

## DISJUNCTIVE APPLICATION OF MORPHOSYNTACTIC RULES\*

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This paper examines morphological data from a variety of languages and provides evidence for the disjunctive application of morphosyntactic rules, disjunctive application of the same type proposed in the literature of generative phonology. Then, based on verb agreement data from Choctaw and Southern Tiwa, I propose the Agreement Rule Disjunctive Application Principle (ARDAP), a universal principle specifying the conditions under which agreement rules must be applied disjunctively, which represents an organizing principle of language. The explanatory power of the ARDAP is demonstrated through the examination of object agreement and direct object cliticization in Tigre, which fall under the scope of the principle.

### 1. Introduction

Rule ordering has long been an issue in generative linguistics. Disjunctive rule application has been discussed extensively in the phonological literature (e.g. Chomsky and Halle 1968, Kiparsky 1973, and Koutsoudas, Sanders, and Noll 1974), this discussion resulting in various rule ordering proposals. However, such proposals are restricted to phonology. Virtually neglected has been the disjunctive application of morphosyntactic rules (morphological marking rules sensitive to syntactic conditions).

Disjunctive application has been proposed implicitly or explicitly to account for morphological facts in a variety of languages.<sup>1</sup> After a brief discussion of disjunctive rule application (§2), I make explicit implicit disjunctive application proposals for Seri, Cebuano, and Udi in §3. These proposals provide evidence that linguistic theory must countenance the disjunctive application of morphological and morphosyntactic rules of the same form generally recognized in phonological theory. In §4 I examine verb agreement in Choctaw and Southern Tiwa. Based on these agreement systems I propose the Agreement Rule Disjunctive Application Principle as a universal principle which specifies the conditions under which agreement rules must be applied disjunctively. Finally, I

show that the Agreement Rule Disjunctive Application Principle explains the need for disjunctive application of two agreement rules in Tigre.

## 2. Disjunctive Rule Application

The issue of the proper order of rule application (if any) arises whenever a single linguistic form satisfies the structural descriptions of any two rules of grammar. For example, given a linguistic form A which satisfies the structural descriptions of some rule X and some rule Y (whose output may or may not be the same as the output of X), any of the following may obtain:

- (1) a. only X applies,
- b. only Y applies,
- c. both X and Y apply,
- d. neither X nor Y applies,
- e. either X or Y applies,
- f. some disjunction of c, d, and e, e.g.,  $\{c_d\}$ .

Discussions of disjunctive rule application have centered on those cases represented by (1a-b), i.e., only one of the two rules can apply to a given linguistic form. In the case of disjunctive rule application, it is generally claimed that the application of one rule blocks the application of the other.

As stated above, disjunctive application has been proposed most frequently for phonological rules. For example, Schane (1973) posits the rules in (2) to account for stress in French.<sup>2</sup>

- (2) a.  $V \rightarrow [+stress] / \text{---} C_o \overset{V}{[-tense]} \#$
- b.  $V \rightarrow [+stress] / \text{---} C_o \#$

The statements in (2) are disjunctively ordered so when a single form satisfies both parts only (2a) applies. A word with a nontense final vowel, i.e., [ə], such as [pətitə] 'small', satisfies both conditions in (2). However, given the disjunctive application of the rules, only a single stress is assigned. Since (2a) is satisfied, it applies, yielding [pətitə]. The application of (2a) blocks the application of (2b), ensuring that the ungrammatical form \*[pətitə] is not generated. Various principles have been proposed to predict disjunctive application of phonological rules, e.g., Kparsky's (1973) Elsewhere Condition and Sander's (1974) Proper Inclusion Precedence, both of which predict the disjunctive application of the French stress rules in (2).

In what follows I show that morphological rules can apply disjunctively in the same way as the French stress rules.

## 3. Disjunctive Application of Morphological Rules

In this section I present three instances of disjunctive application of morphological rules.



### 3.1 Subject Nominalizer Allomorphy in Seri

Marlett (1981) proposes the rule in (3) to account for subject (nonfuture) nominalizer allomorphy in Seri, a Hokan language of north-western Mexico. The nominalizer is used in relative clauses in which the head noun is coreferential with the subject of the embedded clause.

#### (3) SUBJECT (NONFUTURE) NOMINALIZER →

- a. i/ NEGATIVE
- b. ?a/ PASSIVE
- c. k/ elsewhere

The allomorphy conditions are applied disjunctively in the order in (3) to account for data such as that in (4).

- (4) a. ktam i-m-ataX  
man NOM-Neg-go  
'(the) man who isn't going/didn't go'
- b. ʒiX i-m-p-a?it  
thing NOM-Neg-Pass-eat  
'(the) thing that isn't/wasn't eaten'
- c. ʒiX ?a-p-a?it  
thing NOM-Pass-eat  
'(the) thing that is/was eaten'
- d. ktam k-ataX  
man NOM-go  
'(the) man who is going/went'

In (4a) the relative clause is negative and the nominalizer immediately precedes the negative affix m. According to (3a), the nominalizer should occur as i, which it does. In the negative/passive relative clause in (4b) the nominalizer again immediately precedes the negative prefix and again occurs as i. In (4c) the nominalizer occurs as ?a since it immediately precedes the passive affix p (by (3b)). Crucially, if the relative clause is neither negative nor passive, the subject nominalizer occurs as k, as in (4d). This is Marlett's 'elsewhere' in (3c), which can be roughly translated as 'if the relative clause is non-negative and non-passive, the subject (nonfuture) nominalizer is k'.

By recognizing the disjunctive nature of the allomorphy conditions, it is possible to simply state the elsewhere case as in (5).

#### (5) SUBJECT (NONFUTURE) NOMINALIZER → k/\_\_\_

If (3c) is stated as in (5), the relative clauses in (4a-c), as well as (4d), fulfill the environment and the subject nominalizer should be able to occur as k. However, if the conditions in (3) are applied disjunctively in the order given, the application of (3a) in (4a) and (4b) will block

the application of (5), giving the desired results. Likewise, the relative clause in (4c) fulfills both the environment in (3b), since the clause is passive, and that in (5). Since the application of (3b) blocks the application of (5), the desired result is assured.

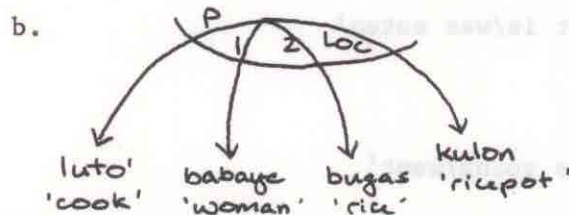
Disjunctive allomorphy phenomena such as the Seri case may be fairly widespread. Importantly, by taking a close look at the effect of Marlett's proposed rules, it is possible to see that the Seri phenomena demonstrate the disjunctive application of morphological rules dependent solely upon morphological environments. The remainder of the cases considered are examples of disjunctive application of morphosyntactic rules.

