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RELATIVIZATION IN POLYSYNTHETIC LANGUAGES

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1. Peculiarities of the polysynthetic language type. The term "polysynthesis" generally refers to the phenomenon of high average number of morphemes per word, especially in verbs. In the recent literature a number of new quasi-synonyms of this term have appeared. The traditional notion of polysynthesis is usually reserved for characterizing the purely morphological type (Mithun 1986*b*). The concept of head marking coined by Nichols (1986) defines the morphosyntactic pattern of grammatical relations as a type of case marking. The term "pronominal argument languages" invented by Jelinek (1985) within the GB framework, but allowing a general usage as well, provides the syntactic characterization of the basic clause (earlier accounts of the same phenomenon include Boas 1911 and Van Valin 1977; cf. also the related concepts of nonconfigurationality [Hale 1983] and lexically projected languages [Saxon 1989]).

It is not my purpose here to compare these different terms and the approaches that underlie them. It is equally clear that although the contents of all mentioned terms are not identical, the objects (languages) they characterize coincide to a significant extent. For this reason I have loosely used the term "polysynthesis" in the title of this paper as an overall label of language type having complex verb morphology, case marking on the verb, and verbal pronominal affixes.

Thus the most crucial trait of polysynthetic languages is that all (at least all core) arguments are marked on the verb. According to the typology of Nichols (1986), which distinguishes between dependent-marking and head-marking languages, on the clause level strictly dependent-marking languages mark roles only on the arguments of the verb by means of case inflection:[1]

(1*a*) Japanese, accusative

otoko-ga	*onna-ni*	*tegami-o*	*kaita*
man-NOM	woman-DAT	letter-ACC	wrote

'The man wrote the letter to the woman'.

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[1] The following abbreviations are used. **Cases/verbal pronoun slots:** NOM[inative], ACC[usative], ERG[ative], DAT[ive], OBL[ique], POSS[essive], GEN[itive], OBJ[ective], INSTR[umental], LOC[ative]. **Noun classes:** m[asculine], f[eminine], n[euter] (= nonhuman),

(1b) Dyirbal, ergative (Dixon 1972:237)
    balam   miraɲ-Ø   baɲun   ɖugumbil-ŋu   baŋgul
    CL:NOM   beans-NOM CL:GEN   woman-GEN   CL:ERG

    yaṛa-ŋgu   wugan
    man-ERG   gave

'The man gave the beans to the woman'.

But polysynthetic languages mark roles on the head element, that is, the verb, by means of agreement or, rather, bound pronominal affixes:[2]

(2a) Navajo, accusative
    hastiin   'asdzą́ą́   naaltsoos
    man   woman   paper

    yi-ch'į̱'-'á-yi-Ø-ilaa
    3/OBL-to-PREF-3/ACC-3/NOM-made

'The man wrote the letter to the woman'.

(2b) Abkhaz, ergative
    axac'a   apHoəs   asalamš̥q'ə
    man   woman   letter

    i-l-z-i-jₒit'
    3n/NOM-3Sg.f/OBL-for-3Sg.m/ERG-wrote

'The man wrote the letter to the woman'.

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h[uman]. **Tenses:** PF – perfect, IMPF – imperfect, AOR[ist], PRES[ent], PAST. **Numbers:** Sg – singular, Pl – plural. **Persons:** 1, 2, 3, 4. **Other:** CL – unspecified class marker, REL [ativization marker] (of any morphosyntactic nature), REFL[exive morpheme], REC[iprocal morpheme], GER[und], SBRD – subordinator, REP[orted speech], TOP[ic], DEF[initeness], IRREAL[is], PRED[icative], ATTR[ibutive], PREF[ix whose meaning need not be specified], CNJ – conjunction.

Note that a virgule (/) in the glosses links the referential (person, number, noun class) and the semantic (role, case) characteristics of a bound pronoun.

[2] In polysynthetic languages, morphological slots wherein pronominal affixes are placed are usually conceived in terms of either nominal cases (nominative, ergative, etc.) or grammatical relations (subject, etc.). Both possibilities are flawed because they fail to reflect the peculiarity of this way of role coding. It is likely that often pronominal affix slots could be understood in terms of semantic hyperroles (e.g., for accusative patterns, Actor and Undergoer). However, since it is not the central issue of the present discussion, and such a notion as hyperroles re-quires a lot of space to be carefully introduced, the morphological positions are labeled here by nominal cases—Nominative, Accusative, Ergative, Dative. These terms are used in interlinear glosses. The Oblique is the name of a slot that does not render specific role semantics by itself but is accompanied by another slot where the kind of role (locative, purpose, accompaniment, etc.) is specified by means of a special morpheme (such as preverb, postposition, etc.).

Polysynthetic languages differ so sharply from the typological "standard" that many of the basic theoretical notions that are usually presumed to be universal appear to be inapplicable to these languages or at least require serious redefinition. An incomplete range of such notions embraces the following:

Agreement: The relation between the verbal affixes and coreferential arguments is formally like agreement but disfavors such treatment since the verbal affixes are autonomously referring.

Government: This relation can be perceived only between the verb root and the verbal markers of the arguments.

Anaphora: The link between the independent NPs and the verbal affixes can be viewed as an anaphoric relation (the latter refer to the former), but quite a peculiar one.

Clause: It is questionable whether full NPs coding the arguments of the verb form a single clause with the inflected verb.

Topic: Full NPs can be viewed sort of as topics anticipating the clause.

Basic word order: Its status depends on the status of full NPs.

There is not room here to go into the details of all these problems (many of the arguments for this and not another treatment are language specific). For extensive discussions of these matters, see Jelinek (1985), Mithun (1986a), Bresnan and Mchombo (1986), and Kibrik (1988). Here I simply postulate that the verbal markers of arguments in characteristic polysynthetic languages are referential and morphologically bound pronouns, that they are governed by the verb root, and that they relate to the coreferential full NPs, if any, as anaphors to their antecedents. Moreover, I assume that in polysynthetic languages we encounter a specific type of clause where full NPs are linked to the verb not directly but indirectly through the bound pronouns.

