

## Could the Subject be a big PRO?

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Reactivation at trace positions has gained recent experimental support, and this may extend to PRO positions. Hestvik et. al. (2010) and Nicol and Swinney (1989) have worked on referent reactivation and its relationship to syntactic processing. PRO, an implicit anaphoric element, has inspired debates over its characterization properties and its relationship to other sentential elements. Chomsky's PRO theorem (1981) states that PRO must be ungoverned, assuming PRO to be caseless. Yet, PRO's case assignment has shown to be language dependent (Sigurðsson et. al., 2008; Sportiche et. al., 2013, inter al.). This suggests that looking further into reactivation patterns is necessary in order to understand the structure of PRO.

Our experiment sampled priming effects, compared to a baseline, from twenty participants presented with the task of identifying images of possible or impossible PRO antecedents. Images were presented at one of three positions in object or subject control sentences in Norwegian, in a controlled randomized sequence. The positions were either (a) before or (b) after the infinitive marker, or (c) at the end of the sentence. These positions represent the position of PRO in (a) S-structure or (b) D-structure and an unrelated position (c).

(1) Object-control: *Flodhesten frarådet alligatoren (a) å (b) gå til festen (c).*

The hippo warned the alligator to go to the party.

(2) Subject-control: *Sjiraffen lærte av elefanten (a) å (b) drikke fra elva (c).*

The giraffe learned from the elephant to drink from the river.

Results indicated weak effects: The strongest indication was an effect of position approaching significance. Post hoc investigation of the median of the priming effect at each position for object and subject control showed a priming effect (between 85 and 10ms, 95%CI), but only for subject-control at position (b), after the infinitive marker (Cohen's  $d=1.2$ ,  $r=0.5$ ).

The experiment points to reactivation related to PRO after the infinitive marker exclusively for subject-control. At this position, most participants showed priming. This provides evidence for claiming that PRO is a reflexive subject, based on behavioral properties and position reactivation. It also suggests that experimental evidence is essential in investigations of PRO and its case and thematic role assignment, especially as reactivation patterns show constraints that are not compatible with general trace activation.

## References

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