

CORRELATIVE CLAUSE FEATURES IN SANSKRIT AND HINDI/URDU

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1. Introduction

Correlative clauses represent a parametric variation on relative clauses, found in various related and unrelated languages (cf. Grosu 2002, den Dikken 2005). In this paper I explore how this parameter is realized over a period of some thousands of years in Indic languages. I contrast correlative clauses related finite clauses in the earliest Indic language which is attested, the Sanskrit of the Rg Veda and early Sanskrit prose, with corresponding subordinate clauses in a modern Indic language, Hindi/Urdu. There is remarkable lexical continuity, in that the relative determiners are formally distinct from the interrogatives. Sanskrit has only one dependent clause type, the correlative construction, which corresponds to three kinds of subordinate clause in Hindi/Urdu: correlative clauses, complement clauses, and conditional/adverbial clauses.

This comparison allows some exploration of how languages divided in time share a specific parameter (Gianollo et al, to appear), and to what degree they diverge. The two languages have many common lexical and structural properties. But by many syntactic and semantic criteria, the correlative clauses in the two languages are sharply different. In Vedic Sanskrit, correlative clauses are loosely and paratactically related to another clause, while in Hindi/Urdu, the relation between a correlative clause and the other 'host' clause is very closely constrained, and dependent clauses are syntactically different from main clauses. I propose some formal features which form links between adjoined clauses, and guide semantic interpretation.

This sequence of historical changes, which took place at some point between Vedic Sanskrit and the modern languages, involves the grammaticization of a semantic predicational feature, so that what was a default feature becomes a lexical feature of relative Ds. The syntactic relation between the relative clause and the main clause changes from symmetric adjunction to asymmetric adjunction. I speculate about what allowed this change; I propose that it was the change in the very old Indo-European clausal projection which allowed an initial string of particles and pronouns. This clause structure was reanalyzed as something like the functional projections proposed by Rizzi 1997. These changes opened the way for a syntactic encoding of subordination, marked by lexically reanalyzed relative D as a functional head. The direction of change proposed here shows remarkable convergence to the syntactic relations and functional categories of other modern languages (Roberts and Roussou 2003), whether related or not, while the specific parameter of correlative structures is retained.

2. Introduction to dependent clauses in Sanskrit and Hindi

I begin with a brief overview of the end point of change, the syntactically subordinate clauses in Hindi/Urdu. Dependent complement clauses are adjoined to a main clause, and are optionally marked by a complementizer *ki* (borrowed from Persian) (1). Conditional clauses may be prefixed by a conditional conjunction (2):

1) [Hindi]

ham-nee (yah) puuch-aa [*ki kyaa* vee aa-eeNgee (yaa nahiiN)]
we ERG this ask-PF that what 3PL come-FUT-PL (or not).
 We asked [*whether they will come (or not).*’

2) [Hindi]

[*agar* tum is kuursii-par aisee baiThoogee] (*too*) woo Tuut jaeegii
 if you this chair-on that-way sit-FUT-2SG then 3SG break go-FUT-3SG
 [If you sit that way on this chair] it will break.

Hindi/Urdu preserves the Indo-European correlative construction, marked by a special series of relative determiners, which are distinct from interrogatives:

3) [Hindi]

[*jo kitaab*(i) maiN-nee kal khariidii] *woo*(i) khoon gaii hai
 rel book I-ERG yesterday buy-PF 3SG be-lost go-pf is
 The book(i) [which(i) I bought t(i) yesterday] has gotten lost.

The relative clause contains a relative determiner and a common noun. The relative (CP) clause is adjoined to a ‘main’ clause, a TP containing a correlate phrase, the phrase which is modified by the relative (see Dayal 1996, McCawley 2004 for fuller information about this construction).

This construction is different from the nominally-adjoined relative clauses of modern European and Asian languages (4)-(5). I will begin with a brief schematic introduction to the correlative structure. The nominally adjoined structures may have both a restrictive (4) and a non-restrictive interpretation (5). The two kinds of relative clauses may not have exactly the same syntactic structure (Safir 1986, Fabb 1990), but both involve some kind of subordination, a relative DP, and construal of a finite clause which is interpreted as a predicate modifying a nominal head, roughly (6a).

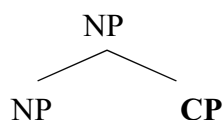
4) Canonical restrictive relative :

I took the *books* [**which/that/0** you bought ___ yesterday].
 (I didn’t take others.)

