Reference resolution in Bangla: Comparing demonstratives and pronominals

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Multiple factors influence the interpretation of pronouns and other referring expressions, including grammatical role ([2],[5]) and word order ([6]). According to the form-specific multiple-constraint approach ([3],[4]), reference resolution is sensitive to multiple constraints, and, crucially, referring expressions may exhibit different levels of sensitivity to different constraints. For example, Finnish pronouns are more sensitive to grammatical role whereas demonstratives are sensitive to linear order and grammatical role [3]. However, prior work has focused on personal pronouns and demonstratives in a small set of languages. This raises the question of how generalizable these patterns are. Is the greater word-order sensitivity of demonstratives in Finnish and Estonian due to an inherent property of demonstratives deictically ‘pointing’ to recent referents – and thus something that should generalize crosslinguistically – or is it a more flexible property that can vary from language to language?

Bangla – an Indic language with default SOV order – is well-suited for investigating these questions, thanks to the rich nature of its referential paradigm and its flexible word order. New information occurs in the immediately preverbal position: SOV is used with a given/discourse-old subject and a new object; OSV is used with a given/discourse-old object and a new subject. We investigated the referential properties of two referring expressions in Bangla: (i) the distal demonstrative oTa (“that”), and (ii) SeTa, which is normally classified as a pronominal/anaphoric element. Both of these forms can be used anaphorically in discourse to refer back to previously mentioned referents, and both can also be used discourse-deictically (e.g. ‘This surprised Nira’)

**Experiment.** Participants (n=24) wrote continuations to short mini-stories (ex.1, 2). Target stories ended in a prompt-word (oTa, SeTa). The word order in Sentence 3 (1c,2c) was SOV or OSV, creating four conditions: [SOV.oTa], [SOV.SeTa], [OSV.oTa], [OSV.SeTa]. The sentence-initial argument was discourse-old to ensure felicity. The propositional content of the SOV/OSV sentence was constant within each item to avoid plausibility/felicity confounds. We had 24 targets, 30 fillers. Continuations were coded for whether the referring expression refers to the preceding subject or object, or whether it was used discourse-deictically. Some were coded as ‘unclear.’

**Results.** Participants’ continuations reveal an asymmetry between the two forms (Table 1). Demonstrative oTa is mostly used to refer to the preceding object regardless of word order (ANOVA results show significant differences; p’s<.05). In contrast, pronominal SeTa is sensitive to word order: [SOV.SeTa] shows competition between the object (43%) and discourse-deictic usage (38%), whereas [OSV.SeTa] prefers the discourse-deictic usage (47% discourse-deictic-continuations, 26% object-continuations, p<.05 by subjects, p=.07 by items).

Whereas oTa is sensitive to grammatical/semantic role, SeTa’s biases shift depending on word order. Our findings fit with the claims of the form-specific multiple-factor approach ([3],[4]). Furthermore, the finding that the demonstrative oTa shows a greater sensitivity to grammatical/semantic role than the pronomin SeTa shows that the pattern observed in languages like Finnish and Estonian, where the pronoun was found to be more sensitive to grammatical/semantic role than the demonstrative, is not a crosslinguistic universal. By
broadening our investigations into more diverse languages, we can gain a better understanding of the extent of crosslinguistic variation.

Table 1. Percentages of different continuation types in each condition. (Shading indicates the most frequent continuation types for each condition)

<table>
<thead>
<tr>
<th></th>
<th>Subject continuation</th>
<th>Object continuation</th>
<th>Discourse deictic</th>
<th>Unclear/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSV.oTa</td>
<td>18%</td>
<td>47%</td>
<td>28%</td>
<td>7%</td>
</tr>
<tr>
<td>OSV.SeTa</td>
<td>21%</td>
<td>26%</td>
<td>47%</td>
<td>6%</td>
</tr>
<tr>
<td>SOV.oTa</td>
<td>11%</td>
<td>54%</td>
<td>29%</td>
<td>6%</td>
</tr>
<tr>
<td>SOV.SeTa</td>
<td>11%</td>
<td>43%</td>
<td>38%</td>
<td>8%</td>
</tr>
</tbody>
</table>

(1) SOV example
a. nira mangSer dokane mangSo kinchilo
Nira meat-gen shop-loc meat buying-was
‘Nira was buying meat in the meat-shop.’

b. o dekhlo dokaner kache EkTa kukur ghurchhe
she saw shop-gen near one dog wondering-around
‘Nira saw that a dog was wondering around near a shop.’

c. kukurTa EkTa beRalke taRa korlo
dog-NOM a cat-ACC chase did
‘The dog chased a cat.’ [Subj old Obj new Verb]

d. SeTa / oTa…
It / that

(2) OSV example
a. nira mangSer dokane mangSo kinchilo
Nira meat-gen shop-loc meat buying-was
‘Nira was buying meat in the meat-shop.’

b. o dekhlo dokaner kache EkTa beRal ghurchhe
she saw shop-gen near one cat wondering-around
‘Nira saw that a cat was wondering around near a shop.’

c. beRalTake EkTa kukur taRa korlo
dog-NOM a cat-ACC chase did
‘A dog chased the cat.’ [Obj old Subj new Verb]

d. SeTa / oTa…
It / that

References: