Suffix copying as a mirror-image phenomenon*

FRANS PLANK

It is not uncommon for nouns in an attributive relation to agree with their heads, in particular in class/gender, number, or person. It is not uncommon for attributive constituents, in particular adjectives, to agree with their heads in case. What is uncommon, however, is for nouns in an attributive relation to agree with their head nouns in case. This last kind of agreement within noun phrases is apparently so out of the ordinary that grammarians faced with it feel tempted to annul it terminologically, by labeling case-agreeing attributive nouns adjectives solely on the strength of their agreeing in case.[1] The best known manifestation of this abnormality has been termed *Suffixaufnahme* by Franz Nikolaus Finck (1910: 141): here attributive nouns, in addition to being marked for their attributive function (typically by the genitive case), also carry a copy of the case marker, and perhaps further markers (such as number), of their heads, and thus agree with them. This pattern can be exemplified from Old Georgian (1), Hurrian (2), Yidiny (3), and Dyirbal (4).[2]

(1) perx-n-i   ḳac-isa-n-i
    foot-Pl-Nom man-Gen-Pl-Nom
    '(the) feet of the man'
(2) šen-iffu-u̯e-ne-š̄   asti-š̄
    brother-1SgPoss-Gen-AnaphorSg-Erg wife-Erg
    'my brother's wife'
(3) wagal-ni-ŋgu gudaga-ŋgu
    wife-Gen-Erg dog-Erg
    '(my) wife's dog'
(4) ŋay-gu-ḍin-du   yabu-ŋu-ɲḍin-du   baŋgun   guda-ŋgu
    1Sg-Gen-Cat-Erg mother-Gen-Cat-Erg Class II (Erg) dog-Erg
    'my mother's dog'

In all these examples the last suffixes of the attributive nouns are copies of the case suffixes (nominative in [1], ergative in [2]–[4]) of the head nouns; in Old Georgian the head's number (plural) is copied as well. (In

Dyirbal the head's classifier is also ergative.) In Old Georgian and in Yidiny these copies are attached directly to the attribute's own genitive suffix, while in Hurrian and Dyirbal a special carrier suffix intervenes, which is known as an anaphoric or cataphoric number marker in Hurrian (see Bush 1964: 148–162) and as a 'catalytic affix' in Dyirbal (Dixon 1972: 105).

Suffix copying of this kind is attested at least in Old Georgian, Hurrian (an extinct language of the Ancient Near East), and most of the Aboriginal languages of Australia. It has been claimed, in particular by Bork (1905, 1913), also to occur in Elamite (an extinct isolate of Iran), Hittite, Svan and Mingrelian (and maybe further Kartvelian dialects), Tsaxur, and Bats (Northeast Caucasian). For these latter languages, however, the evidence is more doubtful (for example, Grillot-Susini's [1987] short grammar of Elamite does not mention this mode of attributive marking at all) or points to phenomena of a somewhat different kind. In Tsaxur, for instance, it seems to be only the plural marker of the head which may be copied onto the attributive noun, whose own genitive suffix in addition shows allomorphy conditioned by the class and case (oblique vs. nonoblique) of the head (see Dirr 1928: 318ff.). While the areal domain of suffix copying in the strict sense (as exemplified in [1]–[4] above), thus, seems to be ancient Anatolia and the southern Caucasus on the one hand and Australia on the other, there are no doubt case agreement patterns elsewhere which are not entirely dissimilar — such as the Old Iranian or Classical Greek mode of repeating the case-marked definite article of the head with postposed attributes in the genitive (as in οἱ στρατηγοὶ οἱ τῶν Θηβαίων lit. 'the generals the of the Thebans'), or the 'declined' postposition *d-* of attributive nouns in Panjabi which varies in accordance with gender, number, and case (direct vs. oblique) of the head (see Tolstaya 1981: 58f.).

