We report on and explain processing differences for Chinese relative clause constructions in which the embedded object and the head of the relative clause are in a possessor–possessee relationship. In particular, we look at the differences between three types of object possessor relative clauses (OPRC), as illustrated in (1)–(3).

(1) kache zhuangsi e laogong de nyushi dasuan tichugaosu [canonical OPRC]
truck kill husband DE woman plan sue
“The woman whose husband a truck killed plans to sue.”

(2) kache ba e laogong zhuangsi de nyushi dasuan tichugaosu [BA-OPRC]
truck BA husband kill DE woman plan sue
“The woman whose husband a truck (got) killed plans to sue.”

(3) e laogong bei kache zhuangsi de nyushi dasuan tichugaosu [passive BEI-OPRC]
husband BEI truck kill DE woman plan sue
“The woman whose husband was killed by a truck plans to sue.”

In (1), we assume the relative clause gap e, associated with nyushi, is within the DP relative object laogong. (2) and (3) are the BA and BEI construction variants of (1). Various filler-gap strategies such as the *Active Filler Hypothesis* (AFH) (Frazier & Clifton 1989; Frazier, et al. 1983) have been used to account for processing differences in English relative clauses. In Chinese prenominal relative clauses, the counterpart of the AFH can be termed as the *Active Gap Hypothesis* (AGH), where a gap once detected should be filled as soon as possible. Given the *Dependency Locality Theory* of Gibson (1998), which emphasizes storage/integration costs and locality, the prediction is that longer filler-gap distances should be harder to comprehend. In other words, we should see (3) > (2) > (1), in descending order of difficulty. However, as we will report, our experimental results indicate that (2) > (1) > (3).

We propose an alternative strategy motivated by computational economy, the goal of which is to minimize (derivational history) search. In particular, we hypothesize, based on independent evidence from Turkish and Japanese (see Fong & Hirose, to appear), that the parser first looks for a gap in Spec-T before searching the derivational history. For example, in Japanese there is a (surprising) preference for short-distance object scrambling over canonical SOV order in OPRCs. This result is predicted on the assumption that short-distance scrambling is to Spec-T, e.g. following Miyagawa (2004).

In the case of Chinese OPRCs, the NP preceding BEI is typically assumed to be at Spec-T, whether an empty operator analysis (e.g. Huang, 1999; Tang, 2001; Ting, 1998) or a simple NP-movement analysis (e.g. Li 1990 among others) is adopted. Thus, BEI-OPRCs, e.g. (3), are predicated to be easier to comprehend since the gap e is at Spec-T. BA-OPRCs such as (2), are predicted to be harder to process, since the NP containing the gap following BA is not in Spec-T and thus requires searching to locate. Accordingly, our prediction is that (3) should be easier than both (1) and (2).

To test the AGH against the Spec-T hypothesis, an off-line questionnaire asked 18 native speakers of Chinese to rate the difficulty (on a scale of 1-*easiest* to 6-*hardest*) and grammaticality
of examples such as (1)–(3). An average of 6 participants rated 15 sentences of each type (along with 85 additional baseline and filler sentences). Two sets of baseline sentences were included. The first set contains (adjunct) relative clauses that do not involve possessor relations, as exemplified by (4). The second set contains simple sentences, as exemplified in (5). The BA and BEI versions of these sentences were also rated.

(4) Xiaochen baiguang jiachan de sudu ling ren jingya
Xiaochen lose family property DE speed make person surprise
“The speed at which Xiaochen lost all the family property was surprising.”

(5) xiao hei gou yao le na ge moshengren yi kou
little black dog bite LE that CL stranger one CL
“The little black dog bit the stranger.”

Results are given in (6). The table is horizontally subdivided into three sections: the left, center, and right thirds of the table containing the results for the OPRCs, baseline relative clauses (Base-RC), and baseline non-relative clauses (Base), respectively.

<table>
<thead>
<tr>
<th>OPRCs</th>
<th>Difficulty</th>
<th>Grammatical %</th>
<th>Base-RC</th>
<th>Difficulty</th>
<th>Grammatical %</th>
<th>Base</th>
<th>Difficulty</th>
<th>Grammatical %</th>
</tr>
</thead>
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<tr>
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<td>18</td>
<td>Canonical</td>
<td>1.8</td>
<td>84</td>
<td>Canonical</td>
<td>1.2</td>
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<tr>
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<td>19</td>
<td>BA</td>
<td>2.7</td>
<td>61</td>
<td>BA</td>
<td>1.3</td>
<td>96</td>
</tr>
<tr>
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<td>70</td>
<td>BEI</td>
<td>3.1</td>
<td>54</td>
<td>BEI</td>
<td>1.7</td>
<td>82</td>
</tr>
</tbody>
</table>

In the case of the simple baseline sentences (right-third), there was no difference between the canonical, BA, and BEI constructions with respect to difficulty. For the relative clause baseline cases (middle-third), it was found that BEI > BA > Canonical in terms of difficulty. These results are consistent with Ferreira’s (2003) findings that passive sentences are generally harder to process than canonical sentences. Moreover, our results suggest that displacement and object shift distance both affect comprehension. More importantly, these results are flipped in the case of OPRCs (left-third), where BEI-OPRCs are much easier to process (and deemed grammatical much more often) than the canonical and BA variants. These results support the Spec-T model and are not predicted by the Active Gap Hypothesis.

References