

Gaps versus resumptive pronouns in Cantonese relative clauses: teasing apart the relative contributions of grammar and processing

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The use of resumptive pronouns (RPs) in relative clauses (RCs) appears to be governed by structural complexity in both grammar and processing. RP distributions across languages follow the NP Accessibility Hierarchy (Keenan & Comrie 1977): if the grammar allows RPs in one position (e.g. direct object), it allows them in more deeply embedded positions (e.g. oblique object). Hawkins (2004) predicts a parallel effect in usage: when the grammar allows either RP or gap, RPs should be preferred more as structural complexity increases, to facilitate processing.

Cantonese optionally permits RPs in several contexts (Matthews & Yip 2011), providing a good test case for Hawkins' prediction. Two experiments, an acceptability judgment task and a sentence-combining (spoken production) task, examined three related questions: (1) What are the grammatical constraints on RPs in Cantonese? Are RPs really banned from subject relatives (Matthews & Yip 2011), but required to prevent a syntactic island violation when the object of a coverb (preposition-like serial verb) is relativized (Francis & Matthews 2006)? (2) In grammatically optional contexts, does the acceptability and use of RPs increase with increased structural complexity? (3) Are RPs preferred more in direct object than subject RCs, given the lack of such a contrast in experiments on Mandarin RPs (Ning 2008; Yuan & Zhao 2005) and mixed results regarding subject-object asymmetry in the processing of Mandarin RCs with gaps (Chen et al 2008; Cheng et al 2011; Hsiao & Gibson 2003; Lin & Bever 2006)?

In the acceptability task, participants listened to sentences and rated them on a scale from one to seven. RP and gapped RCs were varied along two complexity-related dimensions: possession (non-possessive, possessive), and grammatical role (subject, direct object, coverb object). The most complex RP condition is shown in (1), with RP in boldface:

- (1) [_{NP} [_{RC} Ngo5 [_{VP1} bong1 **keoi5** go3 zai2] [_{VP2} maai5 ce1]] go2 go3 nei5jan4] hou2 hou2jan4
I help her CL son buy car that CL woman very kind
Lit: "The woman who I bought a car for **her** son is very kind." (RP, possessive, coverb)

In the production task, participants listened to two short sentences and combined them into one longer spoken sentence containing a subject-modifying RC. Target productions resembled acceptability stimuli, except that speakers' choice of RP or gap was a dependent variable.

The same 22 native-speaker participants completed both tasks. To ensure that participants were not aware of the RP manipulation in production, the production task was conducted first, followed by the acceptability task one week later. Results showed that both RPs and gaps were possible in all positions, while RPs were preferred over gaps only in the most complex clause types: possessive RCs and non-possessive coverb RCs (Figures 1-2). Contrary to studies of Mandarin, but consistent with the NP Accessibility Hierarchy, RPs were more acceptable (Figure 1) and occurred more often (Figure 2) in direct object than subject RCs. Thus, the results are fully in line with Hawkins' (2004) prediction that grammatically optional RPs should be preferred more as structural complexity increases. However, some results were unexpected from the point of view of grammar. Although gaps were strongly preferred in simple subject relatives, RPs were used in this context in 5% of productions, suggesting that there may not be any categorical constraint against RP use in subject relatives (contra the Highest Subject Restriction of McCloskey 1990). More strikingly, participants produced a gapped structure in 21% of coverb RC productions, suggesting that there is no (strict) island constraint banning the extraction of a coverb's object (contra our previous analysis in Francis & Matthews 2006). Interestingly,

individual coverbs differed as to their tolerance for extraction, with the most preposition-like coverbs (*bong1* and *tung4*) showing the strongest preference for RPs over gaps in both acceptability and production.

These data raise difficult theoretical challenges regarding the origin of the observed complexity effects. Can these results be fully explained in terms of processing factors, without any need for grammatical constraints? If the grammar does play a role in constraining RP use, what is it? I argue that these data suggest important roles for both grammatical and processing constraints, and tentatively suggest that the grammatical constraints may be better understood as preference constraints rather than as categorical constraints, thus breaking with traditional assumptions of generative grammar.

Figure 1: Acceptability

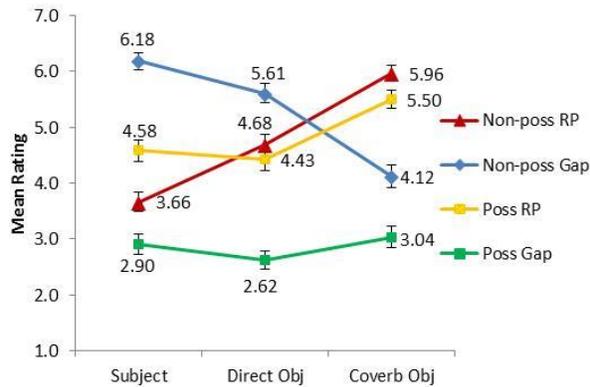


Figure 2: Production

