Morphological opacity: Rules of referral in Kanum verbs

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4.1 Complexity

In recent years the term ‘complexity’ has been used in linguistics publications in various ways. At least four senses of ‘complexity’ can be discerned:

1. Size. A language (/subsystem of a language) is said to be complex if it has a lot of members. In this sense a complex pronominal system would include a large number of pronouns; a complex phoneme system would have a lot of phonemes; complex verbal inflection would have many inflectional possibilities (see also section 2.1.1 of Anderson’s chapter, this volume).

2. Dimensions. A language (/subsystem of a language) is said to be complex if the description of its component parts requires a lot of variables. In this sense a complex pronominal system would differentiate multiple numbers, genders, and persons; a complex phoneme system would require many features to describe; complex verbal inflection would have many inflectional possibilities for a large range of different grammatical categories.

3. Rarity. A language (/subsystem of a language) is said to be complex if it includes elements that are cross-linguistically infrequent. In this sense a complex pronominal system would include categories that are only occasionally found (such as pronouns that include reference to generational differences between speaker and addressee, as in various languages of Australia); a complex phoneme system would include unusual phonemes, such as velar laterals or linguolabial fricatives; complex verbal inflection would include categories rarely found on verbs, such as night-time status of the event, or heaviness of the object (both attested in Berik).

4. Transparency. A language (/subsystem of a language) is said to be complex if there is not a direct mapping from the features present and the expression of those features. In this sense a complex pronominal system might include irregular corre-
spondences of singular and plural pronouns (such as Meryam Mer, in which the first person plural inclusive is expressed with the morpheme for second person to which a plural suffix is added); a complex phoneme system might require the features [±voice], [±labial], [±coronal], and [±dorsal], but only include the phonemes /p t d k/ (such as Finnish, or Bobot and Emplawas from eastern Indonesia); a complex system of verbal inflection might include suppletive, or portmanteau forms, or irregularly use the 'wrong' morphological forms to express features in some contexts (such as using plural forms to indicate a passive voice, as in Lingala). (See also section 2.2 of Anderson's chapter.)

These different senses are, at least theoretically, not all independent variables; the more dimensions in a system, the greater the potential size, and the greater the chance that there is non-transparent mapping between potential categories and actual categories. Similarly, the nature of rarity means that it is more likely to emerge as a small part of an otherwise 'well-behaved' (from a cross-linguistic perspective) system, since rarity is not an absolute, but rather something embedded in commonality. Nonetheless, these different senses have all been used when discussing 'complexity'. I shall concentrate on some aspects of the last sense, transparency, in the discussion that follows, while making reference to the other senses as appropriate. The main medium for the discussion is verbal inflection in Kanum, a language of southern New Guinea. In Kanum, which shows verbal inflection for subjects, objects, and tense, we see elaborate systems of oppositions created with a relatively small set of distinct morphemes. These morphemes have regular distributions to realize different inflectional categories, but we also find many instances in which elements of the paradigm are marked by referral from other inflectional cells (see discussion in Zwicky 1985, Stump 2001, Baerman 2004). I will exemplify some of these cases of referral, and show that there are patterns underlying this irregular behaviour.

4.2 Kanum verbal inflection: 1

Kanum is a language of southern New Guinea just north-west of the Torres Strait (Boelaars 1950, Drabbe 1947, 1950); the variety described here is known to its speakers as Ngkaomi Ngkaomtr Knwme. The language has extensive agreement for both subject and object on the verb, as well as tense, and has an extensive case-marking system, and shows elements of non-configurationality (Donohue 2011).

Verbs agree with the number (and person, if plural) of their subject by suffix, and with person, number, and gender of their object (if bivalent) by prefix; tense information is distributed about the verb. The simplest version of this schema is shown in (1), and is illustrated in the sentences in (2) and (3). Comparing the two examples, it

1 Kanum examples are presented in an orthography that follows IPA conventions, with the exception that /ŋ/ is represented by <ng>, /j/ by <y>, /æ/ by <ã> and /o/ by <â>. Many clusters are broken up
is not hard to identify the prefix *kn-* and the suffix *-y* in (1) and (2) attached to the roots *eyerk* and *ew*. Examining (4), it is clear that the prefix *kn-* marks the second person (singular) object; comparing with (5) we see that the suffix *-y* marks the first person plural subject.

