

1 Overview

1.1 Rightward Movement

In addition to permitting scrambling, which is defined as involving reordering of arguments with the verb staying in the final position, the Indo-Aryan languages also permit arguments to appear to the right of the verb.

Such cases are lumped together under the rubric of Rightward Movement.

(1) (from Kidwai (2000):3)

a. Basic Word Order: Subj IO DO V

Nur-ne Anjum-ko kitaab di-i
 Nur-Erg Anjum-Dat book.f give-Pfv.f

b. 5 scrambling orders (Subj DO IO V, IO Subj DO V, DO Subj IO V, IO DO Subj V, DO IO Subj V)

c. IO DO V Subj

Anjum-ko kitaab di-i Nur-ne
 Anjum-Dat book.f give-Pfv.f Nur-Erg

d. Subj DO V IO

Nur-ne kitaab di-i Anjum-ko
 Nur-Erg book.f give-Pfv.f Anjum-Dat

e. Subj IO V DO

Nur-ne Anjum-ko di-i kitaab
 Nur-Erg Anjum-Dat give-Pfv.f book.f

f. DO IO V Subj

kitaab Anjum-ko di-i Nur-ne
 book.f Anjum-Dat give-Pfv.f Nur-Erg

g. DO Subj V IO

kitaab Nur-ne di-i Anjum-ko
 book.f Nur-Erg give-Pfv.f Anjum-Dat

h. IO Subj V DO

Anjum-ko Nur-ne di-i kitaab
 Anjum-Dat Nur-Erg give-Pfv.f book.f

i. Possible: $_ V _ _ _$ (i.e. Subj V IO DO, Subj V DO IO, IO V Subj DO, IO V DO Subj, DO V Subj IO, DO V IO Subj)

j. Also Possible: $V _ _ _$ (i.e. V Subj IO DO, V Subj DO IO, V IO Subj DO, V IO DO Subj, V DO Subj IO, V DO IO Subj)
 (Most marked order, perhaps Verum Focus)

Nur gave Anjum a book.

1.2 Complementation

Non-finite complements typically precede the verb, but they can also appear in postverbal positions.

(2) a. Preverbal non-finite complement:

Mona [ghar jaa-naa] chaah-tii hai
 Mona.f home go-Inf want-Hab.f be.Prs.Sg
 'Mon wants to go home.'

b. Postverbal non-finite complement:

Mona chaah-tii hai [ghar jaa-naa]
 Mona.f want-Hab.f be.Prs.Sg home go-Inf
 'Mon wants to go home.'

In Hindi, finite clause complements can only appear verb finally.

(3) a. Postverbal finite complement:

Mona jaan-tii hai [?(ki) Rohit chant hai]
 Mona.f know-Hab.f be.Prs.Sg that Rohit.m cunning be.Prs.Sg
 'Mona knows that Rohit is cunning.'

b. *Preverbal finite complement:

*Mona [(ki) Rohit chant hai] jaan-tii hai
 Mona.f that Rohit.m cunning be.Prs.Sg know-Hab.f be.Prs.Sg

→ No finite sentential subjects in Hindi.

Bengali allows for finite clauses to appear both pre- and post-verbally, but with different complementizers.

(4) (Bengali, from Bayer (1995))

a. Preverbal finite complement, clause-final complementizer

chele-Ta [[or baba aS-be] **bOle**] Sune-che
boy-CL his father come-Fut Comp1 hear-Pst

'The boy has heard that his father will come.'

b. Postverbal finite complement, clause-initial complementizer

chele-Ta Sune-che [je [or baba aS-be]]
boy-CL hear-Pst Comp2 his father come-Fut

'The boy has heard that his father will come.'

The reverse options - a preverbal finite complement with a clause-initial complementizer, and a postverbal finite complement with a clause-final complementizer - are ungrammatical.

(5) (Bengali, from Bayer (1995))

a. *Preverbal finite complement, clause-initial complementizer

*chele-Ta [je [or baba aS-be]] Sune-che
boy-CL Comp2 his father come-Fut hear-Pst

b. *Postverbal finite complement, clause-final complementizer

*chele-Ta Sune-che [[or baba aS-be] **bOle**]
boy-CL hear-Pst his father come-Fut Comp1

Clausal Expletives:

(6) Mona **yah** jaan-tii hai [ki Rohit chaṅṅ hai]
Mona.f this know-Hab.f be.Prs.Sg that Rohit.m cunning be.Prs.Sg
'Mona knows that Rohit is cunning.'

1.3 Extraposition

Finite clause complements of NP's as well as relative clauses can be extraposed.

