Relative Deletion

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ABSTRACT

Hindi-Urdu exhibits a lesser-known form of ellipsis known as Relative Deletion (RD) (Mishra 2024; van Craenenbroeck & Lipták 2006), where verbal and phrasal material in relative clauses is elided, leaving only the relative phrase and one or more remnants. This study presents an in-depth analysis of RD, examining its behavior across various syntactic structures, including equatives and temporal/locative relative clauses. We examine the influence of case-marking on, and location of, the relative pronoun on the well-formedness of RD. The study compares RD with sluicing and gapping, highlighting their locality profiles and constraints. Notably, RD requires the antecedent to originate within the clause to which the relative clause is attached, a feature that parallels restrictions found in English gapping (Johnson 2009) and not sluicing (Ross 1969). In addition, we explore apparent instances of non-local RD, where deletion seems to cross clause boundaries, posing a syntactic puzzle that raises further questions about the mechanisms of ellipsis in Hindi-Urdu.

1 Introduction

This paper explores the phenomenon of Relative Deletion (RD) in Hindi-Urdu (HU), focusing specifically on comparatives and equatives in the language, alongside other insights from relatives of degree, time, and location. Relative Deletion refers to the ellipsis of all verbal material in relative clauses, leaving behind only the relative phrase and at least one phrasal remnant. This phenomenon has been discussed in the context of Focus-based Sluicing, a framework recently extended by Mishra (2024), following van Craenenbroeck & Lipták's (2006) analysis of Relative Deletion in Hungarian (2). (1)) below contains an instance of Relative Deletion in Hindi-Urdu in the form of a relative clause that emphasizes the retention of key elements while the rest of the verbal structure is elided.

(1) mɛ̃=ne Seema=ko vo=hi: film dɪkʰa-yi tʰi: [jo=(ki) Rita=ko
I=ERG Seema=DAT that=ONLY film show-PFV.F be.PST.F REL=that Rita=DAT
(*tʰiː)]
be.PST.F
'I showed Seema the movie which I showed to Rita.

As can be seen from both the syntactic structure and the translation, the construction is marked by emphatic focus, signaled either prosodically or morphologically through the use of *hi:* 'FOC-only that'. The ellipsis that occurs here reflects the deletion of the verbal material after the focused element moves to a higher position in the left periphery, as proposed

by Mishra (2024). Relative Deletion in Hungarian follows a similar pattern, as shown in Van Craenenbroeck and Lipták (2006):

(2) Péternek AZT A FOTÓT mutattam meg amit ANNÁNAK
Péter-DAT that-ACC the photo-ACC showed PV REL-what-ACC Anna-DAT
'The photo I showed to Péter was the one that I showed to Anna.'

(van Craenenbroeck & Lipták, 2006, 3)

In both languages, Relative deletion operates as a type of Focus-Based TP/IP Deletion, where the focused element, along with the relative complementizer is moved to a higher position, with the rest of the relative clause being elided. The remnant, often a (case-marked) NP, survives deletion, providing the sentence's necessary interpretive content.

This paper seeks to extend the existing analysis of Relative deletion by applying it to other relativization structures in Hindi-Urdu, specifically focusing on constructions involving degrees, such as comparatives and equatives, as well as temporal and locative relatives. Additionally, we aim to contrast Relative deletion with other ellipsis phenomena, such as sluicing and gapping, to figure out its place in cross-linguistic syntax.

2 RD in other relativization structures

In Hindi-Urdu, relativization structures are not limited to relativization of individuals. Relativization can involve time, space and degrees yielding *when/until* clauses, *where* clauses and equative/comparative clauses respectively and we find that relative deletion is possible with non-individual relativization structures.

2.1 Relativization Structures in Hindi-Urdu

Let's start with the observation from Srivastav (1991) that finite relativization structures in Hindi-Urdu come in three distinct structures/orders.

(3) a. Correlative: left adjoined to a clausal projection
[jo laṛki: khaṛi: hɛ] [vo laṛki: lambi: hɛ]
REL girl.F tall.F BE.PRS.3SG DEM girl.F tall.F BE.PRS.3SG
'The girl who is standing is tall.' (Which girl is standing, she is tall.)

b. Embedded: adjoined to a nominal projection
vo laṛki: [jo (*laṛki:) khaṛi: hɛ] lambi: hɛ
DEM girl.F REL girl.F tall.F BE.PRS.3SG tall.F BE.PRS.3SG
'The girl who is standing is tall.'

c. Extraposed: right adjoined to a clausal projection
vo laṛki: lambi: hɛ [jo (*laṛki:) khaṛi: hɛ]
DEM girl.F BE.PRS.3SG tall.F BE.PRS.3SG REL girl.F tall.F
'The girl is tall who is standing.'

Srivastav (1991) shows that left adjoined relatives (3a) constitute a distinct relativization strategy, correlativization, where the relative clause picks out a maximal entity that the main clause is predicated of. She also shows that embedded relatives (3b) can be seen as restrictive relativization as familiar from English and that the right adjoined cases (3c) pattern with embedded relatives. Note that the relative clause in (3b, c) does not allow for internal heads while the relative clause in the correlative structure in (3a) does. The correlative structure and the right adjoined structure can be constructed naturally with equatives.[1]

(4) a. correlative:

[jitni: (kita:bẽ) Mina k^hari:de-gi:] [utni: (kita:bẽ) Ram k^hari:de-ga:]
HOW.MANY.F books.F Mina.F buy-FUT.3FSG THAT.MANY.F books.F Ram.M buy-FUT.3MSG

'Ram will buy as many books as Mina.' (literally: [how many books Mina will buy], Ram will buy that many books.)

b. right adjoined:

[Ram utni: (kita:bẽ) k^hari:de-ga:] [jitni: (???kita:bẽ) Mina k^hari:de-gi:]
Ram THAT.MANY.F books.F buy-FUT.3MSG HOW.MANY.F books.F Mina.F buy-FUT.3FSG

'Ram will buy as many book as Mina.'