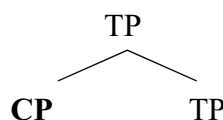
5) Canonical non-restrictive/appositive relative:

I took the *books*, [**which/*that/*0** you bought ___ yesterday].
 (#I didn’t take those you bought today)

6) a. ‘Head’ relative



b. Correlative



Correlatives in involve a potentially discontinuous relation between a relative clause and a modified phrase, or *correlate*, which occurs in an adjoined clause. The schematic tree in (3b) represents the structure I propose for correlative clauses in Hindi/Urdu. If we were to paraphrase a clause like this using English words but the correlative structure, it would be (7).

7) Correlative paraphrase of (4)--(6b):

[**Which** books you bought yesterday] I took *them*
 Relative Correlate in TP

Relative clauses in Indic are marked by lexically distinct determiners/pronouns, specific to relative clauses. One of the striking features of both Sanskrit and Hindi/Urdu is that it preserves the Indo-European distinction between relative, interrogative and demonstrative determiners (8):

8) Indic relative, interrogative and demonstrative series of D/DP

	Sanskrit	Hindi-Urdu
a. Relative	yas ‘who-rel.’	joo ‘who, which-rel’
b. Interrogative	kas ‘who?’	kaun ‘who?’
c. Demonstrative	sas/tat ‘he/that’	yah, woo ‘this/that’
d. Relative	yátra ‘where-rel.’	jahaaN ‘where-rel.’
e. Interrogative	kva ‘where?’	kahaaN ‘where?’
f. Demonstrative	tátra ‘there’	yahaaN/wahaaN ‘here/there’

These distinctions allow us to see quite specifically what the properties of a given clause constituent may be, and consequently to distinguish clause types with some certainty.

3. Clause types in Sanskrit and Hindi/Urdu

In examples (9a,b,c) I give examples of three clause types in Vedic Sanskrit, corresponding to the modern Hindi/Urdu structures.

9) Vedic Sanskrit

a. [Relative]

. [**yád** īm uśmāsi kár-tave] karat **tát**
 what-ref he-acc be-eager-pres-1pl do-inf do-pres-3s that
 RELATIVE CORRELATE

[What(i) we are eager for him to do t], he does that(i)’ (R.V. 10.74.6, Delbrück 1888, p.

b. [Interrogative]

kám āpo **ádrim paridhím** rujanti [Discontinuous D...NP]
 int-acc waters-nom cliff wall break-pres-3pl

‘Which cliff as wall do the waters break t? R.V. 4.146d, Etter 1985, p. 73

c. [Dependent clause]

[tyām stoṣāma ...] **iti** tvā agne . . . ṛṣayah avocan
 you-acc praise-fut-1pl quote you-acc Agni-voc sages say-aor-3pl

[We shall praise you...]-quote the sages tell you, Agni.’ R.V. 10.115.8-9 (Hock 1982, p.49)

10) Hindi-Urdu

a. [Relative]

[*us-nee joo ciiz-eeN tooR-ii haiN*] [[**un-kii kiimat**] [*us-kii tankhvaah-see*] *zyaadaa hai*]
 3s-erg rel thing-pl break-pf are 3pl-gen price 3s-gen wages-from more is

RELATIVE CORRELATE
 [Which things(i) he has broken t]] their(i) price is more than his salary. Rakesh 161, p. 19

b. [Interrogative]

aap [kisee sab-see acchaa ummiidwaar] samajh-tee haiN?
 you who-dat all-than good candidate understand-impf are
 ‘Who do you consider [who the best candidate]?’

c. [Dependent clause]

maiN-nee sooc-aa [ki [raat maarmugaaNw-meeN rah-kar] saweeree feerii-see
 I-erg think-pf that night Marmu-gaoN -in stay-prt dawn ferry-with
 panjim cal-aa jaa-uuNgaa]
 Panjim go-pf go-fut-1sg-m.

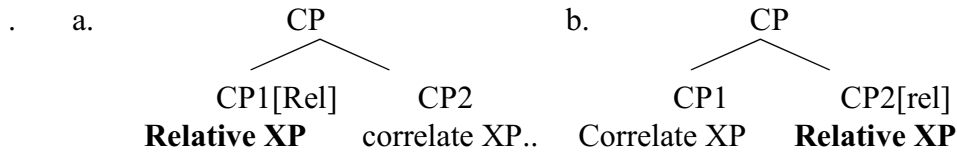
‘I thought [that I would spend the night in Marmu-Village and go on to Panjim by ferry at dawn.’ Rakesh 1963, p. 32.

Relative clauses are marked by the Sanskrit *y-* series and its etymological descendant the Hindi/Urdu *j-* series of determiners. Interrogative clauses are marked by the interrogative *k-* series. Sanskrit tends to place these determiners at the left periphery of the clause, while Hindi/Urdu prefers interrogatives in situ, and allows relatives to be either in situ or at the left periphery. This difference reflects a difference in clausal projections which I will discuss below. Hindi/Urdu (1), (10c) has a specialized complementizer *ki* ‘that’ which marks both declarative and interrogative dependent clauses. Sanskrit has no lexical marking specifically for subordination; the quotative *iti* (9c) means ‘thus’ and has many other functions unrelated to clause subordination (Hock 1982).

4. Symmetric and asymmetric adjunction of correlative clauses.

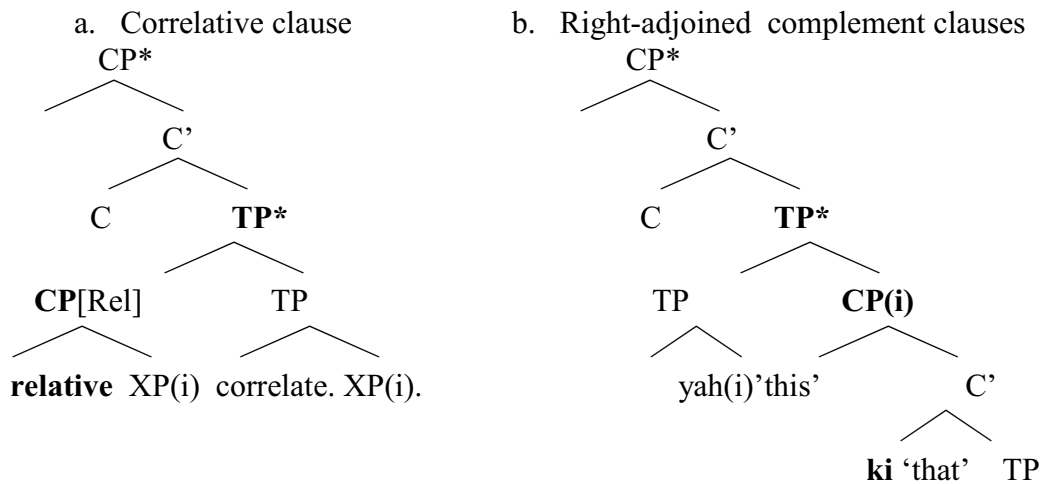
It has long been observed that clauses in Sanskrit seem to be linked in a very loose paratactic way, without syntactic encoding of subordination (for example by Delbrück (1888), Hermann 1895, Gonda 1975, Hettrich 1988). Hock (1989) uses a formal syntactic representation to express this relation, the symmetric adjunction of a full clausal projection to another full clausal projection, which I express as in (11). A correlative may precede or follow another full clause.

11) [Symmetric adjunction to another clause] (Hock 1989)



On the basis of systematic comparison of correlatives in Sanskrit and Hindi/Urdu below, I propose an asymmetric adjunction structure for Hindi/Urdu (9), in which the correlative CP is adjoined to TP, which then is the complement of its own CP* projection. This is a base adjoined structure (cf. Dayal 1996, McCawley 2004).

12). [Asymmetric adjunction]



In the next two sections, I will offer evidence for the symmetric/asymmetric adjunction difference between Sanskrit and Hindi/Urdu, and propose an account based on formal syntactic features which derives the syntactic differences and the range of possible interpretations.

5. Sanskrit correlatives, Hindi/Urdu correlatives

5.1 Clause architecture- the Clause Initial String and markers of subordination

A distinctive prefix to finite clauses is found in several very old Indo-European languages, including Sanskrit (Hock 1989), Schäufele (1990) and Avestan, Old Persian (Hale 1988). This is a string of head positions occupied by particles and pronouns, which occupy up to five ordered positions in the left periphery of the CP (13).

13) Vedic clause-initial string positions (Hock (1989, p. 115)

Nexus	1	2	3	4	5
conjunction	accented	unaccented	accented	enclitic	stressed
eg. <i>atha</i> 'so'	word	particle	particle	pronoun	pronominal
	[Rel, Int]				

Evidence that this clause initial string involves CP projections comes from the nature of the particles, which are sentence oriented.

14) [Sanskrit] Sentence-oriented particles:

- a. Unaccented: u 'and' sma 'always, indeed' ha 'certainly'
- b. Accented: tú 'then' vaí 'truly, indeed', now, furthermore, surely'

In the string relative and interrogative determiners may appear as single words. They may be moved from their DP, leaving a remnant NP (Schäufele (1990)). The clause-initial string seems to be characteristic of an independent clause, because it contains sentence-oriented particles. Yet the clause initial string is found not just in the independent 'correlate' clause, but also in the correlative clause as well (15). The presence of the clause initial string in *both*

clauses of (15) is a another indication of symmetric adjunction (Hock 1989).