Suffix copying in the strict sense is not absolutely obligatory in attributive constructions in the relevant languages. In Old Georgian it is never used if attributes precede their heads, for which reason Boeder (1987: 40–50) suggests that attributes with suffix copies are actually extraposed from noun phrases and thus are not coconstituents of the nouns whose suffix(es) they copy. In Hurrian it is sometimes omitted, regardless of the linear ordering of head and attribute, in what Wilhelm (1983: 102) calls *feste Genitivverbindungen*. In Australian languages it can be omitted if there is no danger of relational ambiguity (see Dixon 1972: 106).[3] A second point worth mentioning is that the term *Suffixaufnahme* is not entirely appropriate, in so far as it is not necessarily the actual form of the head's suffixes which gets copied. Thus, in the Old Georgian example (5), the indefinite pronominal head is not itself marked ergative, but in

view of its clausal function (transitive subject) it is virtually ergative, hence the ergative copy on the attributive noun (see Boeder 1987: 42).

(5) vin-me   ... moçape-ta-gan-man
     who-Indef ... disciple-PlObl-of-Erg
     'one of the disciples'

Likewise, in Gugu-Yalanji the copy on the attribute is always the inanimate allomorph regardless of whether the head noun takes an animate, inanimate, or trisyllabic allomorph of its case (see Hershberger 1964):

(6) Dicki-ndamun-du   kaya-ngka
     Dick-Gen-Erg(inanim) dog-Erg(anim)
     'Dick's dog'

My aim in this note, however, is less to examine all intricacies of suffix copying than to show that this unusual technique bears on a theoretical issue concerning the interplay of morphology and syntax.

Attribution is recursive: an attribute may itself be the head of another attribute. How do suffix-copying languages cope with such recursive attributive constructions?

In Old Georgian many examples are on record of up to two levels of embedding.[4] As it turns out, the most deeply embedded attributive nouns or pronouns copy the case (or case and number) suffixes of their immediate heads, which are always in the genitive (or, if plural, more generally oblique), AS WELL AS those of the heads of these:

(7) a. korçil-i   ʒ-isa   tv-is-isa-j
         marriage-Nom son-Gen he-Gen-Gen-Nom
         '(the) marriage of his son'
     b. klițe-n-i   sasupevel-isa ca-ta-jsa-n-i
         key-Pl-Nom kingdom-Gen heaven-PlObl-Gen-Pl-Nom
         '(the) keys of the kingdom of (the) heavens'

It is unclear whether the first attribute from top in such recursive attributions may also copy the case (and number) of its head. This is what is happening in (8), but there is disagreement about whether this might be a mistake of the scribe.[5]

(8) sasxdomel-eb-i igi   msqidel-ta-j   ma-t
     stall-Pl-Nom   Art(Nom) seller-PlObl-Nom Art-PlObl
     țred-isa-ta-j
     pigeon-Gen-PlObl-Nom
     'the stalls of the sellers of pigeons'

For present purposes this question need not be resolved; crucial for us are primarily the last attributes from top in examples (7)-(8), which collect the suffixes of two hierarchically ranked heads.

In what order do these attributes copy the suffixes coming from two different sources? In principle there would be two equally orderly alternatives, one working top down, the other bottom up. Old Georgian evidently opts for the latter: the suffix that is copied first, and linearly follows the attributive noun's or pronoun's own genitive or oblique suffix, is the case (and number) marking of its immediate head; this is then followed by the suffix(es) copied from the head noun at the next higher, in the available examples the top, level. The result of doing it the other way around would have been this, to exemplify with (7b):

(7′) b. ḳliṭe-n-i   sasupevel-isa ca-ta-n-i-jsa
          key-Pl-Nom kingdom-Gen heaven-PlObl-Pl-Nom-Gen

The way it actually is done, the increasing distance of agreement suffixes from the stem (plus nonagreement inflections) thus mirrors the increasing distance in syntactic constituency. Immediate heads are agreed with before the heads of the whole attributive construction are agreed with. With the strict linear constituent-order requirements characteristic of such suffix-copying constructions in Old Georgian, morphological order also represents a mirror image of syntactic order, in so far as the corresponding morphological and syntactic elements, namely agreement affixes and head noun phrases, occur at opposite sides of attributive nouns. This kind of pattern is reminiscent of what has been observed in other interactions of morphology and syntax, concerning in particular the morphological coding on verbs relating to the verb's syntactic actants (see Baker 1988). It is therefore tempting to conclude that the order of repeated suffix copying in Old Georgian is not an arbitrary language-particular fact but reflects a general law regulating relational markings on nouns (attributes in noun phrases) as well as on verbs (heads of verb phrases and maybe of entire clauses).

