

## TOWARD A DIACHRONIC TYPOLOGY OF RELATIVE CLAUSES

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### 1. Introduction

#### 1.1. Background

In a companion paper (Givón 2006) I suggested that the diachronic rise of complex verb phrases, and eventually clause-union, proceeds through the following general steps, in order:

##### (1) General diachronic trend of complex-VP formation:

- (a) *Parataxis*: The two clauses are packed under separate intonation contours.
- (b) *Syntaxis*: The two clauses condensed under a single intonation contours.
- (c) *Lexis*: The two verbs co-lexicalize into a single word. [FN 1]

I further suggested that this general trend overrides the considerable typological variation found in the diachrony of complex VPs, so that both major typological pathways in (2) below still conform to the general trend suggested in (1) above

##### (2) Two main pathways to clause union:

- (a) the clause-chaining pathway
- (b) the nominalized V-COMP pathway

In this paper I hope to redeem a promissory note I inserted in the early work--that the diachronic rise of relative clauses follows the same the general trend (1), regardless of structural type.

In an earlier foray into the typology of REL-clauses (Givón 1990, 2001), I did not pay enough attention to the more general **syntactic** trends in the genesis of REL-clause. While outlining an essentially diachronically-oriented typology of REL-clauses, (7-8 main types), I focused on the source--and grammaticalization pathway-- of the morphemes used to indicate ('recover') the cars-role of the missing co-referent argument inside the REL-clause (see also Heine and Kouteva 2007). This yielded a fairly coherent functional-synchronic typology, but in retrospect it seems that I could have posited higher typological distinction that would have divided the 7-8 types into fewer mega-types. In this paper I would like to investigate the feasibility of a more comprehensive typological approach to the diachrony of REL-clauses.

## 1.2. Reconstruction methods

A note is perhaps in order concerning the methodology most commonly used in diachronic reconstruction of syntax. There are three useful methods for reconstructing historical syntactic development:

- (i) The study of **historical records** of contiguous developmental stages;
- (iii) The study of **synchronic variation** of co-existing related constructions;
- (iii) Doing **internal reconstruction** by studying surviving 'relic' clues.

Of these, method (i) is of course reliable, but the historical records often skip crucial intermediate stages & variants. They are, typically, edited written records, whereas diachronic change takes place, overwhelmingly, in the spoken register. More to the point, in many languages such records do not exist. Method (ii) is the sweetest for elucidating the detailed mechanisms of change. And it is sweeter yet when combined with (i). But you've got to catch the language at the right stage, and this is largely a game of chance. Method (iii) is bold, speculative and theory dependent (Givón 2000). It should be practiced with care, but should not be shunned, for often it is the only one available. In this paper I have attempted to avail myself of all three, relying more heavily--of necessity--on a patchwork of (ii) and (iii).

## 2. From clause-chaining ('conjunction') to embedding

In earlier discussion, I labeled this pathway, found in serial-verb languages all over the world, the "non-embedding strategy". This was clearly an imprecise characterization. More accurately, the early paratactic stage of this pathway involves two (or more) clause in a chain, each under its own intonation contour. But in almost all the serial-verb languages that employ this strategy, one already finds the co-existing syntactic ('condensed', 'embedded') variant, where the REL-clause falls under the same intonation contour as the main clause. And in many cases no re-ordering or restructuring is done, beyond the change of intonation.

I will illustrate this diachronic route to embedded REL-clauses first with examples from Bambara (Mendeic; Niger-Congo). The data is originally due to Charles Bird (1968) and Ibrahima Coulibaly (i.p.c.). Consider first the paratactic, unembedded variants, where the demonstrative *min* 'that' modifies the co-referent noun inside the would-be REL-clause (3a-e). One could consider *min* now the REL-clause maker, but it is still used in the language as a demonstrative modifier or anaphoric/cataphoric pronoun, and its position in the clause is still compatible with the original use:

### (3) a. Unembedded, pre-posed (SUBJ-rel, OBJ-main):

cɛ **min** ye    muru san,    n ye    o    ye.  
 man **REL** PAST knife buy    I    PAST **him** see  
 'The man *who* bought the knife, I saw him'.  
 (Hist.: 'That man bought the knife, I saw him'.)

**b. Unembedded, post-posed (SUBJ-rel, OBJ-main):**

n ye    o    ye,    cɛ    min    ye    muru san.  
 I PAST **him** see    man **REL** PAST knife    buy  
 'I saw him, the man *who* bought the knife'.  
 (Hist.: 'I saw him, *that* man bought the knife'.)

**c. Unembedded, pre-posed (OBJ-rel, OBJ-main):**

n ye    so    min    ye,    cɛ    be    o    dyθ.  
 I PAST house **REL** see    man PROG **it** build  
 'The house *that* I saw, the man is building it'.  
 (Hist.: 'I saw that house, the man is building it'.)

**d. Unembedded, post-posed (OBJ-rel, OBJ-main):**

cɛ    be    o    dyθ,    n ye    so    min    ye.  
 man PROG **it** build    I PAST house **REL** see  
 'The man is building it, the house *that* I saw'.  
 (Hist.: 'The man is building it, I saw *that* house'.)

**e. Unembedded, extraposed:**

cɛ    ye    muru san,    n ye    min    ye.  
 man PAST knife buy    I PAST **REL** see  
 'The man bought the knife, *that one* I saw'.  
 ('Hist.: 'The man bought the knife, I saw that one (the knife)').)

No reordering of elements occurs in such unembedded 'REL'-clauses. Both the anaphoric pronoun *o* ('s/he', 'it') and the demonstrative *min* ('that') are used the way they are used in normal clause-chaining discourse. But Bambara can place both clauses under a joint intonation contour, in a configuration that is clearly an early form of embedding. This relativization strategy is much less common (Bird 1968), and it involves placing the entire 'relative' clause at the location inside the main clause where the head-noun should have been (Bird 1968):

(4) **a. Simple (main) clause:**

n ye    cɛ    ye.  
 I PAST man see  
 'I saw the man'.

**b. With REL-clause:**

n ye    cɛ    min    [Ø] ye    muru san    ye.  
 I PAST man **REL**    PAST knife    buy see  
 'I saw the man *who* bought the knife'.  
 (Hist.: 'I [,] *that* man bought the knife [,] saw'.)