One of the consequences of these postulates is that polysynthetic languages have no referential lexical zero NPs: all functions ascribed to lexical zeroes in other languages are borne in polysynthetic languages by bound referential pronouns. This is a subcase of a general principle of the economy of interpretation: the only excuse for introducing a zero entity is the absence of any nonzero entity that might bear the given function.[3]

In this paper I examine one particular aspect of the grammar of polysynthetic languages, namely, the formation of relative constructions. Just as in

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[3] It should be emphasized that polysynthetic languages, lacking lexical zeroes, frequently use zero bound pronouns, especially in the third person (see, e.g., 2a). Rejection of lexical zeroes as absolutely unnecessary model artifacts has nothing in common with the exclusion of morphological zeroes. Of course, introduction of a zero in the system is nothing more than an interpretational device, but it still makes good sense. If there is a referent that is referred to in a given clause and it is not superficially coded, then we need to postulate a zero

most of the domains of typology and universal grammar, the data of polysynthetic languages are typically ignored in generalizing studies of relativization, which makes them defective and incomplete (there are important exceptions; see below). Here I draw evidence from two languages—Abkhaz (Abkhaz-Adyghe family, Western Caucasus) and Navajo (Athapaskan family, Southwestern United States)—that belong to the polysynthetic type but present a number of significant grammatical differences within it.[4]

2. Relativization strategies. The simplest relative construction includes two clauses: the MAIN CLAUSE (MC) and the RELATIVE CLAUSE (RC). Semantically, each of the clauses has a number of arguments, but there is an obligatory coreference between an argument A of the MC and an argument A' of the RC. In other words, one of the arguments is shared by the two clauses. Let us call it a BASIC ARGUMENT, and the corresponding NP a BASIC NP. In order to characterize the processes of relativization in a given language, one should take into account the following issues: (1) general word order (e.g., left-dislocation or embedding of the RC with respect to the MC); (2) word order within an RC (relative order of the basic NP and the rest of the RC); (3) form of the dependent verb (finite vs. nonfinite); (4) expression of argument sharedness; (5) restrictions imposed on the roles of A and A' in their respective clauses.

I shall concentrate mainly on the fourth aspect of relativization, which is actually the most important one since it constitutes the cornerstone of any relative construction and underlies the very definition of relativization.

From the major typological works on relativization (Zaliznjak and Paduceva 1975, Keenan and Comrie 1977, Gorbet 1977, Givón 1979:chap. 7, Lehmann 1984, Nichols 1984, and Keenan 1985) one can derive a certain typology of argument sharedness marking in relative constructions. Since the basic argument is semantically shared by two clauses, it is, as a rule,

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marker corresponding to that referent to which we could ascribe reference, case, and maybe other characteristics. Our task is to place this zero form in the proper position, guided by the considerations of system. For example, if in Navajo all nonzero third-person Nominative pronouns occur in a certain bound position, then it is justifiable to postulate that the zero third-person Nominative pronoun is not lexical, does not occur in a different morphological position, and is not missing in the structure at all.

[4] It should be noted that a point very similar to that of this paper has already been made about Navajo in the works of Jelinek (1987) and Willie (1989). Unfortunately, these articles were not available to me during the basic preparation of this project. However, the present discussion relies on a different theoretical approach. I have tried to view the phenomenon of inserting relativization from the standpoint of cognitive conception of language which is, I believe, the only way to explain and predict the linguistic facts (in our case, the peculiarities of relativization in these or those languages) and to calculate a set of formal possibilities serving a certain function in human languages (in our case, the set of relativization strategies).

coded by a full NP in only one of them (cf. Keenan 1985:152–53); in the other it is somehow reduced, either to a pronoun or to zero. Thus there are four logical possibilities that can be expected roughly to cover all strategies of argument sharedness marking:

I. RC reduction: *a.* A′ → pronoun (either personal or relative)
　　　　　　　　b. A′ → ∅
II. MC reduction: *a.* A → pronoun (always personal?)
　　　　　　　　b. A → ∅

It should be noted that in this scheme I mean by pronouns not the obligatory bound pronouns of polysynthetic languages but free, usually lexical, pronouns.

Type *I* (both *a* and *b*) relative constructions are usually termed "headed" or "external" or "externally headed," while type *IIb* constructions are called "headless" or "internal" or "internally headed." In this terminological paradigm type *IIa* has no standard label and is usually overlooked. Both subtypes of *II* have been extensively studied and are illustrated by examples from old Indo-European languages in Zaliznjak and Padučeva (1975:69ff.) under the name of "archaic type" of relativization (see also Bergelson 1985 and 7 below). Givón (1979:147–48) has proposed for type *II* structures the term "nonreduction strategy." The examples that follow illustrate all listed possibilities:

(3) *Ia.*1: personal pronoun; Arabic (Zaliznjak and Padučeva (1975:77)
　　ǧā'a　 *lfallāhu*ᵢ　　*llaḏ-ī*　 [*huwa*ᵢ　 *ǧaniyyun*]
　　came　 the :farmer　 REL　　he　　 rich

　　'The farmer who is rich came'.

(4) *Ia.*2: relative pronoun; English
　　*The man*ᵢ [*that*ᵢ *spoke to you yesterday*] *has come.*

(5) *Ib*; Japanese (McCawley 1972:207)
　　[*Tanaka-san　 ga*　　∅ᵢ　 *kite-iru*]　 *yoohuku　 ga*ᵢ　　 *yogorete-iru*
　　Tanaka-Mr.　 NOM　　　　 put:on　　 suit　　 NOM　 get:dirty

　　'The suit which Mr. Tanaka is wearing is dirty'.

(6) *IIa*; Bamana (Mande) (M. B. Bergelson, p.c.)
　　[*muso*ᵢ　 *min*　 *ye*　 *fini*　　 *san*]　 *n*　 *bɛ*　　 *o*ᵢ　 *dɔn*
　　woman　 REL　 PF　 clothes　 buy　 I　 IMPF　 she　 know

　　'I know the woman who has bought the clothes'.

(7) *IIb*: Navajo (Platero 1974:203)
　　[*'ashkii*ᵢ　 *'a-∅-łhosh-ígíí*]　　　　　 ∅ᵢ　 *'a-∅-łhą́ą́'*
　　boy　　 PREF-3/NOM-sleep-REL　　　 PREF-3/NOM-snore

　　'The boy who is sleeping is snoring'.