As with (3), we see that the relative clause in the correlative in (4a) allows for an internal head while the right adjoined structure, which we take to be derived from an externally headed relativization structure, does not (4b).

2.2 The distribution of Relative Deletion

As noted earlier, relative deletion is attested with instances of non-individual relativization and we will turn to these cases in this section. The following generalization emerges: relative deletion is possible inside extraposed relative clauses but not inside correlative clauses. A correlative clause precedes the main clause while an extraposed clause follows the main clause. There are also structural differences between correlative clauses and extraposed clauses.

[1] The embedded structure feels degraded for reasons we do not understand.

i. ???[Ram utni: kita:bẽ [jitni: Mina k^hari:de-gi:] k^hari:de-ga:]
Ram.M THAT.MANY.F books.F HOW.MANY.F Mina.F buy-FUT.3FSG buy-FUT.3MSG
intended: 'Ram will buy as many books as Mina.'

In addition, our focus in this paper is on ellipsis and ellipsis is blocked in embedded structures because of irresolveable antecedent containment. Therefore we will not consider embedded structures further.

2.2.1 Relative Deletion in Equatives

In (4), we have seen that equatives can be realized as a correlative and also as a right adjoined relative. We know from §1 that relative deletion structures are most natural when the modified XP is focus marked with the particle *-hi:*. This particle brings in a range of exclusive meanings and so we will gloss it as 'only' (see Bajaj (2016)) but the one that seems most prominent in the relative deletion context corresponds to 'the same', 'the one', expressing identity between the element in the main clause and its counterpart in the relative clause. Relative deletion is possible with equatives but only when the HOW.MANY clause follows the main clause i.e. in the right adjoined structure but not in the correlative structure.

(5) a. right adjoined: relative deletion is possible
Ram utni:=hi: kita:bẽ kʰari:de-ga: [jitni: Mina
Ram THAT.MANY.F-ONLY books.F buy-FUT.3MSG HOW.MANY.F Mina.F
~~kʰari:de-gi:~~]
buy-FUT.3FSG
'Ram will buy as many bookz as Mina.'

b. correlative: relative deletion is not possible
*[jitni: Mina ~~kʰari:de-gi:~~] [Ram utni:=hi: kita:bẽ
HOW.MANY.F Mina.F buy-FUT.3FSG Ram THAT.MANY.F-ONLY books.F
kʰari:de-ga:]
buy-FUT.3MSG
intended: 'Ram will buy as many books as Mina.'

Relative Deletion with equatives (and elsewhere) can leave behind multiple remnants.

(6) multiple remnants
Ram a:j utni:=hi: kita:bẽ kʰari:de-ga: [jitni: Mina
Ram today THAT.MANY.F-ONLY books.F buy-FUT.3MSG HOW.MANY.F Mina.F
kal ~~kʰari:de-gi:~~]
tomorrow buy-FUT.3FSG
'Ram will buy as many books today as Mina will tomorrow.'

The elided phrase can include nominals.

(7) [utne=hi: log Ram=ko yeh kita:b dẽge] [jitne
THAT.MANY=ONLY people Ram=DAT this book give.FUT.3MSG HOW.MANY
Mina=ko ~~yeh kita:b dẽge~~]
Mina=DAT this book give.FUT.3MGS
'As many people will give this book to Ram as will to Mina.'

We noted earlier that an internal head is not possible with extraposed relative clauses. This is true for equatives too.

(8) *Ram utni:=hi: kita:bẽ kʰariːde-gaː [jitni: kita:bẽ
Ram THAT.MANY.F-ONLY books.F buy-FUT.3MSG HOW.MANY.F books.F
Mina ~~kʰariːde-giː~~]
Mina.F buy-FUT.3FSG
intended: 'Ram will buy as many books as Mina.'

But there is an interesting exception. When the internal head is different from the external head, the internal head is possible and in fact obligatory. But the NP head and the relative pronoun appear discontinuously suggesting that the relative phrase moves to a higher location stranding the NP head quite generally, even when the internal and the external head is the same.

(9) sub-equative (different heads)

a. ok with stranding
Ram utni:=hi: kita:bẽ kʰariːde-gaː [jitne Mina
Ram THAT.MANY.F-ONLY books.F buy-FUT.3MSG HOW.MANY.M Mina.F
akhba:r ~~kʰariːde-giː~~]
newspaper.M buy-FUT.3FSG
intended: 'Ram will buy as many books as Mina newspapers.'

b. bad without stranding
*Ram utni:=hi: kita:bẽ kʰariːde-gaː [jitne
Ram THAT.MANY.F-ONLY books.F buy-FUT.3MSG HOW.MANY.M
akhba:r Mina ~~kʰariːde-giː~~]
newspaper.M Mina.F buy-FUT.3FSG
intended: 'Ram will buy as many books as Mina newspapers.'

When the heads are the same, however, stranding does not help. The stranding counterpart of (8) is still ungrammatical.

(10) *Ram utni:=hi: kita:bẽ kʰariːde-gaː [jitni: Mina
Ram THAT.MANY.F-ONLY books.F buy-FUT.3MSG HOW.MANY.F Mina.F
kita:bẽ ~~kʰariːde-giː~~]
books.F buy-FUT.3FSG
intended: 'Ram will buy as many books as Mina.'

This pattern is similar to that found with comparative deletion in English: when the compared element is the same, it is obligatorily deleted in the comparative clause but when it is not, deletion is not required and is in fact not possible (Kennedy 2002; Lechner 2004).

2.2.2 Comparatives

Like equatives in Hindi-Urdu, comparatives can also be realized as a correlative.