15) [Sanskrit] Clause initial string both adjoined clauses:

[**yám(i)** **u ha evá** tát paśávo manuṣyēṣu ~~yam~~ kāmam(i) árohams]
rel-acc ptcl ptcl ptcl that cattle-pl-nom man-pl-loc rel-acc desire-acc obtain-3pl

[**tám(i)** **u ha evá** paśúṣu ~~tam~~ kāmam(i) rohati]
that-acc ptcl ptcl ptcl cattle-pl-loc that-acc desire-acc obtain-pres-3s

‘The desire which(i) the cattle obtained among men, he obtains the same desire(i) among the cattle.’(S.B. 2.1.2.7 Hock 1989, p. 12).

D movement and the string of particles are completely impossible in either main or dependent clauses in Hindi-Urdu.

5.2 The relative clause form for interrogative complements:

The next section offers another example of the absence of syntactic subordination in Sanskrit. In both languages, that interrogative sentences are marked by the k- series of determiners (6),(7). Yes/no questions are prefixed by ‘what?’.

16) [Sanskrit] Yes/no question

kim aryamṇó mahás pathā- áti kramema dūd.hyo
what? Aryaman-gen great-gen road-inst surpass-opt- 1pl inferior-pl-acc
‘Should we overcome the base people on the path of the great Aryaman?
(R.V. I. 105.6cd, Etter 1985: 125.)

17) [Sanskrit] Constituent question

kó dadarśa [prathamám jāyamānam]?
who? see-perf-3s first-ms-acc born-ms-acc
‘Who has seen [(him) as first born]?’ (R.V. I. 164. 4a, Etter 1985:66.)

If a question is in a dependent complement clause, Vedic Sanskrit substitutes a relative y-determiner for the k- interrogative in both yes-no questions (18) and constituent questions (19):

18) [Sanskrit] Complement yes/no question

ná tásyā vidma **tád** u śú prá vocata
not this-gen know-pres-1pl this-acc prtl good forth speak-imper-2pl
[yúvā ha **yád** yuvatyāh kṣéti yóniṣu]
youth.m.-nom prt what-rel young.girl-gen lie-pres-3s womb-loc-pl
‘We do not know of this, tell us well [**whether** the young man lies in the lap of the
young girl.’ (R.V. 40.11ab, Etter 1985, p.210)

19) [Sanskrit] Complement constituent question

nāhám tát bhagavan veda [**yátra** gamiṣyāmi]
not I this Lord-voc know-pres-1s where-rel. go-fut-1s

'I do not know, O Lord, [**where** I will go] (S.B. 14.6.11.1, Hettrich 1989, p.524)

This pattern is found in Homeric Greek (Chantraine 1958), and disappears in both Classical Greek and later Sanskrit. Nothing like (18)-(19) is possible in Hindi/Urdu (20).

- 20) ham-nee (yah) **puuch-aa** [*ki kahaaN/ *jahaaN* vee aa-eeNgee]
we -erg this ask-pf that where-int/*where-rel 3pl come-fut-3plm
'We asked [*where-int* they will come].'

Sanskrit has several ways of marking sentential complements: parataxis of the selected complement clause, prefixation or suffixation of the quotative **iti** 'thus', or else the interrogative complement is put in relative form, with an interrogative interpretation. The predicate selecting the complement determines whether it is an embedded question or not (Lahiri 2002). So Sanskrit expresses a selection relation, but this selection relation can be expressed in Vedic Sanskrit only by the very general CP-CP adjunction licensed by the relative form of one of the clauses. Hindi/Urdu has an available marker of subordination (**ki**) which marks interrogative as well as other complement types as syntactically distinct from main clauses.

5.3 A conditional interpretation for relative clauses without a correlate phrase.

In Sanskrit, correlative clauses without a correlate phrase are not uncommon (Speijer 1896, Gonda 1975, Hettrich 1988). The relative phrase gets an indefinite interpretation, and the whole relative clause is translated as a conditional modifier of the correlate clause (21a).¹ Hindi/Urdu requires non-relative conditional clauses such as (21b).

21) a. [Sanskrit] Relative with no correlate, indefinite conditional interpretation:

- yó** me... **yújyo** vā **sákhā** vā
rel-NOM I-DAT ally-NOM or friend-NOM or
svápne bhayám.. .máhyam āha
dream-LOC frightful-ACC word-ACC speak-PRES-3S
stenó vā **yó** dípsati]
thief-NOM or rel-NOM hurt-DESID-PRES-3S
no ... **tásmād** varuṇa pāhy asmān
we-ACC that-ABL Varuna-VOC protect-IMPER-2S
[If an ally or friend in a dream says terrible words to me, or if a thief wishes to
hurt us] protect us, O Varuna, from that. R.V. 2.28.10, Gonda 1975, p. 196.

- b. [**agar** tum is kursii(i)-par aisee baiThoogee, (too) woo(i) Tuut jaaegii
if you this chair-on so sit-FUT.2SG then 3s break go-FUT.3F
[If you sit that way on this chair(i)] (then) it(i) will break.

