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Morphological reversals[1]

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The term morphological reversal describes the situation where the members of a morphological opposition switch their functions in some context (as with Hebrew gender marking, where -Ø ~ -*a* marks masculine ~ feminine with adjectives but feminine ~ masculine with numerals). There is a long tradition of polemic against the notion that morphology can encode systematic reversals, and an equally long tradition of reintroducing them under different names (e.g. polarity, exchange rules or morphosyntactic toggles). An examination of some unjustly neglected examples (number in Nehan, aspect in Tübatulabal, tense in Trique and argument marking in Neo-Aramaic) confirms the existence of morphological reversal, particularly as a mechanism of language change. This is strong evidence for the separateness of morphological paradigms from the features that they encode.

1. Definitions

On a simple view of inflectional morphology, morphological forms are the direct expression of morphosyntactic values. Morphological rules are a way of translating those values into forms. This is not always straightforward, and any model of morphology must make provisions for deviations from this simple principle, such as allomorphy, syncretism (homophony between inflected forms that should be distinct), defectiveness (absence of an expected form) or deponency (mismatch between form and value). This paper looks at one such phenomenon, that of morphological reversal, where a morphological opposition seems to reverse its function across environments. A classic example comes from the Semitic languages, such as Hebrew. Consider the gender-marked modifier forms in (1). In (1a), the masculine adjective has no ending, while the feminine adjective has the ending -*a*. In (1b), the reverse

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pattern of endings is found: the masculine numeral has the ending *-a*, while the feminine numeral has no ending.

(1) *Gender-marking in Hebrew*
(a) adjectives

MASCULINE		FEMININE	
davar-Ø	tov-Ø	tmun-a	tov-a
word(M)-SG	good-M	picture(F)-SG	good-F
'good word'		'good picture'	

(b) numerals

MASCULINE		FEMININE	
šloš-a	dvar-im	šaloš-Ø	tmun-ot
three-M	word(M)-PL	three-F	picture(F)-PL
'three words'		'three pictures'	

The ending *-a* has the variant *-at* or *-et* when in the construct state (the form taken by the head in an adnominal construction), with the same distribution:

(2) *Construct state forms*

(a) ADJECTIVE (Glinert 1989: 48)

medina	ašir-at	neft
country(F)	rich-F.CNST	oil
'a country rich in oil'		

(b) NUMERAL

šloš-et	ha	yelad-im
three-M.CNST	the	boy(M)-PL
'the three boys'		

In other words, there is a systematic morphological opposition (*-Ø* versus *-a*/*-at*/*-et*) which corresponds to a functional opposition (masculine ~ feminine), but the functional value of the morphological forms are reversible depending on the context. The notion was made explicit as far back as 1912 by Carl Meinhof, who gave it the name 'polarity', defined thus: '[I]f A becomes B under certain conditions, B becomes A under the same conditions' (Meinhof 1912: 19; translation MB).[2] Hetzron (1967: 184) gives a more formalized definition:

(3) [W]hen there exist two grammatical categories (*signifiés*) *X* and *Y*, and two corresponding exponents (*signifiants*) *A* and *B*, then value *X* can sometimes be assumed by *A*, while *B* denotes *Y*; and sometimes *X* is expressed by *B*, and then it is necessarily *A* that represents *Y*.

[2] 'Wenn also aus A unter gewissen Bedingungen B wird, so wird aus B unter denselben Bedingungen A.'

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Graphically, this can be represented as in (4).

(4) *Polarity per Hetzron (1967)*

	CONTEXT 1	CONTEXT 2
CATEGORY X	exponent A	exponent B
CATEGORY Y	exponent B	exponent A

Since its introduction, polarity has existed in a twilight zone, with uncertain status in grammatical theory. On the one hand, some researchers reject the notion that there is a type of rule which effects a morphological reversal, viewing this as an implausible and unnecessary concept. On the other hand, variant formulations under various names continue to be advanced (and in turn rejected by others). Overall, a review of the literature leaves one with an impression of vague unease with reversals, coupled with a persistent desire to accommodate a certain fairly limited set of facts. The aim of the present paper is to show that morphological reversals do occur, and to argue that of the various possible analyses, the sort of proportional analogy inherent in Hetzron's definition in (3) best accounts for the facts.

2. EXCHANGE RULES

There is another, alternative way of characterizing morphological reversals that is widely known, namely as an EXCHANGE RULE. Exchange rules have the format $[\alpha F] \rightarrow [-\alpha F]$, where F represents some feature, and the variable α stands in for its '+' or '−' value. This has the effect of reversing the value of F, whatever that might be. Probably the most celebrated example of an exchange rule comes from the Nilotic language Luo, first discussed in these terms by Gregersen (1972), and subsequently treated by (among others) Anderson & Browne (1973), Anderson (1992), Stonham (1994), Spencer (1998), Alderete (2001), de Lacy (2002), Mortensen (2002), Moreton (2003), Fitzpatrick, Nevins & Vaux (2004) and Wolf (2005). Luo has three plural endings (in addition to plurals formed by various stem alternations): (i) the ending *-ni*, e.g. *raboŋgi* ~ *raboŋg-ni* 'salt strainer' (Tucker 1994: 142), (ii) the ending *-e*, e.g. *raboŋgi* ~ *raboŋg-e* (meaning same as previous), and (iii) the non-productive ending *-i*, e.g. *juok* ~ *juog-i* 'spirit' (Tucker 1994: 131). All these endings are accompanied by deletion of any final vowel. When *-e* or *-i* is used, some stem-final consonants undergo an alternation. The alternations are phonologically diverse; what concerns us are stems ending in consonants where a phonemic voice distinction is found. These display a reversal. Where the singular stem ends in a voiceless consonant, the plural stem ends in the voiced equivalent. Where the singular stem ends in a voiced consonant, the plural stem ends in the voiceless equivalent. This is illustrated in (5), with all but two of the examples due to Okoth-Okombo (1982: 57–63).

(5) *Voicing reversal in Luo*

	SINGULAR	PLURAL		
(a)	kidi	kite	'stone'	
	cogo	coke	'bone'	
	puoðo	puoθe	'garden'	
	raba	rɛpɛ	'rubber'	
(b)	koti	kode	'coat'	
	agoko	agoge	'chest'	(Tucker 1994: 491)
	ruoθ	ruoði	'chief'	
	arip	aribe	'milky way'	(Tucker 1994: 128)

This can be expressed as an exchange rule where the variable is voice (adapting Gregersen 1972: 106):

(6) αVoice→ $-\alpha$Voice/plural in *-e* or *-i*

In Optimality Theory, a variant of exchange rules has been invoked in the guise of anti-faithfulness constraints. Normal faithfulness constraints, which are a cornerstone of Optimality Theory, require that two elements match. Anti-faithfulness constraints require the opposite, namely that two elements not match. Alderete (2001) provides such an analysis of consonant polarity in Luo, which can be paraphrased as 'a plural form with the endings *-e* or *-i* does not have the same specification for the feature Voice as the base form (singular) it is derived from'.

It has long been assumed that polarity and exchange rules are fundamentally equivalent (Chomsky & Halle 1968: 355f., who attribute this observation to Bever 1963). In fact, there are important differences between the two, and these will be important in the analysis offered in section 5 below. In the interim, it will be useful to have a cover term that will subsume both notions, for which I retain the neutral term 'morphological reversal'.

3. Arguments against morphological reversals

Theoretical objections to the notion of morphological reversal are based on the postulate that rules should not be able to arbitrarily switch feature values. In practice there seem to be two lines of argument, depending on whether the example under discussion has been described as representing polarity or exchange rules. A recent attempt to refute of polarity comes from Lecarme (2002: 113), who writes:

> Irrespective of the empirical question of whether polarity systems are found in natural language, a polarity principle should also be rejected on

> conceptual grounds. It is hard to see how it could meet the design conditions on human language, or plausible assumptions about learnability.[3]

Lecarme discusses gender-marking in Classical Arabic, which is, mutatis mutandis, identical to that of Hebrew as discussed above in (1), with Arabic *-at* corresponding to Hebrew *-a*. She writes:

> I will suggest that there is no 'agreement' in [the numeral phrase] in that the /*-at*/ ending of the numeral does not reflect the gender of the (either singular or plural) head noun. Rather, the /*-at*/ suffix is better understood as representing a particular form class, which in the default instance is associated with feminine gender (Rolf Noyer p.c.). Assuming this, the concord rule states that numerals of masculine nouns are assigned to the /*-at*/ form class, therefore it is part of the morphology rather than the syntax. (Lecarme 2002: 111, fn. 3)

In other words, Lecarme argues that we do not find a switch of syntactic gender in numeral phrases, but rather a switch of the morphological exponence of gender: *-at* normally realizes feminine gender, but exceptionally realizes masculine gender with numerals (and, by implication, *Ø* displays the reverse behaviour). However, this is fully in accordance with the notion of polarity as normally defined. Indeed, Hetzron explicitly defines polarity as a switch in the formal exponence of otherwise fixed syntactic gender (and Meinhof does so implicitly, in the context of the discussion his definition is embedded in).[4] Thus, all Lecarme argues against is a particular construal (or misconstrual) of the notion of polarity, but still accepts it in its classic formulation. Note that these ideas are not original: my observations correspond to those of Hetzron (1967: 188), commenting on Speiser (1938), who had made the same arguments later made by Lecarme.

Where it is exchange rules that are being argued against, the claim is that they are simply an analytical artefact that results from misidentifying the features involved. As an example of this line of reasoning we can take John Stonham's *Combinatorial morphology* (1994), which devotes a whole chapter to the issue. The basis for his rejection of exchange rules is the assumption that morphological processes necessarily involve the addition of information. Exchange rules, by contrast, merely rearrange information. Among other examples, he discusses consonant polarity in Luo. He attributes the appearance of a reversal to the existence of two classes of nouns, one which is underlyingly singular (Basic Singulars) and one which is underlyingly plural (Basic Plurals). For both classes, the basic form ends in a voiceless

[3] Lecarme offers no evidence to back up these assertions.

[4] Thus Meinhof gives the analogy of the Nandi (speakers of a Nilo-Saharan language), who have a custom whereby boys dress like girls before their puberty rites, and girls like boys. There is no suggestion that their biological gender switches with the onset of puberty, only the formal trappings thereof.

consonant. Voicing signals 'marked' number, which is plural in the case of basic singulars and singular in the case of basic plurals. His proposed rule is given in (7), and is illustrated in (8).

(7) *Stonham's (1994: 102) analysis of consonant polarity in Luo*

$$C \rightarrow [+\text{voiced}] / \_\_(V)\#$$
$$[+\text{marked number}]$$

(8) *Illustration of Stonham's (1994) analysis*

BASIC NUMBER (VOICELESS)	'MARKED' NUMBER (VOICED)		
koti (SG)	kode (PL)	'coat'	*Basic Singular noun*
kite (PL)	kidi (SG)	'stone'	*Basic Plural noun*

On this analysis, the voicing alternation is construed as having a consistent function, marking 'marked' number. (Similar arguments, though for different data, were advanced by Smith 1979 and Serzisko 1982.)

This analysis has some purely empirical problems, which need not concern us here.[5] More important is the fact that this analysis continues to rely on the notion of a variable, which is the salient feature of an exchange rule. Stonham's rule in (7) produces a 'marked' number stem, but fails to address the relationship between 'marked' number and the value plural, which is still needed in order to account for the plural suffixes. This relationship must be expressed as a variable (or equivalent): marked number has the value plural for basic singulars and singular for basic plurals. One option would be to supplement (7) with a second rule in which the value of 'marked' was variable, as in (9), which states that the markedness value of a given noun switches from singular to plural.

(9) αMarked$\rightarrow$ $-\alpha$Marked/plural in *-e or -i*

Better still, we can dispense with the notion of 'marked' entirely, and have a single rule which simply says that that voicing causes the basic number value

[5] In addition to *-e* and *-i*, Luo has a third plural ending, *-ni*, which precludes consonant alternation, e.g. singular *higa* 'year, season' ~ plural *hik-e* or *hig-ni*, singular *agoko* 'chest' ~ plural *agog-e* or *agok-ni* (Tucker 1994: 141, 143). In terms of Stonham's analysis, the *higa* ~ *hik-e* type should be a Basic Plural, in which case there is no explanation for why the 'marked' number form appears with the plural ending *-ni*. More seriously, Stonham offers no evidence for the semantic distinction implied by the notions 'Basic Singular' and 'Basic Plural' (nor is there any in the original sources; note that the same observation applies to his analysis of vowel ablaut in Diegueño). In any event, the same alternations characterize possessed nouns (e.g. *kitabu* 'book' ~ *kitapa* 'my book', *agoko* 'chest' ~ *agoga* 'my chest' (Tucker 1994: 166), so it is fairly clear that number is not the deciding factor.

of a noun (±pl) to switch:

(10) αpl→ –αpl/[+voiced C](V)#

Either way, a full formalization of Stonham's proposal requires the use of a variable, or the equivalent.

When we consider Stonham's line of argumentation alongside Lecarme's, we see that they are the inverse of each other. Lecarme argues that there is no reversal of morphosyntactic features (she rejects the notion that gender VALUES can be switched), but allows for a reversal of morphological form (she allows gender EXPONENTS to be switched). Stonham argues the reverse, rejecting the notion that the formal EXPONENTS of number can be switched, and arguing instead that it is the morphosyntactic (or morphosemantic) VALUE of number that can be switched. Weigel (1993) makes explicit the complementarity between the two notions, reserving the term 'exchange rule' for a reversal rule which has a phonological feature as a variable, and coining the term 'morphosyntactic toggle' for a reversal rule which has a morphosyntactic value as its variable. It is hard to see how a formal model which could admit one could exclude the other in any principled fashion. Thus, Lecarme's and Stonham's counterproposals, when viewed alongside each other, constitute a tacit argument in favour of the theoretical necessity to represent morphological reversals.

4. More evidence for morphological reversals

Even if the idea of morphological reversals is theoretically unimpeachable, there remains the question of how much empirical evidence there really is for postulating the phenomenon. If we take the Semitic example as canonical, there are two criteria that should be met: (i) there is an alternation between exponents A and B whose associated values are switched between context 1 and context 2, and (ii) each context implies the other, i.e. the paradigm found in context 2 constitutes the mirror image of the paradigm in context 1, and vice versa. While criterion (i) is clearly definitional, criterion (ii) is less obviously so, and indeed, most instances of morphological reversals that have been cited in the literature do not conform to it. Take, for example, the alternation between partitive singular and partitive plural endings in Estonian, described by Blevins (2005: 12). If the partitive singular ends in *-i*, the partitive plural ends in *-e*, and vice versa, as shown in (11a, b). For such nouns the principle of reversal holds. But there are also other partitive singular endings which alternate with *-i* and *-e* in the plural, as shown in (11c, d). Consequently, the set of singular noun forms ending in *-i* and *-e* and the set of plural noun forms ending in *-i* and *-e* are not mirror images of each other.

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(11) *Partitive endings in Estonian*

	PART SG	PART PL	
(a)	`kool-i	`kool-e	'school'
(b)	`kukk-e	`kukk-i	'rooster'
(c)	lukk-u	lukk-e	'lock'
(d)	mokk-a	mokk-i	'lip'

Similar phenomena that have been described as reversals include vowel alternations in Semitic verbs (Chomsky & Halle 1968: 356f.) and in Spanish (Matthews 1974: 140).

However, for heuristic purposes it will be useful to retain criterion (ii), in as much as it makes it all the more apparent that the reversal is systematic and not accidental. If we can thus demonstrate the validity of this more stringent notion of morphological reversal, the same interpretation may also be given to examples which fail to adhere to criterion (ii). The examples in the following subsections represent particularly clear examples of morphological reversals that conform to both criteria. All of them have previously been described as reversals, but have not yet received the attention they warrant from the side of morphological theory. They involve three different morphosyntactic features: number, aspect and grammatical role.

4.1 *Number in Nehan*

The Oceanic language Nehan marks number on definite and indefinite articles, nouns themselves being uninflected (see discussion in Corbett 2000: 63f.). The indefinite article and the topic/subject definite article each have two number forms, but which number they mark depends on noun class, which Ross (1988) distinguishes as class O vs. class A, corresponding roughly to count and non-count. The singular for class A is the plural for class B, and vice versa:

(12) *Nehan indefinite articles* (Glennon & Glennon 1994: 4)

	COUNT NOUNS (CLASS A)		NON-COUNT NOUNS (CLASS O)	
singular	me lo	'a dog'	mo iob	'a knife'
plural	mo lo	'some dogs'	me iob	'some knives'

(13) *Nehan topic/subject definite articles* (Ross 1988: 299)

	COUNT NOUNS (CLASS A)		NON-COUNT NOUNS (CLASS O)	
singular	a uma	'a/the house'	o doki	'a tree, stick'
plural	o uma	'some/the houses'	a doki	'a collection of trees'

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Of course, in order to justify identifying these as examples of morphological reversal, some evidence must be given that there is a distinction of singular and plural that is independent of noun class, that is, a demonstration that *mo*/*o* of class A is morphosyntactically equivalent to the *me*/*a* of class O, and so on. Otherwise, we might dispense with the notion of singular ~ plural altogether, and say that Nehan simply distinguishes basic versus derived number, whose particular interpretation in terms of referential number is a matter of lexical semantics, but not of morphosyntax. Evidence for singular ~ plural can indeed be found, namely in the non-topic/subject definite article, illustrated in (14).