(7) Finite Clause Complements of NP's:

a. Base Position:

mujhe [yah khabar [ki ve log nahī: aa paa-ēge]] kal
me.Dat this news.f that those people Neg come able-Fut.3MPI yesterday
mil-ii
'find'-Pfv.f

'I got the news that those people won't be able to come yesterday.'

b. Extraposed:

mujhe [yah khabar] kal mil-ii [ki ve log nahī: aa
me.Dat this news yesterday 'find'-Pfv.f that those people Neg come
paa-ēge]
able-Fut.3MPI

'I got the news yesterday that those people won't be able to come.'

(from Subbarao (1984):100-101)

(8) Relative Clauses:

a. Base Position:

[ve log [jo zyaadaa chai pii-te hĒ]] kam so
those people Rel more tea drink-Hab.MPI be.Prs.Pl less sleep
paa-te hĒ
able-Hab.MPI be.Prs.Pl

'Those people who drink a lot of tea aren't able to sleep well.'

b. Extraposed:

[ve log] kam so paa-te hĒ [jo zyaadaa chai
those people less sleep able-Hab.MPI be.Prs.Pl Rel more tea
pii-te hĒ]
drink-Hab.MPI be.Prs.Pl

'Those people aren't able to sleep well [who drink a lot of tea].'

(from Subbarao (1984):102-103)

Subbarao (1984) notes that the Indo-Aryan languages permit systematic violations of the Right Roof/Upward Bounded Constraint of Ross (1967).

- (9) a. [That the girl [who John likes] is tall] is obvious.
b. [That the girl is tall [who John likes]] is obvious.
c. *[That the girl is tall] is obvious [who John likes].

- (10) a. Base:
 [un jhuuthō-ko [jo Ram-ne mujhe bataa-ye the] dohraa-naa]
 those lies-Acc Rel Ram-Erg me.Dat tell-Pfv.MPI be.Pst.MPI repeat-Inf
 galat hai
 wrong be.Prs.Sg
 'To repeat the lies that Ram had told me] is wrong.'
- b. Extraposed:
 [un jhuuthō-ko t; dohraa-naa] galat hai [jo Ram-ne mujhe
 those lies-Acc repeat-Inf wrong be.Prs.Sg Rel Ram-Erg me.Dat
 bataa-ye the];
 tell-Pfv.MPI be.Pst.MPI
 'To repeat the lies that Ram had told me] is wrong.'
 (Lit. *[To repeat the lies] is wrong [that John had told me].)

2 Rightward Scrambling

Rightward Scrambling = cases where a nominal argument appears to the right of the verb.

Any argument can be rightward scrambled:

- (11) (from Mahajan (1997b):187)
- a. Subject:
 Ram-ko dhyaan-se dekh-aa thaa **Sita-ne**
 Ram-Acc care-with see-Pfv be.Pst Sita-Erg
 'Sita saw Ram carefully.'
- b. Direct Object:
 Sita-ne dhyaan-se dekh-aa thaa **Ram-ko**
 Sita-Erg care-with see-Pfv be.Pst Ram-Acc
 'Sita saw Ram carefully.'
- c. Indirect Object:
 Sita-ne vah kitaab di-i thii **Ram-ko**
 Sita-Erg that book.f give-Pfv.f be.Pst.f Ram-Dat
 'Sita had given that book to Ram.'

Quantificational Phrases can also appear postverbally. More than one argument may appear postverbally:

- (12) Ram dhyaan-se parh-egaa [**saarii kitaabē**
 Ram.m care-with read-Fut.MSg all.f books.f
 'Ram will read all the books carefully.' (from Mahajan (1997b):187)

More than one argument may appear postverbally:

- (13) (from Mahajan (1997b):187)
 vah kitaab di-i thii Ram-ne Sita-ko
 that book.f give-Pfv.f be.Pst.f Ram-Erg Sita-Dat
 'Ram had given Sita that book.'

Rightward scrambled arguments can appear between a participial verb and the auxiliary verb.

- (14) Sita-ne kitaab **bhej-ii** Ram-ko **thii**
 Sita-Erg book.f send-Pfv.f Ram-Dat be.Pst.f
 'Sita had sent the book to Ram.'

2.1 The Structural Position of Rightward Scrambled Phrases

2.1.1 Variable Binding

Rightward Scrambled phrases are lower than phrases to the left of the verb.

- Rightward scrambled phrases cannot bind variables in phrases to the left of the verb.

- (15) (from Mahajan (1997b):189)
- a. Base sentence, WCO:
 *[us-ke_i bhaai]-ne [har-ek aadmii-ko]_i maar-aa
 he-Gen.Obl brother-Erg every-one man-Acc hit-Pfv
 '*His_i brother hit every man_i.'
- b. Rightward Scrambling, WCO is not amnestied:
 *[us-ke_i bhaai]-ne maar-aa [har-ek aadmii-ko]_i
 he-Gen.Obl brother-Erg hit-Pfv every-one man-Acc
 '*His_i brother hit every man_i.'
- c. Leftward Scrambling, WCO amnesty:
 [har-ek aadmii]-ko [us-ke_i bhaai]-ne maar-aa
 every man-Acc he-Gen.Obl brother-Erg hit-Pfv
 'Every man's brother hit him.' (Lit. ???His_i brother hit every man.)

