1 Uniqueness in Correlatives and QVE Effects


(1) \[ jo \text{ larkii kharii hai} \quad [\text{vo lambii hai}] \]
Rel girl.f standing.f be.Prs.Sg Dem tall.f be.Prs.Sg
'The girl who is standing is tall.'

However, correlatives also display Quantificational Variability Effects (QVE) (cf. Lewis (1975)).

(2) a. A bear is always/often/rarely/never blue-eyed.
   b. All/most/few/no bears are blue-eyed.

(3) (from Dayal (1995))
   \[ jo \text{ larkiy\~a: mehnat kar-tii hE} \quad [\text{vo aksar safal ho-tii hE}] \]
Rel girls.f hardwork do-Hab.f be.Prs.Pl Dem often successful be-Hab.f be.Prs.Pl
QV-Reading: Most girls who work hard are successful.
Non-QV-Reading: Girls who work hard succeed often.

1.1 The interpretation of Plurality in Correlatives

Plural correlatives seem to involve a universal reading.

(4) (from Dayal (1995))
   a. Singular:
      \[ jo \text{ larkii kharii hai} \quad [\text{vo lambii hai}] \]
Rel girl.f standing.f be.Prs.Sg Dem tall.f be.Prs.Sg
'The girl who is standing is tall.'
   b. Plural:
      \[ jo \text{ larkiy\~a: kharii hE} \quad [\text{ve lambii hE}] \]
Rel girls.f hardwork do-Hab.f be.Prs.Pl Dem tall.f be.Prs.Pl
'All the standing girls are tall.'

A Link-style semantics for plurals seems to make the right predictions. Plural correlative pick out the relevant maximal plural entity.

The universal reading disappears if the main clause predicate is collective.

(5) Collective Predicate
   \[ jo \text{ larkiy\~a: kharii hE} \quad [\text{ve behane hE}] \]
Rel girls.f hardwork do-Hab.f be.Prs.Pl Dem.PI sisters be.Prs.Pl
'The girls who are standing are sisters.'

1.2 QVE Effects in Correlatives

Both plural and singular correlatives permit QVE effects.

(6) (from Dayal (1995))
   a. Plural:
      \[ jo \text{ larkiy\~a: mehnat kar-tii hE} \quad [\text{ve aksar safal ho-tii hE}] \]
Rel girls.f hardwork do-Hab.f be.Prs.Pl Dem often successful be-Hab.f be.Prs.Pl
QV-Reading: Most girls who work hard are successful.
Non-QV-Reading: Girls who work hard succeed often.
   b. Singular:
      \[ jo \text{ larkii mehnat kar-tii hai} \quad [\text{vo aksar safal ho-tii}] \]
Rel girl hardwork do-Hab.f be.Prs.Sg Dem often successful be-Hab.f hE
be.Prs.Sg
QV-Reading: Most girls who work hard are successful.
Non-QV-Reading: The girl who works hard is often successful.

QVE effects also surface in multiple correlatives.

(7) (from Dayal (1995))
   \[ jo \text{ larkii jis lark\~e-ko sab-se pahle dekh-tii hai}, \quad [\text{vo aksar}] \]
Rel girl Rel.Obl boy.Obl-Acc all-of first see-Hab.f be.Prs.Sg Dem often
us-hii-ko pasand kar-tii hai]
Dem-Emph-Acc like do-Hab.f be.Prs.Sg
'MOST \[x\} [girl x played with boy y] [x defeated y].'
1.3 The Role of Aspect in Licensing QVE
QVE is only licensed in generic tenses (cf. 6, 7).

If we switch to an episodic tense, the QVE reading is lost.

(8) Episodic Tense (Perfective)
   a. Plural:
      
      \[
      \begin{align*}
      \text{\{jin larkiy\-ne mehnat ki-i\}} & \text{ve askar safal hu-i} & \text{Rel.PI.Obj girls.Obj-Erg hardwork.f do-Pt}\text{f.} \text{Dem.PI often successful be-Pt}\text{f.}\nonumber \\
      \text{Non-QV-Reading: The girls who worked hard were successful often.}\nonumber \\
      \text{QV-Reading: Most girls who work hard are successful.}\nonumber 
      \end{align*}
      \]

   b. Singular:
      
      \[
      \begin{align*}
      \text{\{jis larkii-ne mehnat ki-i\}} & \text{vo aksar safal hu-i} & \text{Rel.Obl girl-Erg hardwork.f do-Pt}\text{f.} \text{Dem often successful be-Pt}\text{f.}\nonumber \\
      \text{Non-QV-Reading: The girl who worked hard was often successful.}\nonumber \\
      \text{QV-Reading: Most girls who worked hard were successful.}\nonumber 
      \end{align*}
      \]

This is also the case with multi-headed correlatives.

