
  - several instances of (partial) syncretism between markers
  - a split marking in a specific, multifactorial configuration (subject marking instead of object marking in the context of animate, 3<sup>rd</sup> person singular objects of less affecting verbs)

The analysis in the following sections aims to explain all of these facts. As will be shown, the explanation will crucially rely on two factors: i) a sub-analysis of the case markers, and ii) typologically attested markedness restrictions and a certain strategy of the language that demands for marked configurations to be morphologically marked (Aissen (1999)).

### 3. Theoretical background

In this section I will introduce the theoretical background of the analysis proposed in this paper. In order to account for all of the data sketched in section 2, I will basically rely on the framework of Distributed Morphology (DM, see Halle and Marantz (1993); Noyer (1992), among many others). This theory assumes a model of grammar in which morphology takes place after syntax and thus conceives of inflection as a late, post-syntactic process. The output of syntax provides abstract, functional morphemes consisting of completely specified morpho-syntactic features, but still lacking any phonological realization. Inflectional markers, on the other hand, are assumed to be vocabulary items that pair morpho-syntactic and phonological features. In a late, post-syntactic operation, these markers are inserted into functional morphemes. This insertion is mainly driven by the Subset Principle (Halle (1997); Noyer (1992); Wiese (1999); Müller (2006)):

- (12) Subset Principle  
 A vocabulary item *V* is inserted into a functional morpheme *M* iff:
- a. The morpho-syntactic features of *V* are a subset of the morpho-syntactic features of *M*.
  - b. *V* is the most specific vocabulary item that satisfies (12-a).

This definition permits underspecified markers to be inserted in certain contexts. Vocabulary items whose features constitute a subset of each other are in competition for insertion. The vocabulary item whose features most specifically match the features of the abstract morpheme will be inserted. Thus, a vocabulary item may be inserted which is not specified for *all* features of the context. This possibility of underspecified vocabulary items gives rise to syncretisms.

A rather central assumption of Distributed Morphology is essential to make this theory capable of explaining systematic patterns of case marking in Tlapanec such as the distribution and the syncretisms of



markers as well as alignment patterns: Morpho-syntactic features of abstract morphemes can be altered post-syntactically. There are two operations of this kind that are crucial for an adequate analysis of case marking in Tlapanec. The first important operation is post-syntactic *impoverishment*, by means of which features are deleted before vocabulary insertion takes place. As I will show, this operation is crucially involved in the morphological marking of case in Tlapanec – although I assume a rather different approach to the nature and motivation of this operation (see below).

Traditionally impoverishment is implemented in the model of DM by specific rules (Halle and Marantz (1993)) like the one in (13):

- (13)  $[\alpha] \rightarrow \emptyset$  ( $/\_ [\beta]$ ): ‘The morpho-syntactic feature  $[\alpha]$  is deleted (in the context of  $[\beta]$ )’

In order to account for a sub-analysis of (some of) the markers in Tlapanec a second operation will be needed that splits up an abstract morpheme and makes some features accessible to the insertion of vocabulary items, but leaves other features of the morpheme unaffected and thus available for further vocabulary insertion. This operation is called *fission* and goes back to Noyer (1992) (at least in the sense proposed here, but see Halle and Marantz (1993) for another view). Fission can be formalized as follows (see Müller (2006)):

- (14) Fission
- a. A morpheme  $M$  with the features  $\alpha$  is fissioned by insertion of a vocabulary item  $V$  bearing the features  $\beta$  into two separate bundles of features:  $\beta$  and  $(\alpha - \beta)$ , so that:
  - b. (i)  $(\alpha - \beta)$  is available for further insertion according to the subset principle.
  - (ii)  $\beta$  is not available for further insertion.

Rules like (13) and (14) are just examples of a variety of different rules in the framework of Distributed Morphology as presented by Halle and Marantz (1993).

However, the notion of impoverishment as a descriptive rule fails to explain the functional *motivation* of the *distribution* of the markers, in particular the non-appearance of an ergative marker and the alternation of subject marking versus object marking in certain configurations. In order to give a more functionally motivated account for these phenomena, a different kind of impoverishment has to be proposed. However,

this operation has to share the locus of its application with the traditionally stated rules: it deals with fully specified morpho-syntactic contexts and therefore operates after syntax, but additionally it has to take place before any lexical insertion. In the derivational process, this impoverishment has to apply right on the interface between syntax and morphology. In contrast to a rule-based account of impoverishment, I argue for a process that is modeled within the framework of optimality theory (OT, see for instance Prince and Smolensky (1993), Smolensky (1995)) as is proposed also in Minimalist Morphology (see Wunderlich (1997, 2004)). The decision for implementing an optimality-theoretic competition is grounded particularly in conceptual reasons: All of the crucial constraints that are responsible for delivering the correct output emerge from typologically attested principles. In section 4 I will show that it is prominence scales and their harmonic alignment which yield appropriate constraints. This is in contrast to an analysis in which impoverishment is carried out by rules of a purely descriptive nature. Nothing inherent to an impoverishment rule as in (13) helps to explain *why* a certain feature (configuration) is to be deleted. On the other hand, a concept of impoverishment by constraints that emerge from conceptual factors of language, such as prominence scales, is much more satisfactory from an explanatory perspective of grammar.