### 3.2 Voice Marking in Cebuano

Cebuano, a Philippine language, has a rich voice system in which verbs are marked by difference voices (active, objective, locative, and instrumental) depending upon which nominal in a clause is marked for nominative case. Bell (in press) argues that nominative case is marked on the final subject of a clause and that most dependents of clauses can advance to subject in their clause. The different voices are exemplified in (6)-(11), which include stratal diagrams following Bell's analysis.<sup>3</sup> (The voice marking and nominative nominal are underscored in the examples.)

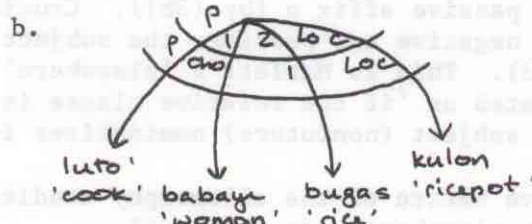
- (6) a. Magluto' ang babaye ug bugas sa kulon.  
Act/cook Nom woman Obl rice Obl ricepot

'The woman will cook rice in the ricepot.'



- (7) a. Luto'on sa babaye ang bugas sa kulon.  
cook/Obj Gen woman Nom rice Obl ricepot

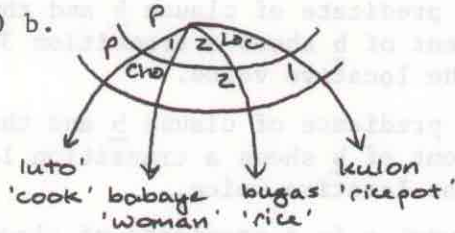
'The rice will be cooked in a ricepot by the woman.'



- (8) a. Luto'an sa babaye ang kulon ug bugas.  
cook/Loc Gen woman Nom ricepot Obl rice

'The woman will cook rice in the ricepot.'

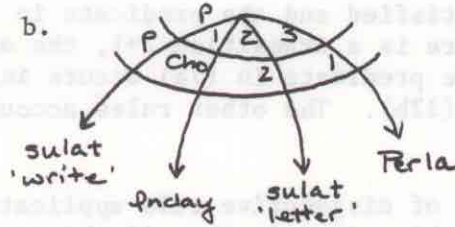
(8) b.



(9) a. Sulatan ni Inday si Perla ug sulat.  
write/Loc Gen Nom Obl letter

'Perla will be written a letter by Inday.'

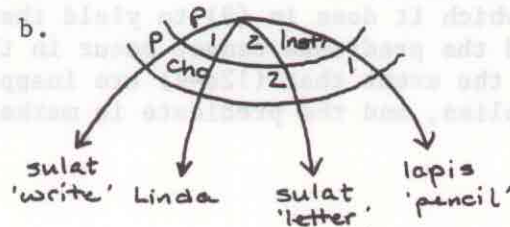
b.



(10) a. Insulat ni Linda ang lapis ug sulat.  
Instr/write Gen Nom pencil Obl letter

'Linda will write a letter with the pencil.'

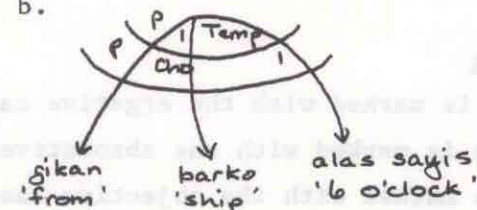
b.



(11) a. Igikan sa barko ang alas sayis.  
Instr/from Gen ship Nom o'clock six

'The ship leaves at 6 o'clock.'

b.



Bell posits the rules in (12) to account for these data.

(12) Cebuano Voice Marking

- If verb a is a predicate of clause b and no arc of a dependent of b shows a transition from non-1 to 1, then a is in the active voice.
- If verb a is a predicate of clause b and the arc of some dependent of b shows a transition 2→1, then a is in the objective voice.



- (12) c. If verb a is a predicate of clause b and the arc of some dependent of b shows a transition 3→1, then a is in the locative voice.
- d. If verb a is a predicate of clause b and the arc of some dependent of b shows a transition locative→1, then a is in the locative voice.
- e. Elsewhere, if verb a is a predicate of clause b, a is in the instrumental voice.

The rules in (12) account for the data straightforwardly. For instance, since there is no arc in (6b) which shows a transition from non-1 to 1, the environment of (12a) is satisfied and the predicate in (6a) is in the active voice. In (7b) there is a transition 2→1, the arcs headed by bugas 'rice'; therefore, the predicate in (7a) occurs in the objective voice in accordance with (12b). The other rules account for the other data in the same manner.

Important to the question of disjunctive rule application, (12e) is an 'elsewhere' case. What this means is that if the predicate cannot occur in active, objective, or locative voice, it occurs in instrumental voice. In other words, each of the rules in (12a-d) is disjunctively ordered with respect to (12e). For instance, if (12a) applies, as in (6), (12e) is blocked and the predicate cannot occur in instrumental voice. If (12c) applies, which it does in (9) to yield the locative voice, (12e) is blocked and the predicate cannot occur in the instrumental voice. However, in the event that (12a-d) are inapplicable, as in (10) and (11), (12e) applies, and the predicate is marked for instrumental voice.<sup>5</sup>

### 3.3 Case Marking in Udi

Another example of morphosyntactic rules applying disjunctively comes from the case marking proposal made by Harris (to appear) for Udi, a Caucasian language. There are three nominal cases in Udi: ergative, absolutive, and objective. Harris proposes the rule in (13) to account for the facts.

#### (13) Udi Case Marking

- a. An ergative<sup>6</sup> is marked with the ergative case.
- b. An absolutive is marked with the absolutive case.
- c. An object<sup>7</sup> is marked with the objective case.

Harris makes the further stipulation that a nominal may have only one case marking.

Harris shows that subjects of simple transitive clauses take ergative case marking, subjects of intransitive clauses take absolutive case marking, and indirect objects take objective case marking. However, direct objects of transitive clauses may take either absolutive or objective case marking, as illustrated in (14) and (15).

- (14) ...Vă tanedi šotyo ixtar tamiz nuț  
and gave them/Obj authority/Obj clean Neg  
elmu-yo laxo.  
spirit-Pl on

'...And he gave them authority over the unclean spirits.'

- (15) Xinär-an xup-ax tanesta Rustam-a.  
girl-Erg pilaf-Obj gives Rustam-Obj  
'The girl gave pilaf to Rustam.'