(9) (from Dayal (1995))
   
   \[
   \begin{align*}
   \text{\{jis larkii-ne jis larki-ke-saath khel-aa\}} & \text{us-ne us-ko aksar} & \text{Rel.Obl girl-Erg Rel.Obl boy-with play-Pt}\text{f.} \text{Dem-Erg Dem-Acc often} & \text{haraa-yaa}\nonumber \\
   \text{Non-QV-Reading: \forall x, y [girl x played with boy y] [OFTEN [x defeated y]].}\nonumber \\
   \text{QV-Reading: MOST x, y [girl x played with boy y] [x defeated y].}\nonumber 
   \end{align*}
   \]

   * Genericity makes available multiple situations over which \textit{often} can then quantify.

   * Presumably, in these situations maximality/uniqueness is satisfied.

1.4 \textit{-ever} in Correlatives

Correlative clauses differ from embedded and extraposed relative clauses in allowing for \textit{-bhiii ‘ever’}.

(10) (from Verma (1971):119)
   
   \[
   \begin{align*}
   \text{\{jo bhii kitaab\-e mere-paas thii\}} & \text{vo kho gayi} & \text{Rel ever books LGen-near be.Ps}\text{f.} \text{Dem}\nonumber \\
   \text{‘Whatever books I had, they got lost.’}\nonumber 
   \end{align*}
   \]

   a. Correlative:

   \[
   \begin{align*}
   \text{\{jo bhii kitaab\-e mere-paas thii\}} & \text{vo kho gayi} & \text{Rel ever books LGen-near be.Ps}\text{f.} \text{Dem}\nonumber \\
   & \text{\{jis larkii-ne jis larki-ke-saath khel-aa\}} & \text{us-ne us-ko aksar} & \text{Rel.Obl girl-Erg Rel.Obl boy-with play-Pt}\text{f.} \text{Dem-Erg Dem-Acc often} & \text{haraa-yaa}\nonumber \\
   & \text{\{jas larkii-ne mehnat ki-i\}} & \text{vo aksar safal hu-i} & \text{Rel.PI.Obj girls.Obj-Erg hardwork.f do-Pt}\text{f.} \text{Dem.PI often successful be-Pt}\text{f.}\nonumber \\
   \text{Non-QV-Reading: The girls who worked hard were successful often.}\nonumber \\
   \text{QV-Reading: Most girls who work hard are successful.}\nonumber 
   \end{align*}
   \]

Two interpretations for \textit{-bhiii ‘ever’}:

(11) (from Dayal (1995))
   
   a. Identity (\textit{‘epistemic’ be})

   \[
   \begin{align*}
   \text{\{jo bhii larkii is patrikaa-kii sampaaadikaa hai\}} & \text{use} & \text{Rel ever girl Dem.Obl magazine-Gen.f editor be.Ps.Sg Dem.Dat inaam mil-te hE} & \text{\{girl x is the editor of this magazine, whoever she may be, gets prizes.’}\nonumber \\
   \text{Free Choice: (\textit{‘generic be})}
   \end{align*}
   \]

   b. Embedded Relative Clause:

   \[
   \begin{align*}
   \text{\{vo kitaab\-e \{jo bhii mere-paas thii\} kho gayi} & \text{Dem books Rel ever LGen-near be.Ps}\text{f.} \text{lost GO.Pt}\text{f.} \text{PI}\nonumber \\
   \text{Extraposed Relative Clause:}
   \end{align*}
   \]

   \[
   \begin{align*}
   \text{\{vo kitaab\-e kho gayi\} \{jo bhii mere-paas thii\} Dem books lost GO.Pt}\text{f.} \text{PI Rel ever LGen-near be.Ps}\text{f.} \nonumber 
   \end{align*}
   \]

Identity Reading: non-generic tense

Free Choice Reading: generic tense

2 The Interpretation of Multi-Headed Correlatives

2.1 Semantic Issues

Attempt 1: Universal Quantification (cf. Andrews (1985)).

(12) (from Dayal (1996):197)

\[
\begin{align*}
\text{\{jis larkii-ne jis larki-ke-saath khel-aa\}} & \text{us-ne us-ko haraa-yaa} & \text{Rel.Obl girl-Erg Rel.Obl boy-with play-Pt}\text{f.} \text{Dem-Erg Dem-Acc defeat-Pt}\text{f.} \\
\forall x, y [girl x played with boy y] [x defeated y].
\end{align*}
\]
Problems with Attempt 1:

- Why is universal quantification not available with simple correlatives?
- (12) seems to involve something like a bijection between the set of girls and boys.