The same point holds of anaphoric binding.

- (16) a. Base:
 ???Mona-ne [ek-duusre-kii_i tasviirē] [Hrithik-aur Saif]-ko, dikhaa-ii
 Mona-Er each-other-Gen.f pictures.f Hrithik-and Saif-Dat show-Pfv.f
 '???Mona showed each other's_i pictures to [Hrithik and Saif]_i.'
- b. Rightward Scrambling, new binding options do not become available:
 ???Mona-ne [ek-duusre-kii_i tasviirē] dikhaa-ii [Hrithik-aur Saif]-ko,
 Mona-Er each-other-Gen.f pictures.f show-Pfv.f Hrithik-and Saif-Dat
 '???Mona showed each other's_i pictures to [Hrithik and Saif]_i.'
- c. Leftward Scrambling, new binding options become available:
 Mona-ne [Hrithik-aur Saif]-ko, [ek-duusre-kii_i tasviirē] dikhaa-ii
 Mona-Er Hrithik-and Saif-Dat each-other-Gen.f pictures.f show-Pfv.f
 'Mona showed Hrithik and Saif_i each other's_i pictures.'

• Phrases to the left of the verb can bind variables and anaphors in rightward scrambled phrases.

- (17) a. Variable Binding (from Mahajan (1997b):192)
 Ram-ne [har-ek aadmii]-ko, lauṭaa-ii [us-kii, kitaab]
 Ram-Erg every-one man-Dat return-Pfv.f he-Gen.f book.f
 'Ram returned every man_i his_i book.'
- b. Rightward Scrambling
 Mona-ne [Hrithik-aur Saif]-ko, dikhaa-ii [ek-duusre-kii, tasviirē]
 Mona-Er Hrithik-and Saif-Dat show-Pfv.f each-other-Gen.f pictures.f
 'Mona showed Hrithik and Saif_i each other's_i pictures.'

The presence and location of the finite auxiliary seems to make no difference to the variable binding possibilities.

- (18) (from Mahajan (1997b):193-194)
- a. Ram-ne [har-ek aadmii]-ko, lauṭaa-ii **thii** [us-kii, kitaab]
 Ram-Erg every-one man-Dat return-Pfv.f be.Pst.f he-Gen.f book.f
 'Ram had returned every man_i his_i book.'
- b. Ram-ne [har-ek aadmii]-ko, lauṭaa-ii [us-kii, kitaab] **thii**
 Ram-Erg every-one man-Dat return-Pfv.f he-Gen.f book.f be.Pst.f
 'Ram had returned every man_i his_i book.'

Generalization: Rightward Scrambling seems to not affect variable binding possibilities.

- (19) The following structures have the same variable binding possibilities:
- a. $XP_1 \dots V XP_2$
 b. $XP_1 \dots XP_2 V$
 (the relative location of the Auxiliary also seems to not make a difference.)

→ Rightward Scrambling does not take a phrase 'higher'.

Mahajan's analysis:

- (20) a. Antisymmetry is assumed i.e. Hindi is underlyingly head-initial.
 b. 'Subj IO DO V' is derived by the VP internal arguments moving to higher specifiers and the V staying in a low head position.
 c. Rightward scrambling is generated by the verb moving higher than it does in the derivation of 'Subj IO DO V'.
- (21) Deriving: S IO V Aux DO
- a. [IO [V DO]]
 b. [_{AgriO} IO_i [_{AgriO'} V_j [_{AgriDO} DO_k [_{VP} t_i t_k]]]]
 c. [Aux [_{AgriO} IO V [_{AgriDO} DO]]]
 d. [_{AuxP} DO_i [_{Aux'} Aux [_{AgriO} IO V [_{AgriDO} t_i]]]]
 e. [_{AgriAuxP} Aux_j [_{AuxP} DO_i [_{Aux'} t_j [_{AgriO} IO V [_{AgriDO} t_i]]]]]
 f. [_{AgriAuxP} AgriOP_k [_{AgriAux'} Aux_j [_{AuxP} DO_i [_{Aux'} t_j t_{AgriOP,k}]]]]

The material inside the fronted AgriOP does not actually c-command the DO.

→ so it is stipulated that the [Spec,AgriO] c-commands whatever AgriOP c-commands.

Not clear if this general enough to capture (19).

2.1.2 Condition C Effects

Rightward Scrambling does not change c-command relations as reflected by Condition C effects.