Finally, in some configurations, and with the anaphoric pronoun omitted under the merged intonation contour, the old chained structure looks more and more like a truly embedded one. Thus, the transition from (5b) to (5c) below involves no re-ordering, just merging of the intonation contours and dropping the anaphoric (Bird 1968):

(5) a. **Simple (main) clause:**

cɛ ye muru san.  
man PAST knife buy  
'The man bought the knife'.

b. **Chained (paratactic) configuration::**

n ye cɛ **min** ye, o ye muru san.  
I PAST man **REL** see **he** PAST knife buy  
'The man *that* I saw, he bought the knife'.  
(Hist.: 'I saw *that* man, he bought the knife'.)

b. **With REL-clause:**

n ye cɛ **min** ye [Ø] ye muru san.  
I PAST man **REL** see PAST knife buy  
'The man *that* I saw bought the knife'.  
(Hist.: 'I saw that man [,] [he] bought the knife'.)

A similar pattern of relativization is found in Supyire (Senufu; Niger-Congo), another clause-chaining, verb-serializing language (Carlson 1994). An erstwhile demonstrative pronoun has become the generalized REL-clause suffix, while a full-size demonstrative pronoun is often used inside the REL-clause, as in Bambara. Thus, (with tone-marking not shown):

(6) a. **SUBJ REL-clause:**

Naŋi **ŋge-mu** u a pa-ge, mii a ɲye  
man **DEM-REL** he PERF come **REL** I PERF see  
'The man who came, I saw (him)'

b. **OBJ REL-clause:**

Naŋi **ŋge-mu** mii a ɲye-ge, u a pa  
man **DEM-REL** I PERF see-REL he PERF come  
'The man I saw, he came'

One REL-clause type, which Carlson (1994; pp. 513-514) calls 'semi-embedded', represents the beginning of a syntactic--embedded--pattern:

- (7) a. Ka pi i bage e u a titige-**ke**,  
and they NARR house.DEF in he PERF descend-**REL**  
'Then they the house in which he had descended,
- b. ka pi i **kuru** cyee mii na  
and they NARR **that** show me to  
then they showed *that-one* to me'.

In (7a), a chunk of the main clause ('Then they...') is given before the pre-posed REL-clause. That chunk is then recapitulated in the full main clause in (7b), where the co-referent noun is marked with an emphatic resumptive pronoun.

Another language with a remarkably similar and well-known clause-chaining source of REL-clauses is Hittite (Justus 1973, 1976). The examples cited below are taken from Robert (2006). In Old Hittite, both paratactic clauses are marked by a conjunction:

- (8) a. **nu** **ku-it** LUGAL-uš teezi, **nu** apaa-at karap-zi  
**CONJ REL-ACC** king-NOM say-3s **CONJ** that-ACC luzzi do-3s  
'Whatever the king says, that the luzzi shall perform'.
- b. ku-u-ša-ta-**ma** **ku-it** píddaa-i, **na**-aš-kan šameen-zi  
bride-price-PTC-**CONJ REL-ACC** give-3s **CONJ**-he-PTC forfeit-3s  
'What(ever) bride-price he gave, he forfeits (it)'.

The conjunction may be dropped from the first clause, yielding a more emphatic focus:

- (9) **ku-iš** pa-apreez-zi, **nu** apaa-aš-pat gín ku.babbar paa-i  
**REL-NOM** be-impure-3s **CONJ** that-one-NOM-PRT shekel/ACC silver give-3s  
'Whoever is impure, *that very man* shall give (three?) silver shekels'.

And the second conjunctions may be dropped too:

- (10) pa-apreez-zi **ku-iš**, 3 gín ku.babbar paa-i  
be-impure-3s **REL-NOM** three shekel silver pay-3s  
'The one who is impure, (he) pay three silver shekels'.

The case-marked *ku-* inside the REL clause is quite analogous to the Bambara *min* and was probably a demonstrative determiner, used naturally as a demonstrative pronoun (see German *dada* further below).

One pre-posed paratactic REL-clause may be followed by more than one main ('resumptive') clause, in a typical clause-chaining pattern (Robert 2006):

- (11) a. lu-meš Ubaru, lu-aš **ku-iš** lugal-wa-aš pé-ra-an eeš-zi,  
 men-NOM Ubaru man-NOM **REL**-NOM king-GEN in-front be-3s  
 'Men of Ubaru, whatever man *that* is in front of the king,  
 b. **ne** šaraa tieē-enzi,  
**CONJ** upward step-3p  
 they step forward,  
 c. **nu** aappa tie-nzi,  
**CONJ** backward step-3p  
 then (they) step backward,  
 d. **ne** araanda.  
**CONJ** stand.3p  
 and then (they) stand'.

To drive home how typical a clause-chaining pattern this is, consider the following example from Chuave (Gorokan, East Highlands, Papua-New Guinea), a clause-chaining serial-verb language par excellence. In this language, all presuppositional clauses, including restrictive REL-clauses, are nominalized, and could only come at the chain-initial position (Thurman 1978):

- (12) a. gan moi-n-**g**-u-a,  
 child be-he-**NOM**-him-PERF  
 'The child who is here,  
 b. Gomia tei awi d-i.  
 Gomia there send leave-IMPF  
 send (him) away to Gomia'.

What Robert (2006) argues about the presence vs. absence of the conjunction in Hittite, and its connection to the diachronic evolution of Hittite REL-clauses, is worth citing:

"...The distinction between sentences with both [conjunctions] and sentences with neither points to a structural distinction between adjoined [paratactic] and embedded [syntactic] relative clauses. After Old Hittite, it is no longer necessary for the resumptive [main] clause to include either both resumption [explicit anaphoric pronouns] and conjunction..." (2006, p. 17).