(11) [jitni: (kita:bẽ) Mina k^hari:de-gi:] [us=se zya:da: (kita:bẽ)
HOW.MANY.F books.F Mina.F buy-FUT.3FSG that=THAN MORE books.F
Ram k^hari:de-ga:]
Ram.M buy-FUT.3MSG
'Ram will buy more books than Mina.' (literally: [how many books Mina will buy], Ram will buy more than that many books.)

Curiously there seems to be no way to construct a comparative as an extraposed headed relative in Hindi-Urdu.

(12) *[Ram us=se zya:da: kita:bẽ k^hari:de-ga:] [jitni: Mina
Ram.M that=THAN MORE books.F buy-FUT.3MSG HOW.MANY.F Mina.F
k^hari:de-gi:]
buy-FUT.3FSG
intended: 'Ram will buy more books than Mina.'

We don't know why this is the case but the unacceptability of the extraposed headed relative variant raises the expectation that Relative Deletion is not possible with comparatives. This prediction is borne out. Relative Deletion is blocked inside the correlative clause, perhaps because the ellipsis site precedes its antecedent and the extraposed headed relative variant where we might have expected the extraposed variant to be good is bad for independent reasons.

(13) a. correlative: relative deletion is bad.
*[jitni: (kita:bẽ) Mina ~~k^hari:de-gi:~~] [us=se zya:da: (kita:bẽ)
HOW.MANY.F books.F Mina.F buy-FUT.3FSG that=THAN MORE books.F
Ram k^hari:de-ga:]
Ram.M buy-FUT.3MSG
'Ram will buy more books than Mina.' (literally: [how many books Mina will buy], Ram will buy more than that many books.)

b. extraposed headed relative: independently bad

c. *[Ram us=se zya:da: kita:bẽ k^hari:de-ga:] [jitni: Mina
Ram.M that=THAN MORE books.F buy-FUT.3MSG HOW.MANY.F Mina.F
~~k^hari:de-gi:~~]
buy-FUT.3FSG
intended: 'Ram will buy more books than Mina.'

2.2.3 *when* and *where* clauses

When and *where* clauses can be realized both as correlatives and as extraposed headed relatives.

(14) *where* clauses:
a. correlative:

[jahã: Mina ja:-egi:] [Vina bhi: vahĩ: ja:-egi:]
where Mina.F go-FUT.3FSG Vina ALSO there.ONLY go-FUT.3FSG

'Vina will go where Mina goes.'

b. extraposed headed relative:

Vina: vahĩ: ja:-egi: [jahã: Mina ja:-egi:]
Vina.F there.ONLY go-FUT.3FSG where Mina.F go-FUT.3FSG

'Vina will go where Mina goes.'

(15) *when* clauses:

a. correlative:

[jab Mina a:-egi:] [tab(=hi:) Vina a:-egi:]
WHEN Mina.F come-FUT.3FSG THEN=ONLY Vina.F come-FUT.3FSG

'When/in case Mina comes, then Vina will come.'

b. extraposed headed relative:

[Vina tab=hi: a:-egi:] [jab Mina a:-egi:]
Vina.F THEN=ONLY come-FUT.3FSG WHEN Mina.F come-FUT.3FSG

'Vina will only come when/in case Mina comes.' (Vina will come in the very same circumstances in which Mina will come.)

Relative deletion is possible with *where* clauses but only when the *where* clause follows the main clause i.e. in the extraposed headed relative structure but not in the correlative structure.

(16) *where* clauses:

a. correlative: *relative deletion

*[jahã: Mina ~~ja:-egi:~~] [Vina bhi: vahĩ: ja:-egi:]
where Mina.F go-FUT.3FSG Vina ALSO there.ONLY go-FUT.3FSG

'Vina will go where Mina goes.'

b. extraposed headed relative: $\surd$ relative deletion

Vina: vahĩ: ja:-egi: [jahã: Mina ~~ja:-egi:~~]
Vina.F there.ONLY go-FUT.3FSG where Mina.F go-FUT.3FSG

'Vina will go where Mina goes.'

As with individual relatives, equatives and *where* clauses, relative deletion is impossible in correlative *when* structures (17a). However unlike individual relatives, equatives and *where* clauses, where relative deletion is full grammatical in extraposed headed relatives, relative deletion in *when* clauses is somewhat degraded but not ungrammatical (17b). We suspect there is also some speaker variability here with some speakers finding this structure fully ungrammatical and others reporting the in-between status that we are indicating.

(17) a. correlative: relative deletion is not possible

*[jab Mina ~~a:-egi:~~] [tab(=hi:) Vina a:-egi:]
WHEN Mina.F come-FUT.3FSG THEN=ONLY Vina.F come-FUT.3FSG

'When Mina comes, then Vina will come.'

b. extraposed headed relative: √ relative deletion

??[Vina tab=hi: a:-egi:] [jab Mina ~~a:-egi:~~]
Vina.F THEN=ONLY come-FUT.3FSG WHEN Mina.F come-FUT.3FSG

'Vina will only come when/in case Mina comes.' (Vina will come in the very same circumstances in which Mina will come.)

3 Conditions on Wellformedness of Relative Deletion

3.1 Case Marking on the Relative Pronoun and the Remnant

Our initial description of relative deletion notes that a relative pronoun and one or more XPs survive relative deletion. However not every combination of relative pronoun and XP yields an acceptable instance of relative deletion. Some of these restrictions follow from general principle of ellipsis. For example, the case on the relative pronoun needs to be the same as the case on the XP that the relative clause modifies.

(18) Mina=ne us=hi: laṛke=se ba:t ki: [jɪs=se/*jɪs=ko Tina=ne
Mina=ERG that=ONLY boy=INST talk.F do.PFV.F REL=INS/REL=Dat Tina=ERG
~~ba:t~~ ~~ki:~~]
talk.F do.PFV.F

'Mina talked to the same boy as Tina.'