- (22) (from Mahajan (1997b):198)
- a. Base:
 *Sita-ne use_i [tumhaarī Ram_i-vaalī kitaab] lauṭaa di-i
 Sita-Erg he.Dat your.f Ram-VAAL.f book.f return GIVE-Pfv.f
 '**Sita returned him_i your book about Ram_i.'

b. Rightward Scrambling: Condition C is not obviated

*Sita-ne use_i laṭṭaa di-i [tumhaarīi Ram_i-vaalīi kitaab]
Sita-Erg he.Dat return GIVE-Pfv.f your.f Ram-VAAL.f book.f
'*Sita returned him_i your book about Ram_i.'

c. Leftward Scrambling: Condition C is obviated

Sita-ne [tumhaarīi Ram_i-vaalīi kitaab] use_i laṭṭaa di-i
Sita-Erg your.f Ram-VAAL.f book.f he.Dat return GIVE-Pfv.f
'Sita returned your book about Ram_i to him_i.'

(23) Generalization: Rightward scrambling does not change Condition C judgements.
→ If XP₁ c-commands XP₂ in (23b), it also c-commands XP₂ in (23a).

- a. XP₁ ... V ... XP₂
- b. XP₁ ... XP₂ ... V

(the presence/location of the Auxiliary seems to not make a difference.)

2.1.3 Scope

Unscrambled sentences in Hindi are taken to be unambiguous displaying only surface scope.

(24) a. only *every* > *three* (from Mahajan (1997b):199)

sab [tiin chiizē] khariid-ēge
everone three things buy-Fut.3MSg
'Everyone will buy three things.'

b. *some* > *every*

[kisii chhaatr]-ne [har teacher]-ko card bhej-aa
some student-Erg every teacher-Dat card.m send-Pfv.f
'Some student sent every teacher a card.'

Leftward Scrambling makes the unambiguous (24a, b) ambiguous.

(25) a. *three* > *every*, *every* > *three* (from Mahajan (1997b):199)

[tiin chiizē]_i sab t_i khariid-ēge
three things everyone buy-Fut.3MSg
'Everyone will buy three things.'

b. *every* > *some*, *some* > *every*

[har teacher]-ko_i [kisii chhaatr]-ne t_i card bhej-aa
every teacher-Dat some student-Erg card.m send-Pfv.f
'Some student sent every teacher a card.'

Rightward Scrambling does not produce ambiguity.

(26) a. only *every* > *three* (from Mahajan (1997b):200)

sab khariid-ēge [tiin chiizē]
everone buy-Fut.3MSg three things
'Everyone will buy three things.'

b. *some* > *every*

[kisii chhaatr]-ne card bhej-aa [har teacher]-ko
some student-Erg card.m every teacher-Dat every teacher-Acc
'Some student sent every teacher a card.'

(27) Generalization: Rightward scrambling does not change scope judgements.
→ the scope relation between XP₁ and XP₂ are the same in (27a) and (27b).

- a. XP₁ ... V ... XP₂
- b. XP₁ ... XP₂ ... V

(the presence/location of the Auxiliary seems to not make a difference.)

If the base order allows for scopal ambiguity, Rightward Scrambling also displays scopal ambiguity:

(28) (from Mahajan (1997b):201)

a. Base: (*every* > *three*, *three* > *every*)

sab-ko tiin kitaabē pasand aa-ii
everyone-Dat three books.f like come-Pfv.f
'Everyone liked three books.'

b. Rightward Scrambling: (*every* > *three*, *three* > *every*)

sab-ko pasand aa-ii tiin kitaabē
everyone-Dat like come-Pfv.f three books.f
'Everyone liked three books.'

2.2 Multiple Rightward Scrambling

More than one argument can follow the verb.

(29) (from Mahajan (1997b):201)

a. Subj V IO DO

Sita-ne dikhaa-ii Mohan-ko [ek kitaab]
Sita-Erg show-Pfv.f Mohan-Dat a book.f
'Sita showed a book to Mohan.'

b. Subj V DO IO

Sita-ne dikhaa-ii [ek kitaab] Mohan-ko
 Sita-Erg show-Pfv.f a book.f Mohan-Dat
 'Sita showed a book to Mohan.'

The linear order of the arguments seems to reflect their structural relationships.

- (30) Generalization: the structural relationships in (30a) and (30b) are the same i.e. XP₁ asymmetrically c-commands XP₂ and XP₂ asymmetrically c-commands XP₃.
- XP₁ V XP₂ XP₃
 - XP₁ XP₂ XP₃ V

2.2.1 Variable Binding

- (31) Variable Binding:
- Subj V QP_{DO,i} [his_i.....]_{IO}
 (also good: Subj QP_{DO,i} [his_i.....]_{IO} V)
 - Subj V QP_{IO,i} [his_i.....]_{DO}
 (also good: Subj QP_{IO,i} [his_i.....]_{DO} V)
- (32) (schematized form of Mahajan (1997b):ex. 59, 60)
- (33) WCO:
- *Subj V [his_i.....]_{IO} QP_{DO,i}
 (also bad: *Subj [his_i.....]_{IO} QP_{DO,i} V)
 - Subj V [his_i.....]_{DO} QP_{IO,i}
 (also bad: *Subj [his_i.....]_{DO} QP_{IO,i} V)
- (schematized form of Mahajan (1997b):ex. 61, 62)

The variable binding facts stay the same irrespective of the grammatical function of XP₂ and XP₃.