Note sentence (7): it is borrowed from an article that has been, for typologists (together with Hale, Jeanne, and Platero 1977 and Platero 1982), the major source of data on Navajo relativization and, moreover, on relativization in polysynthetic languages in general. The representation of sentences like (7) with the postulated deletion of A in the MC and the resulting lexical zero has been reproduced in a number of typological works (Gorbet 1977, Foley and Van Valin 1977, and Nichols 1984; 1986) and has served as a foundation for far-reaching theoretical speculations. Thus, for example, Nichols (1984) claimed that the deletion of the basic argument in the MC in Navajo happily conforms to the general head-marking nature of the language, while, for example, such an equally head-marking language as Abkhaz, against expectations, has dependent-marked relativization (see below). However, as I try to show, the "headless" treatment of (7) is basically wrong and contrary to the evidence of Navajo and, presumably, other polysynthetic languages. Naturally, then, none of the implications derived from this treatment can be expected to be correct either.

3. Navajo data.[5] Navajo clauses are strictly verb-final. The relative order of NPs is variable, though the normal order is usually characterized as SOV. The verb contains the morphological slots of Nominative, Accusative, and a number of Oblique (see n. 1) slots, wherein the pronominal affixes can be inserted. In relative constructions these morphosyntactic patterns are retained. The main verb occupies the final position in a sentence; the NPs of the relative clause precede the dependent verb. The RC is identical to a simple clause, the only difference being a relativizing enclitic added to the dependent verb. Platero (1974) reported that the basic NP can follow the dependent verb, but Willie (1989:434–35) has argued that this is not acceptable in real Navajo usage. Cf. the following example (Platero 1974:208):

(8a) mósí   'abe'   yi-$\emptyset$-łch'al
      cat$_i$ milk$_j$ 3/ACC$_j$-3/NOM$_i$-lap

'The cat is lapping up the milk'.

(8b) *mósí*   *dee-∅-syiz*
    cat$_i$ PREF-3/NOM$_i$-was: frightened

'The cat was frightened'.

(8c) *mósí*   *'abe' yi-∅-łch'al-ę́ę*
    cat$_i$ milk$_j$ 3/ACC$_j$-3/NOM$_i$-lap-REL

    dee-∅-syiz
    PREF-3/NOM$_i$-was: frightened

'The cat that was lapping up the milk was frightened'.

According to the accepted treatment, (8c) should have received the following representation:

(8c') [<u>*mósí*</u>$_i$ *'abe' yiłch'alę́ę*] ∅$_i$ *deesyiz*

Indeed, there is no doubt that the overt basic NP (in this example, *mósí*) belongs to the relative clause. This is generally recognized—Navajo is always offered as an example of a language with internally headed RCs. The primary evidence is that the overt basic NP may be found in the middle of the relative clause.[6] Note the following example where semantic compatibility dictates the choice of the middle NP of the RC as the basic NP (Platero 1974:209):

(9) *'akałii*   *béégashii*   *yi-∅-zloh-ę́ę*
    cowboy$_i$ cow$_j$ 3/ACC$_j$-3/NOM$_i$-lassoed-REL

    'i-∅-di-goh
    PREF-3/NOM$_j$-PREF-butt

'The cow that the cowboy lassoed is (given to) butting'.

Therefore, if we stick to the typology of argument sharedness marking that was presented in 2 above, the only possible interpretation of (8c) should be (8c').

However, as I have argued above, postulating lexical zeroes in a language like Navajo makes no sense: the experiencer referent in (8c) is mentioned in the MC anyway, in addition to the supposed lexical zero, by means of the bound Nominative pronoun ∅-. But what NP is the bound

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[6] In dependent-marking languages identifying the clause membership of a basic NP is relatively easy: it can be determined due to the nominal case markers—cf. the frequently cited example (15) of the "headless" relative construction from Diegueño, a language with nominal cases. On the other hand, in head-marking, or polysynthetic, languages that lack nominal cases, identifying clause membership is much more difficult, and the simplest (though not universal) test is based on interruptability: if an NP occurs in the middle of material belonging to a certain clause, it is assumed to belong to that clause. This test is (implicitly) used by all authors (cf. Gorbet 1977 and Keenan 1985).

pronoun in (8c) coreferential with? The only plausible hypothesis is that it is the relative clause as a whole. We may represent it as follows:

(8c″) [*mósí*ᵢ '*abe' yiłch'ałéé*]ᵢ *dee-ɸ*ᵢ-*s-yiz*

Thus the experiencer of the main verb is not a simple but a complex NP. Here we encounter a type of relative construction that is not covered by the above-cited typological scheme. The Navajo relative construction differs from all types presented in that scheme in that it has only one copy of the basic argument, not two (when not counting obligatory bound pronouns). Let us call this strategy of relative construction formation the INSERTING STRATEGY. This notion will be elaborated further in the following sections.

Within the sentence (= main clause) a Navajo relative clause functions as a regular NP. If the main clause includes a two-place verb, the syntactic status of the RC and another NP is absolutely the same whether the RC is linearly the first (10; Platero 1974:219) or the second (11; Hale and Platero 1974:18) NP:

(10) *hastiin   łééchąą'í   bi-ɸ-shxash-éé*
    [manᵢ   dogⱼ   3/ACCᵢ-3/NOM-bit-REL]ᵢ

    be'eldǫǫh   né-i-ɸ-diitą́
    gunₖ   PREF-3/ACCₖ-3/NOMᵢ-picked up

'The man who was bitten by the dog picked up the gun'.

(11) *hastiin   biįh   bi-ł-'adé-łdǫǫh-éé*
    manᵢ   [deerⱼ   3/OBLⱼ-with-PREF:1Sg/NOM-shot-REL]ⱼ

    né-í-ɸ-s'ah
    PREF-3/ACCⱼ-3/NOMᵢ-butchered

'The man butchered the deer I shot'.

Furthermore, an RC can be linked not only to the Nominative and Accusative pronominal affixes on the verb, but, like any Navajo NP, also to a pronominal affix attached to a so-called postposition (which is actually an adverbial marker of nonnuclear roles; see Kibrik 1990). Consider the following example (Perkins 1982:279):

(12) *jooł   tsin   ch'é'étiin-gi   ɸ-si-tán-éé*
    ballᵢ   [logⱼ   doorway-in   3/NOMⱼ-lie-REL]ⱼ

    b-áhátis-ɸ-yilts'id
    3/OBLⱼ-over-3/NOMᵢ-moved

'The ball rolled over the log that was lying in the doorway'.