Attempt 2: Dayal (1995) suggests that if we bring in Maximalization, we can freely allow for universal quantification, and also capture the bijection requirement.

(13) a. Semantics for (12):
\[ \forall x, y \ [(x = \lambda z \ [\text{girl}(z) \land \text{boy}(y) \land \text{played-with}(z, y)] \land \text{defeated}(x, y)] \]

b. Semantics for ‘Which girl is standing, she is tall.’:
\[ \forall x \ [(x = \lambda z \ [\text{girl}(z) \land \text{standing}(z)] \rightarrow \text{tall}(x)] \]

Problems with Attempt 2:

- The semantics are still not quite right.
- Not all the boys have to be played with.
- More than one girl can play with a particular boy.

(14) (from Dayal (1996):199)
\[ \text{[jis larkē-neō kitaab parēh-ii] [us-ne us-par lekh likh-aa]} \]
\[ \text{Rel boy-Erg Rel book write-Pfv.f Dem-Eng Dem-on essay write-Pfv} \]

‘Which boy read which book, he wrote an essay on it.’

Compatible with more than one boy reading the same book.

→ There is a function from girls to boys - it can be one-one or many-one, into or onto.

Attempt 3: The correlative clause in a Multi-Headed Correlative denotes a function.

(15) [Which girl played with which boy], [she defeated him].

a. Denotation of ‘[which girl played with which boy]’:
\[ \lambda \exists f^2 \exists f^2 = \{f \mid \text{Dom}(f) = \text{Girl} \land \text{Range}(f) \subseteq \text{Boy} \land \forall y \in \text{Girl} \land \text{play}(y, f(y))] \land \forall y \in \text{Girl} \land f(y) \land \text{defeated}(y, v) \}

b. Denotation of [she defeated him]’:
\[ \lambda x \exists y \exists [\text{defeated}(y, v)] \]

(from Dayal (1996):207)

Simple Correlatives should ideally follow as a special case:

(16) [Which girl is standing], [she is tall].

a. Denotation of ‘[which girl is standing]’:
\[ \lambda x [\text{girl}(x) \land \text{standing}(x)] \]

(‘unfortunately, this is not a straightforward reduction of 15.)

b. Denotation of [she is tall]’:
\[ \lambda x [\text{tall}(x)] \]

2.2 ‘Matching’ Requirement on Multi-Headed Correlatives

The number of Rel Phrases in a correlative clause must equal the number of Dem Phrases in the main clause.

(17) (from Dayal (1996):198)

a. Mismatched Multi-Head Correlative:
\[ \text{[jo larkī jīs larkē-ke-saath khel-egīi] [vo jiit jaa-egīi]} \]
\[ \text{Rel girl Rel boy-with play-Fut.FSg Dem win GO-Fut.FSg} \]

‘Which girl plays with which boy, she will win.’

b. Conditional, no matching requirement:
\[ \text{[agar koi larkī kīsī larkē-ke-saath khel-egīi]-to [vo jiit if some girl some boy-with play-Fut.FSg-then/Top Dem win jaa-egīi]} \]
\[ \text{GO-Fut.FSg} \]

‘If a girl plays with a boy, she will win.’

The ‘matching’ requirement follows from the semantics proposed in (15).

2.3 Single Case Correlatives: Exceptions to ‘matching’


(18) (from McCawley (1992)/McCawley (2003))
\[ \text{[jo larkī jīs larkē-se baat kar rahī hai] [ve ek-saath sinemāa]} \]
\[ \text{Rel girl Rel boy-with talk do Prog.f.Prs.Sg Dem.Pl together cinema jaa-ēge]} \]
\[ \text{go-Fut.MPl} \]

‘Which girl is talking to which boy, they will go to the cinema together.’
2 Rel Phrases, but only one Dem Phrase.

The two Rel Phrases together must form a split antecedent for the Dem Phrase.

(19) *[Jo lar.kii jis larke-se baat kar rahi hai] [vo sinemaa jaa-egi] Rel girl Rel boy-with talk do Prog.f be.Prs.Sg Dem cinema go-Fut.FSg
Which girl is talking to which boy, she will go to the cinema.

There may also be a single Rel Phrase and two Dem Phrases.

(20) *[Jo dono vah: kha-re hE] [vo larkaa us lar.kii-ko pasand kar-taa] Rel both there standing.MPl be.Prs.PI Dem boy Dem girl-Acc like do-Hab hai be.Prs.Sg
Which two are standing there, that boy likes that girl.

However, such ‘non-matching’ multi-headed correlatives can only be interpreted as single-case correlatives.