(14) *Nehan definite articles* (Glennon & Glennon 1994: 22)

		NON-TOPIC/SUBJECT		TOPIC/SUBJECT ARTICLE	
		sg	pl	sg	pl
class A	human	tar	toso	a	o
	animate	tar	**tasir**	a	o
	body parts	tar	tar	a	o
	default	tar	toro	a	o
class O	animate	toro/tang	**tasir**	o	a
	default	toro	tar	o	a

What needs to be noted here is the behaviour of the articles used with animate nouns. Some animate nouns belong to class A and others to class B, and the form of the topic/subject article used with them is the same as for other semantic classes. However, the non-topic/subject article has the plural form *tasir* for both classes. That is, here there is a singular ~ plural opposition which cross-cuts noun class. Thus, the unambiguously plural form *tasir* corresponds to the topic/subject article *o* for class A animates and to *a* for class O animates. This indicates that the forms of the topic/subject article cannot be ascribed entirely to lexical semantics; for animates, at least, there is a genuine singular ~ plural opposition whose morphological expression is reversed across the two noun classes.

4.2 *Aspect in Tübatulabal*

The Uto-Aztecan language Tübatulabal, described by Voegelin (1935), shows a reversal in its aspect-marking morphology for one set of verbs. Every verb displays two distinct aspectual stems, telic and atelic. The telic stem is

> used for an action (e.g., 'to take a bite') or condition (e.g. 'it got green') performed or arrived at in an instant (perfective without tense commitment), and for this reason the action or condition is generally, though not necessarily, felt to be completed at the time of talking [..., while the atelic

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stem is] sometimes used when an action requires some duration for its performance ('to eat'), but frequently the atelic is quite vague in respect to aspectual meaning. (Voegelin 1935: 94)

The stems differ in the repertoire of verbal affixes they can take (Voegelin 1935: 95f.). Atelic stems alone take the following suffixes: subordinating, imperative, present tense, exhortative, permissive, past habituative, irrealis and adversative. Only telic stems take the future suffix. Further, atelic stems always occur with a suffix, while telic stems may be unsuffixed. The alternation between the two stems is realized by reduplication: the atelic stem is basic, and the telic stem is formed from the underlying base by preposing a copy of the vowel of the first syllable:

(15) *Typical verb stem alternations* (Voegelin 1935: 95, 102)

ATELIC	TELIC	
ela-	e-ʔela	'jump'
tɨk-	ɨ-tɨk	'eat'
tana-	a-ndana	'get down'
pa:abɨ-	a:-ba:abɨ	'be tired'
yuʔudz-	u-yuʔuts	'throw'

Other differences between the two stems are the predictable result of regular phonological rules (e.g. the stem-initial obstruents undergo changes when post-vocalic, showing regressive nasal harmony, and voicing when the preceding vowel is bimoraic; Voegelin 1935: 80–82).

This aspectual opposition is quite regular for all verbs, except for a group of around thirty verbs which Voegelin calls 'reverse formations'. With these, the telic stem is morphologically basic and the atelic stem is formed by reduplication. The list in (16) gives, according to Voegelin (1935), essentially all the verbs of this type.

(16) *Reversed aspectual stems* (Voegelin 1935: 95f.)

TELIC	ATELIC		TELIC	ATELIC	
ai	a-ʔay-	'pick up'	nʊŋ	ʊ-nʊŋ-	'pound'
ca:k	a-cag-	'roast'	patsa:h	a-patsa:h-	'shell nuts'
cɨ:i	ɨ:-cɨy-	'rock a cradle'	pɨŋ̼	ɨ-mbɨŋw-	'roll string on thigh'
ci:p	ɨ-cib-	'whittle'	taŋ	a-ndaŋ-	'kick'
cilu:p	ɨ:-cilu:b-	'split wood'	tɪŋwa	ɪ-ndɪŋwa-	'summon'
ciuk	i:-ciug-	'comb'	tôlo:hô-	tôlo:h-	'groan'
côlo:ŋ	ô-côlo:ŋ-	'snore'	tsa:ya:u	a:-dza:ya:w-	'yell'
ha:itc	a-ha:idž-	'chew'	tsɨxk	ɨt-sɨxk-	'prick'

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TELIC	ATELIC		TELIC	ATELIC	
hɨ:p	ɨ-hɨ:b-	'massage'	tu:c	ʊ-tʊc-	'grind'
hɨ:t	ɨ-hɨ:d-	'pluck feathers'	tʊma:u	ʊ-ndʊma:w-	'fail'
ku:c	ʊ-kʊc-	'grow'	tʊmu:ga	ʊ-ndʊmu:ga-	'dream'
mɨl:t-	ɨ-mɨl:d-	'scold'	wuba	ʊ-wuba-	'whip'
na:yuw	a:-na:yuw-	'be tired'	ya:n	a:- ya:n-	'sing'
naŋ	a-naŋ-	'cry'	yô:m	ô:-yôm-	'copulate'
nap	a-nab-	'throw'	yugʊʔ	ʊ-yugʊʔ-	'cut'

Voegelin stresses that these verbs have no obvious shared semantic features that should affect their relationship to aspect. That is, it is simply a stipulated set of verbs which employ the usual morphological operation for aspect-marking, but with the reversed value. In addition, there is a smaller group of verbs (Voegelin lists eleven) which maintain one stem for both aspects. Some of these appear to have originally been reduplicated stems, e.g. *ô:yô:g* 'move', *ʊ yu:g* 'fall', and some not, e.g. *ô:l* 'get up' (Voegelin 1935: 96).

There is some evidence that this morphological reversal is noticed by speakers, with morphological ramifications. This occurs with nominalizations, which are regularly formed from the atelic stem through suffixation of *-i*, as shown in (17). Of course, for most verbs, the atelic stem will be the unreduplicated stem.

(17) *Nominalization* (Voegelin 1935: 166)

ATELIC VERB STEM	NOUN	
wac- 'dig'	wac-ɪ-l dig-NMLZR-ABSL[6] 'hole'	normal verb
andaŋ- 'kick'	andaŋ-i:-l kick-NMLZR-ABSL 'person or thing kicked'	reversed formation verb

However, for the reversed formation verbs, this generalization runs into problems. According to Voegelin (1935: 167), informants will sometimes produce nominalizations of reversed formation verbs from the unreduplicated telic stem (thus *naŋi:l* in place of *anaŋi:l* 'the crying'), though when this is pointed out to them, they declare it to be incorrect, observing that some people use such forms anyway. This may be the result of a conflict between verbal and nominal patterns of derivation/inflection. Verbal patterns are based solely on aspect: in his description of the various verbal

[6] The absolute suffix (ABSL) is found with noun forms that do not have a pronominal suffix.

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categories that are restricted to the atelic stem (see above), Voegelin makes no mention of any vacillation in stem choice. Nominal patterns, for their part, are based solely on form. For example, consider the augmentative *-bicwi-*, which is a nominal suffix attached to nouns, including nominalized verbs. With nominalized verbs the base for suffixation is always the basic, unreduplicated stem, regardless of aspect.

(18) *Augmentative* (Voegelin 1935: 163, 169)

ATELIC VERB STEM	NOUN	
tsulu:m- 'sleep'	tsulu:m-i-bɪcwɪ-t sleep-NMLZR-AUG-ABSL 'one who sleeps too much'	normal verb
ô:yôm- 'copulate'	yô:mi-i-bɪcwɪ-t copulate-NMLZR-AUG-ABSL 'one who copulates too much'	reversed formation verb

It may be that for the nominalizations described above in (17), speakers were unsure which pattern to follow, the aspect-based verbal pattern or the form-based nominal pattern.

