

Incremental Processing Difficulty in Cross-serial and Nested Verb Clusters

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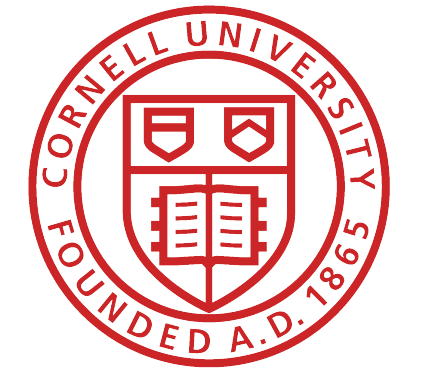
Ryan Musa



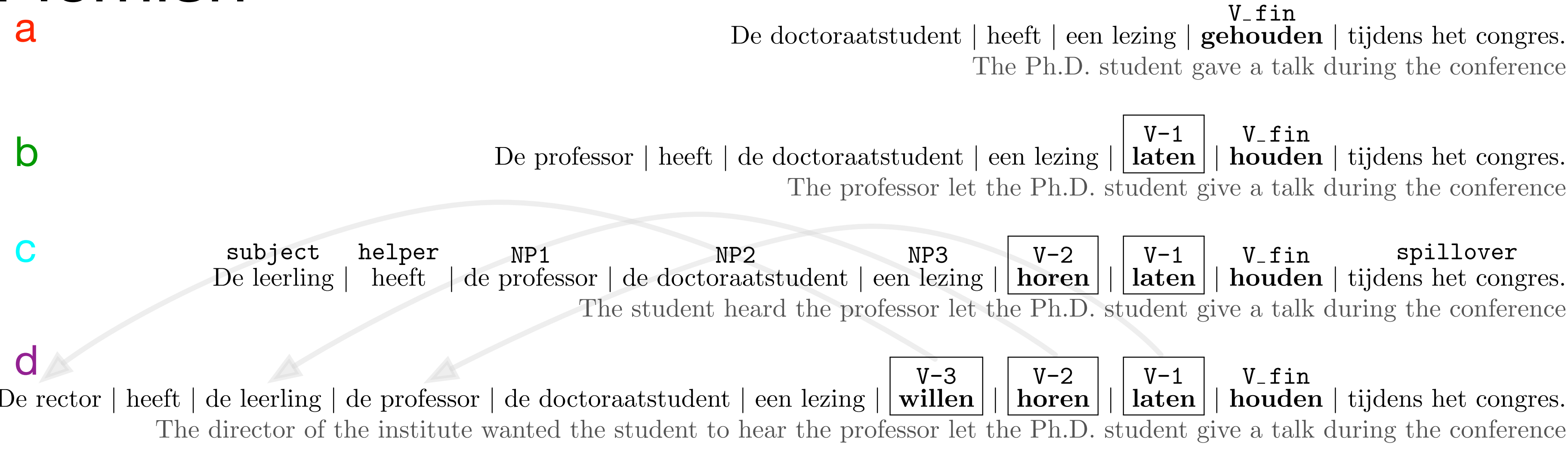
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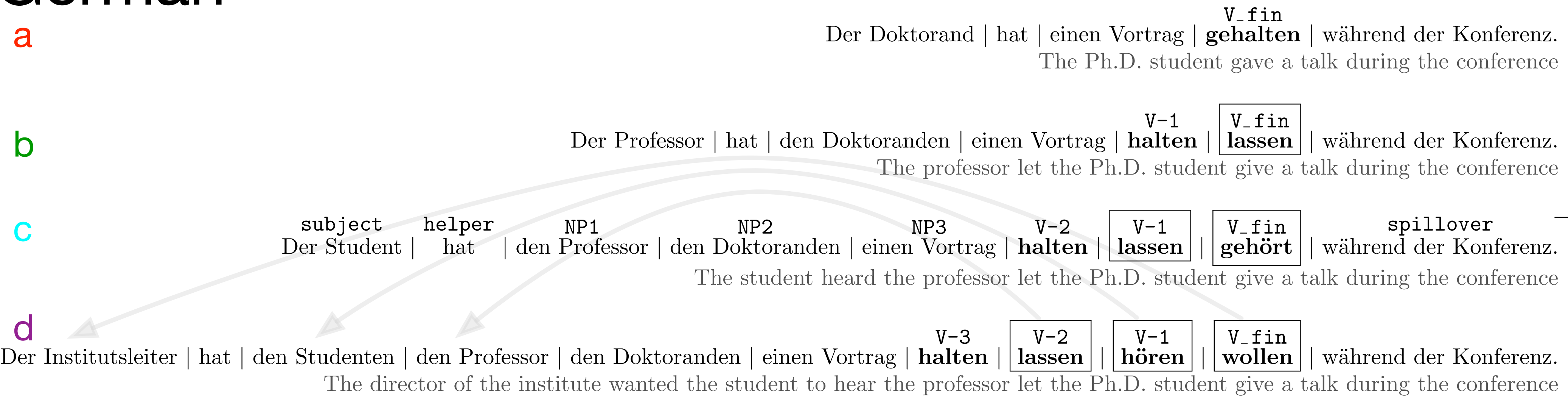
John Hale