The proposed theoretical background for the derivation of patterns and concrete morpho-phonological instantiations of case markers in Tlapanec can be summarized as follows:

1. All syntactic operations are carried out, dealing with fully specified morpho-syntactic features.
2. The output of syntax is then sent to an operation deleting certain (bundles of) features. (This deletion is modelled as an OT competition relying on typologically/conceptually motivated markedness constraints.)
3. Vocabulary insertion takes place as assumed in DM.

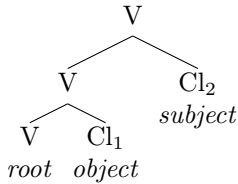
#### **4. Case Assignment in Tlapanec – The Analysis**

According to the observations about Tlapanec case marking, as presented in section 2, and based on the theoretical background established in section 3, I will postulate the following hypotheses:

- (15) Hypotheses:
- a. There are only two functionally distinct cases, which each split into two different instances because of the factor of affectedness: Pegative, in fact, is the same as ergative but with the feature ‘lowly affecting’ (or without the feature ‘highly affecting’); dative is absolutive with the feature ‘lowly affecting’ respectively.
  - b. The main function of the two cases is to mark external arguments (‘subject’) on the one hand and internal arguments (‘object’) on the other.
  - c. The missing marker for the actor of highly affecting verbs (‘zero-ergative marking’) can be explained by a competition of markedness constraints. (Smolensky (1995); Aissen (1999, 2003) )
  - d. The morpho-phonologically more complex markers of the absolutive, normally the unmarked case, result from an additional coding of markedness, namely ‘animate object’ and ‘highly affecting’ (sub-analysis).

As introduced in section 3, I assume that the output of syntax consists of fully specified morpho-syntactic structures. For case marking in Tlapanec, this means that the structure contains (clitic) heads for all arguments, as roughly sketched in (16) <sup>6</sup>:

- (16) output of syntax: Example for transitive configuration



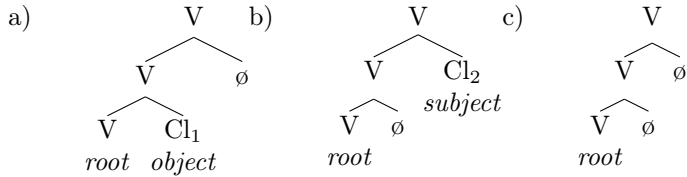

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<sup>6</sup>For the analysis proposed in this paper it is not crucially important how such a structure as in (16) is derived. This may for example either be achieved by assuming clitic heads and head movement of the arguments (see Sportiche, 1996), or, alternatively, by AgrO and AgrS heads that the verb moves to (see Chomsky, 1995). What is important is that syntax provides a structure with two feature bundles or ‘slots’ for agreement adjacent to the verb: one corresponding to features of the subject and one to features of the object.

## 4.1. Post-syntactic Impoverishment

In the next step of the derivation, an operation is assumed that deletes some of these feature bundles, leading to either an object marking, subject marking, or zero marking, as (17) demonstrates:

(17) possible outputs<sup>7</sup> of post-syntactic impoverishment of transitive configurations:



According to the hypothesis in (15-c), the output of this impoverishment as sketched in (17)c corresponds to a configuration which is traditionally labeled as ‘ergative’ marking. Whenever the mechanism of impoverishment leads to deletion of both of the cl-heads, the morphophonological surface should mirror this deletion by lacking any overt marker.

As mentioned earlier, this impoverishment can best be viewed as a competition among possible output candidates in an OT setting. In order to match the facts of the differential coding of Tlapanec case alignment summarized in (10), the constraints that rule out non-optimal candidates have to consider the following factors: grammatical function, person features, animacy, and degree of affectedness. All of these four aspects correspond to specific prominence scales that are well established in linguistics (Silverstein (1976))<sup>8</sup>: As Aissen (1999) points out, there is also a consistent relation between differential coding (as it appears in Tlapanec) and markedness:

“There is a relation between differential coding and markedness (or

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<sup>7</sup>A fourth possible output that leaves the input unchanged and in which none of the feature bundles (i.e. clitic heads) is deleted never becomes relevant in Tlapanec and is omitted from the illustration here for the sake of clarity.

<sup>8</sup>Note that there are also accounts that aim to derive the effects of differential marking not by scales as primitives of the theory but by deriving scales and there effects from an interaction of features instead (Harbour (2007)).

gram. function	subject > object
person	local > 3 <sup>rd</sup>
animacy	animate > inanimate
affectedness	high > low

Table 3. prominence scales involved in Tlapanec case alignment

prototypicality). Certain semantic and pragmatic properties are prototypical (statistically more frequent) for grammatical objects, especially low animacy, low definiteness, and low topicality. Transitive subjects, in contrast, are prototypically high in animacy, definiteness, and topicality. Differential coding systems mark subjects and/or objects which diverge from the prototype, leaving unmarked those which are more prototypical, a generalization known from typological work [...] Differential coding is simply the kind of more marked construction which marks deviations from the norm.”(Aissen, 1999, p. 673)

An established operation that transforms prominence scales into markedness constraints is *harmonic alignment* (as developed by Prince and Smolensky (1993)). This meta-principle takes two independently motivated scales as input and generates constraint hierarchies with a fixed internal order. The definition of this operation is given in (18):