Robert notes that there is a strong association between the presence of a conjunction in the main ('resumptive') clause and the presence of an explicit anaphoric ('resumptive') pronoun there. While we have no documented indication of the intonation contours of the clauses, [FN 2] it is reasonable to suggest that what Robert (2006) describes is a drift from an old *paratactic clause-chaining* pattern, with the main ('resumptive') clause marked by both a conjunction and an anaphoric ('resumptive') pronoun, to a later *syntactic-embedded* pattern, where both the conjunction and pronoun are dispensed with. And I think it is a safe bet that the intonation contours merged in the process, this being, universally, the earliest mark of embedding.

One may as well note, lastly, that the clause-chaining source for REL-clauses is universal, and can be found--with a discerning eye for informal oral discourse--in just about any spoken language. As an example, consider the following exchange between a mother and her 2 yr. 9 months-old daughter. At this early age, the child produces not a single bona-fide adult-like REL-clauses (Diessel 2005), and her mother produces virtually none either during her conversations with her daughter. But the paratactic precursor is already there, often spread across two-person turns, as in (Nina, CHILDES data-base; see Givón 2008):

- (13) MOT: They both are wearing earrings.  
           And what else is this dolly wearing?  
       NIN: A blouse like **that one**.  
           Louise gave me **that one**.                   (p. 42, Nina-III transcripts)

The use of the demonstrative pronoun ('that one') by Nina is reminiscent of paratactic REL-clauses in Bambara and Hittite. The communicative goal, given clearly in the context and negotiated over successive-adult-child turns, is that of *identifying a referent by citing an event, here past, in which it was a participant*, the standard communicative motivation for using restrictive REL-clauses. But the construction is spread *paratactically* over two adjacent turns and three intonational clauses. In tightly-edited written English, a single person would have restored the ellipsis and merge the mother's and daughter's contributions into:

- (14) She is wearing a blouse like *the one Louise gave me*.

#### 4. From parenthetical to non-restrictive to embedded REL-clauses

The second clear parataxis-to-syntaxis pathway that yields embedded REL-clause is clearly illustrated in the extant synchronic variation in present-day German. While this construction is rather old,[FN 3] all its intermediate precursor are still preserved as synchronic variants. Its genesis may be thus reconstructed as follows:

- (i) The Y-movement construction, with case-marked stressed demonstrative pronoun, is still extant.
- (ii) It was inserted post-nominally as an 'after-thought', with an intonation break, thus yielding a non-restrictive REL-clause.
- (iii) The intonation contours were then merged and the demonstrative de-stressed, yielding a restrictive REL-clause.

As a schematic illustration, consider (Theo Vennemann, Charlotte Zahn, Christa Toedter and Tania Kouteva, i.p.c.; see also Borgert and Nyhan 1976):

- (15) a. . **Simple clause:**  
       Martin hat **dem**       Mann **das**       Buch gegeben  
       M.       has **the/DAT** man   **the/ACC** book given  
       'Martin gave the book to the man'.

b. **Y-movement clause–NOM:**

**DER** hat das Buch dem Mann gegeben  
**THAT/NOM** has the/ACC book the/DAT man given  
'**THAT one** gave the book to the man'.

c. **Y-movement clause-ACC:**

**DAS** hat Martin dem Mann gegeben  
**THAT/ACC** has Martin the/DAT man given  
'**THAT one** Martin gave to the Man'.

d. **Y-movement-DAT:**

**DEM** hat Martin das Buch gegeben  
**THAT/DAT** has Martin the/ACC book given  
'**To THAT one** Martin gave the book'.

(16) **Non-restrictive (parenthetical) REL-clauses:**

a. **Nominative:**

Ich kenne die Frau, **DIE** hat dem Mann das Buch gegeben.  
I know the woman, **THAT/NOM** has the/DAT man the/ACC book given  
'I know the woman, **the one** who gave the book to the man'.  
(Hist.: 'I know the woman. **THAT one** gave the book to the man').

b. **Accusative:**

Ich kenne das Buch, **DAS** hat Martin dem Mann gegeben.  
I know the book, **THAT/ACC** has Martin the/DAT man given  
'I know the book, **the one that** Martin gave to the man'.  
(Hist.: 'I know the book. **THAT one** Martin gave to the man').

c. **Dative:**

Ich kenne den Mann, **DEM** hat Martin das Buch gegeben.  
I know the/ACC man, **THAT/DAT** has Martin the/ACC book given  
'I know the man, **the one that** Martin gave the book to'.  
(Hist.: 'I know the man. **THAT one** Martin gave the book to').

By removing the intonation break (and thus is spoken language, the conservative comma), de-stressing the demonstrative pronoun, and a minor adjustment to a non-contrastive word-order, the set of non-restrictive REL-clauses turn into restrictive ones. Respectively (I ignore here the fact that in written German a comma must separate even restrictive REL-clauses, no doubt a relic of the non-restrictive pattern):



(17) **Restrictive REL-clauses:**

a. **Nominative:**

Ich kenne die Frau **die** dem Mann das Buch gegeben hat.  
 I know the woman **that/NOM** the/DAT man the/ACC book given has  
 'I know the woman **who** gave the book to the man'.

b. **Accusative:**

Ich kenne das Buch **das** Martin dem Mann gegeben hat.  
 I know the book **that/ACC** Martin the/DAT man given has  
 I know the book **that** Martin gave to the man'.

c. **Dative:**

Ich kenne den Mann **dem** Martin das Buch gegeben hat  
 I know the/ACC man **that/DAT** Martin the/ACC book given has  
 'I know the man **to whom** Martin gave the book'.

Essentially the same pathway is described in other Germanic languages, such as Old Norse and Old English (Heine and Kouteva 2007, ch. 5). In other languages, this pattern in whole or part may be used to augment an existing REL-clause structure. Thus for example, in spoken informal Israeli Hebrew, one finds the following demonstrative-marked headless REL-clauses invading the regular Rel-clause paradigm:

(18) a. **Standard OBJ REL-clause:**

Ha-'ish **she**-pagash-ti 'oto 'etmol...  
 the-man **REL**-met-1s him yesterday  
 'the man I met yesterday...'

b. **Standard headless OBJ REL-clause:**

**zé** **she**-pagash-ti 'oto 'etmol...  
**DEM REL**-met-1s him yesterday  
 'the one I met yesterday...'

c. **Standard non-restrictive OBJ REL-clause:**

ha-'ish, **zé she**-pagash-ti 'oti 'etmol,...  
 the-man **DEM REL**-met-1s him yesterday  
 'the man, the one I met yesterday,...'

d. **Non-standard condensation to restrictive OBJ REL-clause:**

ha-'ish **ze-she**-pagash-ti 'oto 'etmol....  
 the-man **DEM-REL**-met-1s him yesterday  
 'the man I met yesterday...'