Relative constructions are not very frequent in Navajo discourse, but here are two examples taken from the Bible translation (13; Matthew 2:9) and from a folk legend (14; Sapir and Hoijer 1942:18):

(13) *ha'a'aah-di*   *sǫ'*   *da-∅-ji-iłtsán-ę́ę*
    [east-in   star$_j$ Pl-3/ACC$_j$-4/NOM$_i$-saw-REL]$_j$

    ha-łą́ąji'   *nihináàná-∅-dzáa-go*   *'ashkii*   *'áłts'íísí*
    4/OBL$_i$-ahead   PREF-3/NOM$_j$-went-GER [boy$_k$ small

    ∅-sitín-ígíí   *bi-káa'-gi*   *ni-∅-ilthah*
    3/NOM$_k$-lay-REL]$_k$ 3/OBL$_k$-above-at   PREF-3/NOM$_j$-stopped

    'The star they had seen in the east went ahead of them until it
    stopped over the place where the child was'.

(14) *t'áá*   *'áko*   *dahní-∅-zh-dii'ą́*   *ji-ní*
    right   then   PREF-3/ACC-4/NOM-carried   4/NOM-say

    ghé'iitso   *∅-sidáh-ą́ą-góó*
    [giant$_i$ 3/NOM$_i$-sat-REL]$_i$-toward

    'Right then she started to carry it (the hat) back, they say, toward
    the sitting giant'.

In (14) the relative clause, like a normal NP, is located in an afterthought position which violates standard Navajo syntax but is typical for Navajo discourse. Moreover, the RC, like a normal NP, is followed by a locative enclitic (not to be confused with a postposition).

4. Intermediate results.

The main feature of the inserting strategy of relativization is that it is a ONE-COPY STRATEGY, i.e., it implies only one occurrence of the basic argument.[7] This occurrence is contained within the relative clause. The basic NP does not appear as an argument of the main clause—this role is played by the relative clause as a whole.

The opposite, the TWO-COPY STRATEGY, could be called the COMBINING STRATEGY. It implies an occurrence of the basic argument in both the main and the relative clauses, and one of these copies is typically reduced. (For other recent approaches to typologizing relativization strategies [in English], see Prideaux and Baker 1986 and Fox and Thompson 1990.)

The combining and inserting strategies are syntactic principles, but still they have a clear cognitive motivation. They contrast sharply from the point of view of their cognitive "history." The two-copy, or combining, strategy reflects the process of composing two propositions that existed in the speaker's memory beforehand and happened to share an argument. The one-copy,

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[7] When I say that there is only one copy of the basic argument in a relative construction I do not count the obligatory bound pronouns typical for polysynthetic languages. As has been argued above, in polysynthetic languages a clause with full NPs has a twofold coding of arguments: by obligatory bound pronouns and by optional full NPs. In the present discussion of relative constructions a pair "[NP], bound pronoun" is viewed as a single occurrence of an argument.

or inserting, strategy corresponds to a process where a referent is first conceived through its participation in a certain event, and coded by a nominalized proposition, and then this complex nomination, as a single whole, is inserted into another, broader event. Of course, these explanations are relevant not for any concrete occurrence of a relative construction of a given type, but for the prototypical usages of relative constructions. Actual language-specific relativization strategies are grammaticalized clichés and their cognitive history can be traced back only for generalized, prototypical cases.

The concept of the inserting strategy of relativization was present—in an implicit form—in some earlier works. Nichols (1984:529-30) mentions relative constructions with full valence of the relative clause and no copy of the basic NP in the main clause. However, she recognizes the one-copy construction only in languages with nominal cases, e.g., Yuman (see the Diegueño example in 15 below), and denies its relevance for Navajo. As I have tried to show, Navajo sentences like (7) or (8c) are one-copy constructions exactly in the same manner as, e.g., the following Diegueño (Gorbet 1977:270) sentence:

(15) tɘnay   ’wa:-∅   ’wu:w-pu-L^y ’čiyawx
      [yesterday house-OBJ   I:see-DEF]-in   I:sing:IRREAL

'I'll sing in the house I saw yesterday'.

The only difference is the presence/absence of dependent-marked cases.

As I have mentioned above (n. 3), a treatment of Navajo relative constructions very similar to the one suggested here has already been proposed by Jelinek (1987) and Willie (1989). However, I am not convinced that "the so-called 'headless' relatives have pronominal heads" (Jelinek 1987:137). The bound pronouns on the main verb do not head Navajo RCs in the way lexical items head such clauses in, e.g., the English sentence in (4). The relation an RC has in Navajo to the coreferential pronoun in the main clause is absolutely equivalent to the relation of any NP to the coreferential pronoun on the verb and has nothing in common with the peculiar syntax of relative constructions. Likewise, it does not seem justifiable to say that in Navajo relative constructions the basic NP is "excluded" from the main clause (Willie 1989:433)—it is not quite consistent with the absolutely correct claim by Willie herself that nothing is missing in Navajo sentences with RCs.

The distinction of inserting vs. combining relativization should not be equated with the opposition embedded vs. adjoined relative clause invented by Hale (1976) and elaborated by Lehmann (1984; *eingebetteter* vs. *angeschlossener Relativsatz*). According to Hale and Lehmann, a relative clause is embedded if it forms a single NP with the basic NP. But this parameter does not correlate with the basic parameter of our distinction—that is, the number of basic argument occurrences in a construction. The

English example in (4) above represents an embedded RC; but it is a combined relative construction since it contains two separate copies of the basic argument. On the other hand, some adjoined relative clauses can represent a basically inserting relative construction (see 7 below).

The phenomena covered by the distinction of inserting vs. combining relativization are partially reflected by further distinctions in Lehmann's typology. But this typology is mainly based on the linear order of the constituents of the relative construction (prenominal/postnominal/circumnominal embedded RC, preposed/postposed adjoined RC) which distracts from the most important issue—that is, the question of where and how many times the basic argument is marked. This is the central question with regard to the techniques of argument sharedness coding and, therefore, relativization in general. All other issues, such as mutual location of the basic NP and the dependent verb, presence/absence of subordinators, etc., are secondary to this main question. The very useful RC typology presented by Lehmann suffers from the fact that one-copy and two-copy relative constructions are chaotically scattered across the classes of this typology.