- (18) *Harmonic Alignment* (Prince and Smolensky, 1993, p.136):  
 Suppose given a binary dimension  $D_1$  with a scale  $X > Y$  on its elements  $\{X, Y\}$ , and another dimension  $D_2$  with a scale  $a > b > \dots > z$  on its elements  $\{a, b, \dots, z\}$ .  
 The *harmonic alignment* of  $D_1$  and  $D_2$  is the pair of harmony scales  $H_X, H_Y$ :
- a.  $H_X: X/a \succ^9 X/b \succ \dots \succ X/z$
  - b.  $H_Y : Y/z \succ \dots \succ Y/b \succ Y/a$
- The *constraint alignment* is the pair of constraint hierarchies  $C_X, C_Y$ :
- a.  $C_X: *X/z \gg \dots \gg *X/b \gg *X/a$
  - b.  $C_Y : *Y/a \gg *Y/b \gg \dots \gg *Y/z$

This operation yields two *harmony scales* from two independent scales (one of them binary). These two harmony scales in turn are the base for two constraint alignments: replacing the symbol  $\succ$  with the standard

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<sup>9</sup>Read ‘ $\succ$ ’ as ‘more harmonic than’.

constraint ranking symbol  $\gg$  and reversing the order of elements. Thus, for example, the aligned constraints:

- (19)  $*X/z \gg \dots \gg *X/b \gg *X/a$  are to be read as: ‘A ban on a configuration X/z is ranked higher (is less easily violable) than a ban on a configuration X/b, and a ban on this configuration in turn is ranked higher than the ban on X/a.’

In Tlapanec the *four* scales of table 3 are involved. The problem that arises here is that all of these four scales interact simultaneously, thus it becomes necessary to extend the notion of harmonic alignment. If each scale could be freely combined with each other by harmonic alignment, there would be six possible combinations. From these six different harmonic alignments of (binary) scales there would result a total number of 12 different constraint alignments of 24 markedness constraints. Making matters worse, none of the possible rankings of these 24 markedness constraints (some of them inherently ordered by the principles of harmonic alignment) could cover all facts of case alignment in Tlapanec. Therefore I propose a *hierarchy* of the four scales:

- (20) hierarchy of scales
1. grammatical function
  2. person
  3. affectedness
  4. animacy

The idea behind this assumption is that the total number of constraints can be reduced drastically if the different steps of harmonic alignment of the involved factors follow a hierarchy.<sup>10</sup>

I assume a procedure of harmonic alignment involving 4 (binary) scales as follows: In a first step, the highest ranking scales are harmonically aligned; in a second step the resulting two harmony scales are each harmonically aligned with the next (i.e. third) scale of the hierarchy yielding 4 harmony scales. This procedure is repeated until the last scale of the hierarchy is harmonically aligned with the output of the preceding step.

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<sup>10</sup>The price of this reduction is an increasing ‘complexity’ of the constraints. However, this complexity can be simplified again, as will be shown later.

As for the scales involved in the Tlapanec case marking, the procedure looks as follows: Initially, the first two scales, *grammatical function* and *person*, are aligned harmonically:

- (21) alignment of *grammatical function* and *person*
- a. scales:
    - (i) Subject > Object
    - (ii) local > 3
  - b. harmony scales:
    - (i) Sub/local  $\succ$  Sub/3
    - (ii) Ob/3  $\succ$  Ob/local
  - c. constraint alignment:
    - (i) \*Sub/3  $\gg$  \*Sub/local
    - (ii) \*Ob/local  $\gg$  \*Ob/3

The next step introduces the third scale of the hierarchy: *degree of affectedness*. This time there are two separate harmonic alignments, the first operates with the first harmony scale provided by the antecedent operation, Sub/Local  $\succ$  Sub/3; the second combines the scale of affectedness with the second harmony scale, Ob/3  $\succ$  Ob/Local:

- (22) alignment of *affectedness* with first output of preceding harmonic alignment in (21-b-i) (*Sub/Local*  $\succ$  *Sub/3*)
- a. scales:
    - (i) Sub/Local  $\succ$  Sub/3
    - (ii) high > low
  - b. harmony scales:
    - (i) Sub/local/high  $\succ$  Sub/local/low
    - (ii) Sub/3/low  $\succ$  Sub/3/high
  - c. constraint alignment:
    - (i) \*Sub/local/low  $\gg$  \*Sub/local/high
    - (ii) \*Sub/3/high  $\gg$  \*Sub/3/low
- (23) alignment of *affectedness* with second output of preceding harmonic alignment in (21-b-ii) (*Ob/3*  $\succ$  *Ob/Local*)
- a. scales:
    - (i) Ob/3  $\succ$  Ob/local
    - (ii) high > low
  - b. harmony scales:
    - (i) Ob/3/high  $\succ$  Ob/3/low
    - (ii) Ob/local/low  $\succ$  Ob/local/high

- c. constraint alignment:  
 (i) \*Ob/3/low  $\gg$  \*Ob/3/high  
 (ii) \*Ob/local/high  $\gg$  \*Ob/local/low

The procedure results in four harmony scales (and four aligned constraints) so far:

- (24) a. Sub/local/high  $\succ$  Sub/local/low  
 b. Sub/3/low  $\succ$  Sub/3/high  
 c. Ob/3/high  $\succ$  Ob/3/low  
 d. Ob/local/low  $\succ$  Ob/local/high

The final step of the procedure combines all of these four scales in (24) with the last scale of the hierarchy, *animacy* (anim  $>$  inanim), by harmonic alignment, yielding 8 harmony scales and 8 corresponding constraint alignments:

- (25) resulting harmony scales:  
 a. Sub/local/high/anim  $\succ$  Sub/local/high/inanim  
 b. Sub/local/low/inanim  $\succ$  Sub/local/low/anim  
 c. Sub/3/low/anim  $\succ$  Sub/3/low/inanim  
 d. Sub/3/high/inanim  $\succ$  Sub/3/high/anim  
 e. Ob/3/high/anim  $\succ$  Ob/3/high/inanim  
 f. Ob/3/low/inanim  $\succ$  Ob/3/low/anim  
 g. Ob/local/low/anim  $\succ$  Ob/local/low/inanim  
 h. Ob/local/high/inanim  $\succ$  Ob/local/high/anim
- (26) resulting constraint alignments:  
 a. \*Sub/local/high/inanim  $\gg$  \*Sub/local/high/anim  
 b. \*Sub/local/low/anim  $\gg$  \*Sub/local/low/inanim  
 c. \*Sub/3/low/inanim  $\gg$  \*Sub/3/low/anim  
 d. \*Sub/3/high/anim  $\gg$  \*Sub/3/high/inanim  
 e. \*Ob/3/high/inanim  $\gg$  \*Ob/3/high/anim  
 f. \*Ob/3/low/anim  $\gg$  \*Ob/3/low/inanim  
 g. \*Ob/local/low/inanim  $\gg$  \*Ob/local/low/anim  
 h. \*Ob/local/high/anim  $\gg$  \*Ob/local/high/inanim

Although all of these constraints, as well as the constraints of the intermediate steps, have to be assumed to be present in the OT process of impoverishment, nevertheless the complexity of this set of constraints can be reduced in the following way, at least for the sake of better legibility of the resulting tableaux.



As already mentioned in section 2, where the actual data of Tlapanec were presented, inanimate arguments never trigger agreement on verbs and thus are never assigned any morphologically overt case markers. Thus, the factor of *animacy* is of such importance, that the general restriction on the head-marking of verbal arguments, demanding for inanimate entities not to be overtly coded, can never be violated. This means that a markedness constraint *\*inanimate* has to be undominated within the process of impoverishment, leading to deletion of any clitic head that contains the feature [inanimate]. As a consequence of that, any violation of one of the constraints in (26) containing a ban on inanimates does not have to be taken into account by the evaluation process, since any candidate violating such a constraint always violates the dominating constraint *\*inanimate*. Candidates consisting only of animate arguments do not violate this constraint. These considerations affect half of the constraints. Therefore only eight constraints will remain relevant for the analysis:

- (27) reduced constraint alignments:
- a.  $*\text{Sub}/\text{local}/\text{high}/\text{inanim} \gg * \text{Sub}/\text{local}/\text{high}/\text{anim}$
  - b.  $*\text{Sub}/\text{local}/\text{low}/\text{anim} \gg * \text{Sub}/\text{local}/\text{low}/\text{inanim}$
  - c.  $*\text{Sub}/3/\text{low}/\text{inanim} \gg * \text{Sub}/3/\text{low}/\text{anim}$
  - d.  $*\text{Sub}/3/\text{high}/\text{anim} \gg * \text{Sub}/3/\text{high}/\text{inanim}$
  - e.  $*\text{Ob}/3/\text{high}/\text{inanim} \gg * \text{Ob}/3/\text{high}/\text{anim}$
  - f.  $*\text{Ob}/3/\text{low}/\text{anim} \gg * \text{Ob}/3/\text{low}/\text{inanim}$
  - g.  $*\text{Ob}/\text{local}/\text{low}/\text{inanim} \gg * \text{Ob}/\text{local}/\text{low}/\text{anim}$
  - h.  $*\text{Ob}/\text{local}/\text{high}/\text{anim} \gg * \text{Ob}/\text{local}/\text{high}/\text{inanim}$

These eight constraints and their interaction can be simplified even further. Recall that the data of Tlapanec indicate that the differential marking is sensitive to person features for objects only. Thus, the remaining constraints concerning subjects of highly affecting actions in (27-a) and (27-d) on the one hand, and subjects of less affecting actions in (27-b) and (27-c) on the other hand can be understood as being crucially nonranked with respect to each other (Prince and Smolensky (1993)), i.e., they belong to the same stratum (Tesar (1998)). Since the conjunction of these constraints is violated if one of its constituents is violated, they will be abbreviated henceforth as shown in (28):

- (28) simplified constraints:
- a.  $*\text{Sub}/\text{local}/\text{high}/\text{anim}, * \text{Sub}/3/\text{high}/\text{anim} = * \text{Sub}/\text{high}/\text{anim}$
  - b.  $*\text{Sub}/\text{local}/\text{low}/\text{anim}, * \text{Sub}/3/\text{low}/\text{anim} = * \text{Sub}/\text{low}/\text{anim}$

In addition, two of the four remaining constraints regarding object configurations can also be disregarded for the evaluation. Again according to the perceived patterns of case alignment, the differential marking is sensitive to 3<sup>rd</sup> person features. Thus constraints containing a ban on local persons have to be considered to rank below all other constraints taken into account here. It follows that the constraints *\*Ob/Local/high/anim* and *\*Ob/local/low/anim* can both be ignored henceforth, leading to four remaining markedness constraints:

- (29) final set of markedness constraints:
- a. *\*Sub/high/anim*
  - b. *\*Sub/low/anim*
  - c. *\*Ob/3/high/anim*
  - d. *\*Ob/3/low/anim*

Note that these (abbreviated) constraints, although derived from harmonic alignment, are not inherently ordered to each other. In order to account for the fact that Tlapanec argument encoding on the verb seems to prefer only one argument at a time, or sometimes no argument at all, but never allows two arguments to be coded simultaneously, two additional constraints are important for an adequate model of evaluation:

- (30) additional constraints

$\mathbf{R}_{V \rightarrow Cl} =$

**Align(VP, right, Cl, right)** ‘On every right edge of a VP there has to be a right edge of a clitic.

(Count a violation for every right edge of a VP in a candidate without a right edge of clitic)’

$\mathbf{R}_{Cl \rightarrow V} =$

**Align(Cl, right, VP, right)** ‘On every right edge of a clitic there has to be a right edge of a VP.

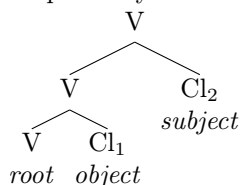
(Count a violation for every right edge of a clitic in a candidate without a right edge of VP)’

The first constraint in (30),  $\mathbf{R}_{V \rightarrow Cl}$ , penalizes every candidate without a clitic on its right edge. As will be shown, this constraint has to be violable, since sometimes the optimal output is one in which there is no clitic feature present at all. The second constraint,  $\mathbf{R}_{Cl \rightarrow V}$ , on the other hand, banning a candidate in which there is a right edge of a clitic that

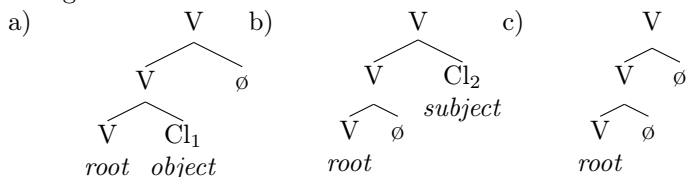
is not on the right edge of a VP, is inviolable in Tlapanec. This means it is impossible for a clitic to be situated ‘deeper’ in the prosodic word, that is in an intermediate position between the verb and another clitic.

Before the concrete evaluation of the alignment patterns can be considered, one further central assumption on the nature of impoverishment has to be made. As roughly sketched in graphs (16) and (17), repeated here in (31) and (32), the process deletes a certain feature bundle (cl-head) as a whole:

- (31) output of syntax: example for transitive configuration



- (32) possible outputs of post-syntactic impoverishment of transitive configurations:



This is in sharp contrast to for instance Wunderlich’s account in Minimalist Morphology (see e.g. Wunderlich (2004)) in which single features may be deleted. Since such an account does not match the data of Tlapanec, I propose a mechanism that drops a whole clitic instead. This may be achieved in different ways: first, the generating component of this particular step of the derivation may only provide output candidates with ‘fully specified’ bundles of features; or, second, an additional set of faithfulness constraints has to be assumed ruling out candidates that contain any ‘ill-formed’, i.e. incomplete, feature bundle. For the question concerning the patterns of differential argument marking in Tlapanec, the locus of this mechanism (generator versus evaluator) is irrelevant. It is the effect of such a mechanism that is important here: a candidate can only avoid violation of a constraint if there is *no feature within a fully specified bundle of features* that violates the constraint. In addition it is also important to assume that there is no feature chang-

ing allowed for the process described here. Thus, it is again certain faithfulness constraints that have to be undominated here.<sup>11</sup>

Given this assumption and the derived constraints in (29), together with their assumed hierarchical ordering in (33), we can now look at the evaluation in more detail.

- (33) hierarchy of relevant constraints:  
 $R_{Cl \rightarrow V} \gg *O/3/low/an \gg *S/high/an \gg R_{V \rightarrow Cl} \gg *O/3/high/an \gg *S/low/an$

Tableaux<sup>12</sup> 1 and 2 illustrate the derivation of the subject marking of less affecting mono-personal verbs and the zero-marking ('ergative-marking') of highly affecting monopersonal verbs.

*Tableau 1.* mono-personal verbs, less affecting

{sub, low}	$R_{Cl \rightarrow V}$	*O/3/low	*S/high	$R_{V \rightarrow Cl}$	*O/3/high	*S/low
$\emptyset$				*!		
$\mathbb{E}\{\text{sub, low}\}$						*

*Tableau 2.* mono-personal verbs, highly affecting

{sub, high}	$R_{Cl \rightarrow V}$	*O/3/low	*S/high	$R_{V \rightarrow Cl}$	*O/3/high	*S/low
$\mathbb{E}\emptyset$				*		
{sub, high}			*!			

Tableau 2 demonstrates that the candidate maintaining the feature bundle representing the single animate argument is ruled out by a fatal violation of the *\*S/high/an* constraint. Thus, in the optimal output

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<sup>11</sup>This observation is remarkable at least if the account proposed here is compared with traditional notions of impoverishment in DM. There is a discussion going on in the literature concerning feature changing impoverishment (e.g., see Noyer (1998), among many others). In general, feature changing impoverishment is dispreferred, although it is assumed in some analyses (see e.g. Noyer (1998), Müller (2004) on Russian, or Lahne (2006) on Sanskrit). Nevertheless, if impoverishment is understood from an OT perspective, as it is in this paper, it becomes in principle possible to allow for—at least partial—feature changing by lowering of certain faithfulness constraints. However, such operations may be restricted for independent reasons, e.g. to ensure recoverability of arguments.