As in German, the demonstrative is de-stressed when the non-restrictive (paratactic) REL-clause (18c) is condensed into the restrictive (syntactic) REL-clause (19d). So while the source of the parenthetical clause is different, the condensation pattern--the essence of this pathway--from parenthetical non-restrictive to restrictive--is the same.

The naturalness of selecting the clause-type to be used as the parenthetical (non-restrictive) portion of the paratactic construction is, roughly, that it must *topicalize* the preceding co-referent ('head') noun. The Y-movement used in Germanic languages is certainly such a construction (Givón, 2001, ch. 15). The headless REL-clause of Hebrew carries the same topicalizing function (as do all REL-clauses).

The use of the stressed demonstrative is almost entirely predicted from the conflation of two necessary attribute of such constructions:

(i) The co-referent element has to be *anaphoric*.

(ii) The co-referent element has to be *contrastive/emphatic*.

The stressed demonstrative is rather well suited for this function (Linde 1979), so it is not an accident that it is distributed widely across the typological chasm, in the clause-chaining and verb-serializing Bambara and Hittite, as in the more embedding and nominalizing German and Hebrew. The only languages it is less-likely to be found are zero-anaphora languages like Japanese.

#### 4. Are nominalized REL-clauses a separate diachronic pathway?

In many language families--Turkic, Carribean, Bodic (Tibeto-Burman), No. Uto-Aztecan, Sumerian, to cite only a few--all subordinate clauses are nominalized, at least historically. Such structures may re-acquire finite properties over time (Givón 1994; Watters 1998), but the morphology retains, for a long time, the telltale marks--clear fossil evidence--of the earlier nominalized status. The question now is: Can the process that created such structure to begin with be shown to conform to our parataxis-to-syntax prediction? And does it represent a distinct mega-channel in the genesis of embedded REL-clauses?

I will illustrate how such a pathway can be reconstructed by citing the nominalized REL-clauses of Ute (Numic, No. Uto-Aztecan). Ute marks consistently the case-distinction subject (nominative) vs. non-subject (object, genitive, oblique). The verb in subject REL-clauses is marked with the subject nominalizing suffix *-tʰ*. The verb in object REL-clauses is marked with the non-subject nominalizing suffix *-na*, and the subject then appears in the *genitive* case. In indirect-object REL-clauses, the subordinator *pʰ-* carries the relevant post-position. Thus (Givón 1980):

##### (19) a. Main clause:

mamachi      tʰpʰych-i    tʰka'na-pʰ-vwan    wacʰ-ka  
 woman/SUBJ   rock-OBJ   table-OBJ-on      put-PERF  
 'The woman put the rock on the table'.

b. **Restrictive REL-clause–SUBJ**

mamachi 'u tɕpɕych-i tɕka'na-pɕ-vwan wacɕ-ka-t(ɰ)...  
 woman/SUBJ the rock-OBJ table-OBJ-on put-PERF-NOM  
 'the woman who put the rock on the table...'  
 (Hist.: 'the woman putter of rock on the table...')

c. **Non-restrictive REL-clause: SUBJ:**

mamachi 'u, ('ú) tɕpɕych-i tɕka'na-pɕ-vwan wacɕ-ka-t(ɰ),...  
 woman/SUBJ the (that/SUBJ) rock-OBJ table-OBJ-on put-PERF-NOM  
 'the woman, (that one) who put the rock on the table,...'  
 (Hist.: 'the woman, (that) putter of rock on the table,...')

d. **Restrictive REL-clause:OBJ:**

tɕpɕy-chi 'ur mamachi tɕka'na-pɕ-vwan wacɕ-ka-n(a)...  
 rock/SUBJ the woman-GEN table-OBJ-on put-PERF-NOM  
 'the rock that the woman put on the table...'  
 (Hist.: 'the rock of the woman's putting on the table,...')

e. **Non-restrictive REL-clause: OBJ:**

tɕpɕy-chi 'ur, ('uru) mamachi tɕka'na-pɕ-vwan wacɕ-ka-n(a),...  
 rock/SUBJ the (that/OBJ) woman-GEN table-OBJ-on put-PERF-NOM  
 'the rock, (that one) that the woman put on the table,...'  
 (Hist.: 'the rock, (that) of the woman's putting on the table,...')

f. **Restrictive REL-clause: Indirect OBJ**

tɕka'na-pɰ 'ur pɰ-vwan mamach-i tɕpɕy-ci wacɕ-ka-n(a)...  
 table-SUBJ the REL-on woman-GEN rock-OBJ put-ANT-NOM  
 'the table on which the woman put a rock...'  
 (Hist.: 'the table of the woman's putting the rock on'...')

g. **Non-restrictive REL-clause: Indirect OBJ**

tɕka'na-pɰ 'ur, ('uru) pɰ-vwan mamach-i tɕpɕy-ci wacɕ-ka-n(a),...  
 table-SUBJ the, (that/OBL) REL-on woman-GEN rock-OBJ put-ANT-NOM  
 'the table, (that one) on which the woman put a rock,...'  
 (Hist.: 'the table, (that) of the woman's putting the rock on,...')

Of the two nominalizing markers on the verb, the subject nominalized *-tu* is still used synchronically to mark lexical subject nominalizations. In combination with the old passive/perfect marker *-ka-*, it can also be used to mark some direct-object (technically subject-of-passive) nominalization. Thus (Givón 1980, 1988):

(20) a. **Main clause:**

ta'wachi 'u pə'ə-mi  
 man/SUBJ the write-HAB  
 'The man writes '.

b. **Subject nominalization:**

'ú ta'wachi pə'ə-mi-t(ɯ) 'ura-'ay  
 that/SUBJ man/SUBJ write-HAB-NOM be-PRES  
 'That man is a writer.

c. **Object (subject-of-passive) nominalization:**

'ích-'ara pə'ə-kwa- tɯ 'ura-'ay  
 this/SUBJ-be write-PASS-NOM be-PRES  
 'This is a book'.