In (14) the direct object, ixtar 'authority', occurs in the absolutive case, which is unmarked in Udi. In (15) the direct object xup 'pilaf', takes objective case. In both clauses the predicate is 'give'. A final 2 in a simple transitive clause satisfies both (13b), by virtue of being an absolutive, and (13c), by virtue of being an object. Disjunctive application of these two statements accounts for the facts. In (14) ixtar 'authority' satisfies (13b) and (13c); however, (13b) is applied and its application blocks the application of (13c). In (15) xup 'pilaf' satisfies (13b) and (13c); here (13c) is applied and its application blocks the application of (13b). Unlike the cases in Seri and Cebuano, the Udi case marking rules constitute an unordered disjunction.<sup>8</sup> When (13b) and (13c) are satisfied, either may apply, but the application of one blocks the application of the other.

Harris goes on to show that a similar state of affairs exists between ergative and objective case marking in inversion clauses.<sup>9</sup> She proposes an inversion analysis for both (16) and (17).

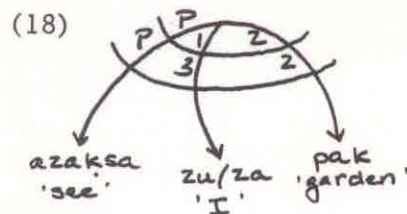
- (16) Zu azaksa šel lăzättu pak.  
I/Erg:Abs see good pretty garden/Abs

'I see a good, pretty garden.'

- (17) Za azaksa šel lăzättu pak.  
I/Obj see good pretty garden/Abs

'I see a good, pretty garden.'

Harris proposes (18) as the structure for both (16) and (17).<sup>10</sup>



In (16) the inversion nominal, zu 'I', occurs in the form used for both ergative and absolutive. The ergative form can be accounted for by (13a) since zu heads a 1-arc in the initial transitive stratum and is therefore an ergative. By the same token, this nominal is an object, by virtue of heading a 3-arc in the final stratum. Therefore, it satisfies the condition in (13c) and can take objective case, as it does in (17). Since



the inversion nominal satisfies both (13a) and (13c), either may apply. If (13a) applies, as in (16), the application of (13c) is blocked even though it is satisfied. Conversely, if (13c) applies as in (17), (13a) is blocked even though it is satisfied.

Therefore, disjunctive application (13a) and (13b) or (13b) and (13c) accounts for the case facts in Udi. This makes explicit what Harris implies in her condition that a nominal may be marked for case only once.

#### 4. Disjunctive Application of Verb Agreement Rules

In this section I narrow the scope of discussion to verb agreement phenomena. In §§4.1-2 I show that verb agreement rules in both Choctaw and Southern Tiwa apply disjunctively. Based on these data, in §4.3 I propose the Agreement Rule Disjunctive Application Principle as a tentative universal specifying the conditions under which agreement rules must be disjunctively applied. I then examine two verb agreement rules in Tigre and show that their disjunctive application follows from the predictions of the Agreement Rule Disjunctive Application Principle.

##### 4.1 Choctaw Verb Agreement

In Choctaw, a Muskogean language, the predicate of a clause agrees in person and number with a variety of nominals in the clause. Additionally, the agreement markers are selected from four paradigms: nominative, accusative, dative, and benefactive.<sup>11</sup> In Davies 1981a I propose that Choctaw verb agreement is best accounted for by the set of ordered disjunctive rules in (19).

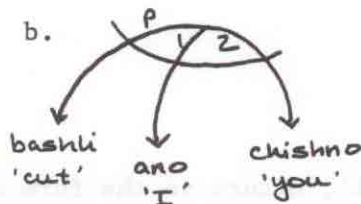
##### (19) Choctaw Verb Agreement

- a. Nominals which head 3-arcs determine dative agreement.
- b. Nominals which head 2-arcs determine accusative agreement.
- c. Nominals which head 1-arcs determine nominative agreement.

The rules in (19) apply straightforwardly to account for agreement in clauses with a single stratum of structure. Consider (20).

- (20) a. Chi-bashli-li-tok.  
2Acc-cut-1Nom-Pst

'I cut you.'

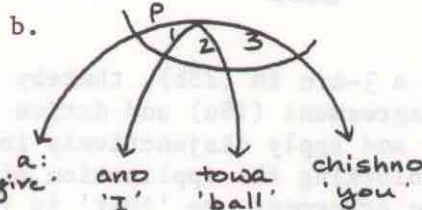


(Free-standing pronouns are used only for emphasis in Choctaw and generally do not occur; however, for convenience the pronominal forms are used in the diagrams to designate the nominals.) Looking at the diagram



in (20b), ano 'I' heads only a 1-arc and therefore satisfies only the rule for nominative agreement, (19c). It determines nominative agreement in (20a), li '1Nom'. Chishno 'you' heads only a 2-arc in (20b), satisfies only rule (19b), and therefore determines accusative agreement, chi '2Acc', in (20a). The clause in (21) demonstrates that indirect objects determine dative agreement.

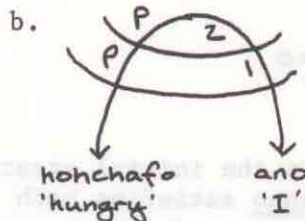
- (21) a. Towa chim-a:-li-tok.  
ball 2Dat-give-1Nom-Pst  
'I gave the ball to you.'



In (21b) chishno 'you' heads a 3-arc and determines dative agreement, chim '2Dat', in accordance with the rule in (19a).<sup>12</sup> Once again ano 'I' heads a 1-arc and determines nominative agreement.

The disjunctive application of the agreement rules is apparent in clauses which have structures with multiple strata. In Davies 1981a I argue that clauses such as (22a) are initially unaccusative (Perlmutter 1978, Perlmutter and Postal to appear) and have structures such as that in (22b).<sup>13</sup>

- (22) a. An-a-kosh sa-hohchafo.  
1-Dt-Fo=Nom 1Acc-hungry  
'I am the one who is hungry.'

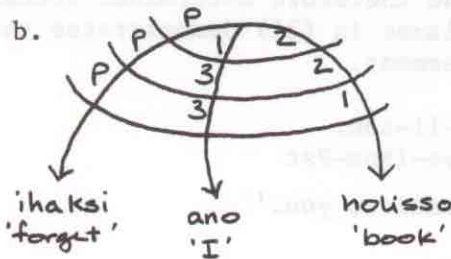


In (22b) ano 'I' heads both a 1-arc and a 2-arc; therefore, it satisfies both the condition on accusative agreement in (19b) and the condition on nominative agreement in (19c). Given the disjunctive application of the rules in (19) in the order specified, accusative agreement applies, accounting for the accusative agreement, sa '1Acc', in (22a). The application of (19b) blocks the application of (19c), even though (19c) is satisfied. Therefore, ano determines only accusative agreement in (22a).