<sup>12</sup>For the sake of illustration, the constraints in (33) will be further abbreviated in the following tableaux: the 'animate' part (/an) will be disregarded in the name of the constraint (although, of course, all constraints maintain their original definition containing markedness restrictions on animate arguments).

candidate this feature bundle is deleted, and there will be no overt morpho-phonological realization on the verb. In fact, this is the core argument for handling the zero-ergative marker in Tlapanec as resulting from a post-syntactic impoverishment. In contrast, tableau 1 shows that the markedness constraint that bans subjects of low affecting actions (*\*S/low/an*) is ranked below the constraint against zero-marking ( $R_{V \rightarrow Cl}$ ), therefore in such configurations the feature bundle representing the subject remains.

The same constraints and the same ranking are responsible for the differential marking of di-personal verbs. Recall that it is always only the object that gets a morphological marking – except in one very specific configuration: if the object is animate, 3<sup>rd</sup> person and the verb is less affecting, then it is exclusively the subject that will receive a morphological marking. Tableaux 3, 4, and 5 demonstrate that it is always the object alone that is morphologically marked in all ‘standard’ configurations.

Tableau 3. di-personal verbs, highly affecting

{sub, high} {obj, high}	$R_{Cl \rightarrow V}$	*O/3/low	*S/high	$R_{V \rightarrow Cl}$	*O/3/high	*S/low
∅				*!		
{sub, high}			*!			
☞ {obj, high}						
{sub, high} {obj, high}	*!		*			

Tableau 4. di-personal verbs, less affecting

{sub, low} {obj, low}	$R_{Cl \rightarrow V}$	*O/3/low	*S/high	$R_{V \rightarrow Cl}$	*O/3/high	*S/low
∅				*!		
{sub, low}						*!
☞ {obj, low}						
{sub, low} {obj, low}	*!					*

Tableau 5. di-personal verbs, highly affecting, 3<sup>rd</sup> person object

{sub, high} {obj, high, 3}	$R_{Cl \rightarrow V}$	*O/3/low	*S/high	$R_{V \rightarrow Cl}$	*O/3/high	*S/low
$\emptyset$				*!		
{sub, high}			*!			
$\mathbb{E}\{\text{obj, high, 3}\}$					*	
{sub, high} {obj, high, 3}	*!		*			

Tableau 3 shows that it is per definition the  $R_{Cl \rightarrow V}$  constraint that rules out any configuration containing two different bundles of features.<sup>13</sup>

In contrast, the constraint penalizing a verb without any clitic on its right edge ( $R_{V \rightarrow Cl}$ ) leads to fatal violations of all candidates in tableaux 3, 4, and 5 that represent a zero-output. Subject marking in the ‘standard’ configuration is avoided by markedness constraints against (animate) subjects of highly and less affecting actions ( $*S/high$  and  $*S/low$ ).

The situation of the default-marking of the object of di-personal verbs changes dramatically when a configuration is considered in which the object is 3<sup>rd</sup> person (singular) and the verb is less affecting. Now the markedness constraint banning this specific configuration ( $*O/3/low$ ) leads to a fatal violation of the candidate containing the object features, resulting in the candidate that maintains the subject features being optimal, as illustrated in tableau 6.

Tableau 6. di-personal verbs, less affecting, 3<sup>rd</sup> person object

{sub, low} {obj, low, 3}	$R_{Cl \rightarrow V}$	*O/3/low	*S/high	$R_{V \rightarrow Cl}$	*O/3/high	*S/low
$\emptyset$				*!		
$\mathbb{E}\{\text{sub, low}\}$						*
{obj, low, 3}		*!				
{sub, low} {obj, low, 3}	*!	*				*

<sup>13</sup>Note that the labels of the features used here have to be understood as abbreviations. As will be argued later, all the features are binary. Thus, e.g. [subject] in the tableau means: [+subject, -object], hence a configuration of two bundles {...subj...} and {...obj...} are to be read as {...+subject, -object ...} {... -subject, +object ...}.

Table 4 gives a short summary of the impoverished output achieved for each possible morpho-syntactic input configuration: Thus, as a first

Input	Output	coded argument
{sub high}	∅	
{sub low}	{sub low}	subject
{sub high}{obj high}	{obj high}	object
{sub low} {obj low}	{obj low}	object
{sub high}{obj high 3}	{obj high 3}	object
{sub low} {obj low 3}	{sub low}	subject

Table 4. input - output of post-syntactic impoverishment

conclusion it can be summarized that a post-syntactic impoverishment that emerges from a competition of independently motivated (and automatically derived) markedness constraints of the type reported in Aissen (1999; 2003) can cover the facts of a zero-marked ergative and the differential marking of arguments in Tlapanec. In the next step, the analysis of the case marking will proceed with a further sub-analysis of the concrete morpho-phonological realization of the markers in order to gain an explanation of the phonological complexity of some of the markers (especially the ‘marked absolutive’).

#### 4.2. Sub-analysis of markers and Vocabulary Insertion

The optimization process explained in detail in the last section leads to an impoverished morpho-syntactic context. In the next step, this context is the basis for the concrete morphophonological realization of the case markers: *vocabulary insertion*. This second step of the analysis is carried out within the traditional framework of Distributed Morphology (Halle and Marantz (1993)).