The Ute REL-clause data fits our scenario of parataxis-to-syntaxis rather snugly. The non-restrictive REL-clauses still function synchronically as nominalized clauses, as in:

(21) a. **Subject:**

'ú tɛpɛychi tɛka'na-pɛ-vwan wacɛ-ka-t(ɯ) tɛgɛvɛ-n 'ura-'ay  
 that/SUBJ rock/OBJ table-OBJ-on put-PERF-NOM friend-my be-PRES  
 'That one who put the rock on the table is my friend'.  
 (Hist.: 'That [putter-of-the-rock-on-the-table] is my friend'.

b. **Object:**

'uru mamachi tɛka'na-pɛ-vwan wacɛ-ka-n(a) tɛpɛych 'ura'ay  
 that/OBJ woman/GEN table-OBJ-on put-PERF-NOM rock be-PRES  
 'What the woman put on the table is a rock'.  
 (Hist.: 'That [the-woman's-putting-on-the-table] is a rock'.)

c. **Indirect object:**

'uru pɛ-vwan mamachi tɛpɛy-ci wacɛ-ka-n(a),...  
 that/OBL) REL-on woman/GEN rock-OBJ put-ANT-NOM  
 'That (thing) on which the woman put a rock is a table'  
 (Hist.: 'That [the-woman's-putting-the-rock-on] is a table').

Just as in German or Hebrew, all it takes in Ute to move from non-restrictive (paratactic) to restrictive (syntactic/embedded) REL-clause is the merger of intonation contours. We have just subsumed the nominalized REL-clause pattern, at least in principle, under our second parataxis-to-syntaxis diachronic pathway--from non-restrictive to restrictive REL-clause.

In a nominalizing language, the etymological source of the nominalizers may perhaps shed some light on the evolution of nominalized REL-clauses. In general, nominalizers are most commonly derived from *head nouns* in noun compounds. This is, for example, the etymology of the nominalizing suffix in English 'free-*dom*' (Old Gothic *tuom* 'judgement') or 'child-*hood*' (Old Gothic *heituz* 'quality'). In Lhasa Tibetan, for example, four nominalizing suffixes are used in relativization: *-mkhan* is used for actor; *-sa* for the locative (and, by extension, dative-benefactive); *-yag* (the 'default' suffix) for the patient and instrumental (in the non-perfective), and *-pa* for non-actor or patient (in the perfective).

In lexical nominalizations in Tibetan, *-mkhan* (historically 'teacher' or 'expert') is used in many actor derivations, and *-sa* (historically 'earth', 'ground', and by extension 'place') in locative derivations. Thus (Delancey 1988):

(22) a. **Actor/subject derivation:**

s'i'n-**mkhan** 'carpenter'  
wood-expert

b. **Place derivation:**

yod-**sa** 'place of residence'  
live-place

Much like 'free-*dom*' and 'child-*hood*' in English, these noun suffixes ('nominal classifiers') originated as the head nouns in noun compounds. The use of these suffixes in Tibetan relativization can be seen in (Mazoudon 1978; DeLancey 1988):

(23) a. **Actor REL-clause:**

stag gsod-**mkhan** mi...  
tiger kill-**NOM** man  
'the man who killed the tiger...'  
(Hist.: 'the tiger kill-**expert** man...')

b. **Locative REL-clause:**

kho sdod-**sa**-i khan'.pa...  
he/ABS live-**NOM**-GEN house  
'the house where he lives...'  
(Hist.: 'his living-**place** house...')

c. **Instrument REL-clause:**

kho-s stag gsod-**yag**-gi mem.da...  
he-ERG tiger kill-**NOM**-GEN gun  
'the gun with which he killed the tiger...'  
(Hist.: 'his tiger killing-**tool** gun...')

d. **Patient REL-clause:**

kho-s    bsad-**pa**-'i    stag...  
 he-ERG   kill-**NOM**-GEN   tiger  
 'the tiger that he killed...'  
 (hist.: 'his killing-**victim**(?) tiger...')

A very similar 4-way division of lexical nominalizations that are then used in REL-clause formation is described in Yaqui (No. Uto-Aztecan) by Álvarez-González (2007), with the divisions being subject/agent, generalized non-subject, object/patient and locative.

What the Tibetan data above suggest, I think, is that there is no binding correlation between the nominalization case-recoverability strategy and the non-restrictive paratactic pathway to embedded REL-clauses. Tibetan is a rather classical clause-chaining SOV language. What is more, like related languages in the Bodic region, and like many other clause-chaining languages, chain-medial clauses in Tibetan are typically nominalized (i.e. non-finite; Givón 2001, ch. 18). A clause-chaining source of restrictive REL-clauses is thus very likely here. What is more, the pre-nominal position of Tibetan REL-clauses makes the non-restrictive pathway to embedded REL-clauses much less plausible, given that non-restrictive REL-clauses are parenthetical *after-thought* devices that most commonly follow the head noun--regardless of word-order type.

In this connection, I would like to raise some questions about the genesis of Japanese REL-clauses. REL-clauses in Japanese are traditionally characterized, as with many zero-anaphora languages, as a zero-marking strategy, where the missing co-referent argument in the REL-clause is left unmarked, and its case-role is then presumably computed from event/verb-type and what arguments are present or missing. Historically, restrictive REL-clauses in Japanese were marked with a nominalizer on the verb, one that was distinct from the chain-medial 'con-verb' marker. Thus (Shibatani 2007; i.p.c.):

(24) a. **Finite, chain-final:**

mizu    nagar-**u**.  
 water   flow-**FIN**  
 'Water flows'.

b. **Non-finite, chain-medial:**

mizu    nagar-**e**...  
 water   flow-MED  
 'Water flows and...'