In Davies 1981a,b I have analyzed clauses such as (23a) as inversion clauses. (23a) has the structure in (23b).

- (23) a. An-a-kosh holisso-t am-ihaksi-tok.  
1-Dt-Fo=Nom book-Nom 1Dat-forget-Pst

'I am the one who forgot the book.'

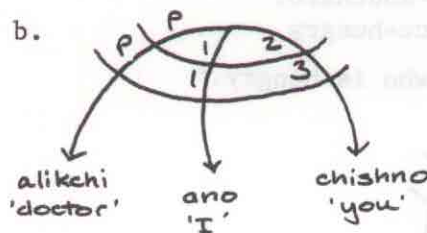


Ano 'I' heads both a 1-arc and a 3-arc in (23b), thereby satisfying both the conditions for nominative agreement (19c) and dative agreement (19c). Since both rules are satisfied and apply disjunctively in the order (19a) then (19c), (19a) is applied, blocking the application of (19c). Therefore, ano 'I' determines dative agreement, am '1Dat' in (23a). Since there are no overt third person agreement markers for nominative or accusative agreement, holisso 'book' determines no overt agreement in (23a).

In Davies 1981a, 1982 I analyze (24a) as having the 2→3 retreat structure in (24b).

- (24) a. Chim-alikchi-li-tok.  
2Dat-doctor-1Nom-Pst

'I doctored you.'



In (24b) chishno 'you' heads a 2-arc in the initial stratum but a 3-arc in the final stratum. Therefore, chishno satisfies both the condition on accusative agreement and the condition on dative agreement. However, chishno determines only dative agreement since the two rules are disjunctively ordered and the application of the dative rule (19a) blocks the application of the accusative rule (19b).

#### 4.2 Verb Agreement in Southern Tiwa

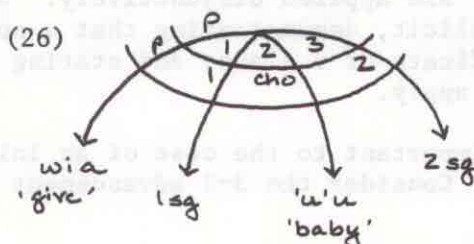
Another example of disjunctively applied agreement rules is available from Southern Tiwa, a Tanoan language. Southern Tiwa has a complex agreement system in which a single agreement marker can encode person, number, and noun class information about a final 1, a final 2, and an initial absolutive (Allen and Frantz 1978). This is most clearly illustrated by a 3→2 advancement clause such as (25).



- (25) Ka-<sup>14</sup>'u'u-wia-ban.  
1sg:2sg/3isg-baby-give-Pst

'I gave you the baby.'

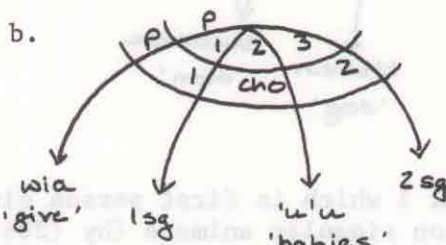
According to Allen and Frantz, the agreement marker ka in (25) indicates three things: (i) the final 1 is first person singular, (ii) the final 2 is second person singular, and (iii) the initial absolutive is a third person singular nominal from noun class i, the class of animate third persons. The structure of (25) is (26).



The agreement in (25) contrasts with that in (27a), a 3+2 advancement clause in which the initial absolutive is a third person plural animate nominal.

- (27) a. Kam-<sup>14</sup>'u'u-wia-ban.  
1sg:2sg/3ipl-baby-give-Pst

'I gave you the babies.'



In (27a) the agreement marker kam references a first person singular final 1, a second person singular final 2, and a third person plural animate initial absolutive. The stratal diagram in (27b) illustrates the configuration of the nominals. The difference between (25) and (27a) is due to the influence of the initial absolutive, which is the only factor which has been varied; in (25) this nominal is singular and in (27a) plural.

The agreement rule in Southern Tiwa must therefore include statements referring to the final 1, the final 2, and the initial absolutive. One possible formulation is (28).

#### (28) Southern Tiwa Verb Agreement

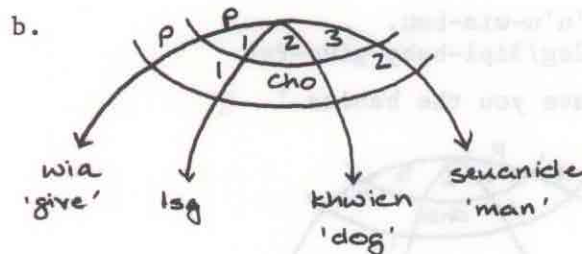
The predicate of a clause agrees in person, number and noun class with:

- the final 1,
- the final 2, and
- the initial absolutive.

The rule in (28) presents an interesting set of circumstances. Given (28), it should be possible for a given nominal to satisfy more than one condition for agreement. Consider, for example, a monostratal transitive clause, where the initial absolutive is also the final 2. Such a nominal falls under the scope of both (28b) and (28c). Another example arises in initially intransitive clauses, where the initial absolutive is also the final 1. Such a nominal satisfies the conditions in (28a) and (28c). Allen and Frantz state that initial absolutives trigger agreement only if they are not final terms. However, implicit in this statement is the fact that the conditions in (28) are applied disjunctively. Here I make this disjunctive application explicit, demonstrating that a nominal is referenced only once by the predicate of a clause and stating the order in which the conditions in (28) apply.

Let us first examine data important to the case of an initial absolutive which is also a final 2. Consider the 3→2 advancement clause in (29).

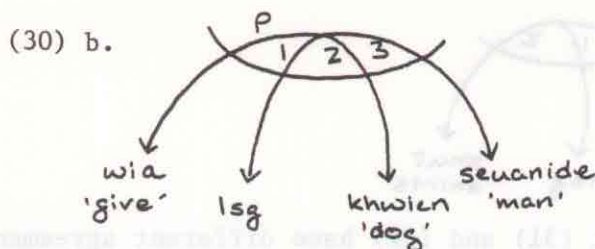
- (29) a. Ta-khwien-wia-ban                      seuanide.  
           1sg:3isg/3isg-dog-give-Pst man  
           'I gave the man the dog.'



In (29a) ta references a final 1 which is first person singular (by (28a)), a final 2 which is third person singular animate (by (28b)), and an initial absolutive which is third person singular animate (by (28c)). Although (28b) and (28c) are not satisfied by the same nominal, the person, number, and noun class information referenced by the agreement marker as a result of these two conditions is exactly the same, third person singular animate. Thus (29) provides the form of the agreement we would expect if a third person singular animate nominal were to be referenced twice. Now we want to compare (29) with a monostratal transitive clause in which the final 1 is first person singular and the final 2 is third person singular animate. Recall that in such a clause the final 2 is also the initial absolutive. If the predicate can reference the same nominal more than once, the 2 should be referenced twice (by (28b) and (28c)) in a monostratal transitive clause in Southern Tiwa. However, (30) shows that this is not the case.