Basic verbal agreement

(1) OBJECT-verb.root-SUBJECT

(2) (Nynta mpw) kwneyerky.

1PL.ERG 2ABS we:snuck.up.on;you:yesterday

'We snuck up on you (yesterday).'

(3) (Nynta mpw) knamply.

1PL.ERG 2ABS we:laughed.at;you:yesterday

'We laughed at you (yesterday).'

(4) (Nynta py) swamply.

1PL.ERG 3ABS we:laughed.at;them:yesterday

'We laughed at them (yesterday).'

(5) (Pynta mpw) kwnample.

3PL.ERG 2ABS they:laughed.at;you:yesterday

'They laughed at you (yesterday).'

Neither the prefixes nor the suffixes in (2)–(4) contain only pronominal information; they also convey tense categories. The full inflectional paradigm for *AMPL* 'laugh at', showing subject, object, and tense inflections by prefix and suffix, is shown in Table 4.1; forms that we have already seen in (2)–(4) are shown in bold. From the outset we note that there is no difference in inflection between 2PL and 3PL objects, in fact, these forms are the same as the 3SG.M forms; similarly, the 1PL forms are identical to the 2SG forms. Given that we know that these forms are distinguished in the pronominal system of Kanum, as evidenced in the free pronouns shown in Table 4.2 and by the contrasts made in the subject suffixes, we must assume that these categories are subject to rules of referral, shown in (6), which assigns the values given for the 2SG object to the 1PL cell (a pattern that is well attested in New Guinea), and another that assigns the 3SG.M form to the 3PL and 2PL cells. This means that the s-/y- object prefixes are better thought of as unspecified for person, number, or gender. They are blocked from appearing with first person, feminine, or 2SG reference because of the existence of more highly specified morphemes that do not incur a class of features.

by epenthesis or the syllabification of a liquid or glide. As an example sentence (2) can be pronounced as [nin'tar mpow ko'nejerk3].
TABLE 4.1 Inflection for *ampl* 'laugh at' with different subjects, objects, and tenses

<table>
<thead>
<tr>
<th>subject</th>
<th>1SG</th>
<th>2SG</th>
<th>3SG.M</th>
<th>3SG.F</th>
<th>1PL</th>
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<td>ta-/√-nt</td>
<td>nt-/√-nt</td>
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<td></td>
<td>P w-/√</td>
<td>n-/√</td>
<td>y-/√</td>
<td>a-/√</td>
<td>n-/√</td>
<td>y-/√</td>
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<tr>
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<td>y-/√-y</td>
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<td>sw-/√</td>
<td>kwa-/√</td>
<td>kwn-/√</td>
<td>sw-/√</td>
</tr>
<tr>
<td></td>
<td>R w-/√-w</td>
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<td>y-/√-w</td>
<td>a-/√-w</td>
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</tr>
<tr>
<td>1PL</td>
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<td>nt-/√-ntey</td>
<td>sr-/√-ntey</td>
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<td>sw-/√-y</td>
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<td>n-/√-ay</td>
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<tr>
<td>3PL</td>
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<td>ta-/√-nteme</td>
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<td>kwn-/√-e</td>
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<td>y-/√-ay</td>
<td>a-/√-ay</td>
<td>n-/√-ay</td>
<td>y-/√-ay</td>
</tr>
</tbody>
</table>

F: future; P: present; T: today's past; Y: yesterday's past; R: remote past; √: verb root.

TABLE 4.2 Free pronouns in Kanum, absolutive, and ergative forms

<table>
<thead>
<tr>
<th>Absolutive</th>
<th>Ergative</th>
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<tr>
<td><strong>SG</strong></td>
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</tr>
<tr>
<td>1</td>
<td>ngkâ</td>
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<tr>
<td>2</td>
<td>mpw</td>
</tr>
<tr>
<td>3</td>
<td>py</td>
</tr>
</tbody>
</table>
(6) Object prefixes in the present (from Table 4.1)
1SG object = w + stem
2SG object = n + stem
3SG,M object = y + stem
3SG,F object = a + stem
1PL object = n + stem
2PL object = y + stem
3PL object = y + stem

Since the focus of this chapter is the syncretisms in the agreement morphology, we can unproblematically segment off the tense morphemes that are not also specified for features of the subject, and assign approximate features to the other affixes, in (8). Note that there are two suffixes of the form -y, and two of the form -e; Kanum morphology admits high levels of syncretism, as is also clear from the absolutive pronominal forms in Table 4.2 (see Baerman 2004, Baerman et al. 2005 for a more extended discussion of kinds of syncretisms and their modelling). The template for the verb is shown in Table 4.3, which shows which feature types are coded in which positions, and where we can see that the syncretic verbal suffixes occupy different positions in the verb template. Since some of the verb roots are suppletive for number of object, or for tense, the verb root too is marked as potentially showing features of the sort found in the inflectional affixes. Of the three inflectional categories, tense, subject, and object, very few affixes are constrained to mark features of only one category, a fact that will become relevant later in the exposition.

Tense affixes not portmanteau with subject features (from Table 4.1)

(7) k- YESTERDAY'S PAST Not generic objects
w- YESTERDAY'S PAST
r- FUTURE Not 2SG/1PL, or feminine objects
-nt FUTURE

<table>
<thead>
<tr>
<th>Table 4.3 Kanum verbal inflection</th>
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</thead>
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<tr>
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<tr>
<td>-4      -3      -2      -1       √       +1      +2      +3</td>
</tr>
<tr>
<td>OBJECT  +        +        +        (+)</td>
</tr>
<tr>
<td>SUBJECT +        +        +        +</td>
</tr>
<tr>
<td>TENSE   +        +        (+)     +        +        +</td>
</tr>
<tr>
<td>NUMBER  +        +        +        (+)     +        +</td>
</tr>
<tr>
<td>PERSON  +        +        +        +</td>
</tr>
<tr>
<td>k-      w-       b-/w-     r-       -nt     -e1     -me</td>
</tr>
<tr>
<td>s-/y    nt-/n-   -y1      -a       -y2</td>
</tr>
<tr>
<td>ta-/a-  -ns      -e2</td>
</tr>
</tbody>
</table>

Tense affixes not portmanteau with subject features (from Table 4.1)

(7) k- YESTERDAY'S PAST Not generic objects
w- YESTERDAY'S PAST
r- FUTURE Not 2SG/1PL, or feminine objects
-nt FUTURE
Affixes primarily marking agreement (from Table 4.1)

(8) b-/w- 1SG object
nt-/n- 2SG/1PL object
ta-/a- 3SG.F object
s-/y- object (= 3SG.M, 2PL, 3PL)
-y1 SG subject (Today's past)
-w SG subject (Remote past)
-e1 PL subject (Future)
-y2 PL subject
-e2 2PL/3PL subject (Present, Yesterday's past)
-me 3PL subject (Future)
-ns PL subject (Today's past)
-a PL subject (Remote past)

Based on the preceding discussion, we can trivially predict the forms in (9), expanding from (2) and (3). When we examine forms with a 2PL object, however, we find a problem in the regular productivity of the paradigms. The non-future forms are as predicted for both verbs. For 'laugh at' the rest of the paradigm follows Table 4.1 (unsurprising, since Table 4.1 is based on the regular paradigm found with the verb ampl 'laugh at'). For eyerk, however, the future member of the paradigm shows a takeover of the 2PL by the forms used for 2SG and 1PL object, and subsequent referral of these forms to the 3PL as well (shown in (13)). There are three points of note associated with this change in the paradigm. First, the takeover is restricted to the future; the syncretism between 3SG.M, 2PL, and 3PL still holds in the non-future tenses. Second, the takeover affects only part of the syncretic {3SG.M, 2PL, 3PL} set. In (11) we can see that a 3PL object does not have the same paradigm as a 2PL object (even excluding the eligibility for the r- tense prefix): a rule that affects the 2PL need not necessarily affect the 3PL forms. Although the new referral of the 2SG/1PL forms to the 2PL cell has disrupted the referral of the 3SG.M to the 2PL, it has not disrupted the 3SG.M → 3PL referral, and does not affect the forms seen in (12) for a 3SG.M object.