(21) a. Non-Matching, Single Case, ‘Multiple Case
[Jo lar.kii jis larke-se baat kar rahi hai] [ve ek-saath sinemaa] Rel girl Rel boy-with talk do Prog.f be.Prs.Sg Dem.PI together cinema jaa-egi] go-Fut.MPl
Which girl is talking to which boy, they will go to the cinema together.
(One girl is talking to one boy. They will go to the cinema together. No quantification over pairs.)

b. Matching, Multiple Case, Single Case
[Jo lar.kii jis larke-se baat kar rahi hai] [vo use pasand] Rel girl Rel boy-with talk do Prog.f be.Prs.Sg Dem-Dem.Acc like kar-tii hai] do-Hab.f be.Prs.Sg
Which girl is talking to which boy, she likes him.
(The quantification over pairs reading is available.)

Bittner (2001) handles these cases in terms of conditions on Topic structures.

Why can’t non-matching correlatives receive multi-case interpretations?

Explanation in the form of Dayal (1996)’s semantics for (multi-case) multi-headed correlatives.

Assumption: different semantic mechanisms for the interpretation of multi-case and single-case correlatives.

An unsolved mystery.

(22) Numeral Quantification blocks Multi-Case Readings
a. (from Bittner (2001), via Dayal Harvard handout of 02/20/03)
[jin do larkō-ne jis larķii-ko ek phuul di-yaa] [us larķii-ne un] Rel two boys-Erg Rel girl-Dat one flower give-Pfv.MSg Dem girl-Erg Dem larkō-ko pasand ki-yaa] boys-Acc like do-Pfv
‘Two boys gave a girl a flower. She liked them.’

b. (from Dayal Harvard handout of 02/20/03)
[jin do larkō-ne jis larķii-ko ek phuul di-yaa] [ve tiinō Rel two boys-Erg Rel girl-Dat one flower.M give-Pfv.MSg Dem.PI three dost hE] friend be.Prs.PI
‘Two boys gave a girl a flower. Those three are friends.’

3 The Diversity of Correlatives

In most Indo-Aryan languages, correlative clauses are also used to realize conditionals, when-clauses, comparatives, and until-clauses.

(23) a. Restrictive Relativization:
[jo kitaab sale-par hai] [mī vo kharīid-ūgaa] Rel book sale-on be.Prs.Sg I that buy-Fut.1MSg
‘I will buy the book which is on sale.’
(Literally: [which book is on sale], I will buy that.)

b. Conditionals: (Marathi, from Pandharipande (1997))
[dzar tyāne abhyās kela] [tar to pās hoil] if he-Erg studying do-Pst-3MSg then he pass be-Fut-3Sg
‘If he studies, then he will pass.’
c. Comparatives:

\[ \text{Rodman ke jitne tattoo h}\text{E} [\text{Jordan ke-paas us-se jyaadaa Rodman Gen how-many tattoo are Jordan near that-than more khtaab h}\text{E}] \]

‘Michael Jordan has more scoring titles than Dennis Rodman has tattoos.’

(Literally: [How many tattoos Dennis Rodman has],

[Michael Jordan has more scoring titles than that])

d. Equatives:

\[ (\text{John bhautiki-me jitnaa Kushal hai] [John-kaa bhai gani-t-me John Physics-in how-much good is John-Gen brother math-in utnaa Kushal hai] that-much good is ‘John’s brother is as good at math as John is at physics.’

(Lit: [How good John is at physics]. [John’s brother is that good at math].)

e. until-clauses:

\[ \text{jab tak John nahi aa jaa-taa] [tab tak mE yah\text{u} rah\text{u}gaal when till John Neg come Hab then till I here stay-will ‘I will stay here until John arrives.’

(Literally: [Till when John hasn’t come], [I will stay here till then])

The surface variation from construction to construction seems limited to the relative phrase and the proform.

<table>
<thead>
<tr>
<th>Construction</th>
<th>Relative Phrase</th>
<th>Proform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relativization</td>
<td>[... is jo who ...] [... vo he/she ...]</td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td>[... is jitnaa how-much ...] [... us-se jyaadaa that-than more ...]</td>
<td></td>
</tr>
<tr>
<td>Equative</td>
<td>[... is jitnaa how-much ...] [... utnaa that-much ...]</td>
<td></td>
</tr>
<tr>
<td>until clause</td>
<td>[... jab tak when till ...] [... tab tak then till ...]</td>
<td></td>
</tr>
<tr>
<td>Conditional</td>
<td>[... dzar jitaabhi if ...] [... tar abhi then ...]</td>
<td></td>
</tr>
<tr>
<td>when clause</td>
<td>[... jab when ...] [... tab then ...]</td>
<td></td>
</tr>
</tbody>
</table>

(24)

Can different types of correlative construction be combined? (e.g. a multi-headed correlative involving abstraction over individuals and times/worlds, or individuals and degrees.)