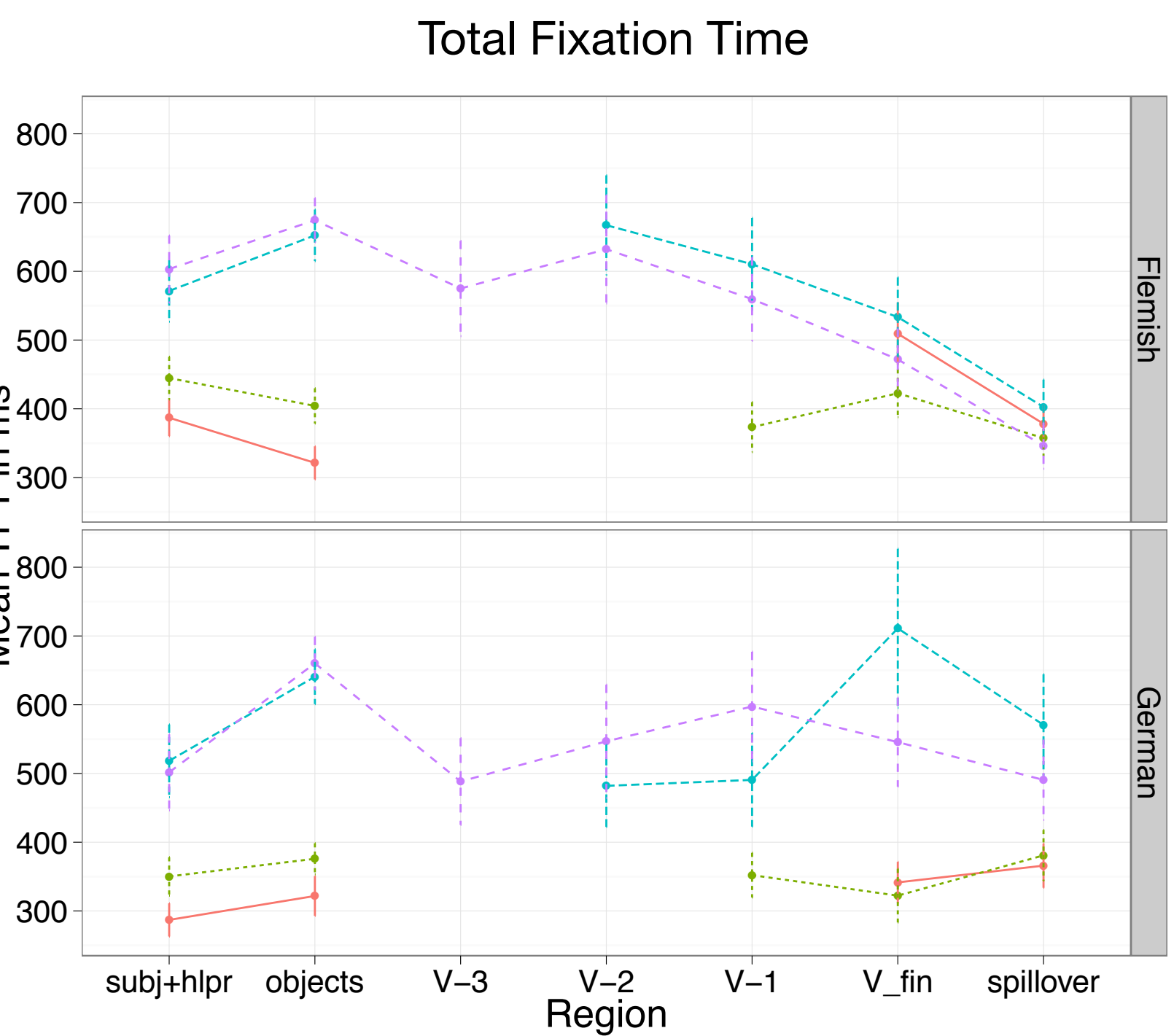
Flemish



German

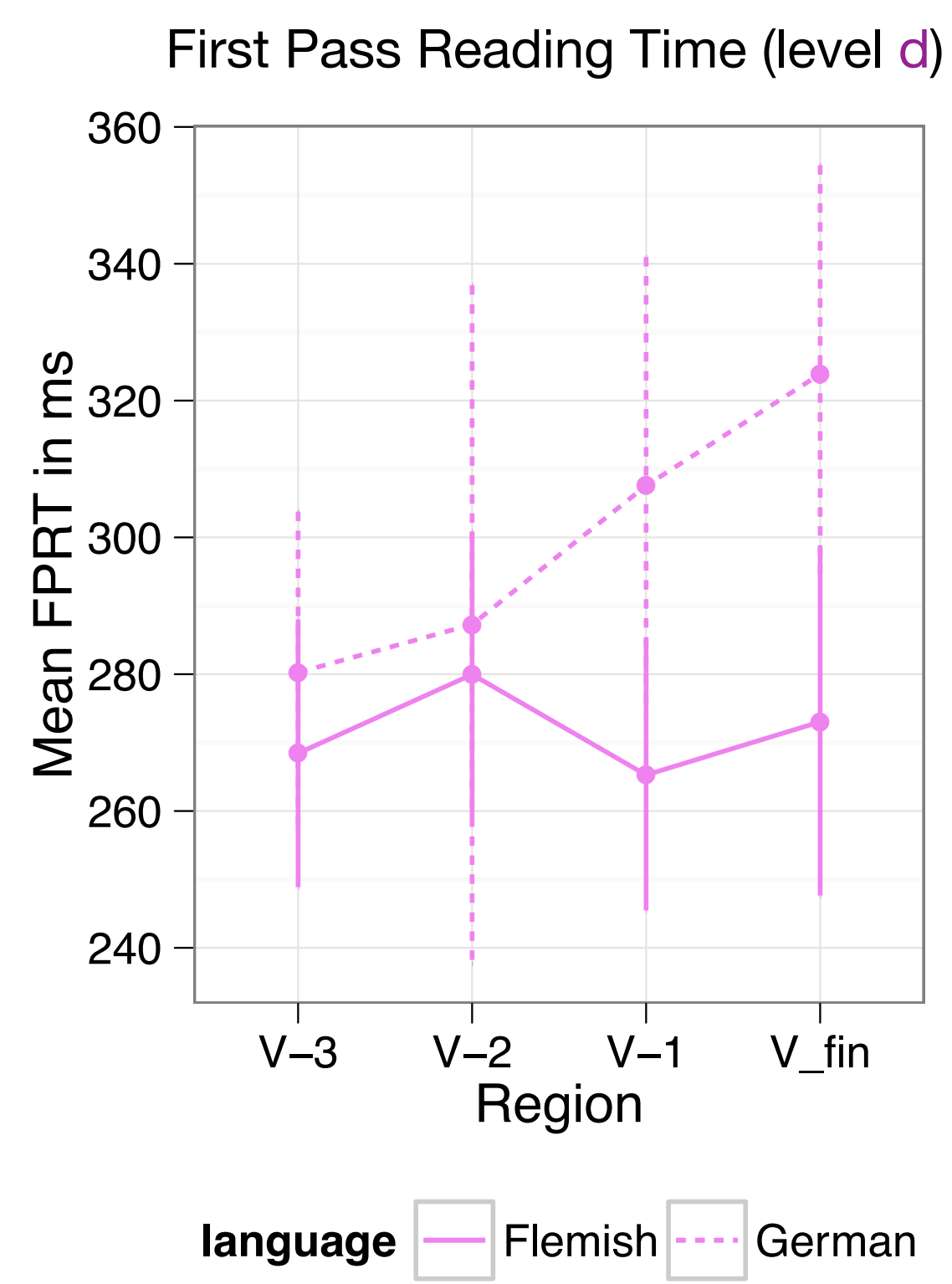


Embedding verbs		
Flemish	German	gloss
laten	lassen	to let
zien	sehen	to see
horen	hören	to hear
willen	wollen	to want