4.3 *Tense-aspect-mood in Copala Trique*

Copala Trique, a Mixtecan language described in various works by Barbara Hollenbach (in particular Hollenbach 1976, 1992, 2005), shows a reversal in its tense-aspect-mood (TAM) morphology. Trique has three TAM forms, continuative, completive and potential (termed 'present', 'past' and 'future' in Hollenbach 2005). The continuative is the basic form, and the completive is formed from it by prefixation: /g-/ before a vowel, /gV-/ before a consonant (note that lenis /g/ and fortis /k/ are not distinguished in non-final syllables, and by convention only /k/ is written in this environment); in the case of some consonant-initial stems, no prefix is found, and the continuative and completive are identical. The potential is formed from the completive by a tonal alternation. The basic system is outlined in (19).

(19) *Trique tense-aspect-mood forms* (Hollenbach 1976: 126)

continuative:	basic stem	(*uchruj*^{32} 'lay down')
completive:	prefix + continuative	(*c-uchruj*^{32} 'laid down')
potential:	completive with alternation	(*c-uchruj*^{2} 'will lay down')

A brief note on the orthographic conventions is in order. The system of Hollenbach (2005) is employed here. The features relevant for the present discussion are: (i) /*k*/ is written *c*, but *qu* before front vowels, (ii) *j* represents /h/, (iii) VV represents a long vowel, V a short vowel, (iv) (V)Vn represents

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a nasalized vowel, and (v) superscript numerals represent the eight tones: 1–5, 13, 31, 32 (the higher the numeral, the higher the tone).

The morphological reversal at issue occurs under negation. Two negation markers are used: *ne*^{3} with the continuative and completive, and *se*^{2} with the potential. While the continuative remains unaffected by negation (20), the completive assumes the form of the potential (21), and the potential assumes the form of the completive (22).

(20) *Continuative* (Hollenbach 1976: 126)
  (a) uchruj^{32} xnii^{3} yuvee^{5} a^{32}
  lay.down.CNT boy palm.mat DECL
  'The boy is laying the palm mat down.'
  (b) ne^{3} uchruj^{32} xnii^{3} yuvee^{5} a^{32}
  not lay.down.CNT boy palm.mat DECL
  'The boy isn't laying the palm mat down.'

(21) *Completive* (Hollenbach 1976: 126)
  (a) cuchruj^{32} xnii^{3} yuvee^{5} a^{32}
  lay.down.CPL boy palm.mat DECL
  'The boy laid the palm mat down.'
  (b) ne^{3} cuchruj^{2} xnii^{3} yuvee^{5} a^{32}
  not lay.down.CPL boy palm.mat DECL
  'The boy didn't lay the palm mat down.'

(22) *Potential* (Hollenbach 1976: 127)
  (a) cuchruj^{2} xnii^{3} yuvee^{5} a^{32}
  lay.down.POT boy palm.mat DECL
  'The boy will lay the palm mat down.'
  (b) se^{2} cuchruj^{32} xnii^{3} yuvee^{5} a^{32}
  not lay.down.POT boy palm.mat DECL
  'The boy won't lay the palm mat down.'

Lest one think that an actual TAM reversal occurs under negation (rather than simply a reversal of forms), observe that this effect only obtains when the negative marker is immediately preverbal. If an adverb intervenes, then the normal form is found (23); note that *se*^{2} does not permit an intervening adverb, so this only occurs for the completive with *ne*^{3}.

(23) *Variation due to word order* (Hollenbach 1976: 128)
  (a) ne^{3} cuchruj^{2} za'^{1} xnii^{3} yuvee^{5} a^{32}
  not lay.down.CPL well boy palm.mat DECL
  'The boy didn't lay the palm mat down well.'
  (b) ne^{3} za'^{1} cuchruj^{32} xnii^{3} yuvee^{5} a^{32}
  not well lay.down.CPL boy palm.mat DECL
  'The boy didn't lay the palm mat down well.'

Nor can the reversal be attributed to any phonological effect. First, note that the negative marker has no effect on the continuative. This is especially

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striking when one looks at those verbs which take no prefix in the completive, and thus have identical continuative and completive forms:

(24) *Unprefixed verb* (Hollenbach 1976: 127)

'MEND'	POSITIVE	NEGATIVE
continuative	nanuva^{4}	ne^{3} nanuva^{4}
completive	nanuva^{4}	ne^{3} nanuva^{1}
potential	nanuva^{1}	se^{2} nanuva^{4}

Second, the contrast between completive and potential forms is morphologically diverse, depending on the verb; but the formal reversal under negotion takes place for all of them. If the completive is taken as the base form, the potential always involves a lowering of tone. However, exactly which tone it is lowered to must be lexically specified for some types (Hollenbach 1992: 328). In addition, some verbs add a final *-h*, orthographically *-j* (recall that Vn represents a nasalized vowel):

(25) *Aspiration* (Hollenbach 2005: 129f.)

'WASH'	POSITIVE	NEGATIVE
continuative	naan^{5}	ne^{3} naan^{5}
completive	quinaan^{5}	ne^{3} quinanj^{1}
potential	quinanj^{1}	se^{2} quinaan^{5}

Given the element of lexical specification, as well as the role played by nontonal alternation, the reversal cannot be attributed to the effects of tone sandhi.

Hollenbach (1976: 127) makes some speculation about the origin of this pattern. If the values of the two forms had originally been 'realized' versus 'unrealized', then only a positive completive would have had the realized form; everything is else is unrealized (either by virtue of being negated, or by virtue of being potential/future). This would have led to an asymmetrical paradigm: the verb forms contrast in the positive, and in the completive, but not in the negative or the potential. Symmetry was restored by replacing the odd man out, namely the negative potential, followed by an adjustment in the semantic values of the two forms.

(26) *Hollenbach's (1976) reconstruction*

	POSITIVE	NEGATIVE
COMPLETIVE	REALIZED	ne^{3} UNREALIZED
POTENTIAL	UNREALIZED	se^{2} ~~UNREALIZED~~ → REALIZED

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Curiously, this is not the only morphological reversal found in the Trique languages. In Itnunyoso Trique, described by DiCanio (forthcoming), words may end in a long vowel, *-ʔ* or *-h*. First person singular (possession on nouns or subject-marking on verbs) is marked by *-h* on words whose base form ends in a final vowel or *-ʔ*, e.g. *swa*^{4}*tu*^{32} 'shoe' ~ *si*^{2} *swa*^{3}*tuh*^{3} 'my shoe'; but on words whose base form ends in *-h*, first person singular is marked by the deletion of *-h*, e.g. *kuh*^{5} 'bone' ~ *si*^{3} *ku*^{32} 'my bone'.

4.4 *Grammatical role in Northeastern Neo-Aramaic* (*Amadiya*)

The Northeastern Neo-Aramaic dialect of Amadiya (Iraqi Kurdistan), described by Hoberman (1989), shows a reversal in the subject ~ object value of pronominal suffixes found on verbs. For example, the two forms in (27) have the same sequence of suffixes, *-ax* 'IPL' and *-lu* '3PL', but in (27a) the first suffix represents the subject and the second the object, while in (27b) it is the reverse.

(27) (a) qam-mpaḷṭ-ax-lu
PRET-remove-IPL-3SG
'we removed them'

(b) mpu̶ḷṭ-ax-lu
removed-IPL-3SG
'they removed us' (Hoberman 1989: 95f.)

This pattern of morphological reversal is particularly interesting, because its history can be reconstructed to a greater extent than for the other examples discussed above. Since it is also particularly complex, it is presented below in some detail.