4 Conditionals and \textit{when}-clauses

(25) conditional

a. If he studies, he will pass.

b. [dzar ty\text{a}ne abhy\text{a}s kela] [tar to p\text{a}s hoil if he-Erg studying do-Pst-3MSg then he pass be-Fut-3Sg ‘He studies, then he will pass.’

Marathi

c. [agar vo parihaa kar-egaa] [to vo paas ho jaa-egaa if he study do-Fut.MSg then he pass be GO-Fut-3Sg ‘If he studies, then he will pass.’

Hindi

(26) \textit{when}-clauses

a. When Harry met Sally, she was living in Montreal.

b. [jab Harry Sally-se mil-aa] [tab vo Montreal-me rah rahi thii when Harry Sally-with met then she Montreal-in live Prog was ‘When Harry met Sally, she was living in Montreal.’

4.1 Stacked if-clauses

The presence of \textit{then} in a conditional is not obligatory. However, if more than one if-clause is present, then only the most deeply embedded \textit{then} may be omitted. All others must be present.

(27) a. If you are back before eight, *(then) if the roast is ready, *(then) if we are both hungry, (then) we will have dinner together. (based on an example in Kratzer (1986))

b. [If you are back before eight] and [if the roast is ready] and [if we are both hungry], we will have dinner together.

(28) a. ‘We will have dinner together [if we are both hungry] [if the roast is ready].

b. We will have dinner together [if we are both hungry] and [if the roast is ready].

Correlatives unlike headed relative clauses do not allow stacking.

(29) a. Correlative

‘[Jo lA\text{R}kii ka\text{R}ii hai] [jo lambii hai] [vo Colaba-me rahtii hai] Rel girl standing is Rel tall is Dem Colaba-in lives is ‘Which girl is standing’ [who is tall] [she lives in Colaba].

b. Relative Clause

[vo lA\text{R}kii] [jo kha\text{R}ii hai] [jo lambii hai] Colaba-me rahtii hai Dem girl Rel standing is Rel tall is Colaba-in lives is ‘The girl who is standing who is tall lives in Colaba.’

The stacking constraint follows from the semantics of correlatives.
4.2 The Absence of Low Construals: the basic data


(30) a. I will leave when you say you will do.
   high construal: I will leave at time $t_1$ s.t. at time $t_1$, you say that you will leave.
   low construal: I will leave at time $t_1$. You said that you would leave at time $t_1$.

b. I will leave if you say you will do.
   high construal: In situations $s$, you say you will leave (in situations $s'$). In those situations $s$, I will leave.
   low construal: You say that in situations $s$, you’ll leave. In those situations $s$, I will leave.

c. I will leave in any circumstance in which you say you’ll leave.
   high construal: In situations $s$, you say you’ll leave (in situations $s'$). In those situations $s$, I will leave.
   low construal: You say that in situations $c$, you’ll leave. In those situations $c$, I will leave.

(31) a. I will leave in case you say you’ll leave (high construal only)
   b. Had he said he would leave, I would have left (high construal only)

4.3 The Absence of Low Construals: Explanation

The explanation is related to the properties of world/situation variables, which is what is abstracted over in a conditional.

Percus (2000) argues that world variables introduced by predicates need to be locally bound.

(32) Mary thinks that my brother is Canadian.
   a. $\lambda_1 [\text{Mary thinks}-(s) \ [\lambda_2 [\text{my-brother}-(s) \ 0\text{-is-Canadian}-(s_0)]]]$  
   b. $\lambda_1 [\text{Mary thinks}-(s) \ [\lambda_2 [\text{my-brother}-(s) \ 0\text{-is-Canadian}-(s_0)]]]$
   c. $\lambda_1 [\text{Mary thinks}-(s) \ [\lambda_2 [\text{my-brother}-(s) \ 0\text{-is-Canadian}-(s_0)]]]$
   d. $\lambda_1 [\text{Mary thinks}-(s) \ [\lambda_2 [\text{my-brother}-(s) \ 0\text{-is-Canadian}-(s_0)]]]$

It follows, that in conditional clauses, we can only abstract over the situation/world variable of the highest predicate.

(33) if you say you will leave
   a. $\lambda_1 [\text{you say}-(s) \ [\lambda_2 [\text{you will leave}-(s)]]]$
   b. $\lambda_1 [\text{you say}-(s) \ [\lambda_2 [\text{you will leave}-(s)]]]$

4.4 The semantics of if-clauses as correlatives

Conditional clauses involve abstraction over world variables. A type-changing operation of maximalization applies to the resulting set of possible worlds giving it the denotation of the maximal element in that set - in effect a plural definite description of possible worlds.