5. Abkhaz data.[8] As in Navajo, the basic word order in Abkhaz is verb-final, though this principle is not absolutely rigid, at least for some speakers; moreover, the order SOV is dominant. The arguments of any clause are cross-referenced on the verb by means of pronominal affixes. Third-person bound pronouns distinguish number and noun class (masculine/feminine/neuter). Unlike Navajo, the marking of arguments on the verb is expressed according to an ergative pattern (see 2b above). In the verb there are four morphological slots where bound pronouns are placed in accordance with the verb's valence; they include the slots of Nominative, Ergative, Dative, and a number of Oblique slots (the latter may also occur outside the verb as part of the postpositions).

In a relative clause a bound pronoun corresponding to the basic argument is obligatorily replaced by a special relative bound pronoun that does not distinguish noun class and number. The relativized Nominative

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[8] The Abkhaz data were collected by me during a linguistic expedition from Moscow University to the village of Xuap (Bzyp dialect), Abkhazia, in the summer of 1987. I express my gratitude to the teachers at the Xuap school who worked as my consultants. Also I am very grateful to my colleague Galija Kalimova (speaker of the Sukhumi variant of the Bzyp dialect) who has given me great help during my postexpedition work on Abkhaz. Since there may be some differences between the Xuap and Sukhumi speakers, I mark the Abkhaz examples not checked with both groups of informants with X and S, respectively. The Abkhaz phonemic transcription used here was elaborated by S. V. Kodzasov in 1987 for the purposes of fieldwork (cf. the morphophonemic transcriptions of Hewitt 1979a and Spruit 1986). Abkhaz glosses are somewhat more detailed than those given for Navajo since, first, Abkhaz verb morphology is less complicated and, second, there is more relevant in it for the purposes of the present discussion.

triggers the relative pronoun *j*-, while all other roles, when relativized, trigger the pronoun *z*-. The rest of the morphological structure of the verb remains intact. (Note that this distinction between Navajo and Abkhaz— retention of personal pronouns vs. substitution of relative pronouns—is no deeper than a similar distinction between, say, Indo-European languages that use relative pronouns in the RCs and Semitic languages that use common third-person pronouns.)

As a rule, in Abkhaz relative constructions the main verb occupies the final position (though there are peripheral examples with right-dislocated RCs). The group of dependent verb with its arguments other than the basic argument is always linearly adjacent to the basic NP, which may follow, or precede, or break it.

The dependent verb accepts the form of one of the participles, all of which have the corresponding finite forms. (The Abkhaz pattern of dependent verb shaping is thus inverse to that of Navajo: in Navajo a relativizing, or nominalizing, enclitic is added to the finite verb; in Abkhaz, vice versa, a participial, or nominal, form is original, and in the finite clauses a special suffix is added to it.) Now consider an example:

(16*a*)   *ačy'k'un*   *aзǧab*   *d-i-pq'e-Ø-jt'*
    boy$_i$ girl$_j$ 3Sg.h/NOM$_j$-3Sg.m/ERG$_i$-beat-AOR-FIN

    'The boy beat the girl'.

(16*b*)   *ačy'k'un*   *d-ce-Ø-jt'*
    boy$_i$ 3Sg.h/NOM$_i$-go-AOR-FIN

    'The boy went away'.

(16*c*)   *aзǧab*   *d-zə-pq'a-z*   *ačy'k'un*
    girl$_j$ 3Sg.h/NOM$_j$-REL/ERG$_i$-beat-PAST boy$_i$

    d-ce-Ø-jt'
    3Sg.h/NOM$_i$-go-AOR-FIN

    'The boy who beat the girl went away'.

(16*d*)   *ačy'k'un*   *aзǧab*   *dzəpq'az dcejt'*
    Idem.

The crucial question of the interpretation of Abkhaz relative construction is the membership of the basic NP *ačy'k'un* in sentences like (16*c*) and (16*d*) in either the main or relative clause. The standard opinion formulated by Hewitt (1979*a*; 1979*b*; 1987)[9] and borrowed by other authors is

[9] Note that Hewitt (1987) discusses not only the type of sentences exemplified by (16) but also peripheral relative constructions, which he treats as internal or headless (1987:205–7). I have not encountered spontaneous usages of that construction.

that the basic NP belongs to the main clause and in the relative clause the coreferential NP has undergone deletion. The only argument that Hewitt (implicitly) presents for this decision is that the linear position of the basic NP with respect to the dependent verb is usually different from that in the corresponding simple sentence (compare 16a to 16c): "the head-noun . . . normally . . . follows the relative expression . . . although it may (admittedly more rarely) also precede the relative expression" (Hewitt 1987:205). This statement calls for several comments.

First, strictly speaking, it neither refutes nor confirms the externally headed nature of Abkhaz relative construction. It may be simply a peculiarity of word order in the relative clauses in comparison to the simple sentences. By the way, this peculiarity has a very likely explanation. From a relative clause with the standard word order, i.e., with the basic NP preceding the dependent verb, the referential identity of the basic argument can be determined only with difficulty (while its role is clear due to the relative pronominal affix on the verb). That is why it is natural that the basic NP be dislocated to a position after the dependent verb, thus producing a deviation from the usual word order. In any case, it should be emphasized that word order is nothing more than a surface coding device, just like morphological markers of, say, verb nominalization.[10]

Second, according to my data, preposing the basic NP to the dependent verb with its associates is not so rare as Hewitt indicates; my Bzyp consultants (see n. 8) constructed two types of structures with approximately equal ease. However, my Sukhumi consultant sometimes had difficulties placing the basic NP in other than the postposed position—especially when the basic NP was animate—but examples of preposing are still numerous.

Anyway, preposing the basic NP to the relative group can be treated as a sort of topicalization. But there are more important examples where the basic argument playing the role of patient in the RC, and thus having originally the second linear position, retains this position in the relative construction as well:

(17) (X) *ačy'k'un*   *ala*   *i-i-pq'a-z*
       boy$_i$ dog$_j$ REL/NOM$_j$-3Sg.m/ERG$_i$-beat-PAST

       i-j$_o$-nə   *i-ce-∅-jt'*
       3n/NOM$_j$-run-GER   3n/NOM$_j$-AOR-FIN

'The dog that the boy beat ran away'.