The impossibility of dative on the relative pronoun follows directly from the fact that dative would not be licensed inside the elliptical clause, which we assume is structurally identical to the antecedent clause, modulo the remnant and the relative pronoun.

Does the elliptical clause need to be featurally identical to the antecedent? Consider the variants of (18) in (19), where the subject remnant triggers agreement. As a result the elided verb in (19a) has different features from the verb in the antecedent while elided verb has the same features as the verb in the antecedent in (19b).

(19) a. mismatch: ?

?Mina us=hi: laṛke=se ba:t kar-egi: [jɪs=se Ramesh ~~ba:t~~
Mina.F that=ONLY boy=INST talk.F do-FUT.3FSG REL=INS Ramesh.M talk.F
~~kar-ega:~~]
do-FUT.3MSG

'Mina talked to the same boy as Ramesh did.'

b. no mismatch: √

Mina us=hi: laṛke=se ba:t kar-egi: [jɪs=se Vina ~~ba:t~~
Mina.F that.ONLY boy=INST talk.F do-FUT.3FSG REL=INS Vina.F talk.F
~~kar-egi:~~]
do-FUT.3FSG

'Mina talked to the same boy as Vina did.'

If there was no ellipsis, the verb in the relative clause in (19a) would be *kar-ega:* 'do-Fut.3MSg', distinct from the verb in the main clause *kar-egi:* 'do-Fut.3FSg'. In (19b), the verbs in the relative clause and the main verb would have the same form *kar-egi:* 'do-Fut.3FSg'. The mismatch condition leads to a mild deviance compared to the case where there is feature identity. Moreover in the equative cases, feature mismatch does not produce even mild deviance (5). Since the deviance created by feature mismatch is mild and variable, we will not consider it further but to avoid potential interference from mismatches, we will check for well-formedness of relative deletion in environments where there is no mismatch.

Not all restrictions on wellformed combinations of the relative phrase and other remnant XPs in relative deletion contexts can be derived from ellipsis identity considerations. It seems that in a range of cases where the relative pronoun is the bare *jo* 'REL' or *jab* 'when' and the remnant XPs include a bare subject (i.e. not overtly case-marked), relative deletion is ungrammatical.

(20) a. *jo* + bare subject remnant: *Relative Deletion

*Tina vo=hi: kita:b k^{h}ari:de-gi: [jo=ki Mina ~~kita:b~~
Tina.F that=ONLY book.F buy-FUT.3FSG REL=that Mina.F book.F
~~k^{h}ari:de-gi:~~]
buy-FUT.3FSG

intended: 'I'll buy the same book as Mina.'

b. *jo* + case-marked subject remnant: √Relative Deletion

Tina=ne vo=hi: kita:b k^{h}ari:d-i: [jo=ki Mina=ne ~~kita:b~~
Tina=ERG that=ONLY book.F buy-PFV.MSG REL=that Mina=ERG book.F
~~k^{h}ari:d-i:~~]
buy-PFV.FSG

intend: 'Tina bought the same book as Mina.'

Multiple remnants do not fix the problem created by non-overtly case-marked remnants.

(21) *Ravi Mina=ko vo=hi: kita:b de-ga: [jo=ki Atul Tina=ko
Ravi.M Mina=DAT that=ONLY book.F give-FUT.3MSG REL=that Atul.M Tina-DAT
~~kita:b de-ga:~~]
book give-FUT.3MSG

'Ravi will give the same book to Mina which Atul will to Tina.'

We noted in the previous section that relative deletion is degraded with *when* clauses. A more nuanced picture emerges when we consider remnant XPs with case-marked nominals.

The cases considered so far all involved bare NP remnantas. If the NP remnant is in fact case-marked, things are quite different.

(22) Mina=ko duty=ke liye tab=hi: bula:-ya: ja:-ta:
Mina=DAT duty=GEN.OBL for then=ONLY call-PFV PASS-IMPFV.3MSG
hɛ [jab=ki Tina=ko ...]
BE.PRS.3SG when=that Tina=DAT
'Mina is only called for duty when Tina is.'

Relative deletion seems to be blocked in cases where both the relative pronoun and the subject remnant are not overtly case marked. We see in (22) that when the subject remnant is overtly case marked, relative deletion is ok. Relative deletion also becomes ok if the relative pronoun is overtly case marked.

(23) case-marked relative pronoun + bare subject

a. inidvidual
Mina us=hi: kita:b ko k^hari:de-gi: [jɪs=ko ki Tina ...]
Mina.F that=ONLY book DAT buy-FUT.3FSG REL=DAT that Tina.F
'Mina will buy the same book that Tina will.'

b. where
Sheela us=hi: sheher=mẽ maka:n k^hari:de-gi: [jɪs=mẽ Tina ...]
Sheela.F that=ONLY city=IN house buy-FUT.3FSG REL=IN Tina.F
'Sheila will buy a house in the very same city as Tina.'

(24) Relative Deletion generalization: either the relative pronoun or the subject remnant of the elliptical clause must be overtly case marked.

The situation is reminiscent of a pattern found with mutiple sluicing in English. Sluicing which would involve two DP remnants is ungrammatical while sluicing with one DP and one PP is acceptable.

(25) a. John said that he gave someone something
*but I don't remember who what.

b. John said that he gave something to someone
but I don't remember what to whom.

The relative deletion generalization needs to be qualified when we go beyond individual denoting relative pronouns (*jo* 'REL' and its variants). By the metric of permitting relative deletion with bare DP remnants, the locative relative pronoun *jahã:* 'where' and the degree relative pronoun *jitna:* 'how much', but not the temporal relative pronoun *jab* 'when', count as overtly case marked.