- (30) a. Ti-khwien-wia-ban                      seuanide-'ay.  
           1sg:3isg-dog-give-Pst man-to  
           'I gave the dog to the man.'

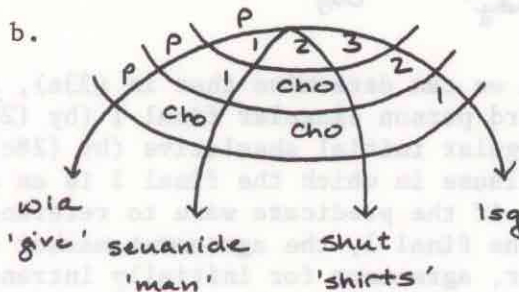




In (30) the agreement marker is ti; in (29) the agreement marker is ta. Since we know that ta references a first person singular final 1, a third person singular animate final 2, and a third person singular animate initial absolutive, we know that in (30) khwiien 'dog', a third person singular animate, is not referenced as both a final 2 and initial absolutive. Applying the conditions in (28b) and (28c) disjunctively will ensure that the same nominal is not referenced more than once.

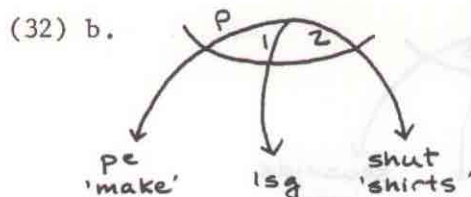
Although it is clear that ti in (30) does not reference both the final 2 and initial absolutive, it is not clear whether it references the final 1 and final 2 or the final 1 and initial absolutive. In other words, it remains to determine the order, if any, in which (28b) and (28c) apply. The data in (31) and (32) show that final 2hood takes precedence over initial absolutivity with respect to verb agreement in Southern Tiwa.

- (31) a. Iw-shut-wia-che-ban                      seuanide-ba.  
           lsg/3iipl-shirt-give-Pass-Pst    man-Instr  
           'I was given shirts by the man.'



In (31a) the predicate agrees with the final 1 and the initial absolutive. This is reflected by iw, which indicates that the final 1 is first person singular (by (28a)) and that the initial absolutive is third person plural from noun class ii (by (28c)). If initial absolutivity took precedence over final 2hood, i.e., disjunctive application worked in the order (28c) then (28b), a monostratal transitive clause in which the 1 were first person singular and the 2 were third person plural from noun class ii would show the same agreement as in (31). However, in (32a) the agreement marker is te not iw.

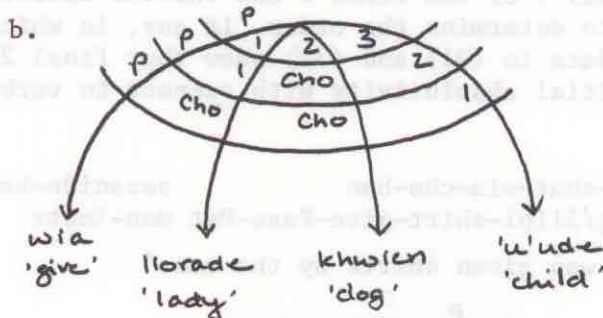
- (32) a. Te-shut-pe-ban.  
           lsg:3iipl-shirt-make-Pst  
           'I made shirts.'



Therefore, the fact that (31) and (32) have different agreement markers shows that when the same nominal satisfies both (28b), the condition on final 2 agreement, and (28c), the condition on initial absolutive agreement, (28b) applies, blocking the application of (28c).

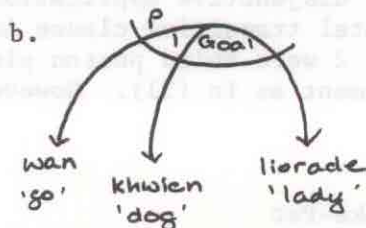
As stated above, it is also possible for the initial absolutive and final 1 to be the same nominal. Consider the clause in (33).

- (33) a. Liorade-ba a-khwien-wia-che-ban 'u'ude.  
lady-Instr 3isg/3isg-dog-give-Pass-Pst child  
'The child was given the dog by the lady.'



From previous discussion we can determine that in (33a), *a* marks agreement with an animate third person singular final 1 (by (28a)) and an animate third person singular initial absolutive (by (28c)). Given an initially intransitive clause in which the final 1 is an animate third person singular nominal, if the predicate were to reference both the initial absolutive and the final 1, the agreement marker would be the same as in (33). However, agreement for initially intransitive clauses with an animate third person singular subject is  $\emptyset$ , as in (34) (from Allen to appear).

- (34) a. Khwien wan-ban liorade-'ay.  
dog go-Pst lady-to  
'The dog went to the lady.'



Therefore, the predicate may reference the nominal only once.



Allen and Frantz state explicitly that initial absolutes may trigger agreement only when they are not final terms. However, disjunctive application of the agreement conditions which come into conflict makes this statement unnecessary. If a nominal is both a final 1 and an initial absolute, only the condition on final hood applies, even though the condition on initial absolutivity is satisfied. Similarly, if a nominal is both the final 2 and the initial absolute, the condition on final 2hood (28b) applies, thereby blocking the application of (28c), the condition on initial absolutivity.

#### 4.3 The Agreement Rule Disjunctive Application Principle

The examples from Seri, Cebuano, Udi, Choctaw, and Southern Tiwa show that disjunctive application of morphosyntactic rules may be a common phenomenon in language. It is, however, an open question whether all such cases of disjunctive rule application can be predicted by some universal principle (as has been attempted for disjunctive application of phonological rules) or whether grammars of specific languages must specify that particular rules apply disjunctively. For agreement rules, I claim that disjunctive rule application is predictable, and in this section I propose a universal principle which specifies the conditions under which agreement rules must be applied disjunctively.

Close examination of Choctaw and Southern Tiwa reveals certain similarities between the two cases. First, in each language the properties of the nominals specified by the agreement rules are the same: in Choctaw they are person and number while in Southern Tiwa they are person, number, and noun class. Recall that in Choctaw a predicate agrees with 1s, 2s, and 3s, and in Southern Tiwa with the final 1, the final 2, and the initial absolute of the clause. Second, although in each language a nominal can satisfy the conditions for two different kinds of agreement, it nonetheless can determine agreement only once. In Choctaw the unaccusative subject in (22b) satisfies the conditions for nominative and accusative agreement, yet only one agreement marker can occur, the accusative one. In Southern Tiwa the final 2 in (32b), shut 'shirts', satisfies the conditions for agreement with final 2s and initial absolutes, yet this nominal triggers agreement only as a final 2.