The suffixes involved come in two sets, which Hoberman labels 'A' and 'L':

(28) *Pronominal suffixes* (Hoberman 1989: 28)

	A-SUFFIXES	L-SUFFIXES
ISG M	-i̶n	-li
ISG F	-an	-li
2SG M	-i̶t	-lu̶x
2SG F	-at	-lax
3SG M	Ø	-le
3SG F	-a	-la
IPL	-ax	-lan
2PL	-etun, -i̶tu-	-loxun
3PL	-i	-lu

The distribution and function of the suffixes depends on which verb stem they are used with. Verbs have five stems, designated J, P, O, P(t) and C (these terms are drawn from Hetzron 1969), which differ in their vowel patterns, and are used to form the various TAM paradigms:

(29) *Verb stems in Neo-Aramaic of Amadiya* (Hoberman 1989: 30)
J-stem: general present, future, *qam*-preterite and subjunctive (formally distinguished from each other by prefixes)

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P-stem: preterite (all J- and P-stem forms may additionally take the anteriority suffix *-wa*, thus deriving a past habitual from the general present, a conditional from the future, and so on)
O-stem: imperative
P(t)-stem: stative
C-stem: progressive (also used for the passive and infinitive, which do not take pronominal suffixes)

The J-stem and P-stem both take A- and L-suffixes, but with this difference: with the J-stem, the A-suffixes mark subject and L-suffixes mark object, while with the P-stem it is the other way around. The O-, P(t)- and C-stems take L-suffixes as object, but have only limited marking of subject features. O-stem forms mark number of the subject (*Ø* SG, *-(u)n* PL). P(t)- and C-stem forms are used in periphrastic constructions, with subject features marked on the accompanying auxiliary, though P(t)-stem forms also mark gender and number of the subject, following the inflectional pattern of adjectives (*-a* M SG, *-θa* or *-ta* F SG, *-e* PL). Examples are given in (30):

(30) *Pronominal suffix patterns correlated with stem type* (Hoberman 1989: 35f.)

	WORD STRUCTURE		EXAMPLE *ptx* 'OPEN'	
J-stem	+A-suffix	+L-suffix	*patx-ax-lu* 'we should open them'	(subjunctive)
P-stem	+A-suffix	+L-suffix	*ptix-in-noxun* 'you opened me'	(preterite)
O-stem	+number	+L-suffix	*ptux-u-le* 'open it (plural subject)'	(imperative)
P(t) stem	+gender-number	+L-suffix	*ptix-a-llu* 'having opened them' (M SG subject)	(stative)

What interests us here is the contrast of J-stem and P-stem forms. As (30) shows, their structure is identical. They differ only in the reversal of the grammatical roles assigned to the A- and L-suffixes. Their paradigms are contrasted in table 1. Hoberman does not give all the forms, but does state outright that all the logically possible combinations of suffixes do exist (Hoberman 1989: 36); the forms in the table are drawn from various parts of his description. Some observations on the morphological details are given in the Appendix.

Of course, one possible explanation would be that the P-stem is involved in an inversion construction, where the grammatical relations are actually reversed. Hoberman (1989) argues that this is not the case, and that subject and object roles remain constant across the stems in spite of the morphological

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			L-suffixes									
			Ø	1SG	1PL	2SG M	2SG F	2PL	3SG M	3SG F	3PL
A-suffixes	1SG M	J-stem	**kpatx-in** *I (M) open*			… **-in-nox** *I (M) X you (M)*	… **-in-nax** *I (M) X you (F)*	… **-in-noxun** *I (M) X you*	**byaw-in-ne** *I will give it*	… **-in-na** *I (M) X her*	… **-in-nu** *I (M) X them*
		P-stem	**ptix-in** *… opened me (M)*			… **-in-nox** *you (M) xed me (M)*	… **-in-nax** *you (F) Xed me (M)*	… **-in-noxun** *you Xed me (M)*	**xz-in-ne** *he saw me (M)*	… **-in-na** *she Xed me (M)*	… **-in-nu** *they Xed me (M)*
	1SG F	J-stem	**kpatx-an** *I (F) open*			… **-an-nox** *I (F) X you (M)*	… **-an-nax** *I (F) X you (F)*	… **-an-noxun** *I (F) X you*	… **-an-ne** *I (F) X him*	… **-an-na** *I (F) X her*	… **-an-nu** *I (F) X them*
		P-stem	**ptix-an** *…opened me (F)*			… **-an-nox** *you (M) Xed me (F)*	… **-an -nax** *you (F) Xed me (F)*	… **-an-noxun** *you Xed me (F)*	*he Xed me (F)*	*she Xed me (F)*	*they Xed me (F)*
	1PL	J-stem	**kpatx-ax** *we open*			… **-ax-lox** *we X you (M)*	… **-ax-lax** *we X you (F)*	… **-ax-loxun** *we X you*	**mzabn-ax-le** *that we sell it*	… **-ax-la** *we X her*	**qammpaḷṯ-ax-lu** *we removed them*
		P-stem	**ptix-ax** *…opened us*			… **-ax-lox** *you (M) Xed us*	… **-ax-lax** *you (F) Xed us*	… **-ax-loxun** *you Xed us*	**xz-ax-le** *he saw us*	… **-ax-la** *she Xed us*	**mpuḷṯ-ax-lu** *they removed us*
	2SG M	J-stem	**kpatx-it** *you (M) open*	… **-it-ti** *you (M) X me*	… **-it-tan** *you (M) X us*				… **-it-te** *you (M) X him*	… **-it-ta** *you (M) X her*	… **-it-tu** *you (M) X them*
		P-stem	**ptix-it** *…opened you (M)*	… **-it-ti** *I Xed you (M)*	… **-it-tan** *we Xed you (M)*				*he Xed you (M)*	*she Xed you (M)*	*they Xed you (M)*
	2SG F	J-stem	**kpatx-at** *you (F) open*	… **-at-ti** *you (F) X me*	… **-at-tan** *you (F) X us*				**qamtard-at-te** *you (F) threw him out*	… **-at-ta** *you (F) X her*	… **-at-tu** *you (F) X them*
		P-stem	**ptix-at** *…opened you (F)*	… **-at-ti** *I Xed you (F)*	… **-at-tan** *we Xed you (F)*				**xizy-at-te** *he saw you (F)*	… **-at-ta** *she Xed you (F)*	… **-at-tu** *they Xed you (F)*
	2PL	J-stem	**kpatx-etun** *you open*	… **-itu-li** *you X me*	… **-itu-lan** *you X us*				**šoq-itu-le** *you leave him*	… **-itu-la** *you X her*	… **-itu-lu** *you X them*
		P-stem	**ptix-etun** *…opened you*	… **-itu-li** *I Xed you*	… **-itu-lan** *we Xed you*				**xz-itu-le** *he saw you*	… **-itu-la** *she Xed you*	… **-itu-lu** *they Xed you*
	3SG M or Ø	J-stem	**kpatix** *he opens*	**kpatix-li** *he opens me*	**kpatix-lan** *he opens us*	**kpatix-lox** *he opens you (M)*	**kpatix-lax** *he opens you (F)*	**kpatix-loxun** *he opens you*	**kpatix-le** *he opens him*	**kpatix-la** *he opens her*	**kpatix-lu** *he opens them*
		P-stem	**ptix(-in)** *…opened him*	**ptix-li** *I opened (him)*	**ptix-lan** *we opened (him)*	**ptix-lox** *you (M) opened (him)*	**ptix-lax** *you (F) opened (him)*	**ptix-loxun** *you opened (him)*	**ptix-le** *he opened (him)*	**ptix-la** *she opened (him)*	**ptix-lu** *they opened (him)*
	3SG F	J-stem	**kpatx-a** *she opens*	**qamšamʔ-a-li** *she heard me*	… **-a-lan** *she Xs us*	… **-a-lox** *she Xs you (M)*	… **-a-lax** *she Xs you (F)*	… **-a-loxun** *she Xs you*	**ṣṣąrx-a-le** *she will call him*	… **-a-la** *she Xs her*	… **-a-lu** *she Xs them*
		P-stem	**ptix-a** *…opened her*	**ptix-a-li** *I opened her*	… **-a-lan** *we Xed her*	… **-a-lox** *you (M) Xed her*	… **-a-lax** *you (F) Xed her*	… **-a-loxun** *you Xed her*	**xizy-a-le** *he saw her*	… **-a-la** *she Xed her*	… **-a-lu** *they Xed her*
	3PL	J-stem	**kpatx-i** *they open*	… **-i-li** *they X me*	… **-i-lan** *they X us*	… **-i-lox** *they X you (M)*	… **-i-lax** *they X you (F)*	… **-i-loxun** *they X you*	**qampatx-i-le** *they opened it*	**kšamʔ-i-la** *they hear her*	… **-i-lu** *they X them*
		P-stem	**ptix-i** *…opened them*	… **-i-li** *I Xed them*	… **-i-lan** *we Xed them*	… **-i-lox** *you (M) Xed them*	… **-i-lax** *you (F) Xed them*	… **-i-loxun** *you Xed them*	**hiw-i-le** *he gave them*	**mpuḷṯ-i-la** *she removed them*	… **-i-lu** *they Xed them*

See Appendix for annotations regarding morphological details.

Table 1

Amadiya Neo-Aramaic verb paradigm contrasting pronominal suffixes with J- and L-stem forms (Hoberman 1989)

reversal. The evidence comes from reflexivization, case-marking and definite object agreement.