3.2 Location and Form of the Relative Pronoun

The initial position is the default position of a relative pronoun in a headed relative clause in Hindi-Urdu. But relative clause internal material can precede the relative pronoun and such relative clauses are judged as only mildly deviant.

(26) a. relative pronoun is initial in relative clause:
vo laṛki: acchi: hɛ [jo(=ki) Ram=ko pasand hɛ]
DEM girl.F good.F is REL=that Ram=DAT pleasing is
'The girl who Ram likes is good.'

b. relative pronoun is not initial in relative clause:
(?)vo laṛki: acchi: hɛ [Ram=ko jo(=ki) pasand hɛ]
DEM girl.F good.F is Ram=DAT REL=that pleasing is
'The girl who Ram likes is good.'

However in situations where relative deletion takes place, the relative pronoun must be in initial position in the relative clause.

(27) a. Relative Pronoun Initial: √ Relative Deletion
mɛ̃=ne Sita=ko vo=hi: film dɪkʰa-yi: tʰi: [jo=ki Rita=ko
I=ERG Sita=DAT that=ONLY film.F show-PFV.F BE.PST.F REL=that Rita=DAT
~~film dɪkʰa-yi: tʰi:~~]
film.F show-PFV.F BE.PST.F
'I had showed the same film to Sita as to Rita.'

b. Relative Pronoun Non-Initial: *Relative Deletion
*mɛ̃=ne Sita=ko vo=hi: film dɪkʰa-yi: tʰi: [Rita=ko
I=ERG Sita=DAT that=ONLY film.F show-PFV.F BE.PST.F Rita=DAT
jo=ki ~~film dɪkʰa-yi: tʰi:~~]
REL=that film.F show-PFV.F BE.PST.F
intended 'I had showed the same film to Sita as to Rita.'

The non-elliptical version of the ungrammatical (27b) is in fact acceptable, albeit mildly degraded. The contrast between (27b) and (28) is clear.

(28) ?mɛ̃=ne Sita=ko vo=hi film dɪkʰa-yi: tʰi: [Rita=ko jo=ki
I=ERG Sita=DAT that=ONLY film.F show-PFV.F BE.PST.F Rita=DAT REL=that
dɪkʰa-yi: tʰi:]
show-PFV.F BE.PST.F
'I showed the same film to Sita as to Rita.'

We conclude that the relative pronoun must be initial in the relative clause for relative deletion to be possible. Moreover as we saw through the contrast in (9) this initial element cannot be explicitly phrasal i.e. the relative pronoun in the initial position cannot be part of

a phrase. To sum up, the initial element in the relative clause must be a relative pronoun, which is discontinuous from its NP modifier if it has one. The relative pronouns may, however, be case-marked.

4 Sluicing versus Gapping

Mishra (2024) analyzes Relative deletion as an instance of non-wh sluicing. In this section we provide evidence that suggest that this categorization needs to be rethought. We concur with Mishra (2024) that Relative deletion is a form of 'big ellipsis', but we will show that it shares various features with the operation of gapping in Hindi-Urdu. Both sluicing and gapping involve elision but while sluicing typically elides an entire clause except for a wh-phrase (Ross 1969) (see 29) , gapping involves elision of the verb or other elements, leaving behind remnants in a coordinated structure (Johnson 2009) (see 30).

(29) Ram met someone, but I don't know who ~~Ram met [e]~~.

(30) Ram read three books, and Meena ~~read~~ four.

Hindi-Urdu Relative deletion, unlike sluicing, imposes stricter requirements on the placement of the antecedent and ellipsis site. As seen earlier, deletion is only possible when the relative clause follows the main clause, which contains the antecedent of the ellipsis i.e. deletion is only possible 'going forward'. In only allowing for deletion when the antecedent precedes the ellipsis site, Relative Deletion (31a) parts ways with sluicing in Hindi-Urdu (29), which can precede (or follow) its antecedent .

(31) a. muj^{h}e nahĩː pataː kɪs=ne ~~Mahesh=ko~~ ~~maːraː tʰaː~~ par
I.DAT NEG know who.OBL=ERG Mahesh-ACC hit-PFV.M.SG but
kɪsiː=ne Mahesh=ko maːraː tʰaː
someone=ERG Mahesh=ACC hit.PFV.M.SG be
'I don't know who hit Mahesh, but someone hit Mahesh.'

b. kisiː=ne Mahesh=ko maːraː tʰaː par muj^{h}e nahĩː pataː
someone=ERG Mahesh=ACC hit.PFV.M.SG be.PST but I.DAT NEG know
kɪs=ne ~~Mahesh=ko~~ ~~maːraː tʰa~~
who.OBL=ERG Mahesh=ACC hit.PFV.M.SG
'Someone hit Mahesh, but I don't know who.'

Regardless of whether the ellipsis site precedes or follows the antecedent, the sentence remains grammatical. This indicates that sluicing is not constrained by the directionality of ellipsis. However, as previously demonstrated, Relative deletion exhibits a different pattern (32), allowing only forward ellipsis.

(32) Equatives
a. Ungrammatical: *[CP….. < ... >] [IP ……..]

*[Jitni: kita:bẽ Meena=ko ~~kal~~ ~~paRHni:~~ ~~hɛ̃~~] muj^{h}e a:j
How.many.F books Meena=ACC yesterday read.INF.F be.PRS.PL I.DAT today
utni:=hi: paRHni: hɛ̃
that-many=ONLY read.INF.F be.PRS/PL

'I have to read as many books today as Meena has to tomorrow.'

b. Grammatical : [IP .... [CP..... < ... >]]

muj^{h}e a:j utni:=hi: kita:bẽ paRHni: hɛ̃ [jitni: Meena=ko
I=DAT today that-many EMP books read.INF.F be.PRS.PL how.many.F
~~kal~~ ~~paRHni:~~ ~~hɛ̃~~]
Meena=ACC tomorrow read.INF.F be.PRS/.PL

'I have to read as many books today as Meena has to tomorrow.'

