

Temporal Adverbials, Negation, and the Bangla Perfect

We establish that the perfect in Bangla has an unusual restriction: it does not allow adverbs to modify the reference time. We propose a syntactic account and we further suggest that another puzzling fact about the perfect in Bangla – that it cannot be negated (Ramchand 2005) – stems from the prohibition against reference time modification.

Adverbial Modification. The past perfect in several languages is ambiguous when modified by so-called ‘positional’ temporal adverbials, i.e., adverbials that make reference to specific time intervals (e.g., McCoard 1978, Giorgi and Pianesi 1998, Musan 2001). In (1) the adverbial can restrict either the time interval at which the event holds – the event time (ET), or the time interval from the perspective of which the event is described – the reference time (RT), (ignoring the issue of how the two readings correlate with word order). Similar ambiguities obtain with the present perfect, see (2). In contrast, the Bangla perfect does not allow RT modification: (3) and (4) only have an ET modification reading – the submission happened *on Sunday/today*.

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| (1) | (<i>On Sunday</i>) Rick had submitted the homework (<i>on Sunday</i>). | √ | ET | √ | RT |
| (2) | (<i>Today</i>) Rick has submitted the homework (<i>today</i>). | √ | ET | √ | RT |
| (3) | <i>robibare</i> rik homwark jOma kor- e-ch -il-o
Sunday-loc Rick homework submission do- e-ch -past-3
‘Rick had submitted the homework on Sunday.’ | √ | ET | * | RT |
| (4) | <i>aj(-ke)</i> rik homwark jOma kor- e-ch -e
today Rick homework submission do- e-ch -3
‘Rick has submitted the homework today.’ | √ | ET | * | RT |

The -e-ch forms are perfects. Could the -e-ch forms in Bangla, as in (3) and (4), be simple tenses rather than perfects, thus accounting for the absence of ambiguity of adverbial modification? Several facts reveal that this is not so: **(i)** the present perfect allows modification by *now*, while the past progressive and the simple past do not, suggesting that the present perfect is not simply another past tense form (see (5)); **(ii)** in embedded clauses, the present perfect requires the ET to precede a past RT introduced by the matrix tense, as in (6) and (7), suggesting that it does not behave as a present tense (it could still, of course, be like a simple past, in a language without sequence of tense); **(iii)** person marking varies with tense; the present perfect inflects as a present tense and the past perfect inflects as a past tense (cf. the 3 person *kor-e-ch-e* ‘has done’, *kor-ch-e* ‘is doing’, *kOr-e* ‘does’; vs. *kor-e-ch-il-o* ‘had done’, *kor-ch-il-o* ‘was doing’, *kor-l-o* ‘did’). Finally, the -e-ch forms are considered perfects in Chatterji (1926), Chattopadhyay (1988), and Ramchand (2004). Thus, the puzzle of adverbial modification is real.

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| (5) | <i>ekhon</i> rik homwark jOma { kor- e-ch -e / *kor-ch-il-o / *kor-l-o }
now Rick homework submission do- e-ch -3 do- ch -past-3 do-past-3
‘Rick {has submitted / * was submitting / *submitted} the homework now’ |
| (6) | <i>ami baRi eS-e jan-l-am je Se eS-e-ch-il-o</i>
I home come- <i>e</i> know-past-1 that he come- e-ch -past-3
‘Having come home, I knew that he had come.’ (Chattopadhyay 1988: 22) |
| (7) | <i>ami bol-l-am o LA-te thek-e-ch-e</i>
I say-past-1 he LA-loc stay- e-ch -3
‘I said he lived in LA.’ (only precedence, no simultaneous reading) |

Analysis. The affix *-ch*, a remnant of the auxiliary verb *ach-* ‘be’ (Lahiri 2000, Butt and Lahiri 2002) spells out a semantically vacuous functional item that embeds PERFECT (and also IMPERFECTIVE, as in *kor-ch-il-o* ‘was doing’, but we put this aside). See (8) for a hierarchical representation (ignoring word order).