- (34) a. XP₁ V XP₂ XP₃
 b. XP₁ XP₂ XP₃ V
 XP₂ c-commands XP₃ in both (34a, b).
- (35) Sentence-final Subject:
- Variable Binding:
 DO V QP_{IO,i} [his_i.....]_{Subj}
 (also good: DO QP_{IO,i} [his_i.....]_{Subj} V)
 - Variable Binding:
 *DO V [his_i.....]_{IO} QP_{Subj,i}
 (also bad: DO [his_i.....]_{IO} QP_{Subj,i} V)

(schematized form of Mahajan (1997b):ex. 64, 65)

The Preverbal XP₁ c-commands both the postverbal arguments: XP₂ and XP₃.

- (36) a. XP_{1,i} V [his_i.....]_{XP2} XP₃
 b. XP_{1,i} V XP₂ [his_i.....]_{XP3}
 c. XP_{1,i} V [his_i.....]_{XP2} [his_i.....]_{XP3}
 (schematized form of Mahajan (1997b):ex. 66-68)

2.2.2 Condition C

- (37) a. XP₁ (= Pron) c-commands XP₂:
 *Pron_i V [...Name_i.....]_{XP2} XP₃
 (Also bad: *Pron_i [...Name_i.....]_{XP2} XP₃ V)
- b. XP₁ (= Pron) c-commands XP₃:
 *Pron_i V XP₂ [...Name_i.....]_{XP3}
 (Also bad: *Pron_i XP₂ [...Name_i.....]_{XP3} V)
- (38) a. XP₂ (= Pron) c-commands XP₃:
 *XP₁ V Pron_i [...Name_i.....]_{XP3}
 (Also bad: *XP₁ Pron_i [...Name_i.....]_{XP3} V)
- b. XP₃ (= Pron) **does not** c-command XP₂:
 XP₁ V [...Name_i.....]_{XP2} Pron_i
 (Also good: XP₁ [...Name_i.....]_{XP2} Pron_i V)
 (schematized form of Mahajan (1997b):ex. 69-70)

2.2.3 Scope

Rightward scrambling of more than argument leaves scopal relations untouched.

- (39) a. Base: Subj QP₁ QP₂ V; Scope: QP₁ > QP₂
 b. Leftward Scrambling: QP_{2,i} Subj QP₁ t₂ V; Scope: QP₁ > QP₂, QP₂ > QP₁
 c. Rightward Scrambling: Subj V QP₁ QP₂; Scope: QP₁ > QP₂
 (schematized form of Mahajan (1997b):ex. 71,72,74)

2.3 Summing Up

The syntactic effects of Rightward Scrambling are conspicuous by their absence.

- (40) Generalization: Rightward scrambling does not change structural relationships between XP_1 and XP_2 .
- $XP_1 \dots V \dots XP_2$
 - $XP_1 \dots XP_2 \dots V$
(the presence/location of the Auxiliary seems to not make a difference.)

Question: how are the various word orders to be derived while keeping structural relations between the various arguments unchanged?

Option 1: It's a PF-Phenomenon.

Problems from *wh*-scope, to be discussed in detail later, militate against this approach.

- (41) (from Mahajan (1997b):209)
- Immediately preverbal *wh*-in-situ → normal question interpretation
Sita-ne dhyaan-se **kis-ko** dekh-aa thaa
Sita-Erg care-with who-Acc see-Pfv be.Pst
'Who did Sita see carefully?'
 - Postverbal *wh*-XP → only echo question interpretation
???Sita-ne dhyaan-se dekh-aa thaa **kis-ko**
Sita-Erg care-with see-Pfv be.Pst who-Acc
'Sita saw carefully WHO?'

Option 2: Let Participles participate in leftward scrambling (like DPs). To capture the full range of facts, we will also have to allow for the finite auxiliary to be leftward scrambled. → but what about the *wh*-in-situ facts?

3 Extraposition

- (42) Complement Clause Extraposition:

Mona jaan-tii hai [?(ki) Rohit chaṅ hai]
Mona.f know-Hab.f be.Prs.Sg that Rohit.m cunning be.Prs.Sg

'Mona knows that Rohit is cunning.'

- (43) Finite Clause Complements of NP's:

- a. Base Position:

mujhe [yah khabar [ki ve log nahī: aa paa-ēge]] kal
me.Dat this news.f that those people Neg come able-Fut.3MPI yesterday
mil-ii
'find'-Pfv.f

'I got the news that those people won't be able to come yesterday.'

