

Interference-insensitive local anaphora resolution: Evidence from Hindi reciprocals

Dave Kush, Jeff Lidz, & Colin Phillips (University of Maryland, College Park)

kush@umd.edu

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It has been observed that antecedent-retrieval for English reflexives is robust to interference from similar, but structurally illicit constituents. These findings of apparent immunity-to-interference in local anaphoric binding suggest that c-command-sensitive dependencies can be implemented on-line [1,2,3,4,5]. These findings have been used, most recently, to argue for a structure-sensitive, rather than a content-addressable retrieval mechanism for reflexive antecedents (though see [6] for discussion of interference with reflexives in Chinese).

Yet, findings on English local binding cannot conclusively determine whether a structure-sensitive search procedure is employed, or whether some other method is employed. English reflexives require a clause-mate antecedent, and they follow the verb, which raises the possibility that grammatically accurate retrieval might be achieved simply through a verb-mediated heuristic, e.g., by retrieving the agent of the immediately preceding verb. We avoid this confound of previous studies by testing local binding relations in Hindi, a verb-final

language, that must be established before verb information is encountered. The results of a self-paced reading experiment show that the structure-sensitivity of antecedent-retrieval is not due to a verb-mediated strategy.

The design of the experiment used the interference logic of previous reflexive studies, using reciprocals in Hindi. Hindi reciprocals must be locally licensed [7], like their English counterparts, but since Hindi is an SOV language they appear pre-verbally, thus making antecedent-retrieval through mediation by the verb's argument structure impossible. Reciprocals must be bound by a plural-marked, c-commanding NP, thus the diagnostic content cue for retrieval (apart from structural cues) is [+plural]. The experiment manipulated plural-marking on the main clause subject and on a potential interfering NP in a pre-nominal relative clause (RC) that linearly

preceded the reciprocal. The structure of a test-sentence is given in (1) below. When NP1 (the main clause subject) is plural it can bind the reciprocal. NP2, embedded inside an RC (boundaries marked with brackets), cannot grammatically bind the reciprocal, regardless of its number. In (2) the main clause subject doctor(s) (underlined) can bind the reciprocal *ek-dusre* when plural. The potential interferer NP *patient(s)* (italicized) is embedded inside a pre-verbal RC the nurse who took care of the *patients*, where it cannot bind the reciprocal.

If relational information restricts the search for potential binders, no effect of plural-marking on *patient(s)* is expected. If verb-mediated retrieval is required to block interference, we expect interference from *patients*.

24 sets of items were distributed across 4 lists in a Latin Square design and combined with 50 filler items. The experiment (n=30, native-speakers of Hindi from Northwestern India, ages 18-26, tested in Delhi) revealed immediate sensitivity to the constraint on reciprocal licensing. Data were fit to a mixed effects linear model with Subject and Item as random effects [8]. A main effect of main-clause subject match (in number) was observed in the region immediately following the reciprocal phrase ($p < .05$), and no interaction with the number of the interfering subject noun.

The results support the hypothesis that relational information, not a verb-mediated heuristic, constrains retrieval.

(1) NP1{sg/pl} [... NP2{sg/pl} ...] ... Reciprocal... {AdvP} V.

(2) उस डॉक्टर(ों) ने मरीज़(ों)-को देखभाल करने वाली नर्स के स्टेशन में

Us/un doctor(on)-ne [mariz(on)-ko dekhbhal karne wali] nurse ke station me

That/those doctor(s)-ERG patients(s)-ACC care doing RP nurse GEN station in

एक-दूसरे के बारे में गुप्त रूप से बात की।

ek-dusre ke-bare me gupt-ruup-se baat kii.

one-another about secretly chat did.

'That/those doctor(s) talked secretly with one another at the station of the nurse who was looking after the patient(s).'