← Observation 1
Much slower beyond level b.
 Replicates Bach, Brown & Marslen-Wilson, 1986

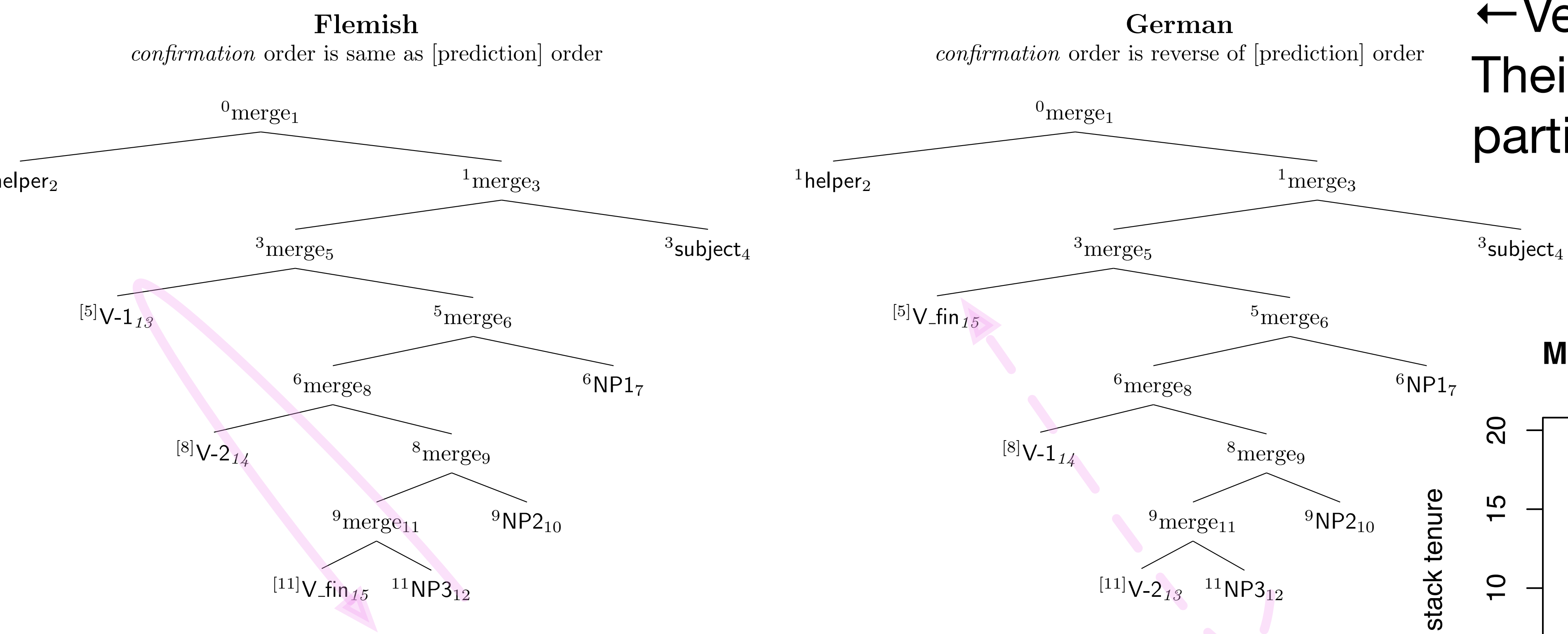
Observation 2 →
 Along the verb cluster,
German readers slow down.
 Flemish readers don't.