The structure and operations yielding this interpretation for conditional clauses is analogous to the one in free relatives of individuals in all the relevant respects (cf. Jacobson (1995), Rullmann (1995)).

(34) what John cooked
   a. $\text{LF: } [\lambda_1 [\text{wh} \ 0\text{-C} \ [\lambda_2 [\text{John cooked}]]]]$
   b. $\text{MAX}(\lambda_1 x [\text{John cooked}]) = x [\text{John cooked}]

(35) if John arrives late
   a. $\text{LF: } [\lambda_1 [\text{Op} \ 0\text{-C} \ [\lambda_2 [\text{John arrives late in } w]]]]$
   b. $\text{MAX}(\lambda_1 w [\text{John arrives late in } w]) = w [\text{John arrives late in } w]$

Distributivity over definite descriptions/free relatives:

(36) a. Peter ate [the things John cooked].
   b. Peter ate [what John cooked].

(37) a. Peter will be unhappy [in the circumstances that John arrives late].
   b. Peter will be unhappy [if John arrives late].

Non-monotonicity

(38) $p \rightarrow q \land (p \land r) \rightarrow q$
   a. If you go to Goa, you’ll have fun.
   b. If you go to Goa and get malaria, you’ll have fun.

(38a) $\land$ (38b)

Lewis (1979) and Schlenker (2001) have noted that definite descriptions display similar non-monotonicity effects.

(39) a. The pig is grunting.
   b. But the pig with floppy ears is not grunting.
   c. But the spotted pig with floppy ears is grunting.
5  jab tak ‘until’ Clauses

jab tak = ‘when till’

‘so long as’:

(40) jab tak clause is a durative event
a. [jab tak boss office-mē rah-te hē] [tab tak ham log khuub
when till boss office-in stay-Hab.MPl be.Prs.PI then till we people lot
kaam kar-te hē] work do-Hab.MPI be.Prs.PI
‘As long as the boss is in the office, we work a lot.’
b. [jab tak tum paisaa de-te rah-oge] [(tab tak) sharaab
when till you money give-Hab.MPI Prog-Fut.MPl then till wine.f
beh-tii rah-egii] flow-Hab.f Prog-Fut.FSg
‘As long as you keep giving money, the wine will keep flowing.’

(based on Hook (1979):125, also see Hook (1974), and Seguin (1973))

‘until’:

(41) jab tak clause is a event that corresponds to a point in time or a limit to the action
a. [jab tak John aa naḥ: jaa-taa] [tab tak mē yahē: rahūgaa]
when till John Neg come Neg GO-Hab.MSp then till I here
stay-Fut.1MSg
‘I will stay here until John arrives.’
(Literally: [Till when John hasn’t come], [I will stay here till then])
b. [jab tak vo tasvīr khīch naa le] [tab tak use paise mat
when till he picture puul-Pfv Neg TAKE-Sbjv then till he.Dat money Neg
de-naa] give-lnf
‘Don’t give him money until he takes the picture.’
(from Hook (1979):126)

‘by the time’:

(42) jab tak clause picks out a point in time, but this point in time does not serve as an
end point to the action on the tab tak clause
a. [jab tak us-ne banduuk uṭhaa-ii] [tab tak sher bhaag gayaa]
when till Dem-Erg gun.f pick-Pfv.MSp then till tiger run GO-Pfv
‘By the time he picked up his gun, the tiger had run away.’

b. [jab tak tum ‘glamour’-kaa sahii arth samjḥ-oge] [tumhaare
when till you glamour-Gen real meaning understand-Fut.2MPI your
baal safed ho jaa-ēge] hair white be GO-Fut.MPI
‘By the time you understand the true meaning of glamour, your hair will turn white.’

(from Hook (1979):126)

5.1 The Logical Possibilities

Aspectual options for the jab tak clause:

(43) imperfective, negated imperfective, perfective, negated perfective

Similar aspectual options are available for the tab tak clause.

→ 16 logical possibilities.

• Not all of these are attested. Seguin (1973) notes that when the tab tak clause is perfective,
the jab tak must also be perfective.

(44) a. [imat Imperfective] [imat Perfective]
*He arrived until John was drawing a circle.

b. [imat Negated Imperfective] [imat Perfective]
*He arrived until John wasn’t drawing a circle.

c. [imat Negated Perfective] [imat Perfective]
*He arrived until John didn’t arrive.

Intuition: A perfective tab tak clause requires the jab tak clause to provide a point of time.
Only a (non-negated) perfective jab tak clause can do this.