## c. Nominalized clause:

mizu-**no**    nagar-**u-ru**  
 water-**GEN**   flow-**FIN-NOM**  
 'the water's flow(ing)'

d. **Old nominalized restrictive REL-clause:**

[nagar-**u-ru**] mizu...  
 flow-FIN-NOM water  
 'water that flows'; 'flowing water'

e. **Modern unmarked restrictive-REL clause:**

[onna-ni tegami-o kaita] otoko-wa Kobe-ni ikimashita.  
 woman-DAT letter-OBJ wrote man-TOP Kobe-LOC went  
 'The man who wrote the letter to the woman went to Kobe'.

But what was the paratactic source, if any, of the restrictive REL-clause in Japanese? Its pre-nominal position precludes a non-restrictive source. And indeed, a parenthetical non-restrictive (REL-) clause may be constructed in Japanese--following the head noun. But Shibatani (i.p.c.) also notes that (24e) above may also be interpreted as non-restrictive, as in (Shibatani, i.p.c.):

(25) **POST-nominal non-restrictive REL-clause:**

(Boku-ga) Taroo-ni atta, tokolo-de (kare-wa) onna-ni tegami-o kaita  
 (I-SUBJ) Taroo-DAT saw [linker] (he-TOP) woman-DAT letter-OBJ sent  
 'I saw Taro, who (by the way) sent a letter to the woman'.

A similar situation, may be seen in Mandarin (Sino-Tibetan; Li and Thompson 1981) and Lahu (Tibeto-Burman; Matisoff 1982). In the former, restrictive REL-clauses are pre-nominal and marked with a nominalizer, while post-nominal clauses of at least two distinct functions are not nominalized. In the latter, both the pre-nominal and post-nominal REL-clauses are historically nominalized. Since the pre-nominal REL-clauses could not come from a non-restrictive source, do they come from another paratactic source? From clause-chaining?

The situation seen in Chuave (and many other New-Guinea Highlands languages; see (12) above) has some bearing on this issue. In this language, REL-clauses, like other subordinate clauses, are nominalized and must appear chain-initial--thus technically pre-posed vis-à-vis both the main clause and the head noun. But they are still paratactic, and make sense only in the context of the clause-chaining system. We will discuss this problem directly below.

## 5. Word-order typology and the diachronic source of REL-clauses

In light of the discussion above, it would be useful to examine briefly the pre-nominal restrictive REL-clauses of Mandarin Chinese and similar languages. In earlier discussion, I have tended to interpret the pre-nominal position of the REL-clause in Mandarin, an otherwise rigid SVO language with characteristic SE Asia clause-chaining and verb serialization, as a relic of earlier SOV syntax of the Tibetan type. Restrictive REL-clauses in Mandarin are marked with the clause-final nominalizer suffix *-de* (Li and Thomson 1981):

(26) a. **Subject nominalization:**

mài qìche **de** dàbàn dòu shì hǎo rén  
 sell car **NOM** majority all be good person  
 'Car sellers are mostly good people.'

b. **Object nominalization:**

mài gěi Lìsì **de** shì zuì guì **de**  
 sell to L. **NOM** be most expensive **NOM**  
 'What is sold to Lisi is the most expensive'.

c. **Subject REL-clause:**

jīntiān yíng **de** rén yùnnqì hǎo  
 today win **NOM** person luck good  
 'The people who won today had good luck'.

d. **Object REL-clause:**

jīntiān yíng **de** qián fù fáng-zu  
 today win **NOM** money pay house-rent  
 'The money (we) won today goes to pay the house rent'.

There is another type of Rel-clause in Mandarin, however, the so-called 'descriptive clause' (Li and Thompson 1981). It is post-nominal, and is used in presentative constructions with REF-indefinite head noun. Its origin from clause-chaining is transparent, involving just the merger of two intonation contours (Charles Li, i.p.c.):

(27) a. **Paratactic clause-chain source:**

wǒ yǒu yī-ge mèimei, xīhuan kàn diànyǐn  
 I have one-CL sister like see movie  
 'I have a sister, [she] likes to see to see movies'.

b. **Syntactic presentative with post-nominal REL-clause:**

wǒ yǒu yī-ge mèimei xīhuan kàn diànyǐn  
 I have one-CL sister like see movie  
 'I have a sister who likes to see movies'.

The functional equivalent of non-restrictive REL-clauses also exists in Mandarin. It is post-nominal (or post-main-clause, if wholly unembedded), and is structurally indistinguishable from the chained-clause pattern in (27a) (Charles Li, i.p.c.). Given that both clauses are equally asserted (rather than presupposed), and given the zero-anaphora of Mandarin, this pattern is indeed predictable.



In Lahu, a clause-chaining, verb-serializing SOV Tibeto-Burman language, a *pre-posed* nominalized clause, marked with the clause-final nominalizer *-ve*, can function in two capacities. With an intonation break between the two clauses (parataxis), the construction is interpreted as a V-complement, as in (28a-i) below. Without the intonation break, it is interpreted as a *pre-nominal* restrictive REL-clause, as in (28a-ii).

But another pattern also exists in Lahu, where the nominalized clause, still pre-posed, has the following two functions: With the inter-clausal intonation break (parataxis), the nominalized construction is interpreted as an ADV-clause, as in (28b-i). Without the intonation break, it is interpreted as a *post-nominal* restrictive REL-clause, as in (28b-ii), given that the head noun originally belongs to the second clause in the paratactic sequence. Thus compare (Matisoff 1972; tone marking omitted):

(28) a. **Pre-head REL-clause:** (Matisoff 1972:253)

te-qha-le-lɔ            shi-**ve** (,)            a-pi-qu shi-e-yo  
whole- village-CO know-**NOM** (,) old-lady die-AWAY-DECL

(i) **V-COMP:** 'What the whole village knows is, **that** the old woman has died'.

(ii) **REL-clause:** 'The woman [**who** the who village knew] has died'.

b. **Post-head REL-clause:** (Matisoff 1972:254)

shui-c3 ma-mu-**ve** (,)            ka'    thu    ba    ph3-ɔ  
tree    NEG-high-**NOM** (,) even chop throw may-EMPH

**ADV-clause:** '**Even though** the trees are not high, you may chop (them) down'

**REL-clause:** 'You may chop down even the trees [**that** are not high]'.

Either way, the paratactic source of the restrictive REL-clause is fairly transparent.