(9) 'We ___ you.'
   FUTURE       'sneak up on'  'laugh at'
   PRESENT      nt-eyerk-nt-e-y  s-r-ampl-nt-e-y
   TODAY'S PAST n-eyerk-γ      n-ampl-γ
   YESTERDAY'S PAST k-w-n-eyerk-γ k-w-n-ampl-γ
   REMOTE PAST  n-eyerk-a-γ    n-ampl-a-γ

(10) 'We ___ you, pl.'
     FUTURE       'sneak up on'  'laugh at'
     PRESENT      nt-eyerk-nt-e-y  s-ampl-nt-e-y
     y-eyerk-γ    y-ampl-γ
TODAY’S PAST  y-eyerk-ns  y-ampl-ns
YESTERDAY’S PAST  s-w-eyerk-y  s-w-ampl-y
REMOTE PAST  y-eyerk-a-y  y-ampl-a-y

(11) ‘We ____ them.’ ‘sneak up on’ ‘laugh at’
FUTURE  s-r-eyerk-nt-e-y  s-r-ampl-nt-e-y
PRESENT  y-eyerk-y  y-ampl-y
TODAY’S PAST  y-eyerk-ns  y-ampl-ns
YESTERDAY’S PAST  s-w-eyerk-y  s-w-ampl-y
REMOTE PAST  y-eyerk-a-y  y-ampl-a-y

(12) ‘We ____ him.’ ‘sneak up on’ ‘laugh at’
FUTURE  s-r-eyerk-nt-e-y  s-r-ampl-nt-e-y
PRESENT  y-eyerk-y  y-ampl-y
TODAY’S PAST  y-eyerk-ns  y-ampl-ns
YESTERDAY’S PAST  s-w-eyerk-y  s-w-ampl-y
REMOTE PAST  y-eyerk-a-y  y-ampl-a-y

Additional referral for object prefixes in the future seen in (10), for eyerk ‘sneak up on’

(13) 1SG object  =  w + stem
2SG object  =  n + stem
3SG.m object  =  y + stem
3SG.f object  =  a + stem
1PL object  =  n + stem
2PL object  =  n + stem →
3PL object  =  y + stem

4.3 Further kinds of rules of referral in Kanum verbs

The two verbs diverge in other parts of their paradigms as well. With a singular subject we see that the 2SG object prefix in the future is not nt-, as predicted, but s-n-, combining the generic object with the appropriate 2SG/1PL object prefix. With a third person feminine object we see the entire paradigm in all tenses has been taken over by the 1SG forms. These complications are not found with ampl.

(14) ‘I ____ you.’ ‘sneak up on’ ‘laugh at’
FUTURE  s-n-eyerk-nt  nt-ampl-nt
PRESENT  n-eyerk  n-ampl
TODAY’S PAST  n-eyerk-y  n-ampl-y
YESTERDAY’S PAST  k-w-n-eyerk  k-w-n-ampl
REMOTE PAST  n-eyerk-w  n-ampl-w
(15) ‘I ___ her’ ‘sneak up on’ ‘laugh at’
FUTURE b-eyerk-nt t(a)-ampl-nt
PRESENT w-eyerk (a)-ampl
TODAY’S PAST w-eyerk-y (a)-ampl-y
YESTERDAY’S PAST k-w-eyerk k-w-a-ampl
REMOTE PAST w-eyerk-w (a)-ampl-w

Additional referrals seen in (14) and (15) for eyerk

(16) generic object → 2SG object / future
1SG object → feminine object

Our analysis becomes more complex when we consider data from different verbs. With wr ‘bite’ we find that the 1SG object forms take over the 3SG.F objects, but only with yesterday’s past tense. We do not find the 2SG/1PL takeover of the 2PL, that was seen in (10), but we do see a spread of the singular subject suffixes to cells with plural subjects, but only when the object is generic. The forms in (17) show the expected affixes for the first column, we>you. With the second (we>him) column we see that either the expected plural affixes are absent, or else they have been replaced with singular subject affixes. This is not the case for 2PL and 3PL objects, which are compatible with plural subject suffixes. In the third column (we>her) we find the expected plural subject suffixes, but with the 1SG object prefix in place of the feminine object prefix. The verb ‘bite’ shows takeovers for subjects as well as objects.

