

Thesis title: **The Role of Prediction and Working-memory Constraints in Hindi Sentence Comprehension**

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ABSTRACT

A large body of sentence processing literature assumes *the prediction of upcoming linguistic items* to play a critical role during human sentence processing. Moreover, Subject-ObjectVerb (SOV) languages are considered to be particularly good at predicting the upcoming linguistic item (e.g., clause-final verbs) when compared to Subject-Verb-Object (SVO) languages. This assumption is fairly used in sentence processing literature, particularly dealing with the SOV languages. However, this assumption has not been validated empirically.

Using a series of sentence completion tasks, the first part of this thesis investigates the assumption of robust verbal prediction in Hindi (a canonical SOV language) to bridge this gap in the literature. Results from the completion studies show only partial support for the robust verbal prediction. Surprisingly, results also showed that the robustness of prediction is constrained by certain linguistic configurations. In such configurations, a preponderance of grammatically illicit predictions was observed. In particular, participants are more likely to make prediction errors when trying to complete sentences containing three consecutive animate nouns than when completing sentences with fewer nouns. In addition to the completion studies, I also report a series of rating tasks to show that these erroneous parses generated in conditions with three consecutive noun phrases can lead to grammatical illusion in Hindi.

Traditionally, it has been assumed that this robust processing might facilitate the processing of the clause-final verb when the appearance between the verb and the dependent is further delayed in the SOV language. In contrast, a lack of robust prediction in SVO languages results in forgetting the head when the distance between the head and the

dependent increases. In other words, the assumption of robust verbal prediction and its maintenance is at the core of the explanation for anti-locality effects and no-structural forgetting in SOV languages.

In the light of these results, i.e., the fallibility of verbal prediction observed in the completion studies, it is required that we do a closer scrutiny of the existing explanations for anti-locality and lack of structural forgetting in the SOV languages. A two-step investigation is done in the remaining part of the thesis. Since effects such as anti-locality are 'online' effects, while completion studies are 'offline', in the first step, it was investigated if the results of the completion studies have any bearing during online processing. This step successfully established this relationship between the offline results and online processing patterns. Finally, the second step of this investigation tries to find out the cause behind anti-locality effects and no-forgetting effects in the light of these findings. Preliminary results from this thesis suggest that forgetting can be observed for specific constructions in an SOV language like Hindi, and the anti-locality effect can arise due to a shallow parsing strategy rather than robust predictive processing.

This thesis systematically investigates the prediction process in an SOV language like Hindi and shows that the prediction system may break down while parsing a complex construction. These results highlight the critical effect of working-memory constraints on the prediction system in the SOV languages. The work highlights the nature of prediction errors that arise due to such constraints. Overall, this work reports the fallibility of the prediction system and its effect during online processing. It calls for a re-evaluation of some assumptions behind the existing explanations of anti-locality and no-forgetting effects in SOV languages.