REFLEXIVIZATION The reflexive pronoun is co-referenced by the A-suffix in J-stem forms (31) and by the L-suffix in P-stem forms (32); note that the reflexive pronoun triggers feminine singular agreement on the verb.

(31) *Reflexivization with J-stem* (Hoberman 1989: 99)
mand-in-na gyan-i kɨs-le
throw-1SG.M-3SG.F self-1SG 'chez'-3SG.M
'Should I throw myself on his mercy?'

(32) *Reflexivization with P-stem* (Hoberman 1989: 100)
ʔwid-a-li gyan-i ʕani
made-3SG.F-1SG self-1SG poor
'I made myself poor.'

CASE-MARKING Though there is not normally any case-marking on independent nominals, there is a set of object pronouns used in highly formal style, which replace the object suffix found on the verb. Typically, this occurs only with P-stem forms, where it is the A-suffixes which are replaced (33). Very rarely, however, it may also occur with J-stem forms, in which case it is the L-suffix which is replaced (34).

(33) *P-stem forms* (Hoberman 1989: 101)
šqil-ax-lu or šqɨl-lu ʔaleni
took-1PL-3PL took-3PL us
both glossed as 'They took us.'

(34) *J-stem forms* (Hoberman 1989: 102)
pšaql-i-lan or pšaql-i ʔaleni
take-3PL-1PL take-3PL us
both glossed as 'They will take us.'

DEFINITE OBJECT AGREEMENT In the presence of an overt nominal object, object-marking on the verb is correlated with definiteness; this is manifested with L-suffixes on J-stem forms (35) and A-suffixes on P-stem forms (36).

(35) *J-stem forms* (Hoberman 1989: 102)
kšamʔ-i baxta versus kšamʔ-i-la baxta
hear-3PL woman hear-3PL-3SG.F woman
'They hear a woman.' 'They hear the woman.'

(36) *P-stem forms* (Hoberman 1989: 103)
šmeʔ-lu baxta versus šmeʔ-a-lu baxta
heard-3PL woman heard-3SG.F-3PL woman
'They heard a woman.' 'They heard the woman.'

Though there is no direct evidence for the development of this system of pronominal suffixes, the broad outlines of the history of the Neo-Aramaic verb are known, and some speculation can be made on the basis of this and

of the behaviour of related dialects. Let us first consider the L-suffixes. These descend from the preposition *l-* 'to', inflected for person, number and gender. One of its functions in earlier Aramaic was to mark definite direct objects:

(37) ktb-h l-ktb-'
wrote.3SG.M.SBJ-3SG.M.OBJ to-book-the
'he wrote the book' (Creason 2004: 421)

The L-suffixes used as object markers continue this function. Another function was to mark indirect objects, which is one means (found elsewhere in Semitic as well) of expressing possession:

(38) 'yt l-'nš-' ksp
COP to-man-the silver
'the man has silver' (Creason 2004: 423)

The L-suffixes as subject markers continue this latter construction, which came about in the following way. The P-stem forms derive from a stative (originally passive) participle, in which an agent could be expressed as a possessor by means of *l-*, as in (38). Thus a form like *ptɨx-li* 'I opened him' will originally have been construed as 'he is opened (*ptɨx-*) to me (*l-i*)', i.e. 'I have him opened'. The subsequent development of this construction into a perfect, and ultimately a simple past tense, parallels that found in Romance and Germanic (Hopkins 1989). This will originally have been limited to transitive verbs, yielding an 'ergative' construction, as is still found in some dialects, e.g. *pliṭ-li* 'I took (something) out' versus *plīṭ-an* 'I (feminine) went out' (Hopkins 1989: 428). It is commonly suggested that this was due to the influence of Iranian languages, where this construction is widespread (Kapeliuk 1996, Hoberman 1989: 119), in particular Kurdish: the Northeastern Neo-Aramaic dialects where this construction occurs have indeed been in contact with Kurdish. Dialects where this construction is limited to transitive verbs are still found, e.g. that of Sulemaniyya/Halabja (Khan 2004: 85f.).

On this account, the formal correspondence between object-marking with J-stems and subject-marking with P-stems (both using L-suffixes) is essentially coincidental, and hence does not constitute evidence for a systematic morphological reversal. This only comes when we consider the corollary development, namely the rise of A-suffixation to mark objects with P-stems. The initial stage was shared by both J-stems and P-stems. Both stems were originally participles, the J-stem being active and the P-stem stative. These were inflected for gender and number only; thus the Amadiya J-stem forms *kpatɨx* (M.SG), *kpatx-a* (F.SG) and *kpatx-i* (PL) 'open (something)' represent something like the original inflectional paradigm. The dimension of person was added to the paradigm through the addition of truncated variants of the first and second person pronouns (Nöldeke 1868: 220, Khan 1999a), the older forms now being limited to third person. However, this last development, namely the expansion of A-suffixation to first and second person, was

general only for the J-stem. With the P-stem, most dialects retain a restricted range of A-suffixes, allowing only third person suffixes. The historical composition of the J- and P-stem forms, and the resulting asymmetry, is represented schematically in (39):

(39) *Diachronic composition of J- and P-stem forms*

		A-SUFFIX		
	participle +	gender – number +	person +	L-suffix
J-stem:	qaṭl	-a	—	-li
	kill.PTCP.ACT	F.SG	—	me
	*'F.SG kills me'→'she kills me'			
	qaṭl	-a	-t	-li
	kill.PTCP.ACT	F.SG	2SG	me
	'you (F.SG) kill me'			
P-stem:	qṭil	-a	—	-li
	kill.PTCP.PASS	F.SG	—	me
	'F.SG was killed by me'→'she was killed by me'→'I killed her.'			

The dialect of Arbel, described by Khan (1999a, b), can serve as an illustration of this type of asymmetrical system, which I take as the original point of departure for the further developments found in Amadiya. With the P-stem, only the original three gender-number forms can serve as a basis for L-suffixation. The originally masculine zero-suffixed form is interpreted as not specifying an object, the originally feminine form marks a third person singular feminine object, and the originally plural form marks a plural object. This is illustrated in table 2.

In case no object suffix is available (namely with first and second person, as well as third person singular masculine), the objectless form is used in conjunction with the object-marking particle *ʔill-*, which is typically enclitic to the verb. Compare the treatment of a third person singular masculine object with a J-stem verb in (40a) and a P-stem verb in (40b).

(40) (a) *J-stem form*

šimm-ake lā-xall-at-te
name-the PROG-wash-2SG.F-3SG.M
'You shall wash the name.'

(b) *P-stem form*

ʔāti yal-ake mixʔe-lox=ʔill-eu
you boy-the revive-2SG.M=OBJ-3SG.M
'You have revived the boy.'
(Khan 1999b: 291)

(This construction with *ʔill-* may optionally be used even when an object suffix is available.) Other dialects employ alternative solutions. In some, the

			L-suffixes									
			Ø	ISG	IPL	2SG M	2SG F	2PL	3SG M	3SG F	3PL
A-suffixes	ISG M	J-stem	**ġaz-en** *I (M) see*			**ġaz-in-nox** *I (M) see you (M)*	**ġaz-in-nax** *I (M) see you (F)*	**ġaz-in-nŭxun** *I (M) see you*	**ġaz-in-ne** *I (M) see him*	**ġaz-in-na** *I (M) see her*	**ġaz-in-nu** *I (M) see them*
		P-stem									
	ISG F	J-stem	**ġazy-an** *I (F) see*			**ġazy-an-nox** *I (F) see you (M)*	**ġazy-an-nax** *I (F) see you (F)*	**ġazy-an-nŭxun** *I (F) see you*	**ġazy-an-ne** *I (F) see him*	**ġazy-an-na** *I (F) see her*	**ġazy-an-nu** *I (F) see them*
		P-stem									
	IPL	J-stem	**ġaz-ex** *we see*			**ġaz-ix-xox** *we see you (M)*	**ġaz-ix-xax** *we see you (F)*	**ġaz-ix-xŭxun** *we see you*	**ġaz-ix-xe** *we see him*	**ġaz-ix-xa** *we see her*	**ġaz-ix-xu** *we see them*
		P-stem									
	2SG M	J-stem	**ġaz-et** *you (M) see*	**ġaz-it-ti** *you (M) see me*	**ġaz-it-tan** *you (M) see us*				**ġaz-it-te** *you (M) see him*	**ġaz-it-ta** *you (M) see her*	**ġaz-it-tu** *you (M) see them*
		P-stem									
	2SG F	J-stem	**ġazy-at** *you (F) see*	**ġazy-at-ti** *you (F) see me*	**ġazy-at-tan** *you (F) see us*				**ġazy-at-te** *you (F) see him*	**ġazy-at-ta** *you (F) see her*	**ġazy-at-tu** *you (F) see them*
		P-stem									
	2PL	J-stem	**ġaz-etun** *you see*	**ġaz-etun-ni** *you see me*	**ġaz-etun-nan** *you see us*				**ġaz-etun-ne** *you see him*	**ġaz-etun-na** *you see her*	**ġaz-etun-nu** *you see them*
		P-stem									
	3SG M or Ø	J-stem	**ġaze-Ø** *he sees*	**ġaze-Ø-li** *he sees me* **ġze-Ø-li** *I saw*	**ġaze-Ø-lan** *he sees us* **ġze-Ø-lan** *we saw*	**ġaze-Ø-lox** *he sees you (M)* **ġze-Ø-lox** *you (M) saw*	**ġaze-Ø-lax** *he sees you (F)* **ġze-Ø-lax** *you (F) saw*	**ġaze-Ø-lxun** *he sees you* **ġze-Ø-lxun** *you saw*	**ġaze-Ø-le** *he sees him* **ġze-Ø-le** *he saw*	**ġaze-Ø-la** *he sees her* **ġze-Ø-la** *she saw*	**ġaze-Ø-lu** *he sees them* **ġze-Ø-lu** *they saw*
		P-stem									
	3SG F	J-stem	**ġazy-a** *she sees*	**ġazy-ā-li** *she sees me* **ġizy-ā-li** *I saw her*	**ġazy-ā-lan** *she sees us* **ġizy-ā-lan** *we saw her*	**ġazy-ā-lox** *she sees you (M)* **ġizy-ā-lox** *you (M) saw her*	**ġazy-ā-lax** *she sees you (F)* **ġizy-ā-lax** *you (F) saw her*	**ġazy-ā-lxun** *she sees you* **ġizy-ā-lxun** *you saw her*	**ġazy-ā-le** *she sees him* **ġizy-ā-le** *he saw her*	**ġazy-ā-la** *she sees her* **ġizy-ā-la** *she saw her*	**ġazy-ā-lu** *she sees them* **ġizy-ā-lu** *they saw her*
		P-stem									
	3PL	J-stem	**ġazen-i** *they see*	**ġazen-i-li** *they see me* **ġzen-i-li** *I saw them*	**ġazen-i-lan** *they see us* **ġzen-i-lan** *we saw them*	**ġazen-i-lox** *they see you (M)* **ġzen-i-lox** *you (M) saw them*	**ġazen-i-lax** *they see you (F)* **ġzen-i-lax** *you (F) saw them*	**ġazen-i-lxun** *they see you* **ġzen-i-lxun** *you saw them*	**ġazen-i-le** *they see him* **ġzen-i-le** *he saw them*	**ġazen-i-la** *they see her* **ġzen-i-la** *she saw them*	**ġazen-i-lu** *they see them* **ġzen-i-lu** *they saw them*
		P-stem									

Table 2
Pronominal suffixation in Arbel (Neo-Aramaic) (Khan 1999b: 126, 129, 132–134)

qam-preterite is used in these contexts. As a J-stem form, the *qam*-preterite permits the full range of object-marking – in fact, it requires it, and never appears without an object-marking L-suffix. Thus, in Qaraqosh, for example, we find the P-stem form without an object (*nqəš-lə* 'he struck'), but the *qam*-preterite with an object (*kam-naqəš-lə* 'he struck HIM') (Khan 2002: 140). Still other dialects have fleshed out the object-marking paradigm of the P-stem. One option is to extend the object-marking pattern found with other verb stems, namely L-suffixation. Such a system is found in the dialect of Hertevin, described by Jastrow (1988). As a result, transitive P-stem forms have a sequence of two L-suffixes, with the second one marking the object (note that, in a sequence of two L-suffixes, the second one begins with *nn* rather than *l*):

(41) wed-le-nnoh
made-1SG-2SG.M
'I've made you.' (Jastrow 1988: 61)

With third person objects, this system is in competition with the older system, in which the object is marked by an A-suffix, i.e. a gender–number marker:

(42) *Two systems of object-marking in Hertevin*

INNOVATIVE (L-SUFFIX)	OLDER (GENDER–NUMBER MARKER ON VERB)
wed-le-nna	wid-a-li
made-1SG-3SG.F	made-3SG.F-1SG
'I've made her.'	'I've made her.'

(Jastrow 1988: 62)

Object-marking with L-suffixes is the preferred option, however.

The other option for fleshing out the object paradigm is that found in Amadiya, namely extending A-suffixation from the J-stem. The basis for this extension would have been the fact that in the older system, the two overt P-stem suffixes have exact correspondences in the J-stem (having the same source in the original gender–number markers), but in the role of object rather than subject. The extension of the remaining A-stem suffixes would then have been based on an extension of this principle of reversal to all person-number values, presumably encouraged by the already-established reversal in the function of the L-suffixes across the two stems. This contrasts with the development of dialects such as Hertevin, described above, where the principle of reversal was not extended, instead being replaced by a principle of morphologically consistent object-marking.

The reanalysis that will have taken place in Amadiya becomes especially clear when we look at the fate of those forms that lack overt suffixation for either the A-series or the L-series. Let us first look at the A-series. In the more archaic system, such as that found in Arbel, the reversal of subject and

object values obtains for forms with overt suffixes, namely feminine singular *-a* and plural *-i* (43a), but not for forms with a zero suffix (43b). Recall that with the J-stem, the zero suffix marks third person masculine singular subject. If the principle of reversal applied here too, we would expect the corresponding P-stem form to have a third person singular masculine OBJECT, but it does not: it is interpreted as unspecified for object. In Amadiya, on the other hand, this interpretation is available.

(43)

	J-STEM	P-STEM, ARBEL	P-STEM, AMADIYA
(a)	CaCC-a-le 'she Xs him'	CCiC-a-le 'he Xed her'	(same as Arbel)
(b)	CaCC-Ø-le 'he Xs him'	CCiC-Ø-le 'he Xed'	CCɨC-Ø-le 'he Xed (him)'

Let us now look at cases where the L-suffix is lacking. With J-stems this entails simply an absence of object-marking. If the principle of reversal is applied to the P-stem, the result should be a form with object-marking (corresponding morphologically to the J-stem subject), but with no indication of subject. In dialects like Arbel, such a form is lacking (44). This is perhaps not surprising, if one considers that J-stem forms are all construed as having an overtly marked subject: in Arbel, this generalization is maintained in the P-stem as well. In Amadiya, however, the principle of reversal is applied here too, resulting in transitive forms with an unspecified subject. That is, one could argue that the very process of reversal has created a new function.

(44)

J-STEM	P-STEM, ARBEL	P-STEM, AMADIYA
CaCC-a 'she Xs'	*CCiC-a	CCiC-a '…Xed her'

The scenario just outlined assumes that reversal was a mechanism for diachronic change. It is another question whether, having wrought those changes, it remains an active principle. In the dialect of Urmi, which has essentially the same system as Amadiya,[7] it clearly does not. Four of the corresponding affixes of the J-stem and the P-stem have diverged phonologically, e.g. J-stem *šadr-íy-lux* 'THEY send you' versus P-stem *šudr-é-lux* 'you sent THEM' (Hoberman 1989: 105). This suggests that synchronically there is no longer any active connection between the suffixes associated with the two stems, in spite of the fact that almost all of them are homophonous.

[7] The most significant difference is that Urmi lacks the P-stem forms illustrated in (44) (Hoberman 1989: 106).