(17) ‘bite’
FUTURE nt-wr-nt-e-y s-wr-nt-Ø-Ø ta-wr-nt-e-y
PRESENT n-wr-y y-wr-Ø a-wr-y
TODAY’S PAST n-wr-ns y-wr-Ø a-wr-ns
YESTERDAY’S PAST k-w-n-wr-y s-wr-Ø k-w-w-wr-Ø
REMOTE PAST n-wr-a-y y-wr-w a-wr-ay

Referrals seen in (17) for wr

(18) 3SG.M object

I conclude this section with data from one further, highly idiosyncratic verb, makr ‘roast’. Table 4.4 shows the expected inflection for this verb, and the attested inflections. We should first note that there is a suppletive form of the verb for the present, today’s past, and yesterday’s past tenses, ekr.2 The contrast between different plurals subjects is lost entirely; plural subject suffixes invade the singular paradigm and take over other tenses, the present and today’s past object prefixes are taken over, and the yesterday’s past prefix is lost. Combined with the suppletive verb forms there is a high degree

2 The selection of makr, rather than ekr, as the root follows from the nominalized form, makr-ay.
### Table 4.4 Inflection for makr ‘roast’ with different subjects, objects, and tenses

<table>
<thead>
<tr>
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<th>expected</th>
<th>attested</th>
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<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>s-(\cdot)/(\cdot)-nt</td>
<td>s-r-makr-nt</td>
</tr>
<tr>
<td>P</td>
<td>y-√</td>
<td>s-ekr-ay</td>
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</tr>
<tr>
<td>T</td>
<td>y-√/√-√</td>
<td>s-ekr-ay</td>
</tr>
<tr>
<td>Y</td>
<td>sw-√/√-√</td>
<td>s-w-makr-√</td>
</tr>
<tr>
<td>R</td>
<td>y-√/√-√</td>
<td>y-makr-ay</td>
</tr>
</tbody>
</table>

of irregularity with this verb, but only one clear case of suppletion, the *makr/ekr* alternation.

Referrals seen in Table 4.4 for *makr*

(19) future/yesterday’s past object prefix → present, today’s past
future suffix          → yesterday’s past / SG subject
pl. subject remote past suffix → present, today’s past
future 1/2PL subject suffix → 3PL future
yesterday’s past 1/2PL subject suffix → 3PL yesterday’s past

The forms and analysis presented in Tables 4.1 and 4.2, and in (7) and (8), might seem, in the light of our extended explication of the verb *eyerk* ‘sneak up on’, combined with data from *wr* ‘bite’ and *makr* ‘roast’, to be hopelessly optimistic. The following section will consolidate the well-attested patterns that we do find in Kanum verbs, and in section 4.5 we examine patterns of regularity in the rules of referral.

### 4.4 Opacity and Kanum verbal inflection

To this point we have an agreement system that requires reference to features distinguishing two degrees of number (singular, plural) and two degrees of person (local, nonlocal); this is less dimensions than are attested in other languages, though perhaps the features required for the person axis are somewhat unusual (invoking complexity-by-rarity). Since the size of the contrast set is smaller than predicted from
the dimensions involved, however, there is a level of opacity involved. For example, Table 4.5 uses the dimensions that we have seen are relevant for a description of Kanum, and explores some of the possibilities along a cline between transparent and opaque, using the Greek letters α, β, γ, and δ to designate the contrasts that the system marks. In a transparent system all of the possible oppositions defined by the features distinguished along the different dimensions of variation are attested. In a maximally opaque system the two dimensions, with two degrees of variation each, are required to make a distinction between only two marked categories. The Kanum person and number system falls between these two extremes, marking three differences by not distinguishing person in the singular.

We have seen that tense is marked differently on the portmanteau affixes that index subjects and objects, as shown in Table 4.6 (based on the data in Table 4.1; again, the use of α, β, etc. is only intended to represent contrasts within each of the paradigms). Only for the future do the categories match; because of the mismatches, five tense categories are distinguished in a distributed fashion. Clearly we need to investigate the marking of other types of objects in order to understand the workings of the Kanum verb in order to understand things better.