One may now suggest that the pre-nominal position of the restrictive REL-clause in Mandarin (SVO), as in Lahu (SOV), has nothing to do with word-order typology. Both pre-posed and post-posed REL-clauses are possible in both languages, and both arise from paratactic patterns compatible with the clause-chaining typology. And the Tibetan nominalized pre-nominal REL-clauses probably arise through the same diachronic pathway as those of Mandarin and Lahu.

Likewise, one may suggest that nominalized REL-clauses in Ute, a fairly classical SOV language till recently, are post-nominal not in violation of Greenbergian universals, but because they arose through the non-restrictive ('parenthetical') paratactic channel. And this channel is equally available to German during a largely VO (or free word order) typology. Nominalization as a case-recoverability strategy thus correlate neither word-order type nor with the paratactic source of restrictive REL-clause. It distributes orthogonally to these two features.

Whether the pre-nominal REL-clauses of Japanese conform to the Mandarin-Lahu diachronic scenario remains to be investigated. But one may easily suggest a variant paratactic alternative (Matt Shibatani i.p.c.), where the nominalized REL-clause may either precede or follow the head noun:

- (29) a. **Post-nominal:** That woman, the bread-baker, is my aunt.  
 b. **Pre-nominal,** The bread-baker, that woman, is my aunt.

This paratactic pattern is, fundamentally, indistinguishable from the a non-restrictive one.

A by-product of this discussion is, I think, that the oft-cited Greenbergian correlation between SOV word-order and pre-nominal REL-clauses is a typological accident, due to the high correlation between the SOV order and clause-chaining. And this correlation is, in turn, due to the high synchronic--and most likely also diachronic (Givón 1979, ch. 7)--prevalence of the SOV word-order, often with its peculiar clause-chaining type, whereby chain-medial clauses are nominalized or less finite, and subordinate clauses are often pre-posed to the chain-initial position (Givón 2001, ch. 18).

## 6. Cleft and WH-questions

Cleft constructions are said to have a REL-clause tucked under the same intonation contour, following a contrasted (stressed) noun (Schachter 1971). But in many languages the data exist to suggest that this syntactic construction is a condensation of an earlier paratactic one, where the REL-clause was packaged under a separate intonation contour. What is more, in some languages the same can be show for WH-questions. As an illustration of both patterns, consider Kihungan (Bantu; Takizala 1972; Givón 2001, ch. 15):

- (30) a. **Main clause:**  
 Kipes **ka**-swiimin kit  
 K. 3s-buy-PAST chair  
 'Kipes bought a chair'.
- b. **Restrictive REL-clause:**  
 kit ki **a**-swiim-in Kipes...  
 chair DEM 3s/**REL**-buy-PAST K.  
 'the chair that Kipes bought...'
- c. **Non-restrictive REL-clause:**  
 kit, ki **a**-swiim-in Kipes...  
 chair DEM 3s/**REL**-buy-PAST K.  
 'the chair, the one that Kipes bought...'
- c. **Syntactic cleft:**  
 kwe **kít** ki **a**-swiim-in Kipes  
 be **chair** DEM 3s/**REL**-buy-PAST K.  
 'It's a CHAIR that Kipes bought'.

d. **Paratactic (non-restrictive) cleft:**

kwe kí, (kiim) ki a-swiim-in Kipes  
 be chair thing DEM **3s/REL**-buy-PAST K.  
 'It's a CHAIR, (the thing) that Kipes bought'.

e. **Syntactic WH-question:**

(kwe) kí (ki) a-swiim-in Kipes?  
 (be) what (DEM) **3s/REL**-buy-PAST K.  
 'What did Kipes buy?'  
 (Lit.: '(It's) WHAT (that) Kipes bought?')

f. **Paratactic (non-restrictive) WH-question:**

kwe kí, (kiim) ki a-swiim-in Kipes?  
 be **what** (thing) DEM **3s/REL**-buy-LAST K.  
 'It's WHAT, (the thing) that Kipes bought?'

Presumably, Kihungan already had a restrictive REL-clause construction before recruiting it to fashion cleft and WH-question constructions. In a way, however, the parataxis-to-syntax trajectory of the latter two recapitulate the presumed diachronic trajectory of REL-clauses.

7. **WH pronouns in Rel-clauses**

One type of relativization strategy has yet to be discussed, the use of WH pronouns to signal the case-role of the co-referent argument inside the REL-clause. In English, some of those can only appear as 'headless' constructions, and some may be subsumed under 'adverbials'. Thus:

- (31) a. **Subject:** The woman **who** left...  
 b. **Direct object (inanimate):** **What** they found there was...  
 c. **Direct object (human):** The woman **whom** he chose...  
 d. **Indirect object (human):** The woman **to whom** he talked...  
 e. **Location:** The house **where** he lived...  
 f. **Reason:** The reason **why** she couldn't do it...  
 g. **Time:** The year **when** he died...  
 f. **Manner:** **How** he did it was by...

As Heine and Kouteva (2007) note, this relativization strategy has a protracted history, with the immediate antecedent being probably **WH-question complements** of cognition-perception-utterance verbs, a construction that exhibits a considerable semantic overlap with REL-clauses. Most of C-P-U verbs take a nominal argument, perhaps even historically before they took a clausal complement; so that a considerable semantic overlap between the V-complement and a REL-clause meanings is possible, one that could serve as the *analogical bridge* for spreading the pattern. Thus consider:

verb complement	REL-clause
(32) a. She didn't know <b>who</b> did it.	She didn't know <b>the person</b> who did it.
b. He couldn't think <b>where</b> it was.	He couldn't think of <b>the place</b> where it was.
c. Then she saw <b>how</b> to solve it.	Then she saw <b>the way</b> how to solve it.
d. She never asked him <b>why</b> he left.	He never told her <b>the reason</b> why he left.

The plausibility of such a diachronic change is enhanced by the observation that almost all languages have WH-verb complements, but only a small subset of languages have WH relative pronouns. And further, no language that has the latter doesn't have the former. Thus:

"if WH relative pronoun, then WH verb complement",  
a classical diachronic/typological one-way-conditional implication. But how did a WH-question get embedded in such V0complement?