In summary, the crucial points about the development of pronominal suffixes in Amadiya are the following:

- In most Neo-Aramaic dialects, the object of a J-stem form and the subject of a P-stem form are both marked by an L-suffix. This homophony appears to have been coincidental: subjects of P-stem forms were originally construed as possessors, which were marked by L-suffixes, and objects were also marked by L-suffixes.
- J-stem and P-stem forms shared a set of gender–number markers, a legacy of their participial origin. With J-stem forms these markers coded agreement with the subject, with P-stem forms the patient (later the object). This alternation in grammatical role was a consequence of the alternation in argument structure between the originally active J-stem and the originally passive or stative P-stem.
- These gender-number suffixes gave rise to a new set of subject suffixes (the A-suffixes) on J-stems, through the addition of further first and second person suffixes. The original bare gender-number suffixes now occurred in third person only. This restriction to third person was carried over to the P-stem forms, where these suffixes mark the object.
- This results in a system in which there is complete correspondence between the marking of the object of J-stem forms and the subject of P-stems (L-suffixes), but only a partial overlap for the other arguments (A-suffixes). That is, P-stem subject-marking corresponds to J-stem object-marking, but P-stem object-marking corresponds to J-stem subject-marking only for the third person. Otherwise, P-stem objects are not marked inflectionally.
- This gap in the paradigm may be filled in various ways. In particular, in Amadiya, the morphological reversal which originally obtained for part of the system was extended to the whole system, yielding a complete set of object-marking A-suffixes for the P-stem.

5. Polarity versus exchange rules

The examples reviewed in section 4 provide ample evidence that there is such a thing as a systematic morphological reversal. Now we can address the question of what this implies for morphological models. It is at this point that the distinction between polarity and exchange rules becomes relevant, because it turns out that the two are based on differing conceptualizations of the phenomenon. Polarity, in Hetzron's definition (see (3) above), is a proportional analogy, and hence a two-part operation. In the first part (45a), an alternation between 'A' and 'B' is established for one context; this is then compared to another context, where only one member of the alternation is defined. The salient point extracted from the analogy is that the association of exponents and categories is switched across the two contexts. This allows the proportion to be solved as in (45b).

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(45) (a) *A* represents *X*: *B* represents *Y*:: *B* represents *X*: x
(b) x = *A* represents *Y*

Crucially, this model treats the two alternations as unequal, with one being in some sense subordinate to the other.

By contrast, an exchange rule encodes the fully solved proportion, thereby treating both alternations as equivalent. The drawbacks of such an analysis become apparent when one takes a closer look at the Luo material discussed in section 2. Recall that in Luo, voiceless noun stems are voiced in the plural and that voiced stems are devoiced, and that this has been represented as the exchange rule in (46).

(46) αVoice→ –αVoice/plural in *-e* or *-i*

Unfortunately, most accounts fail to present all the relevant data. In fact, the two halves of the exchange behave differently. While devoicing of voiced stems in the plural occurs without exception, voicing of voiceless stems in the plural is lexically specified:[8]

(47) *Lexical specification of voicing alternation for –Voice stems* (Tucker 1994: 128, 130)

ALTERNATING			NON-ALTERNATING		
singular	plural		singular	plural	
ŋet	ŋede	'rib'	ŋut	ŋute	'neck'
buk	buge	'book'	lak	leke	'tooth'
koθ	keðe	'rain'	baθ	baθe	'side'
arip	aribe	'milky way'	ip	ipe	'tail'

The exchange rule would then need to be modified as:

(48) αVoice→ –αVoice/plural in *-e* or *-i*, except for *ŋut*, *lak*, *baθ*, *ip*, …

If represented in this way, there is no recognition of the fact that the exceptions affect only –Voice stems. The symmetry implied by the use of an exchange rule simply is not there. Rather, there are two rules that occupy different positions in the grammar: one a devoicing rule that applies to all nouns, and the other a voicing rule that is lexically specified.[9] This suggests

[8] Tucker (1994: 130) specifically states that only voiceless consonants fail to undergo alternation. However, I have found one example in Tucker's grammar of a non-alternating voiced noun, *ŋudi* 'neck (of meat)' ~ *ŋude* (Tucker 1994: 131). Curiously, this forms a doublet with the word *ŋut* 'neck' given in (47), a non-alternating VOICELESS stem.

[9] In all likelihood this lexically restricted rule would need to be invoked only for a few items. Luo consonants are regularly devoiced in final position. Most words to which the voicing rule would apply are consonant-final in the singular; in fact, Tucker (1994: 128, 130) asserts outright that voicing ONLY applies to stems ending in a consonant. This assertion is clearly

that if the two rules are to be related to each other, it is better to do so along the lines sketched in (45), with the general devoicing rule corresponding to (45a), and the voicing rule as a lexically restricted analogical extension, corresponding to (45b).

Such a representation translates naturally into a model of diachronic change. This is especially clear in the case of the Neo-Aramaic data discussed above in section 4.4, where we can trace the course of the analogical extension across the various dialects. The point of departure, shared by all the Northeast Neo-Aramaic dialects, was an alternation corresponding to the first part of the analogy in (45): with the P-stem, subjects are marked like objects (49).

(49) *A-suffixes* represent *SUBJECT* : *L-suffixes* represent *OBJECT* :: *L-suffixes* represent *SUBJECT* …

In some dialects (e.g. Arbel or Qaraqosh) the statement in (49) remains as it stands, and the object is not marked on the P-stem form of the verb. In others (e.g. Hertevin), the implications of the analogy are ignored, and object-marking with P-stem forms is the same as with J-stem forms. In Amadiya, though, (49) is treated as a proportional analogy to be resolved along the lines of (45). Note that such a diachronic model was already advanced by Speiser (1938: 201) for Semitic and by Hollenbach (1976) for Trique (see section 4.3 above).

6. Conclusion

The preceding sections have argued that systematic morphological reversals are a fact of language. The evidence from Neo-Aramaic suggests that there is a fairly straightforward diachronic explanation in terms of reanalysis and extension (Harris 2003). The phenomenon starts with some change that brings about a distribution of forms within a paradigm which superficially looks like a reversal. This pattern is noticed by language users, reanalysed as the product of a systematic principle of reversal, and extended by analogy to other contexts.

Within morphological typology, morphological reversals can be seen as a possible corollary of DEPONENCY (Corbett, Baerman, Brown & Hippisley 2006). Deponency in its canonical construal describes a lexically-specified class of verbs in Latin which have the form of passives but the function of actives, and thus constitute a mismatch between morphological form and morpho-syntactic value. The mismatch is unidirectional: these verbs have active forms which look like passives, but they do not have a mirror-image set of

belied by examples in his text (e.g. *agoko* from (5b) above), but the implication is that the majority of voiceless stems end in a consonant in the singular. If these words are assumed to have an underlyingly voiced stem-final consonant, then the voicing alternation would be phonologically automatic. Then, strictly speaking, the voicing rule would only be needed for the small number of vowel-final nouns whose stem ends in a voiceless consonant.

passive forms that look like actives. The relationship between this unidirectional mismatch and complete morphological reversals is clearly illustrated by the Northeastern Neo-Aramaic dialects. In all of them, object suffixes are used for subjects with the P-stem. In most of the dialects this remains a unidirectional mismatch, while in Amadiya the inverse correlation has been implemented.

As a final point, one is tempted to speculate whether there are any constraints on morphological reversals. The diachronic model sketched above does not suggest that there should be, but it does presuppose that at least the beginnings of a pattern of reversal must already be in place. This might not limit the type of reversals we would expect to find, but it would presumably limit the frequency with which we found them. One question the above model does not address is how much of a pattern must already be in place for it to be noticed as such by language users. It would be reasonable to speculate that there are some cognitive limits, but I dare make no proposals here. The question remains one for future empirical research.

APPENDIX

Annotations to table 1

1. The anteriority suffix *-wa* intervenes between A- and L-suffixes, thus the J-stem *qam*-preterite *qam-mpaḷt-ax-lu* 'we removed them' corresponds to the plupreterite *qam-mpaḷt-ax-wa-lu* 'we had removed them' (Hoberman 1989: 95f.).
2. The initial *l-* of the L-suffixes is regularly assimilated to a final coronal consonant of an immediately preceding A-suffix.
3. The P-stem forms shown in the first column, i.e. the P-stem forms with A-suffixes only, imply an unspecified agent, often interpreted as third person plural animate (Hoberman 1989: 112).
4. P-stem forms of the first conjugation with a zero ending have the optional suffix *-ɨn* (Hoberman 1989: 31). This is the one deviation from the otherwise parallel system of pronominal suffixation in the J- and P-stem forms. The reason for this is unclear, but it may be phonologically motivated. *Ptix* is monosyllabic, while all the forms one might compare it to are disyllabic: the J-stem form with zero ending (e.g. *kpatɨx*), as well as the P-stem form with zero ending of the second conjugation (e.g. *mšodɨr* 'sent him'). Note that in the dialect of Hertevin, Jastrow (1988: 53) similarly describes a meaningless ending *-ek* which is optionally suffixed to any monosyllabic verb form, typically in prepausal position.

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