### Table 4.5 Opacity and transparency in pronominal systems

<table>
<thead>
<tr>
<th>(very) transparent</th>
<th>Transparent</th>
<th>(translucent)</th>
<th>Opaque</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG</td>
<td>PL</td>
<td>SG</td>
<td>PL</td>
</tr>
<tr>
<td>local</td>
<td>α</td>
<td>α – γ</td>
<td>local</td>
</tr>
<tr>
<td>nonlocal</td>
<td>β</td>
<td>β – γ</td>
<td>nonlocal</td>
</tr>
</tbody>
</table>

### Table 4.6 Tense distinctions portmanteau with agreement affixes

<table>
<thead>
<tr>
<th>Future</th>
<th>present</th>
<th>today's past</th>
<th>yesterday's past</th>
<th>Remote past</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>α</td>
<td>γ</td>
<td>δ</td>
<td></td>
</tr>
<tr>
<td>subject</td>
<td></td>
<td>γ</td>
<td>δ</td>
<td></td>
</tr>
</tbody>
</table>

4.5 A wider survey of rules of referral in Kanum verbs

We can construct a set of regular agreement affixes for verbs, shown in Table 4.1; based on these forms, which show the syncretisms displayed in Table 4.7, we can plot the irregularities found with object agreement in eyerk 'sneak up on' and wr 'bite' in
Table 4.8. While unpredictable, the takeover of paradigmatic cells always proceeds from singular forms to plurals. The complexity we see is irregular, but does appear to follow some rules: no new forms are found, and only a small subset of all possible takeovers is attested.

(Maximally two distinctions are made in the plural forms for subjects as well as objects. Depending on the tense, $\beta = \gamma = \delta$, $\beta = \gamma \neq \delta$, or $\beta \neq \gamma = \delta$. Across tenses, $\alpha = \beta$ is attested.)

We do find most variation (from the idealized paradigm in Tables 4.13 and 4.14) in the object prefixes, but the other inflectional categories, subject and tense, also show referral. In the following section we shall examine the results of a survey of verb forms in Kanum, for the kinds of rules of referral they employ (see also section 5.5 in Koenig and Michelson's chapter from this volume).

4.6 Patterns in the rules of referral

We can examine a wider selection of verbs, and examine not just the rules of referral found with object agreement, but also with subjects and tense. The results of this survey are shown in Tables 4.9–4.11, which show which verbs exemplify a particular
Table 4.9 Referrals in the object prefixes

<table>
<thead>
<tr>
<th></th>
<th>1SG</th>
<th>2SG</th>
<th>3SG, 2/3PL</th>
<th>3SG,F</th>
<th>1PL</th>
<th>2/3PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>→</td>
<td>wr</td>
<td>≠</td>
<td>eyerk, rmpatwr, wr</td>
<td>≠</td>
<td>≠</td>
</tr>
<tr>
<td>2SG, 1PL</td>
<td>→</td>
<td>≠</td>
<td>arwar, yntakn</td>
<td>≠</td>
<td>dwmp, eyerk</td>
<td></td>
</tr>
<tr>
<td>3SG, 2/3PL</td>
<td>→</td>
<td>≠</td>
<td>e, eyerk, rsa, yntakn</td>
<td>≠</td>
<td>wkā</td>
<td>≠</td>
</tr>
<tr>
<td>3SG,F</td>
<td>→</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
</tr>
<tr>
<td>PL</td>
<td>→</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
</tr>
</tbody>
</table>

Table 4.10 Referrals in tense affixes

<table>
<thead>
<tr>
<th>Future</th>
<th>Present, Yesterday</th>
<th>Today’s Past, Remote Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future</td>
<td>→</td>
<td>dwmp, e, erno, mak</td>
</tr>
<tr>
<td>Present,</td>
<td>→</td>
<td>atwa, dw, dwā, erno, ōmpa, nkō</td>
</tr>
<tr>
<td>Yesterday’s Past</td>
<td></td>
<td>ayngkā, ey, ōmpa, wāw</td>
</tr>
<tr>
<td>Remote Past</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today’s Past</td>
<td>→</td>
<td>≠</td>
</tr>
</tbody>
</table>

Table 4.11 Referrals in the subject suffixes

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>1PL</th>
<th>2PL</th>
<th>3PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>→</td>
<td>wr</td>
<td>≠</td>
<td>an̄ta, wme, wr</td>
</tr>
<tr>
<td>2/3PL</td>
<td>→</td>
<td>≠</td>
<td>≠</td>
<td>an̄ta, wr</td>
</tr>
<tr>
<td>2/3PL</td>
<td>→</td>
<td>aprmngk</td>
<td>ayngkā, eyr, wāw</td>
<td>dwmp, eyr</td>
</tr>
</tbody>
</table>

extension of their idealized paradigm to another cell. Of this sample, fully twenty-two of the thirty verbs show some area in which the form in one paradigmatic cell extends to another. In terms of object takeovers, the plural forms, and the feminine form, never extend to mark other person/numbers. The 1SG object is immune from takeovers, and