5.2 ‘By the time’: [Perfective] [Perfective]

5.2.1 Interpretation

Relative Completion:

(45) a. [jab tak .... V1-Pfv] [tab tak .... V2-Pfv]
... V2-complete ... V1-complete ...

b. [jab tak us-ne banduuk uṭhaa-ii] [tab tak sher bhaag gayaa]
when till Dem-Erg gun.f pick-Pfv.MSp then till tiger run GO-Pfv.MSp
‘By the time he picked up his gun, the tiger had run away.’
5.2.2 Relevance for the Compound Verb construction


Many Indo-Aryan languages have a Compound Verb construction that among other things often marks completion.

(46) Compound Verbs: jaa ‘go’, le ‘take’, de ‘give’ etc.

a. Mona aa ga-yii/ aa-i
   Mona.f come GO-Pfv.f/ come-Pfv.f
   ‘Mona has come/come.’

b. Mona-ne naashtaa kar li-yaa/ ki-yaa
   Mona-Erg breakfast.m do TAKE-Pfv.MSg do-Pfv.MSg
   ‘Mona has had breakfast/Mona had breakfast.’

In (45), we see that there is a Compound Verb in the tab tak clause and a Simple Verb in the jab tak clause.

(47) [jab tak ............ V1-Pfv] [tab tak ............... V2 CV-Pfv]

The other combinations are ungrammatical.

(48) a. *[jab tak ............ V1 CV-Pfv] [tab tak ............... V2 CV-Pfv]
   *[jab tak us-ne banduuk uthaa li-i] [tab tak shier bhaag
   when till Dem-Erg gun.f pick take-Pfv.f then till tiger.m run
   gyaar] GO-Pfv.MSg

b. *[jab tak ............ V1 CV-Pfv] [tab tak ............... V2-Pfv]
   *[jab tak us-ne banduuk uthaa li-i] [tab tak shier bhaag-aa]
   when till Dem-Erg gun.f pick take-Pfv.f then till tiger.m run-Pfv.MSg

c. *[jab tak ............ V1-Pfv] [tab tak ............... V2-Pfv]
   *[jab tak us-ne banduuk uthaa-i] [tab tak shier bhaag-aa]
   when till Dem-Erg gun.f pick-Pfv.f then till tiger.m run-Pfv.MSg

5.3 ‘Until’: [Negated Perfective] [Imperfective]

5.3.1 Interpretation

(49) a. [jab tak .... Neg V1 (CV)-Pfv] [tab tak .... V2-Impfv]
   ... V2 = V1-complete ...

b. [jab tak maastar-saab aa naa: gaye] [tab tak bacee shor
   when till teacher come Neg GO-Pfv.MPl then till children noise
   machaa-te rahe]
   make-Hab.MPl Prog-Pfv.MPl
   ‘The children kept making noise until the teacher arrived.’

5.3.2 Relevance for the Compound Verb Construction

One hallmark of the Compound Verb construction in the Indo-Aryan languages is that it can (in general) not be negated (cf. Hook (1974), Masica (1976)).

(50) Yusuf-ne khaanaa nahi: khaa-yaa/*khaa li-yaa
    Yusuf-Erg food.m Neg eat-Pfv.MSp eat TAKE-Pfv.MSp
    ‘Yusuf didn’t eat dinner.’

Given this, it is curious that in (49), a Compound Verb appears happily with a negation (cf. Gaeffke (1967)).

In fact, a negation is necessary.

(51) ???/*[jab tak maastar-saab aa gaye] [tab tak bacee shor
   when till teacher come GO-Pfv.MPl then till children noise
   machaa-te rahe]
   make-Hab.MPl Prog-Pfv.MPl
   ‘The children kept making noise until the teacher arrived.’

5.3.3 The Semantic Contribution of Negation

The redundancy or non-redundancy of Negation in these jab tak clauses depends largely upon how we choose to translate jab tak. If we insist on ‘until’, the Negation appears to be otiose; if we use ‘so long as’, it does not:

So long as the teacher did not arrive, the children kept making noise. (from Hook (1974):218)
Dialectal Variation and ‘Expletive’ Negation:

(52) (from Seguin (1973), exs. 6, 7)
   a. [jab tak .... Neg V₁-Pfv] [tab tak .... V₂-Impfv]
   [jab tak mastar-ji nahi: pahûch-e] [tab tak larke shor
when till teacher-Hon.m Neg arrive-Pfv.MPl then till boys noise
machaad-te rah-e] make-Hab.MPl stay-Pfv.MPl
   ‘The boys made noise until the teacher arrived.’
   b. % [jab tak .... V₁-Pfv] [tab tak .... V₂-Impfv]
  %[jab when tak till mastar-ji teacher-Hon.m
pahûch-e Neg] [tab arrive-Pfv.MPl tak then lar.ke
boys] [shor noise machaa-te] [rah-e]
   ‘The boys made noise until the teacher arrived.’
   (This optionality seems to be restricted to simple perfective verbs in the jab tak