The fact that relative deletion cannot be 'backward' ellipsis means that it cannot apply inside correlative clauses: given the clause-initial position of correlative clauses, an ellipsis site within them would necessarily precede its antecedent. This constraint distinguishes relative deletion from sluicing and instead aligns it more closely with gapping, where similar restrictions are observed (Johnson 2009). Both processes require the ellipsis site to follow the antecedent (as in (32b) and (33)), and violations of this order result in ungrammaticality.

(33) Ram read three books, and Meena ~~read~~ four.

(34) *Ram ~~read~~ three books, and Meena read four.

Another aspect of relative deletion in Hindi-Urdu is that unlike sluicing, it cannot find its antecedent in a different utterance. In fact, even within the same utterance, the ellipsis antecedent in Relative deletion needs to be local to the ellipsis site. To be precise, the ellipsis antecedent must be in the clause to which the relative clause is attached. This can be seen from the ungrammaticality of the non-local ellipsis resolution in (35). Relative deletion is only grammatical if the antecedent is the local 'sell books', and not if it is the non-local 'buy books'.

(35) Mina utni:=hi: kita:bẽ khari:d-egi: jitni: Tina ~~kita:bẽ~~
Mina.NOM that-many=ONLY books buy.FUT.F.SG REL.F Tina.NOM books
~~khari:d-egi:~~ ɔr mɛ̃ utni: kita:bẽ bec-ũga: [jitni: Tina
buy-FUT.F.SG and I.NOM that-many-EMPH books sell-FUT.M.SG REL.F Tina
~~kita:bẽ~~ ~~bec-egi:~~/*~~kita:bẽ~~ ~~khari:d-egi:~~]
books sell-FUT.F.SG/books buy-FUT.F.SG]

'Mina will buy as many books as Tina will buy books and I will sell as many books as Tina sells/*buys.'

This is similar to gapping, where the ellipsis site and antecedent must be part of the same utterance, much like relative deletion, which similarly disallows cross-utterance ellipsis. Consider the following instance of gapping (36).

(36) A: Ram=ne Mina=se ba:t nahĩ: ki:
Ram=ERG Mina=WITH talk.F NEG do.PFV.F
intended: A: 'Ram didn't talk to Mina.'

B: *Mina=ne Vina=se [~~ba:t nahĩ: ki:~~]
Mina=ERG Vina=WITH talk.F NEG do.PFV.F
intended B:'*Mina didn't talk to Vina.'

Sluicing, by contrast, demonstrates far more flexibility. In (37), sluicing is permissible even though the antecedent occurs in a separate utterance.

(37) A: Ram kɪsi=se roz mɪl-ta hE
Ram someone=WITH daily meet-IMPF.M.SG be.PRES.3SG
'Ram meets someone everyday.'

B: muj^{h}e nahĩ: pata: kIs=se
I.DAT NEG know who=with
'I don't know who with.'

This ability leads us to think that sluicing seems to be governed by looser syntactic constraints than both Relative deletion and Gapping since the wh-phrase manages to provide sufficient information to recover the elided material, even when the ellipsis occurs in a different utterance. The evident structural dependency, and possibly a notion of locality, existing between the antecedent and the ellipsis site in Relative deletion in Hindi-Urdu implies an operation potentially akin to English gapping.

Understanding the structural similarities between Gapping and relative deletion becomes easier when we adopt the Conjunction Reduction Hypothesis (CR Hypothesis) posited by Lechner (2004). Such a framework argues for comparative clauses and coordinate structures sharing enough syntactic properties that reduction processes, such as gapping, can apply to both.

(38) This screen is wider than that screen is.
This screen is wider [$_{than-XP}$ than that screen ~~is~~].

The CR hypothesis also accounts for the strict requirements of intra-utterance ellipsis in both processes, as neither gapping nor relative deletion allows for cross-utterance dependencies. It gains further credibility from the observation that, aside from gapping, right node raising (or 'backward gapping') also occurs with right-adjoined equatives. In standard coordinate structures, right node raising refers to the phenomenon where a verb phrase or another element common to both clauses is elided from one of them, as illustrated in (39).

(39) a. Right Node Raising in a Coordinate Structure:

Ram=ne vaki:lõ=ko aur tum=ne doctrõ=ko rishvat de-ni:
Ram=ERG lawyers=DAT and you=ERG doctors=DAT bribe.F give-INF.F
ca:h-i:
want.PFV.F

'Ram wanted to bribe the lawyers and you the doctors.'

In this sentence, the verbal sequence 'want to give a bribe' is shared between the two conjuncts. (40) extends this argument by showing that right node raising is also possible in equative constructions, specifically when the equative clause is right-adjoined.

(40) Right Node Raising in a Right Adjoined Equative:

Ram=ne utne=hi: vakilõ=ko, jitne tum=ne doctrõ=ko,
Ram=ERG that.many=ONLY lawyers=DAT REL.MANY you=ERG doctors=DAT
rishvat de-ni: ca:hi:
bribe.F give-INF.F want.PFV.F

'Ram wanted to bribe as many lawyers as you wanted to bribe doctors.'

Here, the same elision pattern occurs - the verbal sequence 'want to give a bribe' is elided in the second clause, with the equative conjunction introducing an equation between the number of lawyers and the number of doctors. This equivalence suggests that structurally, certain right adjoined equative (relative) clauses are similar to coordinate structures, permitting the same kinds of ellipsis operations, such as right-node raising.

Therefore, the CR hypothesis, when applied to both standard coordinate structures and equative clauses, demonstrates that the mechanism of Relative deletion can be assimilated into a Gapping mechanism under the broader CR framework. But what the exact nature of this gapping mechanism is remains to be seen.