Before the concrete list of vocabulary items is established, it is important to recall some of the key properties of the Tlapanec case marker inventory, which is given again in table 5: As stated in section 2, a closer look at the paradigm reveals some syncretisms as well as partially syncretic forms of markers. There are identical markers in different cells of the paradigm, e.g. *-a* / *-i* for all plurals in the negative. On the other hand, some forms of markers show up that partially correspond to other, related forms: most of the absolutive forms correspond to dative forms except that they show an additional nasalization of the

		Ergative	Absolutive	Pegative	Dative
sg	1	-∅	-ũʔ	-u / -o	-uʔ / -oʔ
	2	-∅	-ĩʔ / -ãʔ	-a / -i	-aʔ
	3N	-∅	-i / -a	-u / -o	-u / -o
pl	1	-∅	-ãʔ	-a / -i	-aʔ
	2	-∅	-ãʔ	-a / -i	-aʔ
	3N	-∅	-ĩ	-a / -i	-ũ

*Table 5.* case markers in Tlapanec

vowel. One of the central questions of this section is, how can these (partial) syncretisms be derived by an adequate analysis?

As introduced in section 3, in DM it is assumed that underspecified vocabulary items, i.e. pairs of morpho-syntactic and phonological features, are in competition for insertion in certain morpho-syntactic contexts. In order to allow for underspecification and thus competition, the morpho-phonological features assumed in the analysis in section 4.1 have to be decomposed into binary features (Jakobson (1962); Bierwisch (1967); Wunderlich (1997)). As for the features involved, I assume the following notions:

{+sub, -obj}	case for external argument
{-sub, +obj}	case for internal argument
{+high}	highly affecting
{-high}	less affecting
{-1, -2}	third person

*Table 6.* list of relevant features, decomposed into binary features

The next central assumption is that each of the four traditional case labels in fact reflects one of two instances of subject-case or object-case in a certain morpho-syntactic configuration. The two instances of the cases differ with respect to the feature ‘degree of affectedness’ with which the case-labels are cross-classified (as already indicated in section 2 in table 1). The system of case marking in Tlapanec can thus be understood as exhibiting a twofold active alignment. Thus, this assumption straightforwardly leads to a decomposition of the traditional case labels in Tlapanec as illustrated in table 7. The striking observation is that these sets of binary features of the four cases in Tlapanec match the output of the post-syntactic impoverishment as derived in the last section almost exactly (person features are disregarded here).



affectedness	grammatical relation	
	external argument	internal argument
high	{+sub, -obj +high}	{-sub, +obj +high}
low	{+sub, -obj -high}	{-sub, +obj -high}

Table 7. interaction of grammatical relation and degree of affectedness

Note that it is only the ergative configuration {+ sub -obj + high}

output of impoverishment	decomposed cases	trad. case label
∅	{+sub -obj +high}	ergative
{+sub -obj -high}	{+sub -obj -high}	pegative
{-sub +obj -high}	{-sub +obj -high}	dative
{-sub +obj +high}	{-sub +obj +high}	absolutive

Table 8. relation of output of post-syntactic impoverishment and case labels

that was deleted by optimality-theoretic impoverishment and therefore does not show an exact match with one of the outputs. Table 9 lists

	∅	{-sub +obj +high}	{+sub -obj -high}	{-sub +obj -high}
- pl +1 -2	-∅	-ũʔ	-u	-uʔ
-1 +2	-∅	-ãʔ	-a	-aʔ
-1 -2	-∅	-i	-u	-u
+ pl +1 -2	-∅	-ãʔ	-a	-aʔ
-1 +2	-∅	-ãʔ	-a	-aʔ
-1 -2	-∅	-ĩ	-a	-ũ

Table 9. case markers in Tlapanec

all the case markers in a slightly simplified form in that phonologically driven alternations are omitted. In addition, labels are replaced by the corresponding bundles of binary features as provided by the output of post-syntactic impoverishment. Thus, a closer look now reveals that some partial syncretisms of markers do not seem to be accidental.

As already mentioned above, there seems to be partial syncretism of markers. But now, identical forms can be related to identical functions: The appearance of the glottal stop (ʔ) seems to correspond with the feature {+object} and the nasalization of a vowel corresponds with the

feature  $\{+\text{high}\}$ . These observations lead directly to the following list of vocabulary items:

(34) list of vocabulary items

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1. / $\tilde{u}$ /	$\longleftrightarrow$	$\{\text{cl}, -\text{subj}, -\text{high } -1, -2, +\text{pl}\}$
2. / $\tilde{i}$ /	$\longleftrightarrow$	$\{\text{cl}, -\text{subj}, +\text{high } -1, -2, +\text{pl}\}$
3. / $i$ /	$\longleftrightarrow$	$\{\text{cl}, -\text{subj}, +\text{high } -1, -2, -\text{pl}\}$
4. / $u$ /	$\longleftrightarrow$	$\{\text{cl}, -2, -\text{pl}\}$
5. / $a$ /	$\longleftrightarrow$	$\{\text{cl}\}$

---

6. / $\emptyset$ /	$\longleftrightarrow$	$\{+\text{object}\} /(-1, -2)$
7. / $\{\text{nasal}\}$ /	$\longleftrightarrow$	$\{+\text{high}\}$
8. / $-\text{?}$ /	$\longleftrightarrow$	$\{+\text{object}\}$

---

Not all syncretic forms can be explained completely by underspecified markers. In the list in (34), items 1. and 2. are considered to be highly specific forms for which a further decomposition, i.e. separation of the feature  $\{\text{nasal}\}$  and the vowel, would not yield any advantage. However, the vocabulary insertion of the eight proposed vocabulary items in (34) exhaustively derives the complete paradigm of case markers in Tlapanec according to the subset principle and the notion of fission of Noyer 1992 (see section 3).