Correlative clauses require a correlate phrase in Hindi/Urdu. If there is no correlate, the sentence is ill-formed (22). A nonrestrictive meaning is unavailable.

22) [Hindi-Urdu] Relative with no correlate

- * [**jis** laRkee-koo anu-nee wahaaN deekh-aa hai] maiN miinaa-see mil ga-ii

which girl-dat Anu-erg there see-pf is I Mina-with meet go-pf
 '[Which girl Anu has seen there], I met Mina. #I met Mina, which girl Anu has seen there.'

5.4 Correlative clauses and the appositive interpretation

Correlative clauses in the modern languages which have them are typically restrictive, on the left, and typically do not stack (Grosu 2002, Den Dikken 2005). But Sanskrit freely allows clauses on the left to modify proper names or pronouns appositively, (23a). The more expected restrictive modification of common nouns, is also possible as in the restrictive interpretation of (24).

23) [Sanskrit appositive clauses]

a. Initial appositive relative clause

[yó gr̥ṇatām íd āsitha-
 rel-NOM.S sing-PART-GEN.Pl ptcl be-IMPF-MIDDLE-2S
 āpír ūtī śíváh sákhā]
 ally-NOM favor-INST auspicious-INST familiars
 sá tvám ná índra mṛḷaya
 ptcl you-NOM we-DAT Indra-VOC be-gracious-CAUS-IMPER-2S
 O Indra, who has become the good friend of the Singers with your favor to your
 familiars, be merciful to us, (RV 6.45.17, Hettrich 1988, p. 639.)

b. Final appositive relative clause

agním stuhi daivavā tam devaśravo
 Agni-ACC praise-IMPER-2S daivevata-ADJ. Devashravas-VOC
 yó jánānām ásad vaśí
 rel-NOM people-GEN.PL. attain-SUBJ-3S subjection-ACC
 Praise Agni(i) the one of Devavata, o Devashravas, who(i) should attain the
 subjection of the peoples. (RV 3.23.3c, Hettrich 1988, p. 632.)

24) nāhám tám veda [yá íti brávyīty]
 not-I-NOM that-ACC.MS know-PRES.1S rel-NOM.MS thus speak-PRES-3S
 [Restrictive]I do not know [the one [who speaks thus]].
 [Interrogative] I do not know [who speaks thus. (R.V. 10.27.3a Hettrich 1988, p. 523)

Hindi/Urdu does not allow appositive correlatives, (21), and in (25a). The appositive reading is allowed typically in relative clauses adjoined to the right of DP (25c). a construction which Hock (1989) argues persuasively is not found in Sanskrit.

25) [Hindi/Urdu]

a. *[joo(i) khaRii hai] anu(i) lambii hai

rel standing is Anu tall is
 'Anu, who is standing, is tall.' Dayal 1996, p. 155

b. (*)anu(i) lambii hai [joo(i) khaRii hai]

Anu tall.F is rel standing-F is
 'Anu, who is standing, is tall.' (Ibid)

- c. *anu(i)* [**joo(i)** khaRii hai] lambii hai.
 Anu rel standing-F is tall-F is
 ‘Anu, who is standing, is tall. (Ibid)

5.5. Stacked relative clauses

Sanskrit allows stacked correlatives, both to the left and to the right of the independent clause (26).

26) [Sanskrit] Stacked relatives on the left: *yas(i)* *yas(i)* ... *sa(i)* with verb gapping:

- a. [**yah(i)** sūryam **yah(i)** uṣāsam jajāna
 rel-NOM sun-ACC rel-nom dawn-ACC create-PF-3S
yo(i) apām netā sa(i) janāsa indrah
 rel water-GEN.PL leader-NOM that-NOM people-VOC Indra-NOM
 ‘Who-rel created the sun, who-rel created the dawn, who-rel is leader of the waters,
 that is Indra.’ R.V. 2, 12.7c, Hettrich 1988, p. 544.
 That one is Indra, who made the sun, who made the dawn, who is the leader of the
 waters.’

- b. **yāsyāvadhīt(i)** pitāram **yasya(i)** mātāram
 rel-GEN- kill-AOR-3S father-ACC rel-GEN mother-ACC
yasya(i) śakró bhrātaram nāta iṣate
 rel-GEN mighty-NOM brother-ACC not-go away-PRES-3S
 ‘Whose-rel(i) father, whose-rel(i) mother, whose-rel(i) brother the Mighty one kills,
 he(i) does not escape; ‘He does not escape, of whom the Mighty has killed the father, the
 mother, the brother.’ R.V. 5.34.4a, Hettrich 1988, p. 571.

As with other correlative constructions in modern languages (Grosu 2002, Den Dikken 2005), stacked restrictive relatives are ungrammatical on the left of the main clause, and also on the right for some speakers (27).

27) a. [Hindi] Stacked relatives on the left

- * [joo laRkii(i) skuul-meeN mehnat kartii hai], [joo(i) anu-kii doost hai]
 rel girl school-in effort do-IMPF is rel Anu-GEN friend is
 woo(i) bahut acchii hai
 3S very good-F is
 ‘That girl is very nice, who works hard in school, who is a friend of Anu.’
 Grosu 2002

b. [Hindi] Stacked relatives on the right]

- (* woo laRkii(i) bahut acchii hai, [joo(i) skuul-meeN mehnat kar-tii hai]
 that girl very good-F is rel school-in effort do-IMPF-F is
 [joo(i) anu-kii doost hai]
 rel Any-GEN friend is
 ‘That girl is very nice, who works hard in school, who is a friend of Anu.’

5.6 Summary of Sanskrit-Hindi/Urdu differences.

Correlative clauses in Sanskrit and Hindi show many formal similarities (section 3).

Examples have been used here to show that there is a fundamental of adjunction structures (11), (12a). Sanskrit has the relative construction as the primary means of combining finite clauses. This paratactic construction has varied interpretations: restrictive and appositive relative clauses, conditional clauses and interrogative complements. Hindi/Urdu correlative clauses are more closely constrained syntactically and semantically. Conditional and complement clauses are marked by non-relative conjunctions, such as *agar* ‘if’ and *ki* ‘that’. In the next section, I propose a way of using formal features to characterize the Sanskrit-Hindi/Urdu differences which explains the striking difference in constraints and interpretation..

6. Anaphoric and predicative features

In this section I extend some formal features which have been used to characterize relative clauses in modern language. To differentiate appositive from restrictive relative clauses, Grosu 2002 proposes that appositive clauses form an anaphoric relation with their head NP, so that they are linked in a somewhat looser way to the head than restrictive clauses. Restrictive clauses are predicational: the clause is interpreted as an intersective modifier with the common noun in the NP head or in the correlative. Grosu uses the feature [PRED] to encode this semantic property. This feature is like the ‘lambda’ feature on C and the pronoun feature [ID] which Adger and Ramchand (2005) use to form syntactic chains in Gaelic and Irish relative clauses. The feature also has a semantic effect, of turning the relative clause into an intersective modifier of a head noun, with the restrictive reading.

In the Indic languages, there are two sorts of features which I propose for correlative clauses. One set of features establishes an anaphoric (coindexing) chain at the CI interface between the relative clause and its correlate. These features are uninterpretable features (uF) which are valued by interpretable category features (iF) (28a,b)

- 28) [Rel] uF on relative C is categorially valued by the correlate DP.
 [ID] uF on DPs (correlate) is valued by the syntactic antecedent CP.

- 29) [PRED] on C requires the CP to be translated as a λ -abstract making the clause a predicate, modifying the correlate phrase identified by the anaphoric chain established by the features in (26).

These features work together. Relative clause require a correlate or head. The feature [Rel] reflects only relative morphology in the CP, as the relative phrase itself may have an indefinite or interrogative interpretation in Sanskrit. The correlate, usually a demonstrative pronoun, needs an identifying antecedent, whether in discourse or within a syntactic structure; this antecedent is supplied by the [ID].

In the paratactic syntax characteristic of Sanskrit, [Rel] and [ID] are the only syntactic features which link the two finite CP clauses of the correlative construction. The features are licensed by relative determiners [Rel] and the demonstrative pronouns [ID]. Correlative clauses in Sanskrit need not be interpreted as restrictive. They may be appositive, conditional, or interrogative complements. In Sanskrit, the feature [PRED] is the default interpretation of an anaphorically linked clause with a [Rel]-marked DP. It enters the interpretation when no other factor rules it out. For example, [PRED] is excluded if the [ID] constituent is a pronoun or proper name, leaving an anaphoric appositive interpretation (23). If there is no [ID] subconstituent, [PRED] has nothing to modify, and so it is ruled out in favor of the

conditional interpretation, and the [Rel] DP is indefinite (22). If the relative clause is linked to a clause with a verb selecting an interrogative complement, then [PRED] is also ruled out, yielding an interrogative interpretation of the relative DP (18-19). Stacked correlatives are linked anaphorically across CP boundaries to the correlate (26), and the [PRED] feature makes the relative clause modify whatever is identified by the [Rel]...[ID] chains.