The fact that the Choctaw and Southern Tiwa agreement rules must be applied disjunctively can be formalized in the principle in (35).<sup>15</sup>

#### (35) Agreement Rule Disjunctive Application Principle

Given a set of agreement rules making a predicate agree with the same set of properties  $a, b, \dots, n$  of nominals, the rules apply disjunctively to any given nominal.

As discussed above, the Choctaw and Southern Tiwa rules reference the same properties of nominals; therefore, the condition that rules specify 'the same set of properties  $a, b, \dots, n$  of nominals' is met. However, there are languages with agreement rules which do not specify the same set of properties.

Chamorro, an Austronesian language, is such a language. Gibson (1980) proposes the rules of Number Agreement and Subject Agreement in (36) to account for certain agreement phenomena in Chamorro.

(36) a. Chamorro Number Agreement

The prefix man-/fan-<sup>16</sup> is attached to the predicate of a finally intransitive clause if and only if the final l of the clause is plural.

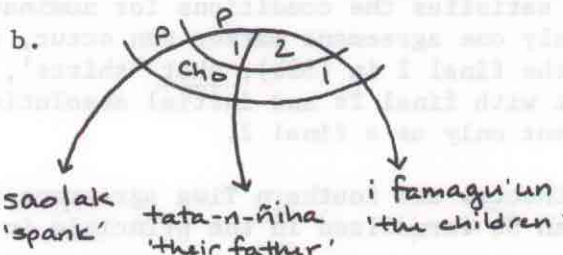
b. Chamorro Subject Agreement

In irrealis clauses, the final l of the clause is represented by a subject agreement marker.

In Chamorro the subject agreement markers indicate both the person and number of the subject. For instance, un is the second person singular marker while in marks a second person plural subject. The final l of a Chamorro intransitive clause in the irrealis mood satisfies the conditions of both rules in (36). However, the number agreement rule in (36a) marks only the number of the final l of finally intransitive clauses. The subject agreement rule (36b) marks both the person and number of the final l of irrealis clauses. Therefore, the condition of the Agreement Rule Disjunctive Application Principle (ARDAP) that the rules make 'a predicate agree with the same properties a, b,...n of nominals' is not met and the rules should not apply disjunctively; both should apply. The fact is that in a finally intransitive clause in the irrealis mood both Number Agreement and Subject Agreement do apply in Chamorro. This is illustrated in (37).

- (37) a. Pära u fan-s-in-aolak i famagu'un gi as tata-n-ñiha.  
Irr 3Pl Pl-Pass-spank the children Obl father-n-their

'The children are going to be spanked by their father.'



In (37) the final l of the clause is plural, i famagu'un 'the children'. Subject agreement is realized as u, the third person plural subject agreement marker, and number agreement is realized as the prefix fan-. The Chamorro example points to the importance of the condition that the agreement rules reference the same set of properties of nominals; since the Chamorro rules do not meet this condition, they are not applied disjunctively to a given nominal.

Unlike the proposals for the ordering of phonological rules alluded to earlier, the ARDAP makes no prediction with respect to the order in which rules should be applied. Although one might speculate that the



order of a set of disjunctively applied agreement rules is determined by universal principle, the available evidence does not provide a ready answer and I assume for the present that order of disjunctive application is a language-specific property.

#### 4.4 Verb Agreement in Tigre

In this section I examine verb agreement data from Tigre, an Eritrean Semitic language, described by Jake (1980), and show that the disjunctive application of the rules of Object Agreement and Direct Object Cliticization is predicted by the ARDAP.

Tigre verbs agree in person, number, and gender with definite objects.<sup>17</sup> In (38) the verb agrees with the direct object.

- (38) a. lilat la chi'fot ch'efat-to<sup>18</sup>  
 Lilet(f) the chifot(m) boiled=3f-3m  
 'Lilet boiled the chifot.'

b. \*lilat la chi'fot ch'efat

In (38a) la chi'fot 'the chifot' determines the third person masculine agreement marker to. As (38b) shows, if the verb, ch'efot 'boiled=3f' does not agree with the definite direct object, la chi'fot, the clause is ungrammatical. (39) shows that verbs may also agree with their indirect objects.

- (39) a. ḥasāmā ?iḡl la ?ssit kitāb haba-yā  
 Hasama(m) to the woman(f) book(m) gave=3m-3f  
 'Hasama gave the woman a book.'

b. \*ḥasāmā ?iḡl la ?ssit kitāb haba

The third person singular feminine agreement marker yā is determined by the indirect object, ?iḡl la ?ssit 'to the woman', in (39a). Once again the absence of an object agreement marker is ungrammatical (cf. \*(39b)).

Jake shows that the Object Agreement rule is sensitive to word order. Crucially, the leftmost trigger determines object agreement.

- (40) a. lilat ?iḡl <sup>c</sup>ali la waraqat habet-to  
 Lilet(f) to Ali(m) the letter(f) gave=3f-3m  
 'Lilet gave Ali the letter.'

b. \*lilat ?iḡl <sup>c</sup>ali la waraqat habet-tā  
 gave=3f-3f

In (40a) the indirect object, ?iḡl <sup>c</sup>ali 'to Ali', determines object agreement, to '3m', and precedes a definite direct object, la waraqat 'the letter'. If la waraqat determines object agreement, tā '3f', the

clause is ungrammatical (cf. \*(40b)). Reversing the order of the indirect object and direct object, only la waraqat can determine object agreement (41a).

- (41) a. lilat      la waraqat      ?iɣɪl<sup>C</sup> ali      habet-tā  
          Lilet(f) the letter(f) to      Ali(m) gave=3f-3f  
          'Lilet gave the letter to Ali.'  
       b. \*lilat la waraqat ?iɣɪl<sup>C</sup> ali habet-to  
    gave=3f-3m

The rule of Object Agreement can be stated informally as in (42).

(42) Tigre Object Agreement

The verb of a clause agrees in person, number, and gender with the leftmost object of that clause if that object is definite.<sup>20</sup>

Additionally, a definite direct object may optionally trigger a rule Jake refers to as Direct Object Cliticization, the result of which is an agreement marker specifying the person, number, and gender of its trigger following the predicate.

- (43) lilat      ?iɣɪl la ?ɪnās      la sa<sup>C</sup>at      habet-to      tā  
          Lilet(f) to      the man(m) the watch(f) gave=3f-3m 3fDO  
          'Lilet gave the man the watch.'