The process of insertion is illustrated here in a little more detail. First consider for instance third person plural of the object cases (absolute and dative). There are highly specified vocabulary items ( $\tilde{u}$  and  $\tilde{i}$ ) that best fit the specification of the morpho-syntactic context (i.e. they are most specific in the set of competing vocabulary items). The insertion of these markers leads to a discharging of all of the features that they represent. As those highly specific markers are specified for all relevant features of the context, there are no features left for a further insertion of other markers. Now consider the more interesting case of less specified markers. The item / $u$ / represents the bundle of features  $\text{cl}, -2, -\text{pl}$ . Therefore it is inserted in all third person singular contexts – except in the absolute case, because there is a more specific marker (/ $i$ /) that blocks the insertion of / $u$ / there.

Now it is important to note that—following Noyer’s notion of fission (see the definition in (14) in section 3)—all features of the context that are not specified as the features of the inserted marker remain visible for further insertion. In the concrete case of the marker / $u$ / for example, the features for ‘case’ and ‘affectedness’ are still available for subsequent vocabulary insertions. This is exactly the case for the items

{nasal} and  $\text{?}$ . Both of them can be inserted in specific contexts leading to more complex markers:

- (35) example of lexical insertion: ‘ $\tilde{u}\text{?}$ ’ in 1sgl absolutive
- basic context:  
 $\{-\text{sub} +\text{obj} +\text{high} +1 -2 -\text{pl}\}$
  - insertion of:  
 $/\text{u}/ \longleftrightarrow \{\text{cl}, -2, -\text{pl}\}$
  - results in:  
 $/\text{u}/ + \{-\text{sub} +\text{obj} +\text{high} +1 -2 -\text{pl}\}$
  - insertion of:  $/\{\text{nasal}\}/ \longleftrightarrow \{+\text{high}\}$
  - results in:  $/\text{u}/ + \{\text{nasal}\} + \{-\text{sub} +\text{obj} +\text{high} +1 -2 -\text{pl}\}$
  - finally, the insertion of:  
 $/-\text{?}/ \longleftrightarrow \{+\text{object}\}$
  - results in:  $/\text{u}/ + \{\text{nasal}\} + /-\text{?}/ + \{-\text{sub} +\text{obj} +\text{high} +1 -2 -\text{pl}\}$   
 $= \tilde{u}\text{?}$

In addition, another aspect of the ‘unusual’ behavior of Tlapanec case markers can now be explained.

Regarding the notion of ‘complex’ forms of the absolutive, the vocabulary items 6, 7, and 8 in (34) are of particular interest. Besides the fact that they do not refer to a clitic head as place of insertion (and may therefore belong to a different block), they do what Aissen (1999) stated as “mark[ing] deviations from the norm”.

As is illustrated in example (35), the item 8. in (34), the glottal stop  $/-\text{?}/$ , marks an *animate* object – a definitely non-prototypical (infrequent) configuration and therefore a deviation from the norm.

The same holds for the vocabulary item 7. in (34): Here nasalization marks a highly affecting action. More precisely, it encodes a *highly affected, animate object*, since the subject of highly affecting actions is never marked. This again is a non-prototypical configuration.

Finally, item 6. in (34), the zero-marker, in fact deletes the  $\{+\text{object}\}$  feature for 3<sup>rd</sup> person.<sup>14</sup> Third persons are prototypical objects,

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<sup>14</sup>For a concept of deletion of features by highly specific zero-markers see Trommer (1999).

so the deletion of the {+object} feature here circumvents the marking by the glottal stop, hence it leads to a *morphologically unmarked representation of a less marked configuration*.

Thus, the complexity of the absolutive forms emerges by an additional marking of semantically/pragmatically marked configurations.

## 5. Conclusion

In this paper I have addressed some unusual aspects of the patterns of Tlapanec case marking. I have argued for an analysis that crucially relies on the assumption that languages may tend to represent semantically/pragmatically marked configurations by a specific morphological marking (Aissen (1999)). In Tlapanec this principle is extended by the complementary notion that semantically/pragmatically *unmarked* configurations do not have to possess an overt morphological marking. Regarding case marking in Tlapanec, this extended principle is at work in at least two instances.

First, it is responsible for the alignment patterns. Both the zero-marking of animate subjects of highly affecting actions ('zero-marked ergative') and the differential marking in certain syntactic contexts emerge from typologically attested principles. Based on this assumption I postulated markedness constraints that operate right after syntax and impoverish the morpho-syntactic context before lexical insertion takes place. All of these constraints were derived from typologically well attested prominence scales by a modified version of harmonic alignment.

Second, the complex forms of some of the markers were sub-analyzed, yielding a new interpretation of some parts of the markers. Additional phonological segments ('?') as well as features (*nasal*) do not mark case in the first place. Rather, they *encode marked configurations* such as animate objects and highly affected animate objects.

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