In Hindi/Urdu, dependent CP finite projections are all hypotactic, asymmetrically adjoined to TP. Correlative clauses have the restrictive interpretation, suggesting that they must be marked with [PRED] before the SI interface is reached, ruling out all but the restrictive interpretation. The anaphoric linking is required but must be local, holding between the [PRED] relative and the TP to which it is adjoined. This condition explains the requirement for a correlate (22) and the absence of stacking (27). Other clause types, conditionals and complement clauses, require a special conjunction or complementizer, forms which are lexically distinct from relative XPs (20, 21b).

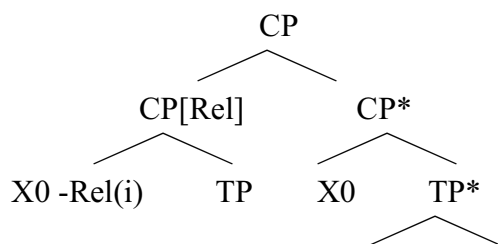
8. Syntactic change

In the main body of the paper, I have defined the contrasting properties of the earliest and most recent relative constructions in Indic languages. Here I will propose a series of changes which would have to take place to create the modern formal features of correlative clauses in Hindi/Urdu, assuming a distant previous form of the language in Sanskrit. This proposal is necessarily speculative, as there is little real evidence of change from the Old Indic constructions until the period in the 16th-18th centuries in which the modern form of Hindi/Urdu emerged (Masica 1991, pp. 50-55), and it does not do full justice to the great variety of constructions found in Indic.

8.1 Syntactic subordination

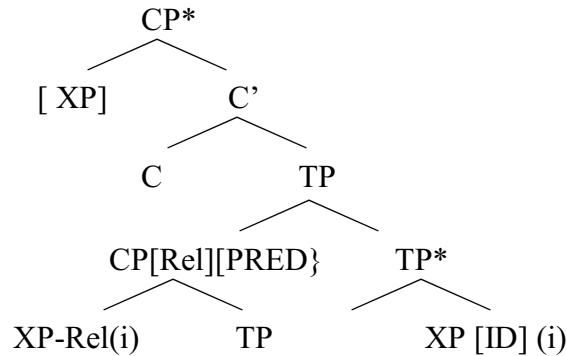
I have proposed that relative CP does not adjoin TP in Sanskrit. The reason for this could lie in the composition of the CP projection in early Sanskrit. On the evidence of the Clause-Initial String (13), the CP functional projections of one or more head positions which can be filled only by words, not phrases. These words are copied from positions in TP and merged into head positions. If so, then we may suppose that the movement chains formed in CP* cannot be interrupted by adjunction of a full CP to TP* (30). I make the assumption that these CP projections are similar to the ones proposed by Rizzi (1997) with a condition which blocks XP movement to a Specifier, and allows only words to move to the head position. This condition would have to be lost to open the way for reanalysis of CP as a series of functional projections allowing phrasal movement and phrasal adjunction, creating the structure in (31).

30) Paratactic structure, symmetric adjunction [Sanskrit]



XP-Rel(i) XP[ID] (i)

31) Hypotactic structure, asymmetric adjunction [Hindi/Urdu]



In (31) the CP is not a sister exactly of its correlate XP, but it is a sister of the TP* containing the correlate..² The asymmetric adjunction is therefore forced by the presence of [PRED] on a CP in the syntactic derivation. [PRED] requires ‘early’ adjunction of CP[Rel] to TP* rather than the ‘late’ adjunction to CP* allowed in Sanskrit. This would mean that CP[Rel] in Sanskrit is not marked with [PRED] when it is syntactically merged with another projection. In Hindi/Urdu, [PRED] is required by all relative projections in their syntactic formation, affecting possible later operations of MERGE.³

8.2 Evidence for syntactic subordination.

The change described in Indic is not datable. Working back from the modern language, we see

that there is clear evidence for clausal subordination in Hindi/Urdu in both correlatives and in the use of *ki* ‘that’ to introduce complement clauses. In the absence of the kind of information we have from speakers’ intuitions about Hindi, I will take the introduction of a maker of subordinate complements as evidence for TP adjunction. The *ki* complementizer is known to be relatively late, appearing in early modern Hindi and Urdu (32). Somewhat earlier texts have the relative *joo* (33). These complementizers give positive evidence for syntactic subordination at this relatively late stage.

32) Braj, early 19th century

puni rakhvaaree-neeN jaanyau [ki yah tau gadahaa hai par baagh-kau caam
 still watchman ERG know-PF that this TOPIC donkey is but tiger-GEN hide
 oorhi aayau hai.]
 wrap-PF come-PF is

Still the watchman knew that this was a donkey but it was covered with a tiger skin.