3 The thirty verbs examined are: dlmy ‘track; ampl ‘laugh (at), have fun (with); anta ‘fearish.pl,past; aprmngk ‘make; arwar ‘call; atwa ‘omit; dw ‘see; dwā ‘fetch; dwmp ‘wash; ayngkā ‘fall; e ‘tell; erno ‘shoot.sg; ew ‘see; ey ‘die; eyerk ‘sneak up on; eyr ‘sleep; ōmpa ‘be angry with; makr ‘roast; nkō ‘hit linearly; rmpatwr ‘jump (at); rmplw ‘hit; rsa ‘hit; rwar ‘call; wā(w) ‘be; wkā ‘see; wme ‘stay at; wmpa ‘wash (tr.); wr ‘bite; yntakn ‘trick. Verbs that appear in more than one of Tables 9–10 are shown in bold; only one verb, dwmp ‘wash, shows takeovers for all of subject, object, and tense inflection. A ‘≠ in a cell indicates that no extension occurs in that cell, and shading indicates the impossibility of extension.
1sg is the only form that can take over the 3sg.f role. In a similar vein, the 2sg/1pl forms are the only ones that can extend to the 3sg/2pl/3pl category, in one case breaking the uniformity of that group, and the converse is also true. In all, nine of the thirty verbs in the survey show paradigmatic takeovers for object agreement. In terms of tense takeovers, the today's past and remote past are immune from other tense forms taking over their role. The future is never taken over by the today's past, and the spread of a present form to the future is the most common form of tense takeovers. Eleven of the thirty verbs show paradigm takeovers for tense. With the subject suffixes eight of the thirty verbs show paradigm takeovers, though because of the extreme portmanteauning of subject and tense we should consider the number of cases of takeovers for subjects to be sixteen, almost twice as many as for objects and including nearly all of the verbs in the survey that do show referrals. Further, there are fewer constraints on the direction of takeovers for subject suffixes than those seen for object prefixes, or tense affixes, with the only restriction being on the non-swapability of 1pl and sg forms.

Given that there are constraints on the kinds of takeovers attested in kanum, and that the forms that occupy the cells are not only not randomly varying, but are in all cases regular members of the paradigms, it seems inelegant to simply describe the differences in inflectional paradigms in the verbs as 'irregular'. Similarly, we are not discussing some kind of defective or deponent verb behaviour, since all of the inflectional elements are present on the verb. What we have, rather, is a loosely and erratically constrained pattern of alternations in the realization of inflectional categories, and in the kinds and number of contrasts that are realized. Nonetheless, the patterns of alternations are constrained, and do not represent wholesale suppletion within the paradigm. While there are no new elements in the paradigm to increase the size of the system, and no extensions of the dimensions of the inflectional paradigm (even portmanteau forms), there is a clear loss of transparency between the features specified for an inflectional cell and the morphemes representing those features. The following section briefly offers some examples of a loss of transparency in terms of how (much) an inflectional category is realized.

4.7 Opacity in the paradigms realized

In addition to the (partial) collapse in transparency we have seen in kanum, due to the prevalence of rules of referral, degrees of morphological opacity can also be described in other languages with perfectly regular inflectional paradigms as a result of what is essentially lexically unpredictable inflectional 'exuberance'. This can be illustrated with the iha examples in (20) and (21). In (20) we can see that two verbal predicates compounded together take one agreement suffix that applies to the combined verbal compound; it is not possible for either of the verbal roots to take separate agreement inflection, even though 'descend' is eligible to take the same inflectional suffixes as
‘fall’ when predicating. In (21) we see that when the evidential morpheme is added it is added to an already suffixed verb, and that the evidential morpheme itself takes suffixed agreement. It is not grammatical for one of the agreement morphemes to be omitted, apparently presenting the converse of the case in (20), and so establishing a degree of complexity in the predictability of verbal inflection. The functional reason behind the difference is evident in (21c): the evidential suffix is capable of taking ‘subject’ agreement suffixes that are referentially distinct from those used on the main verb, with a corresponding difference in the kind of evidentiality asserted. The fact that the inflected evidential morpheme alone is enough to form a (short) sentence, as in (22), indicates that the uses in (9b) and (9c) represent an only slightly modified grammaticalization from an independent verb, making the parallels with the compound in (20) more striking. Although there is a functional explanation for the differences in inflection, we are still faced with the fact that two different kinds of combinations of contentful verb-like morphemes show very different inflectional behaviour. Since suffixed auxiliaries in Iha, such as in the example shown in (23), pattern more like the serial verb construction seen in (20) we really cannot find a purely morphological explanation for the differential behaviour of the evidential morpheme with respect to inflection.