In (43) la sa<sup>C</sup>at 'the watch' triggers the third person feminine clitic tā.<sup>21</sup> As (43) shows, the direct object need not be the leftmost object in the clause to determine the clitic agreement, i.e., la sa<sup>C</sup>at follows the indirect object ?iɣɪl la ?ɪnās 'to the man'. If no nominal determines object agreement, Direct Object Cliticization may not apply \*(44).

- (44) \*lilat      ?iɣɪl ?ɪnās la waraqat      habet      tā  
          Lilet(f) to      man(m) the letter(f) gave=3f 3fDO  
          ('Lilet gave a man the letter.')

The leftmost object in \*(44), ?iɣɪl ?ɪnās 'to a man', cannot determine object agreement since it is indefinite.

The rule of Direct Object Cliticization can be given informally as:

(45) Tigre Direct Object Cliticization

A definite direct object can optionally determine a postverbal clitic which agrees with it in person, number, and gender if some nominal determines object agreement on the predicate.<sup>22</sup>

These Tigre clitics are agreement markers. Despite the recent interest in the distinction between clitics and affixes (e.g. Carstairs 1981, Zwicky and Pullum 1981), for purposes of the present discussion any



distinction between clitics and agreement markers is unimportant. Just like object agreement markers, Tigre direct object clitics are part of the phonological predicate and mark the person, number, and gender of the triggering nominal. In addition, Jake offers no arguments for differentiating between clitics and affixes here.

Given that these direct object clitics are agreement markers, the Agreement Rule Disjunctive Application Principle predicts that Object Agreement and Direct Object Cliticization must be applied disjunctively to a form which satisfies both rules. This means that no direct object should be marked both by an object agreement marker and a clitic in a single clause. The ARDAP makes this prediction because in both rules the verb agrees in the same properties (person, number, and gender) with a particular nominal in a clause: a definite direct object which is the leftmost object agreement trigger in a clause satisfies the environments of both rules. The data in (46) and (47) provide evidence that this prediction is correct.

(46) lilat la sa<sup>c</sup>at habet-tā (\*tā)

Lilet(f) the watch(f) gave=3f-3f 3fDO

'Lilet gave the watch.'

(47) lilat ḥasāmā ra?et-to (\*tu)

Lilet(f) hasama(m) saw=3f-3m 3mDO

'Lilet saw Hasama.'

In (46) la sa<sup>c</sup>at 'the watch' determines the third person feminine object agreement marker tā on the verb but cannot determine the third person feminine clitic tā. Likewise, in (47) ḥasāmā 'Hasama' can determine third person masculine object agreement to but not the third person masculine clitic tu. Therefore, in simple transitive clauses Object Agreement applies before Direct Object Cliticization and the application of the former blocks the application of the latter.

The situation is somewhat more complex than this, however. In a ditransitive clause in which a definite direct object precedes a definite indirect object, the direct object may trigger either Object Agreement or Direct Object Cliticization. Of course, if it triggers Object Agreement, there can be no clitic (cf. (48a)). If, however, it triggers the clitic rule, the indirect object must then trigger Object Agreement (cf. (48b)).

(48) a. ḥasāmā la sa<sup>c</sup>at ?iḡi la ?inās haba-yā

Hasama(m) the watch(f) to the man(m) gave=3m-3f

'Hasama gave the watch to the man.'

b. ḥasāmā la sa<sup>c</sup>at ?iḡi la ?inās haba-yu tā

gave=3m-3m 3fDO

'Hasama gave the watch to the man.'

This means that the final statement of the disjunctive application of the two rules will be quite complex. If the direct object satisfies both

Object Agreement and Direct Object Cliticization, Object Agreement can apply first and Direct Object Cliticization is blocked. However, if Direct Object Cliticization applies first, Object Agreement is blocked for the direct object but applies to the indirect object.

Regardless of the complex interaction of these rules, the prediction of the Agreement Rule Disjunctive Application Principle remains. The Tigre example points to the explanatory power of the ARDAP. Disjunctive application of Object Agreement and Direct Object Cliticization is necessary regardless of the existence of the ARDAP. However, in the absence of this principle, disjunctive ordering is no more than a language-particular fact which must be stated in the grammar of Tigre to account for the data. The ARDAP removes this disjunctive ordering from the realm of a language-particular oddity and explains why in fact these are precisely the results one should expect.

## 5. Conclusion

The focus of this paper has been twofold. First, I have argued that linguistic theory must countenance the disjunctive application of morphological and morphosyntactic rules. Although not widely discussed, this claim is not novel. Anderson (1977, 1981) has also argued for disjunctively ordered morphosyntactic rules within his Extended Word and Paradigm theory of morphology, which takes the Extended Standard Theory as its base. Anderson claims that some instances of disjunctive ordering of morphosyntactic rules are predictable from Kiparsky's (1973) Elsewhere Condition. However, he also states that morphosyntactic rules can be disjunctively ordered arbitrarily, i.e., their disjunctive order is not predicted by the Elsewhere Condition or any other principle.

The present proposal differs from Anderson's in a number of ways, the most important of these being the formulation of the Agreement Rule Disjunctive Application Principle. The ARDAP provides a principled account of the disjunctive ordering of verb agreement rules in Choctaw, Southern Tiwa, and Tigre, rules which (although not explicitly argued here) fall outside the scope of the Elsewhere Condition. The ARDAP is proposed here as a universal condition and as such represents an organizing principle of language.

Since the ARDAP makes a falsifiable claim about the organization of human language and is subject to empirical test, it represents a fruitful area for future research. Future studies in morphology and the disjunctive application of morphosyntactic rules may also provide insights into the similarity of the disjunctive rule applications not covered by the ARDAP, which in turn may lead to an organizing principle which can subsume all cases.



Footnotes

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1. Anderson (1977, 1981) has also argued for disjunctive ordering of morphosyntactic rules. Cf. papers in Thomas-Flinders 1981 for further examples.
2. Schane (1973) gives (i) as the final statement of the French stress rule:

$$(i) V \rightarrow [+stress] / \text{---} C_0 \left( \begin{matrix} V \\ [-tense] \end{matrix} \right) \#$$

Therefore, French stress follows Chomsky and Halle's (1968) proposal that rules collapsible by means of parentheses or angle brackets must be applied disjunctively. Kiparsky (1973) and others provide counterexamples to this claim, however.

3. The syntactic analyses throughout this paper are presented in the framework of Relational Grammar as proposed by Perlmutter and Postal (1977, in press). Familiarity with this framework is assumed.
4. Following Bell, in clauses in which the nominative nominal cannot be the subject of an English clause, I underline the corresponding nominal in the English translation.
5. There is another possible formulation of the Cebuano voice marking rules which exploits disjunctive rule application to a greater degree. Under this alternative, the rules could be stated as in (i), following the spirit of Bell's formulations in (12).