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[10] The parallel functioning of word order and morphological marking is well known in the domain of semantic role coding: roles can be coded by nominal or verbal case markers, as well as by word order. Similar is the complementarity of these two coding devices in other domains of grammar. Note that the Abkhaz phenomenon indicated by Hewitt is absolutely equivalent to the English counterpart: *the boy sleeps* vs. *the sleeping boy*.

(18) (S) *s-ab*   *aj$_o$nϑ*   *i-i-rgϑla-z*
   my-father$_i$ house$_j$ REL/NOM$_j$-3Sg.m/ERG$_i$-build-PAST

   ∅-aajg$_o$ara   *s-gϑlo-w-p'*
   3n/OBL$_j$-near   1Sg/NOM-stand-PRES-FIN

   'I stand near the house built by my father'.

(In 18 the main clause copy of the basic argument [i.e., the bound pronoun] is found not in the verb but in the postposition; cf. 24 below.) Of course, in sentences like (17) or (18) more standard word orders are possible:

(17') *ačy'k'un iipq'az ala ij$_o$nϑ icejt'*

(18') *sab iirgϑlaz aj$_o$nϑ aajg$_o$ara sgϑlowp'*

An example parallel to (17) and (18) is given by Hewitt (1987:208):

(19) *ajša-č'ϑ*   *ačyapčəxa-k$_o$a*   *i-z-ba-z*
   table-on   bread crumb-Pl$_i$ REL/NOM$_i$-1Sg/ERG-see-PAST

   ∅-aj-zϑ-z-ge-∅-jt'
   3n/NOM$_i$-REC-for-1Sg/ERG-take-AOR-FIN

   'I gathered all the bread crumbs I saw on the table'.

In addition to the "relativized patient," another test carried out with my Sukhumi informant led to the same result: the basic NP belongs to the RC. This test is based on the temporal concordance between the modifier *jacϑ* 'yesterday' and the tense of the main or dependent verb. One of the following simple sentences makes no sense due to the lack of temporal concordance.

(20) (S) *jacϑ*   *apH$_o$$\vartheta$s*   *d-čy$\vartheta$mazaj$_o$$\vartheta$-n*
   yesterday   woman$_i$ 3Sg.h/NOM$_i$-sick-PAST:FIN

   'Yesterday the woman was sick'.

(21) (S) **jacϑ*   *apH$_o$$\vartheta$s*   *d-čy$\vartheta$mazaj$_o$-u-p'*
   yesterday   woman$_i$ 3Sg.h/NOM$_i$-sick-PRES-FIN

Now consider the following relative constructions:

(22a) (S) *u-z-čažo*   *apH$_o$$\vartheta$s*   *jac$\vartheta$*
   2Sg.m/NOM-REL/DAT$_i$-speak:PRES   woman$_i$ yesterday

   d-čyϑmazaj$_o$$\vartheta$-n
   3Sg.h/NOM$_i$-sick-PAST:FIN

   'The woman you are talking to was sick yesterday'.

(22b)   **uzčažo jacϑ apH$_o$$\vartheta$s dčy$\vartheta$mazaj$_o$$\vartheta$n*

(23a) (S) *jacϑ*   *u-z-čaža-z*   *apH$_o$$\vartheta$s*
   yesterday   2Sg.m/NOM-REL/DAT$_i$-speak-PAST   woman$_i$

d-čyəmazaj$_o$-u-p'
3Sg.h/NOM$_i$-sick-PRES-FIN

'The woman you talked to yesterday is sick'.

(23b) *uzčažaz jacə apH$_o$əs dčyəmazaj$_o$up'*
Idem.

The unacceptability of (22b) clearly demonstrates that the basic NP is not separated from the dependent verb by a clause boundary; on the contrary, they form a single clause that cannot be broken by a modifier semantically fitting a different clause. At the same time, the acceptability of sentence (23b) (though it is a much less favored variant than 23a) proves that placing a temporal modifier between a dependent verb and a basic NP is not totally prohibited.

Still more convincing is the following group of examples.

(24) (S) *jacə*   *aus*
          yesterday business$_i$

u-z-la-čaža-z
2Sg.m/NOM-REL/OBL$_i$-with-speak-PAST

i-las-u-p'
3n/NOM$_i$-easy-PRES-FIN

'The business you spoke of yesterday is easy'.

(25a) (S) *aus*   *u-z-la-čažo*
           business$_i$ 2Sg.m/NOM-REL/OBL$_i$-with-speak:PRES

jacə   *i-lasə-n*
yesterday 3n/NOM$_i$-easy-PAST:FIN

'The business you speak of was easy yesterday'.

(25b) **uzlačažo jacə aus ilasən*

The basic NP can be encircled by the constituents of the relative clause—dependent verb and the concordant temporal modifier, as in (24), and cannot be encircled by the components of the main clause—see (25b).

Now we have arrived at the conclusion that basic NPs in Abkhaz belong to relative clauses. In other words, the relevant relativization strategy is again the inserting strategy. For the reasons already stated in the case of Navajo, it is irrational to reconstruct a head NP that further undergoes deletion.[11]

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[11] In Adyghe, a language close to Abkhaz but possessing nominal cases, the processes of relativization are very similar (see Hewitt 1979c). The inserting strategy is the prevailing one. In addition, the case of the main clause argument represented by the RC is marked on the rightmost constituent of the RC—whether it is the basic NP or the dependent verb. This

The following examples further illustrate the proposed treatment of Abkhaz relativization.

(26) (X) *apH₀ᵊs   ari   ajₒnə*
        [woman₁ this house₋ⱼ

  ∅-z-z-sə-rgəla-z
  3n/NOM₋ⱼ-REL/OBL₋ᵢ-for-1Sg/ERG-build-PAST]₋ᵢ

  də-ps-∅-it'
  3Sg.h/NOM₋ᵢ-die-AOR-FIN

'The woman I built this house for died'.