If this peculiar technique of case agreement is indeed governed by a universal principle, repeated suffix copying should of course take the same form in all languages where it is attested.

As to Hurrian, it has been conjectured (by Wilhelm 1984: 216) that suffix copying is avoided entirely with double attribution. There are indeed a number of relatively uncontroversial examples available in the Mittani Letter (for example, III 44f. or III 102ff., to be translated as 'tablets of dowries of my relations' and 'Tatu-ḫepa, daughter of Tušratta, the lord of Mittani'), but these have the topmost head noun in the absolutive case, which is zero-marked, hence does not yield a visible copy.

Mittani IV 46f., however, seems to provide a crucial example of a nonab-
solutive head of recursive genitives:

(9) šen-iffu-ue-ne-va-d-an
     brother-1SgPoss-Gen-AnaphorSg-Gen-1SgAbs-Conn
     ašti-j-ve   niɣari-j-da
     wife-3SgPoss-Gen dowry-3SgPoss-Dir
     'with the dowry of the wife of my brother'

Here the most deeply embedded attribute (*šen-iffu*) does copy the genitive
of its immediate head (*ašti-j*), but not the directional case of the topmost
head (*niɣari-j*);[6] and this directional case is not copied by the immediate
attribute (*ašti-j-ve*) either. The only passage which I am aware of where
the cases of two heads may be copied by an attributive noun comes from
Boğazköy Hurrian (see Haas 1984: 244):

(10) eni-na-as-wa
      god-DefPl-Pl-Dat
      ehli-we-ne-we-na-as-wa
      salvation-Gen-AnaphorSg-Gen-AnaphorPl-Pl-Dat
      duruhhi-na-as-wa
      male-DefPl-Pl-Dat
      'to the male gods of the one (that is, Teššub) of salvation'

And the order of agreement markers here is in accordance with the
general law suggested above: following the attributive noun's (*ehli*) own
genitive plus 'catalytic' suffix is a genitive suffix that corresponds to an
omitted genitive noun uniquely recoverable from the context (*Teššub*);
this is followed in turn, after another 'catalytic suffix', this time in the
plural, by the plural and dative suffixes copied from the topmost head
noun (also occurring, likewise after a plural definiteness marker, on its
attributive adjective).

In Dyirbal, and presumably other Australian languages, evidence that
would bear on the mirror-image hypothesis appears to be lacking entirely.
As could already be gathered from (4), the case of the topmost head is
copied by its immediate attribute, and it also trickles down to the attribute
at the next lower level (in [4], a personal pronoun in the genitive); but
what is omitted at this lower level is a copy of the genitive suffix of the
immediate head, which is itself an attribute. Relational disambiguation
in such recursive attributions is left to word order and contextual clues
(see Dixon 1972: 106).

Owing to the uncommonness of *Suffixaufnahme* and to a certain reluc-
tance of the few pertinent languages to employ this technique profusely,
it is, thus, somewhat difficult to determine whether the order of repeated

suffix copying observed in Old Georgian is indeed as cross-linguistically invariant as one would like it to be, on the strength of a general mirror-image principle relating morphology and syntax.[7]

Notes

1. Franz Bopp (1848) was the first to resort to this convenient terminological solution, which also found favour with Bork (1905, 1913) and, for Australian languages, Dixon (for example 1977: 134, 1980: 300).
2. Examples are culled from standard reference works. The abbreviations in the glosses are self-explanatory or are explained in the text.
3. It can be present, though, in constructions of inalienable possession, where the attribute (the possessor of body parts, etc.) does not carry a genitive suffix (see Dixon 1980: 293).
4. A collection of these may be found in Vogt (1947: 130f.).
5. Vogt (1947: 130) thinks it is a mistake, Boeder (1987: 46f.) thinks not.
6. The two final morphemes are a 1st person singular absolutive (-d) and a connective (-an) clitic and do not bear on the present issue.
7. I am indebted to Christoph Correll, Christian Girbal, Volkert Haas, Christian Lehmann, Ilse Wegner, and Gernot Wilhelm for helpful discussions or suggestions on an earlier version of this paper.

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