- b. Extraposed:

mujhe [yah khabar] kal mil-ii [ki ve log nahī: aa
me.Dat this news yesterday 'find'-Pfv.f that those people Neg come
paa-ēge]
able-Fut.3MPI

'I got the news yesterday that those people won't be able to come.'

(from Subbarao (1984):100-101)

- (44) Relative Clauses:

- a. Base Position:

[ve log [jo zyaadaa chai pii-te hĒ]] kam so
those people Rel more tea drink-Hab.MPI be.Prs.Pl less sleep
paa-te hĒ
able-Hab.MPI be.Prs.Pl

'Those people who drink a lot of tea aren't able to sleep well.'

- b. Extraposed:

[ve log] kam so paa-te hĒ [jo zyaadaa chai
those people less sleep able-Hab.MPI be.Prs.Pl Rel more tea
pii-te hĒ]
drink-Hab.MPI be.Prs.Pl

'Those people aren't able to sleep well [who drink a lot of tea].'

(from Subbarao (1984):102-103)

Common Assumption: Extraposed Clauses are right-adjoined to some projection, IP or higher (cf. Subbarao (1984), Mahajan (1990), Dayal (1996)).

3.1 Surface Location of Finite Complement Clauses

Finite complement clauses in Hindi cannot appear pre-verbally.

A clausal expletive *yah* 'it' can appear in the object position of the verb that is taking the finite clause complement.

- (45) a. Extraposition:
 Mona (**yah**) jaan-tii hai [?(ki) Rohit chant hai]
 Mona.f this know-Hab.f be.Prs.Sg that Rohit.m cunning be.Prs.Sg
 'Mona knows that Rohit is cunning.'
 b. No extraposition, Ungrammaticality:
 *Mona (**yah**) [(ki) Rohit chant hai] jaan-tii hai
 Mona.f this that Rohit.f cunning be.Prs.Sg know-Hab.f be.Prs.Sg

A contentful noun may also appear:

- (46) a. Extraposed clause. Complementizer must be present:
 Mona [**yah baat**] jaan-tii hai [* (ki) Rohit chant hai]
 Mona.f this thing know-Hab.f be.Prs.Sg that Rohit.m cunning be.Prs.Sg
 'Mona knows this fact that Rohit is cunning.'
 b. Extraposition is not obligatory. Complementizer must be present:
 Mona [**yah [baat [* (ki) Rohit chant hai]]**] jaan-tii hai
 Mona.f this thing that Rohit.f cunning be.Prs.Sg know-Hab.f be.Prs.Sg
 'Mona knows this fact that Rohit is cunning.'
 (see Bayer (1997):50 for similar facts in Bengali)

How far can the extraposed complement clause appear from its verb?

- (47) a. V_{CP} CP
 Mona-ne **kah-aa** [_{CP} ki vo aa-egii]
 Mona-Erg say-Pfv that she come-Fut.3FSg
 'Mona said that she will come.'
 b. V_{CP} Aux CP
 Mona-ne **kah-aa** thaa [_{CP} ki vo aa-egii]
 Mona-Erg say-Pfv be.Pst that she come-Fut.3FSg
 'Mona had said that she will come.'
 c. V_{CP} Aux₁ Aux₂ CP
 Mona **kah** rahii thii [_{CP} ki vo aa-egii]
 Mona-Erg say Prog.f be.Pst.f that she come-Fut.3FSg

'Mona was saying that she will come.'

- d. V_{CP} V_{matrix} Aux CP
 mĒ [**kah-naa**] chaah-taa hū: [_{CP} ki Billu paagal hai]
 I say-Inf want-Hab.MSG be.1Sg that Billu.m insane be.Prs.Sg
 'I want to say that Billu is insane.'
 e. V_{CP} $V_{embedded}$ V_{matrix} Aux CP
 Yusuf [[Renu-se (yeh) **keh-ne**]-kii koshish kar-naa]
 Yusuf.m Renu-Instr EXPL say-Inf.Obl-Gen.f attempt.f do-Inf
 chaah-taa hai [ki vo us-se pyaar kar-taa hai]
 want-Hab.MSG be.Prs.Sg that he her-with love do-Hab.MSG be.Prs
 'Yusuf wants to try to tell Renu that he loves her.'

The complement clause must be right peripheral in a clause.

- (48) a. * V_{CP} CP Aux
 b. * V_{CP} Aux₁ CP Aux₂
 c. * V_{CP} CP Aux₁ Aux₂
 d. * V_{CP} V_{matrix} CP Aux
 e. * V_{CP} $V_{embedded}$ V_{matrix} CP Aux
 f. * V_{CP} $V_{embedded}$ CP V_{matrix} Aux

However, it may somewhat marginally stay at the edge of the non-finite clause associated with the verb whose complement it is. This option seems to require the presence of the clausal expletive.

- (49) a. ?? [[EXPL V_{CP}] CP] V_{matrix} Aux
 ??mĒ [[??? (yah) **kah-naa**] [_{CP} ki Billu paagal hai]] chaah-taa hū:
 I say-Inf want-Hab.MSG be.1Sg that Billu.m insane be.Prs.Sg
 'I want to say that Billu is insane.'
 b. [[[EXPL V_{CP}] CP] $V_{embedded}$] V_{matrix} Aux
 Yusuf [[Renu-se ?? (yeh) **keh-ne**]-kii [ki vo us-se pyaar
 Yusuf.m Renu-Instr EXPL say-Inf.Obl-Gen.f that he her-with love
 kar-taa hai] koshish kar-naa] chaah-taa hai
 do-Hab.MSG be.3Sg] attempt.f do-Inf want-Hab.MSG be.Prs.Sg
 'Yusuf wants to try to tell Renu that he loves her.'
- (50) Generalization: a finite clause complement can appear either at the right edge of its own non-finite clause or at the right edge of the smallest finite clause that contains its clause of origin.

The Role of Finiteness: no extraposition out of a finite clause

- (51) a. No Extraposition: [NP [_{CP1} ... [_{CP2} ...]]] true is
 [yeh baat [ki Mona soch-tii hai [ki Tina kanjoos hai]]
 this statement that Mona.f think-Hab.f be.Prs.Sg that Tina miser be.Prs.Sg
 sach hai
 true be.Prs.Sg
 'The statement [that Mona thinks [that Tina is a miser]] is true.'
- b. Full Extraposition:
 [yeh baat] sach hai [ki Mona soch-tii hai [ki Tina
 this statement true be.Prs.Sg that Mona.f think-Hab.f be.Prs.Sg that Tina
 kanjoos hai]
 miser be.Prs.Sg
 'The statement is true [that Mona thinks [that Tina is a miser]].'
- c. *Extraposition of CP₂ out of a finite clause CP₁
 *[yeh baat [ki Mona soch-tii hai]] sach hai [ki Tina
 this statement that Mona.f think-Hab.f be.Prs.Sg true be.Prs.Sg that Tina
 kanjoos hai]
 miser be.Prs.Sg
 '**The statement [that Mona thinks] is true [that Tina is a miser].'

3.2 Structural Location of the Extraposed Clause

- Is the extraposed Complement Clause an adjunct?
- Where is the extraposed Complement Clause attached?

Mahajan (1990), Dayal (1996): Yes, the complement clause is extraposed from its θ -position to an IP-adjoined right peripheral position for reasons like the Case Resistance Principle. However, it reconstructs at LF.

Mahajan (1997a): No, the complement clause is not in an adjunct position. It is sitting in its θ -position, which is very low in the tree.

3.2.1 Extraction

It is possible to extract from extraposed complement clauses.

- (52) (from Mahajan (1997a):ex. 51, 52)
- a. Argument Extraction:
kis-ko_i Ram-ne soch-aa [ki Mohan-ne t_i dekh-aa]
 who-Acc Ram-Erg think-Pfv that Mohan-Erg see-Pfv
 'Who did Ram think Mohan saw?'
- b. Adjunct Extraction:
kaise Ram-ne soch-aa [ki Mohan-ne t_i gaarii thiik ki-i]
 how Ram-Erg think-Pfv that Mohan-Erg car.f correct do-Pfv.f
 'How did Ram think that Mohan fixed the car?'

But extraction out of extraposed elements is degraded:

- (53) a. Who_i did John read [a book about t_i] yesterday?
 (John read [a book about Dr. Kevorkian] yesterday.)
 b. *Who_i did John read [a book] yesterday [about t_i]?
 (John read [a book] yesterday [about Dr. Kevorkian].)

Mahajan (1990), Dayal (1996): Extraction takes place before Extraposition.

Evidence: Presence of a clausal expletive forces a base-adjunction analysis, blocking the merger in θ -position followed by extraposition.

- (54) (from Mahajan (1997a):ex. i in fn. 18)
- ???**kis-ko_i** Ram-ne **yah** soch-aa [ki Mohan-ne t_i dekh-aa]
 who-Acc Ram-Erg EXPL think-Pfv that Mohan-Erg see-Pfv
 '**Who did Ram think it that Mohan saw?'

But what about (53)?

Mahajan (1997a): No extraposition, no problem. The CP is in complement position so we expect extraction to be possible.

(54) is to be analyzed as a Complex NP violation.

3.2.2 Condition C and Variable Binding

The extraposed finite complement clause seems to be rather low (at least at LF).

Dative objects can bind pronouns in the extraposed complement, and trigger Condn. C effects.

- (55) (from Mahajan (1997a):ex. 53, 54)
- a. Variable Binding:
 Sita-ne [har aadmii]-se; kah-aa [ki vo; jii-egaa]
 Sita-Erg every man-Instr say-Pfv that he win-will.3MSg
 'Sita told every man that he would win.'
- b. Condition C:
 *Sita-ne us-se; kah-aa [ki Mohan; jii-egaa]
 Sita-Erg he-Instr say-Pfv that Mohan win-will.3MSg
 *Sita told him; that Mohan; would win.'