4.1 The Gapping Mechanism

At this point, we have established three key properties of Relative deletion in our analysis:

1. The antecedent must precede the ellipsis.

2. The antecedent must be in the clause to which the relative clause is attached (and hence, there can be no utterance boundary between the antecedent and the ellipsis).

3. Ellipsis is only permissible in restricted syntactic environments (namely coordination-like structures (CR Hypothesis)).

We previously argued that Relative deletion can be conceptually assimilated with Gapping, specifically when the relative or equative clause is treated similarly to a coordinate clause, as observed in English (Lechner 2004). Johnson's (2009) treatment of Gapping, in particular, offers a compelling explanation for the three properties outlined above. In

English, gapped clauses are typically minimal vPs that share a single Tense head with their antecedent clause. This observation is part of the Small Conjunct Analysis of Gapping (see Johnson 2009; Coppock 2001; Lin 2002), where Gapping involves the ellipsis of material from a conjunct, leaving behind a remnant that must be interpreted with reference to the antecedent. Under this analysis, Gapping in English operates via the movement of a VP remnant across both conjuncts, resulting in a shared tense interpretation across the two clauses. Johnson (2009) conceptualizes Gapping as across-the-board movement of a VP remnant and so his approach directly derives the requirement for the antecedent to precede the ellipsis (Property 1), the restriction against an utterance boundary between the antecedent and ellipsis (Property 2), and the limitation of ellipsis to specific environments such as coordination (Property 3). These three properties naturally fall-out from the ATB movement mechanism, which provides the perfect account for English Gapping.

While this would provide a straightforward solution to our puzzle here, we will see that Hindi-Urdu Gapping (HUG) is different from English Gapping, particularly with respect to the size of the conjuncts involved. Unlike English, where gapped clauses are typically vPs, Hindi-Urdu Gapping involves larger or differently structured constituents that are at least clause-sized (Kush 2016). Hindi-Urdu gapping conjuncts are suggested to contain a larger syntactic structure, possibly extending up to the TP or even including some layer of CP, as proposed by the Large Conjunct Analysis of Gapping (Ross 1969; Sag 1976; Jackendoff 1971; Jayaseelan 1990; Lin 2002). We repeat two of Kush's (2016) arguments for the claim, below.

4.1.1 Absence of Wide Scope Readings

A distinctive property of gapping in Hindi-Urdu is the absence of wide-scope readings, as illustrated by (41):

(41) Manu=ko tila:pia: kha:-na: ca:hiye ya: Tanu=ko bi:f.
Manu=DAT tilapia eat-INF.M.SG must or Tanu=DAT beef.
'Manu must eat tilapia or Tanu must eat beef.'
not available: must (manu-eat-tilapia OR tanu-eat-beef)

In this sentence, the wide-scope interpretation, where the obligation applies to the disjunction (i.e., 'Manu must eat tilapia or Tanu must eat beef'), is not available. Instead, only a narrow-scope reading is possible, where the obligation is specific to each individual conjunct (i.e., 'Manu must eat tilapia' or 'Tanu must eat beef'). The missing reading is easily accessible in the English counterpart of (41) supporting a small conjunct analysis for English. The absence of this reading in Hindi-Urdu argues for a big conjunct analysis where the two conjuncts are syntactically independent clauses, each containing its own modal structure rather than sharing a single operator.

4.1.2 Lack of Tense Sharing Across Conjuncts

Gapping in Hindi-Urdu does not allow tense sharing between conjuncts – see (42), where eliding the auxiliary leads to ungrammaticality. If T-sharing across conjuncts was allowed, we would expect this to be an option. The corresponding structure is grammatical in English ('Manu was making chai and Tanu drinking water').

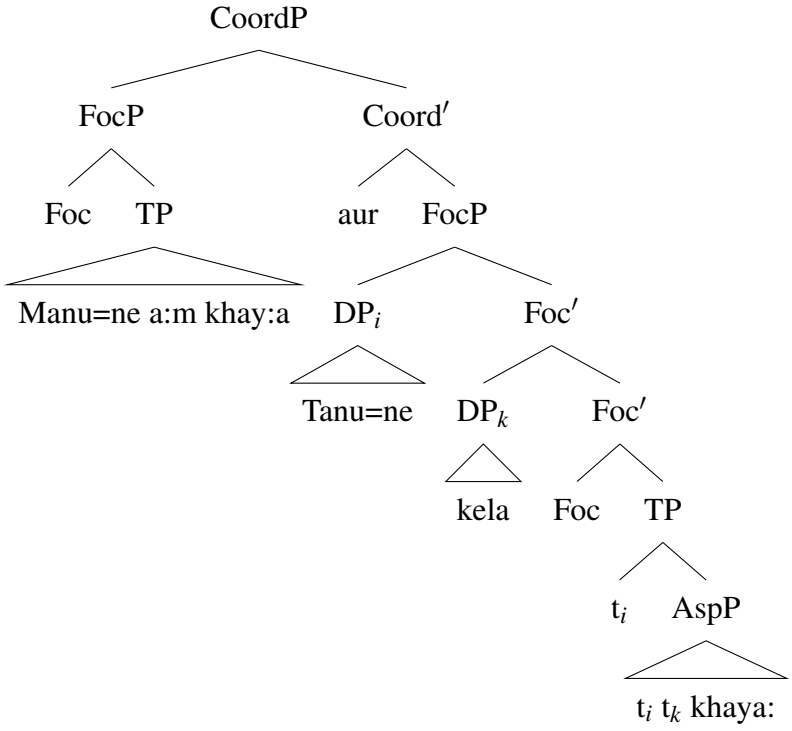
(42) *Manu cai bana:-ta: t^{h}a: aur Tanu pa:ni: ~~pi:-ta:~~
Manu cai make-IMPF.M.SG aux.PST.M.SG and Tanu water drink-IMPF.M.SG
t^{h}a:.
aux.PST.M.SG
'Manu was making chai and Tanu was drinking water.'