- (i) a. If verb a is the predicate of clause b and the arc of some dependent of b shows a transition 2→1, then a is in the objective voice.
- b. If verb a is the predicate of clause b and the arc of some dependent of b shows a transition 3→1, then a is in the locative voice.
- c. If verb a is the predicate of clause b and the arc of some dependent of b shows a transition locative→1, then a is in the locative voice.
- d. If verb a is the predicate of clause b and the arc of some dependent of b shows a transition from non-1 to 1, then a is in the instrumental voice.

- (i) e. If verb a is the predicate of clause b, then a is in the active voice.

Although the rules in (ia-c) are unordered with respect to one another, they are disjunctively ordered with respect to both (id) and (ie) and must apply before the latter rules. In addition, (id) must apply disjunctively before (ie). The rules in (i) set up a distinction between clauses in which there is advancement to 1 and other clauses. The rules accounting for voice marking in clauses with advancement to 1 are organized as a disjunctive set, (id) being the 'elsewhere' case with respect to (ia-c). In turn, this set is disjunctively ordered with the 'elsewhere' case in (ie), accounting for the clauses showing no advancement to 1.

6. In RG ergative and absolutive can be defined as follows:

- (i) a. A nominal bears the ergative relation in stratum  $c_i$  if and only if it bears the 1-relation in  $c_i$  and  $c_i$  is transitive (i.e. contains both a 1 and a 2).  
 b. A nominal bears the absolutive relation in stratum  $c_i$  if and only if it bears a nuclear term relation (i.e. 1 or 2) in  $c_i$  and does not bear the ergative relation in  $c_i$ .

The notions 'ergative' and 'absolutive' can only be defined on particular strata since nominals can bear different grammatical relations in different strata of the same clause. This is crucial in the Udi case considered here.

7. In RG the 2-relation and 3-relation are subsumed under the notion object relation, a derived relation. Therefore, nominals which bear either the 2-relation or 3-relation are said to be objects.

8. Choctaw switch reference marking rules represent another case of an unordered set of disjunctively applied rules. Cf. Davies 1981b for details.

9. Within RG an inversion clause is one in which a nominal which bears the 1-relation in some stratum  $c_i$  demotes to bear the 3-relation in stratum  $c_{i+1}$ . This nominal is referred to as the inversion nominal. Cf. Perlmutter 1979 for a more detailed discussion of inversion.

10. The diagram in (18) violates the Final 1 Law (Perlmutter and Postal in press), which states that every basic clause must contain a 1-arc in the final stratum. Harris provides no arguments for the final 2hood or final 1hood of the initial 2, pak 'garden'. An analysis in which it advances to 1 is still consistent with the absolutive case marking since it would be a final absolutive by virtue of heading a 1-arc in an intransitive stratum.

11. Benefactive agreement is crucially ordered only with respect to Dative agreement and is not considered here. Cf. Davies 1981a for details.



12. Third person nominative and accusative agreement is  $\emptyset$ ; therefore, there is no overt manifestation of agreement with towa 'ball' in (21a).

13. For present purposes I assume the structures for Choctaw. Cf. Davies 1981a for arguments in support of the unaccusative, inversion and 2→3 retreat structures in Choctaw.

14. In Southern Tiwa the initial 2 is generally incorporated in the verb; absolutive chômeurs must be incorporated. In the morphemic glosses I follow Allen, Frantz, Gardiner, and Perlmutter (to appear) and use : between agreement designations involving final 1s and final 2s and / when the following nominal is the initial absolutive. There are three classes of third person nouns in Southern Tiwa, designated as i, ii, and iii. Class i contains animate nouns.

15. Trithart (1976) reports data from Chichewa which appear to contradict the present formulation of the ARDAP. According to Trithart, in certain Chichewa passives the final subject can optionally determine object agreement as well as subject agreement.

(i) N-thóchí zi-ná-(zí-)nyamul-idw-a (ndí Jóni).  
bananas<sub>i</sub> they<sub>i</sub>-past-them<sub>i</sub>-carry-Pass-Indic by John

'The bananas were carried (by John).

In (i) n-thóchí 'bananas' determines both the subject agreement marker zi preceding the past tense morpheme and the optional object agreement marker zí following the past tense morpheme. Under an analysis in which object agreement marks only the noun class of the triggering nominal, the ARDAP would predict that subject agreement and object agreement should be applied disjunctively since both rules mark 'the same set of properties a, b,...n of nominals' on the verb, i.e., noun class. However, the Chichewa data are controversial. First, object agreement (or object marking) in Chichewa, like object marking in other Bantu languages, may indicate that the triggering nominal is definite or specific (Trithart, personal communication). If this is the case, then object agreement is sensitive to both noun class and definiteness/specificity of triggering nominals, while subject agreement marks only noun class, i.e., the set of properties marked by the rules are not the same. Thus Chichewa agreement would not constitute a counterexample to the ARDAP since the ARDAP would no longer predict that the two rules should be ordered disjunctively with respect to a given nominal. More importantly, one Chichewa speaker with whom I have spoken considers passive clauses in which the final subject determines both subject and object agreement (including (i)) to be ungrammatical. Given the controversial nature of the data, the burden of proof rests with one wishing to claim that Chichewa agreement provides counterevidence to the ARDAP.

16. The choice of man- or fan- depends on whether the clause is in the realis or irrealis mood.

17. The data in Jake 1980 are insufficient to determine the level to which the rule is sensitive.

18. Tigre verbs also agree in person, number, and gender with the final 1. Final 1 agreement is designated as 3m 'third person masculine' and 3f 'third person feminine' and follows an = in the morphemic glosses. The = is used to indicate that the final 1 marking is not a separable affix on the predicate.

19. The form of the object agreement marker appears to be determined either phonologically or based on the gender of the final 1. to '3m' and tā occur when the final 1 is feminine and yu '3m' and yā '3f' occur with masculine final 1s.

20. Object Agreement must be stated as in (42) as opposed to saying that the verb agrees with 'the leftmost definite object' because of data such as the following:

- (i) \*lilat ?ɨgɨl ?ɨnās la waraqat habet-tā  
 Lilet(f) to man(m) the letter(f) gave=3f-3f  
 ('Lilet gave to a man the letter.')

The left most object is ?ɨgɨl ?ɨnās 'to a man' which is indefinite and cannot determine object agreement. la waraqat 'the letter' is the leftmost definite object, but it cannot determine object agreement either. \*(i) is ungrammatical precisely because in this clause la waraqat determines object agreement. The same clause with no object agreement is a grammatical clause.

21. Unlike object agreement markers, third person clitics appear to have invariant form, tā '3f' and tu '3m'.

22. Once again the data available in Jake 1980 are insufficient to determine the level to which this rule is sensitive.

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