Mahajan (1997a): this is to be expected if the Complement Clause is in its θ -position.

Mahajan (1990), Dayal (1996): These tests apply at LF after the Complement Clause has been reconstructed into its θ -position.

Two Problems:

- The presence of an expletive is taken to block Merger in θ -position (cf. 54). This might presumably block reconstruction at LF. But scope judgements are unaffected by the presence of the expletive.

- (56) a. Variable Binding:
 Sita-ne [har aadmii]-se; **yah** kah-aa [ki vo; jii-egaa]
 Sita-Erg every man-Instr EXPL say-Pfv that he win-will.3MSg
 'Sita told every man that he would win.'
- b. Condition C:
 *Sita-ne us-se; **yah** kah-aa [ki Mohan; jii-egaa]
 Sita-Erg he-Instr say-Pfv EXPL that Mohan win-will.3MSg
 *Sita told him; that Mohan; would win.'

→ Possibly, though the expletive is obligatorily replaced at LF by the complement clause.

- Mahajan (1997a) notes that in general it is not possible to reconstruct for variable binding purposes.

But this is not so clear.

Pure A -scrambling does not reconstruct for binding purposes.

But A' -scrambling does reconstruct for Condition C and anaphoric binding purposes.

So one would expect variable binding to be possible too.

- (57) a. [His_i band]_j seems to [every Austinite]_i [t_j to be the best].
 b. [Which picture of him_i]_j does every rockstar_i think that his_i fans treasure t_j?

- There may also be linearity considerations.

4 Interactions between Rightward Scrambling and Extraposition

A fact:

- (58) V > DP > RC > CP

4.1 Rightward Scrambling and Extraposition

Extraposed Complement Clauses must follow Rightward Scrambled nominals.

- (59) a. V DP CP
 b. *... V CP DP
 (schematized version of Mahajan (1997a):exs. 60, 61)

- Mahajan (1997a): The contrast in (59) reflects the structural relations between the DP and the CP, and the fact that the CP cannot move.

Rightward Scrambled DP's c-command into the Extraposed Complement Clause.

- (60) a. Variable Binding:
 V QP_i [_{CP}...Pron_i....]
 b. Condition C:
 *... V Pron_i [_{CP}....Name_i....]
 (schematized version of Mahajan (1997a):exs. 62, i in fn. 22)

4.2 Rightward Scrambling and Relative Clause Extraposition

Extraposed Relative Clauses must follow Rightward Scrambled nominals.

- (61) Base: Subj IO DO V DO-RC
 a. Subj DO V IO DO-RC
 b. *Subj DO V DO-RC IO

(schematized version of Mahajan (1997a):exs. 66-68)

- Mahajan (1997a): Relative Clause Extraposition is stranding (presumably in the θ -position). The contrast in (61) reflects the structural asymmetry between the IO and the DO, and the fact that the DO-RC cannot move.

Rightward Scrambled DP's c-command into the Extraposed Relative Clause.

- (62) a. Variable Binding:
Subj DO V QP_{IO,i} [DO-RC...Pron_i.....]
b. Condition C:
*Subj DO V Pron_{IO,i} [DO-RC...Name_i.....]

(schematized version of Mahajan (1997a):exs. 62, i in fn. 22)

What predictions are made about the following?

- (63) Base: Subj IO DO V IO-RC
a. Subj IO V DO IO-RC
b. Subj IO V IO-RC DO [actually bad]

Possibly (63b) could be ruled out by requiring DP's to move to a position higher than the base position occupied by the Relative Clause.

- But then the contrast in (61) is not telling us anything about the IO > DO asymmetry, but about a contrast between DP's and CP's.

4.3 Relative Clause Extraposition and Complement Clause Extraposition

Extraposed Relative Clauses must precede Extraposed Complement Clauses.

- (64) a. Subj IO V IO-RC CP
b. *Subj IO V CP IO-RC
(schematized version of Mahajan (1997a):exs. 70-71)
- (65) a. Subj IO V Subj-RC CP
b. *Subj IO V CP Subj-RC
(schematized version of Mahajan (1997a):exs. 72-73)

- Mahajan (1997a): Both Relative Clause Extraposition and Complement Clause Extraposition involve stranding (presumably in the θ -position).

The contrast in (64, 65) reflects the structural asymmetry between the IO and the DO, and the fact that CPs cannot move.

Problem: In all these examples, the extraposed complement clause is the DO. The prediction seems to be that if the extraposed complement started off higher than the source of the extraposed Relative Clause, the CP > RC order should be possible.

- (66) a. EXPL_{Subj} DO V DO-RC CP_{Subj}
b. EXPL_{Subj} DO V CP_{Subj} DO-RC

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