5.4 Simultaneity: [Imperfective] [Imperfective]

(53) a. [jab tak .... V₁-Impfv] [tab tak .... V₂-Impfv]
   V₁ and V₂ are both durative. V₂ continues as long as V₁. It may or may not
continue after V₁.
   b. [jab tak tum paisaa de-te  rah-oge] [(tab tak) sharaab
when till you money give-Hab.MPl Prog-Fut.MPl then till wine.f
beh-tii rah-egii]
   flow-Hab.f Prog-Fut.FSg
   ‘As long as you keep giving money, the wine will keep flowing.’

Formal imperfectivity (i.e. in the form of Progressive/Habitual marking is not necessary.
The crucial factor is durativity.

Here, negation is not ‘expletive’:

(54) (from Seguin (1973), exs. 4, 5)
   a. [jab tak aap dhiire gaa-öge] [tab tak aap acchii tarah gaa
when till you.Hon slowly sing-Fut.3MPI then till you.Hon goo way sing
nahi: paa-öge] Neg able-Fut.3MPI
   ‘You won’t sing well until you sing slowly.’

6 Comparatives

(55) a. more comparative: #(people who came) > #(people expected)
   [jitne mE sochtaa thaa] [is-se yaaadaa log aaye]
   how-many I thought that-than more people came
   ‘More people came [than I had expected].’
   (Literally [How many people I thought would come], [more people than that
came.])

b. less comparative: #(people who came) < #(people expected)
   [jitne mE sochtaa thaa] [is-se kam log aaye]
   how-many I thought that-than less people came
   ‘Less people came [than I had expected].’
   (Literally [How many people I thought would come], [less people than that
came.])

c. Equative: #(people who came) = #(people expected)
   [jitne mE sochtaa thaa] [is-te kam log aaye]
   how-many I thought that-many people came
   ‘As many people came [as I had expected].’
   (Literally [How many people I thought would come], [that-many people came.])

- The correlative/comparative clause in (55a-c) is exactly the same.
- What varies is the relationship between the demonstrative and the matrix clause.
6.1 Multiple Comparatives

Multiple Comparatives as Multi-Headed Correlatives:

(56) (cf. von Stechow (1984), Kennedy (2000))
   a. More dogs chased more rats than cats chased birds.
   b. [jitnii billiỵ-ne jitnii chiriỵ-ko dauṛ̣aayaas] [us-se jyaadaa how-many cats-Erg how-many birds chased that-than more kutṭ-ne us-se jyaadaa chuuḥ-ko dauṛ̣aayaas] dogs-Erg that-than more rats chased
   ‘More dogs chased more rats than cats chased birds.’
   (Literally [How many cats chased how many birds],
   [more dogs than that chased more rats than that].)

(57) (cf. von Stechow (1984))
   a. Less land grows more corn than ever before.
   b. [jitnii zamiin-par pahle jitnaa makka ugtaa thaa] [us-se kam how-much land-on before how-much corn grew that-than less zamii-par ab us-se jyaadaa makka ugtaa hai] land-on now that-than more corn grows
   ‘Less land grows more corn than ever before.’
   (Literally [How much land grew how much corn before],
   [Land less than that grows more corn than that].)

Semantics: maximalization, with a single-case multi-headed correlative

6.2 The ‘Matching’ Requirement

(58) (cf. Chomsky (1981))
   a. More silly lectures have been given by more boring professors than I would have expected silly lectures would be given by boring professors.
   b. ‘More silly lectures have been given by more boring professors than I met boring professors yesterday.

(58b) is ungrammatical because it fails the matching requirement.

(59) One Rel Phrase, Two Dem Phrases
   
   kal mE jitne boring profs-se mil-aa] [us-se zyaadaa yesterday I how-much boring Prof-with meet-Pfv Dem-than more boring profes-ne us-se zyaadaa faaltu-ke lecture di-ye]
   Profs-Erg Dem-than more useless-Gen lectures give-Pfv.PL

The reverse case can also be constructed concretely in Hindi, and somewhat abstractly in English.

(60) Two Rel Phrases, One Dem Phrase
   a. More dogs barked than cats chased rats.
     (Ungrammatical under an analysis where the than clause involves multiple degree abstraction.)
   b. ‘[jitnii billiỵ-ne jitnii chuuḥ-ko dauṛ̣aayaas] [us-se zyaadaa how-many cats-Erg how-many rats-Acc chase-Pfv Dem-than more kutte bhaunk-e] dogs bark-Pfv.MPl

   20
References