(8) [TENSE [-*ch*] [PERFECT [VIEWPOINT ASPECT [_{vP}]]]]

The lexical semantics of PERFECT is as in (9), which follows Pancheva and von Stechow (2004) in treating the PERFECT as a weak relative past: it introduces an interval no part of which may follow the reference time introduced by TENSE.

(9) [[PERFECT]] = $\lambda p_{\langle i, t \rangle} \lambda t_i \exists t'_i [t' \leq t \ \& \ p(t')]$ ($t' \leq t$ iff there is no $t'' \subset t'$, s.t. $t'' > t$)

The affix *-e*, both on its own, e.g., *baRi eS-e* ‘having come’ in (6), and in combination with *-ch* in the perfect, marks RESULTATIVE viewpoint; see (10) for its semantics. The composition of PERFECT and RESULTATIVE yields the needed semantics for Bangla perfects, which lack universal readings (see also Ramchand 2005).

(10) [[RESULTATIVE]] = $\lambda P_{\langle v, t \rangle} \lambda t_i \exists s \exists e [t \subset \tau(s) \ \& \ s \text{ is a target state of } e \ \& \ P(e)]$

The PERFECT moves to the affix *-ch* and then to TENSE; this syntax precludes adverbs from being merged and interpreted higher than PERFECT. Accordingly, the LF in (11a) is not possible; only the one in (11b) is. (11a) derives RT modification (see (12a), and it is not available in the Bangla perfect. (11b) is the LF behind ET modification (see (12b), and it is the only structure available in the Bangla perfect. Thus, we account for the restriction on temporal modification in (3)-(4).

(11) a. * [TENSE - *ch* [*adverbial* [PERFECT [RESULTATIVE \rightarrow -*e* [_{vP}]]]]]]
 b. [TENSE - *ch* - PERFECT [*adverbial* [RESULTATIVE \rightarrow -*e* [_{vP}]]]]]]

(12) a. * $\exists t [t < t_c \ \& \ t \subseteq \textit{Sunday} \ \& \ \exists t' [t' \leq t \ \& \ \exists s \exists e [t' \subset \tau(s) \ \& \ s \text{ is a target state of } e \ \& \ P(e)]]]$
 b. $\exists t [t < t_c \ \& \ \exists t' [t' \leq t \ \& \ t' \subseteq \textit{Sunday} \ \& \ \exists s \exists e [t' \subset \tau(s) \ \& \ s \text{ is a target state of } e \ \& \ P(e)]]]$

Negation and the perfect. We further suggest that the prohibition against RT modification in the perfect is responsible for the fact that the perfect cannot be negated. The negative marker *na* combines freely with the simple past and present, the past and present progressive, and the past habitual – all tense-aspect forms except for the perfects (Ramchand 2005), see (13) for some representative examples from the non-perfect tense forms. However, the perfect cannot appear with *na*. Instead of the ungrammatical (14a) we get (14b), where the verb is not explicitly marked for tense and aspect, but is interpreted as past.

(13) ami am-Ta { khe-l-am / kha-cch-i / kha-cch-il-am } (*na*)
 I mango-cl eat-*pst*-1 eat-*ch*-1 eat-*ch-pst*-1 NEG
 ‘I {did (not) eat / am (not) eating / was (not) eating} the mango.’

(14) a. * ami am-Ta { khe-*ye-ch*-i / khe-*ye-ch*-il-am } *na*
 I mango-class eat-*e-ch*-1 eat-*e-ch*-*pst*-1 NEG
 ‘I {have / had} not eaten the mango.’
 b. ami am-Ta kha-i-*ni*
 I mango-class eat -1 -NEG
 ‘I didn’t eat the mango.’

The proposal that the *na* negation in Bangla is a reference time modifier is consistent with the semantics proposed by Ramchand (2005). It is a negative existential quantifier over events asserting that no event of the relevant kind occurs within a specified time interval, i.e., the RT.