(Snell 1992, p. 65)⁴

33) Braj, 17th century or earlier

soo taanseen-neeN kahi [joo [jin-neeN yah kiirtan kiyau hai,]
 this T -ERG say-PF that rel-ERG this hymn do-PF is
 soo braj-meeN rahta hai.]]
 that Braj-in stay-IMPF is

This T said [that the one [who made this hymn of praise] lives in Braj.] (Snell 1992, p. 71)

Note that the clause-prefix *joo* introduces a clause with an initial correlative, suggesting that the *joo* form is purely a subordinator, like *ki*. It is in the outermost functional projection of CP. The correlative clause and the correlate clause with the correlate *soo* corresponding to *jin-nee* are to the right of the *joo*, which has the form of a relative but the function of marking a subordinate complement. The order *joo-jin-nee* shows that the correlate clause is adjoined within CP, as in (29). If the correlate is adjoined within the whole CP complement, it must be adjoined to TP*. The relative *joo* would have to lose the [PRED] feature entirely, as it no longer indicates predication, as well as be reanalyzed as the head of FORCE in Rizzi's CP structure.⁵

In the modern language, there are new lexical items replacing these two uses of *joo*, both of them borrowed from Persian, which was the language of administration and literature in the Moghul era (see Marlow 1997). *Ki* replaced *joo* as a complementizer on subordinate complements, and *agar* (or Sanskrit *yadi*) replaced *joo* in conditional clauses. The correlative construction retained for restrictive relative meanings. This change suggests that *joo* as a lexical determiner had been reanalyzed as a functional head in CP, and as a conjunction in conditionals.⁶ This is a common direction of historical change (Roberts and Roussou 2003).

8.2 Reanalysis of the correlative construction.

The Old Indic correlative construction appears to have undergone two kinds of change. One is the change in nature of the feature [PRED] from a semantic feature to a lexical feature on relative D which is present in syntax. This change caused the correlative CP construction, especially those adjoined to the left, to take on exclusively restrictive relative function, with the restrictions in interpretation found in modern Hindi/Urdu and other modern Indic languages. The other was the evolution of a complementizer form specialized for indicating subordination. This split of functions is reflected in the order of adjunction. Left adjoined relative clauses are typically relatives, while finite complement clauses are typically right adjoined.

9. Summary and conclusion

Correlative clauses represent a parametric choice in how relative clauses are syntactically represented, involving anaphoric links and a semantic [PRED] feature. This parameter persists in Indic languages, from the oldest documented language to a modern language like Hindi, yet the syntax and semantics of the construction have undergone reanalysis. The CP structure of Vedic Sanskrit evolves to remove the condition on functional projections that they may be filled only with heads, allowing the relative CP to adjoin to TP in the later language. This change introduces syntactic encoding of subordination, which might be regarded as a more economical way of expressing semantic relations than in the paratactic, anaphoric Sanskrit syntax. Evidence for subordination in early modern Hindi is found when the relative *joo* is used as a complementizer distinct from a relative DP; a determiner is reanalyzed as a functional category head (Roberts and Roussou 2003). In spite of other changes, such as very recent relative adjunction to DP, the correlative parameter persists as the unmarked relative construction, suggesting that UG allows more parametric variation to exist than we might expect.

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NOTES

1. There is a variety of conditional constructions in Sanskrit, including a contrary to fact condition using a preterit conditional verb form (Whitney 1889:334), conditional clitics and conditional relative conjunctions like *yadi* 'if' and *yad* 'what, if' (cf. Hettrich 1988, pp.223ff).
2. Exactly how the predicate CP takes the correlate as its argument is not clear; see Dayal (1996) for a proposal. It is possible that the [ID] feature has a semantic property as well as a linking function. It could be used in the CI interface to distinguish the correlate from other constituents of TP, by raising it above TP* but not as far as the C projection. The C projection has the restrictive relative CP in its scope if C is interrogative. (Davison 2005).
The result of hypotactic adjunction of the correlative is that it asymmetrically c-commands the TP* containing the correlate. I propose in Davison (2005) that this c-command condition is the constraint which blocks stacked correlatives and certain other kinds of iterations of correlatives in the modern language. Sanskrit paratactic constructions do not have asymmetric c-command, and so correlatives may stack and interate freely.
3. [PRED] is a semantic feature. If it is lexically associated with the relative DP and present in the syntactic derivation, it has the effect of forcing an intersective (restrictive) predicate interpretation. We may speculate that it also requires a local relation to its correlate, specifically the TP containing the correlate. If so, it is like the (semantic) theta-properties of a predicate, which on some accounts (such as Ura 2000) must be discharged at the point in the derivation where an XP argument merges with the theta assigner.
4. The source of *ki* in Hindi/Urdu and other languages is assumed to be the Persian *ki/ke*, which marks both subordinate complement clauses and both restrictive and appositive relative clauses (Hajati 1977). Marlow (1997) shows that the geographic distribution of *ki*