4.1.3 Kush's Big Ellipsis structure

These arguments lead to the conclusion that each conjunct in Hindi-Urdu gapping is treated as a fully-fledged clause, as opposed to smaller structures in languages like English. Thus, Hindi-Urdu Gapping (43) has the structure in (44), as per Kush (2016).

(43) Manu=ne a:m kha:-ya: aur Tanu=ne kela: ~~kha:-ya:~~
Manu=ERG mango eat-PFV.M.SG and Tanu=ERG banana eat-PFV.M.SG
'Manu ate the mango and Tanu ate the banana.'

(44)

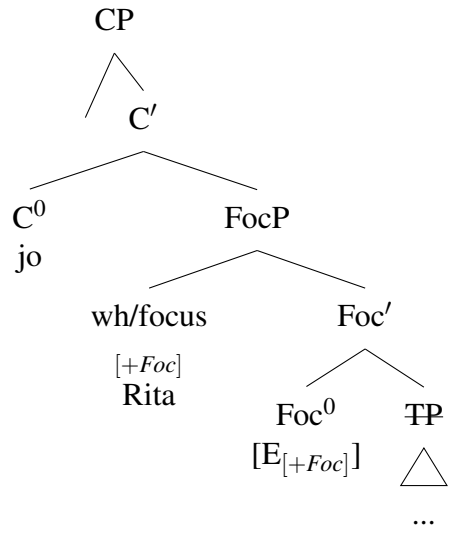


(Kush, 2016, 22)

The aforementioned gapping structure in the language, where conjuncts are clause-sized and exhibit structural independence, bears a striking resemblance to the derivation of Hindi-Urdu Relative deletion as proposed by Mishra (2024) (45), where the focus operator with its E[uFoc*] feature deletes the complement of the Foc head, leaving behind the (relative) complementizer (jo-ki) and the focus element (Rita=ko). A clipped version of the derivation is presented in (46).

(45) mɛ̃=ne Seema=ko vo=hi film dɪk^{h}a-yi t^{h}i [jo=(ki) Rita=ko]
I=ERG Seema=DAT that=ONLY film show-PFV.F be.PST.F REL=that Rita=DAT
'I showed Seema the movie which I showed to Rita.

(46)



(Mishra, 2024, 87)

What we see here is a reinforcement of the argument for the Large Conjunct Analysis in gapping in Hindi-Urdu, as the language's ellipsis operations seem to consistently involve the preservation of higher syntactic structures, whether in gapping or sluicing. But now we find ourselves in a difficult place as the Large Conjunct Analysis of gapping does not derive the three core properties of Relative deletion that we listed earlier— namely, the antecedent precedes the ellipsis, lack of utterance boundary between antecedent and ellipsis and stringent locality effects, and the restricted environments for ellipsis. We will have to leave development of an adequate account for future work.

5 Non-Local Relative deletion

We now turn to two cases of Relative deletion, where the antecedent of the ellipsis is not as local as the cases we have discussed earlier. The first case involves fragment answers and the ellipsis seems to find its antecedent in a prior utterance (47).

(47) A: tum=ne kɪs=ko bula:ya:?
2p=ERG who=ACC invite.PFV.M.SG
A: 'Who did you invite?'

B: Us=hi:=ko jɪs=ko Ramesh=ne ~~bula:ya:~~
Dem=FOC=ACC REL.OBL=ACC Ramesh=ERG invite.PFV.M.SG
intended: 'The person.FOC who Ramesh did.'

However, here it is plausible that there is an elided clause along the lines of 'I invited __' and that the ellipsis nevertheless finds a local antecedent within the elided clause. The second case, (48), highlighted in Mishra (2024), is more challenging. The antecedent of the ellipsis is within the same utterance but it is not local.

(48) mɛ̃ us=ko nahĩ: ja:nti jɪs-ko Rita=ne bula:ya par
I DEM=ACC NEG know.F REL.OBL=ACC Rita=ERG invite.PFV.M.SG but
us=ko zəro:r ja:nti hũ jɪs-ko Rama=ne
DEM=ACC definitely know.F PRES.F REL.OBL=ACC Rama=ERG
'I do not know the person who Rita invited, but I know the person who Rama did.'

We do not understand what distinguishes it from the cases like (35) where the ellipsis antecedent has to be local. It is worth noting, however, that attempts to alter the subject in the second clause - see (49) —result in ungrammaticality.

(49) *mɛ̃ us=ko nahĩ: janti jɪs=ko Ram=ne bula:ya:, par tum
I DEM=ACC NEG know.F REL.OBL=ACC Ram=ERG invite.PFV.M.SG but 2p
us=ko zəro:r ja:nti: ho-gi jɪs=ko Sita=ne
DEM=ACC definitely know.F PRES=FUT REL.OBL=ACC Sita=ERG
'I do not know the person whom Ram invited, but you definitely know the person whom Sita did.'

Along with the proper analysis of Relative Deletion in Hindi-Urdu, we leave the challenge posed by (49) for the future.

6 Conclusion

The current study explores the phenomenon of Relative Deletion (RD) in Hindi-Urdu (HU), focusing on its interaction with various relativization structures. We start with Mishra (2024)'s observation that there are striking similarities with Focus-Based TP/IP Deletion seen in other languages. A detailed examination of Relative deletion reveals distinctive syntactic properties pertaining to the locality of the ellipsis antecedent and the location of the relative pronoun. The antecedent of the ellipsis must precede the ellipsis and must be located in the clause to which the relative clause is attached. These restrictions on the antecedent in particular place Relative deletion closer to gapping than sluicing. Constraining the analysis space is the fact that both gapping and sluicing seem to be instances of 'big' ellipsis in Hindi-Urdu.

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