(27) (S) *akₒa   i-nxo   s-jₒəza*
        [Sukhumi   REL/NOM₋ᵢ-live:PRES my-friend₋ᵢ]₋ᵢ

  i-zə   ajₒnə   ∅-sə-rgəlo-jt'
  3Sg.m/OBL₋ᵢ-for house₋ⱼ 3n/NOM₋ⱼ-1Sg/ERG-build:PRES-FIN

'I am building a house for a friend of mine who lives in Sukhumi'.

(27) (cf. also 18 above) demonstrates that the relative clause, like any NP, can be linked to the (main) verb by means of a postposition (cf. 12, a similar Navajo example).

Relative clauses are quite typical for Abkhaz discourse. Here is an example from a published folktale (checked and adapted with the help of my Xuap and Sukhumi consultants) showing the great density of relativization (the referential index ₁ corresponds to the protagonist of the discourse):

(28) *auxa   i-sas-ča*
        evening   [[3Sg.m/POSS₋ᵢ-guest-Pl₋ⱼ

  i-d-i-rẑə-z   *ajₒə*
  REL/NOM₋ₖ-3Pl/DAT₋ⱼ-3Sg.m/ERG₋ᵢ-give:drink-PAST wine₋ₖ]₋ₖ

  ∅-zə-m-i-xə-z
  3n/NOM₋ₖ-REL/OBL₋₁-from-3Sg.m/ERG₋ᵢ-take-PAST]₋₁

  i-č'ə   *d-nej-n*
  3Sg.m/OBL₋₁-to 3Sg.h/NOM₋ᵢ-arrive-PAST:FIN

  d-i-azc'aa-∅-jt':   "*wara   ara   ajₒə*
  3Sg.h/NOM₋ᵢ-3Sg.m/DAT₋₁-ask-AOR-FIN [you₋₁ here   wine₋ₖ

  i-s-u-ta-z
  REL/NOM₋ₖ-1Sg/DAT₋ᵢ-2Sg.m/ERG₋₁-give-PAST]₋ₖ

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is another proof of the fact that main clause case marking on the basic NP does not entail that it belong to the main clause. It is a language-specific tactic—on what constituent of the inserted RC to mark the role of this RC as an argument of the main clause.

$\emptyset$-z-ejpšra-z?" $H_o a.$
3n/NOM$_k$-REL/NOM-resemble-PAST REP

"s-ab-i   s-an-i   mžac'lak'
1Sg/POSS$_1$-father-and 1Sg/POSS$_1$-mother-and mulberry$_m$

i-rə-ma-n,   wi
3n/NOM$_m$-3Pl/ERG-own-PAST:FIN [[[[it$_m$

j-a-k$_o$ə-z   aʒax$_o$a
REL/NOM$_n$-3n/DAT$_m$-climb-PAST vine$_n$]$_n$

i-$\emptyset$-č'a-la-z   ažy
REL/NOM$_p$-3n/DAT$_n$-on-fruit-PAST grapes$_p$]$_p$

j-alc'ə-z   aj$_o$ə   bziaxo-n
REL/NOM$_r$-come:out-PAST wine$_r$]$_r$ become:good-PAST:FIN]$_s$

a-zə   i-u-s-te-$\emptyset$-jt'."
3n/OBL$_s$-for 3n/NOM$_k$-2Sg.m/DAT$_i$-1Sg/ERG$_l$-give-AOR-FIN

'In the evening he came to the one from whom he had taken the wine he gave to his guests to drink, and asked: "What was the wine you gave me here?"—"My parents had a mulberry tree, the wine that came out of the grapes growing on the vine that was on that tree was good usually—that's why I gave it to you"'.

Note that in one case the basic NP aj$_o$ə 'wine' is encircled by other material in the relative clause. The outermost brackets in the last sentence embrace the clause that is coreferential to the pronominal affix of the purpose postposition; this is a way to construct purpose/cause constructions in Abkhaz that are very similar to relative constructions.

6. Polysynthesis and the inserting strategy of relativization.
Thus far we have inspected the data of two polysynthetic languages that, regardless of their serious grammatical differences, display a striking resemblance in the strategy of relative construction formation. Both Navajo and Abkhaz use the inserting strategy as a primary relativization device.

Apparently the inserting strategy is favored by the polysynthetic language type. How can this fact be explained? Nichols (1984) has argued that "headless" relatives are widely spread across polysynthetic, or head-marking, languages due to the principle of cross-categorial harmony: the head-marked deletion of the basic argument parallels the similar patterns in other points of grammar. However, as we have seen, there is no deletion at all, and another explanation is required.

Let us turn to the analogues of the inserting strategy in nonpolysynthetic languages. The first clear parallel is adjective phrases in many languages, e.g., English or Russian. Consider a sentence like:

(29) *The tall boy fell down.*

Formal treatments are conceivable that recover the deleted noun *boy* as an argument of either the adjective predicate or the main verb (cf. Babby 1973 for Russian):

(29′) [*The tall* ∅] *boy fell down.*

(29″) [*The tall boy*] ∅ *fell down.*

However, the most cognitively plausible analysis of a sentence like (29) is as follows. The proposition:

(30) *The boy is tall*

exists in the consciousness or memory of the speaker before planning (29). This proposition is nominalized, according to the rules of English grammar, into an NP like:

(30′) *the tall boy*

that serves, as a whole, as an argument of the external verb.

Similar is the status of participial attributes. In English many participial groups can be ascribed the same cognitive history as (30′), that is, they represent the inserting strategy of relativization:

(31) [*The crying boy*] *is sick.*
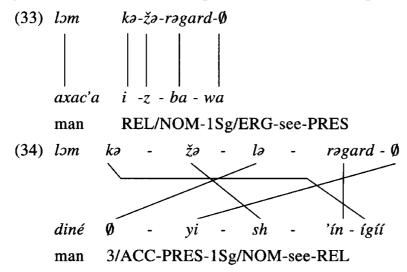
(32) [*The bitten boy*] *ran away.*

The nouns heading English participial clauses are traced back to the subjects of underlying finite propositions, either active, as in (31), or passive, as in (32):

(31′) *The boy cries.*

(32′) *The boy was bitten.*

Here we have reached the main distinction between English participial relativization and Navajo or Abkhaz relativization. While the former is oriented only toward the syntactic subject of the propositions underlying relative clauses, the latter has no role restrictions. The English verb *beat* can generate two participles—subjective (agentive) participle *beating* and objective (patientive) participle *beaten*; there is no analogous participle corresponding to a third argument that can be added to the verb—say the instrument. On the contrary, Abkhaz past participle *=pq'az* derived from the verb meaning 'beat', with the appropriate personal and relative bound pronouns (and an instrumental preverb), can mean 'the one who beats', 'the one who was beaten', 'the one by which somebody was beaten', and so forth. In languages like English that mark on the verb only the features of the subject (inheriting this trait from old Indo-European languages)

and are subject-centered in general, the inserting strategy is thus restricted only to subjective basic arguments. Polysynthetic languages have no such restrictions since all arguments are marked on the verb. That is why the inserting strategy is so favored in this language type.