The most likely answer is that the precursor must have been paratactic, with the complement being a *bona fide* **question speech-act**, as in:

- (33) a. Do you know? **Who** did it?  
b. Think! **Where** is it?  
c. Did you see it? **How** did they solve it?  
d. Did you ask him? **Why** did he leave?

Similar paratactic construction are seen in child acquisition of WH-complements, where they are spread across consecutive child-adult or adult-child turns, such as e.g. (Givón 2008):

- (34) a. Who broke it?                      c. I don't know.  
b. I don't know.                      d. Who did it?

The paratactic source of the complex construction thus may thus pertain not to the target construction, but rather to its precursor in a *grammaticalization chain* (Heine 1992).

Quite a few languages, lastly, must have embarked on this process but then stopped in mid-paradigm, using only one WH-pronoun as the subordinator for all REL-clauses--invariably the *locative* 'where', as in Modern Greek *pou*, spoken Southern German *wo*, or Krio *we* in Krio.

## 7. Some tentative conclusions

Of the 7-8 major relativization strategies listed earlier (Givón 2001), I have suggested here that at least five:

- (i) The non-embedding strategy (Bambara, Supyire, Hittite)
- (ii) The zero-anaphora strategy (Mandarin, Lau, Japanese)
- (iii) The case-marked demonstrative-pronoun strategy (German)
- (iv) The nominalizing strategy (Ute, Tibetan, Mandarin, Lahu)
- (v) The WH-pronoun strategy (English)

plausibly fit into one of the three *paratactic mega-pathways* that give rise to embedded REL-clauses: The *clause-chaining pathway* (Bambara, Supyire, Hittite, Mandarin, Lahu), the *non-restrictive (parenthetical) pathway* (German, Ute, Japanese, Tibetan), or the *WH-question paratactic pathway* (English), and often into more than one. One more type, the Philippine verb-coding strategy (vi), has probably risen from a nominalized source to begin with, and may thus parallel Ute or Japanese (Shibatani 2007). Since both Philippine languages and Ute have post-nominal REL-clauses, it is perhaps more likely that the paratactic of the Philippine REL-clause was the non-restrictive one.

Another case-role recoverability type, the Hebrew resumptive-anaphoric pronoun strategy (vii), has a long history that goes back to a nominalized source (Givón 1991). The use of simple anaphoric pronouns in Hebrew relativization, combined with the post-nominal position of REL-clauses, are both compatible with the non-restrictive (parenthetical) paratactic source.[FN 4]

There is obviously a lot more to be done here, and more corroborative evidence to consider. But all three major pathways that emerge out of the typological data seem to follow, as in the case of the clause-union, the parataxis-to-syntaxis scenario. The fact that at the onset, the syntacticization of REL-clauses, just like clause-union, involves a mere adjustment--and merger--of intonation contours (Mithun 2006, 2007a, 2007b) is consistent with known patterns of early grammaticalization. But a gentle signal of grammaticalization does not mean the absence of all signals.[FN 5]

A final point concerns some cognitive correlates of the two developmental steps I have posited at the start:

- (i) From paratactic to syntactic complexity.
- (ii) From syntactic to lexical/morphological complexity.

In the heydays of Generative Semantics, and before Shibatani's (1972) paper on the semantics of causatives, both packaging steps were considered trivial, a matter of mere surface structure. Causative clause-union was a prime example cited by proponents of GS:

- (35) a. **Paratactic:** She **let** him, and he **went**.
- b. **Syntactic:** She **let** him **go**.
- c. **Co-lexicalized:** She **let-go** of him.

The processing speed of lexical words (35c) is ca. 250 msec/word, relying heavily on automated ('spreading') activation of semantic networks. The processing speed of a single syntactic clauses(35b) is ca. 1-2 secs/clause. And the processing speed of two chained clauses (35a) is at least twice that in real discourse context. The level of semantic complexity varies only in subtle ways from (35a) to (35b) to (35c), but the processing speed surely does. The two steps of 'condensation', involve increased processing speed and automaticity. Whether this is the primary driving motivation or merely an unintended consequence remains to be seen.[FN 6] Still, the rise of hierarchic structure is, in general, part of the mechanism of rising automaticity.

## Footnotes

\*

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1

Lexis within the condensed complex clause can lead, eventually to the rise of new lexical words. In the case of complex VPs (head verb plus a COMP clause), the product is new lexical verbs. In the case of complex NPs (head noun plus a REL-clause), the product is new lexical nouns.

2

The original Hittite text marked no intonation-relevant punctuation, which was added to them by various more modern transcribers and editors.

3

Luther's translation of the bible, ca. 1500's, has the same REL-clause structure in Modern German. This structure may date back to 1,000 or even 800 AD.

4

In Biblical Hebrew, the later finite relativization pattern with the generalized REL-subordinator '*asher*' was preceded by an earlier layer of nominalized REL-clauses (Givón 1991a). The etymology of '*asher*' may go back to '*athar*' 'place' (Hetzron, in personal communication). If so, there may have been a spreading of the pattern from a nominalized locative REL-clause to the entire case paradigm, a phenomenon also attested in spoken Greek (*pou* 'where'), spoken Southern German (*wo* 'where') and Krio (*we* 'where').

5

In a recent paper, Everett (2005) has asserted that his Amazonian language, Piraha, has no embedded clauses. In support he cites Piraha clause-chaining constructions that 'function as' REL-clause, very much like Bambara, Supyire, Hittite, Mandarin or Lahu, but are not embedded. Everett suggests that all such clauses are separated by an intonation break from their main clause. As further support for his claim of non-embedding, he cites other clause-chaining serial-verb languages (Pawley 1987; Matisoff 1969). At face value, this seems to be an early stage of grammaticalization (Givón 1991b, 2006; Mithun 2006, 2007a, 2007b). Only a text-distribution study of intonation contours would tell whether Piraha has already advanced beyond the earliest paratactic stage, like Bambara, or has not.

6

Two companion studies of child acquisition of complex constructions (Givón 2008a, 2008b) seem to suggest that the primary motivation for the rise of V-complement construction is communicative rather than cognitive. The subsequent condensation into hierarchic structure, and the presumed increase in automaticity, are thus a secondary development, perhaps even an 'epiphenomenon'.

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