Iha

(20)  a. Ih-mo hu-hoqpow-dya.
     fruit-that descend-fall-3TPST
     ‘That fruit fell down.’

     b. *Ihmohudya-hoqpowdy a

(21)  a. Ki-kne-dya.
     2-see-3TPST
     ‘They saw you yesterday.’

     b. Ki-kne-dya(a)-e-da.
     2-see-3TPST-EVID-3
     ‘They saw you yesterday, they say.

     c. *kikneedy a, *kikneeda, *kiknedya e

     d. Ki-kne-dya-te-n.
     2-see-3TPST-EVID-1SG
     ‘They saw you yesterday, I assert.’

(22)  Te-n.
     EVID-1
     ‘Really (I saw it with my own eyes)!’
(23) Ki-qpreg-myo-n-do-mb-on.
2-follow-just-CONJ-AUX-YPST-1
'I was just following you.'

These different kinds of opacity, the unpredictability of takeovers in Kanum, and the non-predictability of inflectional realization in Iha, shows that there is a space between regularity and suppletion. Comparing the data on serial verbs from Palu'e (Austronesian, Southern Indonesia) and Skou (Skou family, north-central New Guinea; Donohue 2008) we can see that this kind of morphological unpredictability extends across word boundaries; in Palu'e serial verbs allow for only one agreement prefix, while in Skou each predicate in a serial verb requires an agreement prefix. This, however, is consistent on a language level, but represents a level of opacity in the design of grammatical forms.

(24) Palu'e

a. Kam-kha lama-pue.
  1PL-eat rice-mung.bean
  'We ate rice mixed with mung beans.'

b. Kam-boa phalu lae nua.
  1PL-descend go be.at house
  'We went down to the house,...'

c. *Kamboa kampalu...

(25) Skou

a. Mè ha mè=m-a.
  2SG bag 2SG=2SG-carry
  'You carried a bag.'

b. Mè ha mè=b-é m-a me m-e pá=ing a.
  2SG bag 2SG=2SG-get 2SG-carry 2SG:go 2SG:ascend house=DEF
  'You carried a bag away up into the house.'

c. *Mè ha mè=b-é ha re e pá=ing a.

The occurrence of multiple agreement markers is well attested; Aikhenvald (2003) presents an interesting case from Tariana, where identical morphological agreement is found on verbs which do not share the same arguments, and both Anderson (1992) and Ortmann (1999) discuss the complications found in Dargwa. Cases of historical accretion of inflectional morphology, corresponding to different periods in a language’s history, are also well documented (van Driem 1987; Donohue 1999).

The difference between these examples of the unpredictable appearance of agreement morphology, whether multiply on the same verb, or in different places in the complex predicate, is that Kanum does not show any optionality in the appearance
of agreement. Rather, the optionality is in how the relevant paradigm is represented. While some verbs are attested in which the inflectional morphology directly represents the features of the arguments, or tense category, we have seen that it is quite common for verbs in Kanum to extend the range of one cell of a paradigm into another. While there are constraints on the kind of extensions found, the appearance of such an extension in a verb's paradigm is not predictable.

4.8 The middle ground between productivity and suppletion

The preceding discussion has raised the questions of predictability, productivity, and complexity (see also Bauer 2004). The presence of rules of referral in any verb's paradigm is lexically unpredictable, but is highly productive. It does not involve the use of novel or suppletive forms, but rather involves the extension (or, in some cases, transfer) of a form from one cell of a paradigm to another. In Kanum we have seen that takeovers operate most strongly for tense, but that object agreement is most strongly implicated in the more complicated (in the sense of unpredictable) verbal paradigms. Whether these patterns can be found in other languages or not remains to be seen.
Understanding and Measuring Morphological Complexity

Edited by
MATTHEW BAERMAN, DUNSTAN BROWN, AND GREVILLE G. CORBETT

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