It is interesting to remark that such a familiar language as French, which nowadays, at least in its spoken version, has approached the polysynthetic type (see Lambrecht 1981; 1987), demonstrates a strategy of relativization that strikingly resembles that of Navajo or Abkhaz. Two variants of relative clauses are reported for spoken French—for example, *l'homme que je regarde* (the older variant) and *l'homme que je le regarde* (the innovation) 'the man whom I look at' (Gadet and Mazière 1987). While the first variant is isomorphic to the Abkhaz structure, the second is isomorphic to the Navajo one (French verbal complexes are cited in the phonemic form):

(33)   *lɔm*   *kə-žə-rəgard-∅*

        axac'a   *i -z - ba - wa*

        man   REL/NOM-1Sg/ERG-see-PRES

(34)   *lɔm*   *kə* - *žə* - *lə* - *rəgard - ∅*

        diné   *∅* - *yi* - *sh* - *'ín - ígíí*

        man   3/ACC-PRES-1Sg/NOM-see-REL

Nichols (1984:537) has observed that the "headless" strategy of relativization (here reinterpreted as inserting strategy) is not typical of dependent-marking languages. This idea has been repeated in a reinforced form by Jelinek (1987:137): "Languages with lexical arguments require relatives to have lexical heads." It seems more cautious to reformulate this generalization in a reversed way, specifying only the head-marking, pronominal argument languages' tendency to display the inserting strategy: the degree of a language's inclination for the inserting strategy of relativization depends on the degree to which the verb's arguments are marked on the verb; the more polysynthetic a language is, the more inherent resources it has to exploit the inserting strategy.

As for the nonpolysynthetic languages, the instances of inserting relativization are actually not too rare in them. Note an example from Japanese—a maximally dependent-marking language (Kuroda 1976; cited from Lehmann 1984:119):

(35) *Taroo-wa*　*ringo-ga*　*sara-no*　*ue-ni*
　　Taro-TOP　[apple-NOM　plate-GEN　on-LOC

　　atta-no-o　　　　　*tot-te . . .*
　　was-SBRD]-ACC　take-GER

'Taro took the apple that lay on the plate and . . .'.

Among the abundant examples in Lehmann (see 1984:49–72, 109–44) many that can be characterized as inserting relativization are taken from nonpolysynthetic languages; cf. also the discussion in the next section concerning the isolating language Bamana. It turns out that languages can use the inserting strategy regardless of the lack of corresponding inherent resources. The implicative dependency between the overall type (polysynthesis) and a particular trait (inserting relativization) does not remain true when straightforwardly inversed (no polysynthesis, hence no inserting).

7. Conclusion. In a number of typological studies the Navajo relative construction has been drawn as the most typical representative of headless or, rather, headed-by-zero relativization. It turns out, however, that in languages like Navajo there is no ground to speak of a head at all, since there is only one full copy of the basic argument.[12] A question arises, then, whether the type of relative construction with the zero head (type *IIb*, see 2 above) exists at all. It is not unlikely that all examples of zero-headed relativization cited by the authors are a result of misinterpretation of linguistic evidence. It is most probable to find this strategy in a language that widely uses referential lexical zeroes. But I am not aware of any cases where the necessity of postulating a deleted head has been proved. (Of course, this hypothesis should be verified in any single language suspected to have genuine zero-headed relativization.)

Though we do not have direct evidence shedding light on the problem of the reality of zero-headed relativization, we can use indirect data. Functionally, there is not much difference between the zero anaphora and pronominal anaphora. Do there actually exist RCs headed by lexical pronouns (type *IIa* in the scheme in 2)? The reality of this second relativization strategy with the reduced head is also arguable. This type is usually illustrated solely by Bamana structures like (6). As M. B. Bergelson (p.c.) has informed me (see also Bergelson 1985) such constructions result from left-dislocation of the relative clause from an intraclausal position into a

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[12] While this article was being typeset, I became aware of one more highly relevant paper: Rushforth and Gorbet (1989), which makes essentially the same claims about the relativization strategies in another Athapaskan language, Bearlake (Canada). It seems to me that their paper simply reinforces the positions outlined here.

position of Topic. Hence the third-person pronoun is not a pronominalization of the head NP but rather an intraclausal trace of the dislocated NP. It means that (6)-type constructions are secondary structures derived from inserting relative constructions. The Old Russian construction in (36) (Zaliznjak and Padučeva 1975:75) can be treated in the same manner:

(36) *a   kotoryxъ   tree   dvorcъ   vъprosili   vaša*
     CNJ   REL:ACC.Pl   three   yards   requested   your

bratьja   posli,   a   těxъ   sja   esmy
compatriots   ambassadors CNJ   those:ACC   REFL   are:1Pl

otstupili   po   svoei   voli
given:up   of   own   will

'We have given up three yards requested by your ambassadors of our own free will'.

Note that all eighteen examples of type *IIa* from old Indo-European languages cited by Zaliznjak and Padučeva (1975:73–76) conform to the left-dislocation treatment. (Cf., however, a Warlpiri example cited by Hale 1976:91.)

If these speculations are correct, we may conclude that there are only two global strategies of relative construction formation. In the first case an argument of the main verb is represented by a complex NP or relative clause; this is the inserting strategy. In the second case two clauses are combined and the structure with two copies of the same NP emerges; this is the combining strategy. In the latter case probably only the relative clause copy of the basic argument can be reduced to a pronoun or zero. That would be no surprise; it would harmonize with one of the iconicity principles governing human language: the more subsidiary, minor, and dependent linguistic material is, the more likely it is to be reduced.

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