Minimalist grammar
 transitive verb d= d= v
 embedding verb v= d= v
 helper =v i

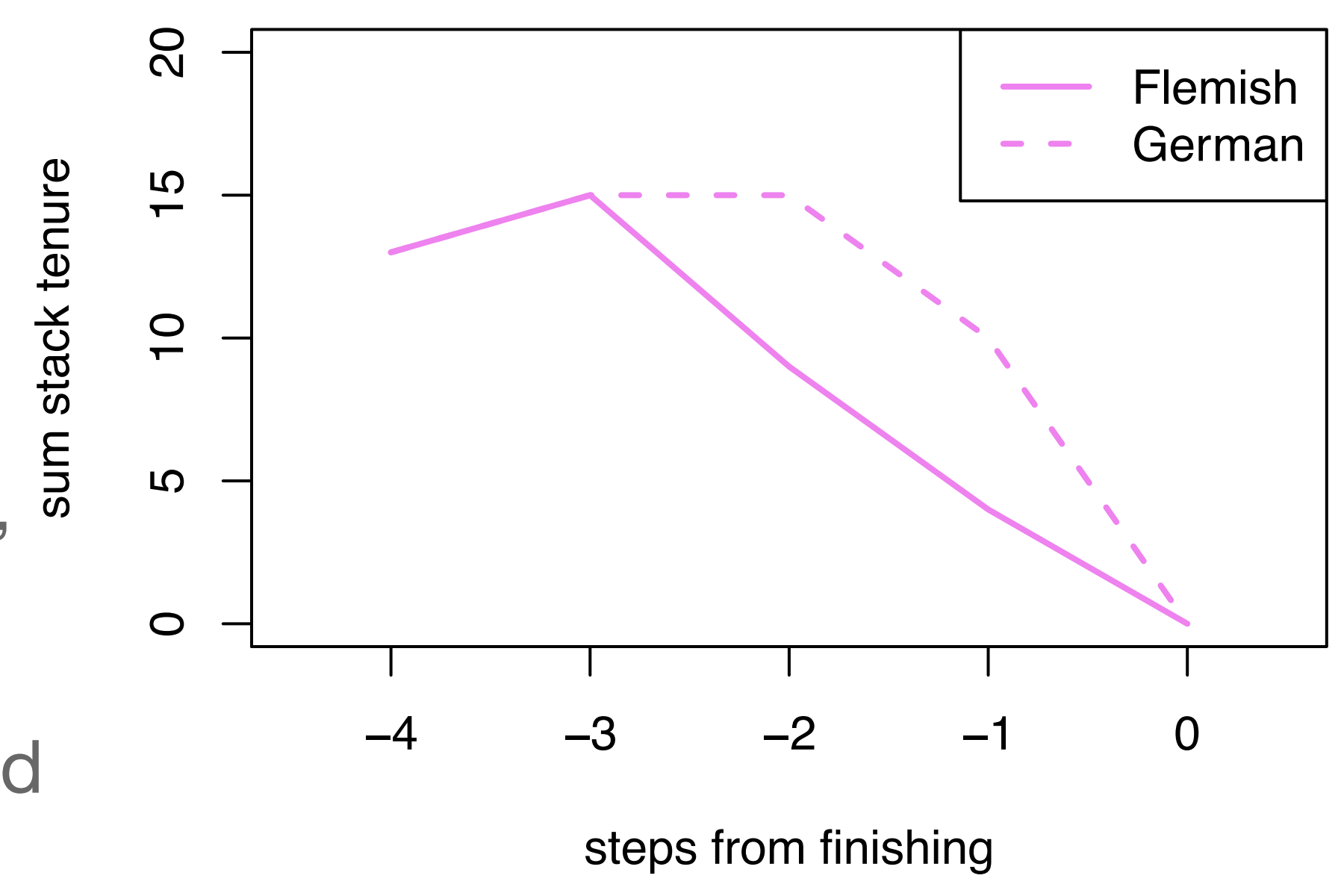
Account of Observation 2
 A top-down parser confirms Flemish verbal expectations in order of their prediction, whereas German predictions are confirmed in **reverse** order. This selectively burdens German readers' memory.

Derivation trees for level c



← Verbs raise into the cluster.
 Their order reflects language-particular linearization.

Memory use in incremental parser states



For more on stack tenure, see [Kobele et al](#) in Proceedings of Formal Grammar, 2012. For more on top-down parsing and Minimalist Grammars, see [Stabler](#) in Proceedings of the ACL Cognitive Modeling and Computational Linguistics Workshop, 2011. For more on the raising analysis of verb clusters as formalized in Minimalist Grammars, see chapter 9 of [Morawietz](#), 2003.