How onset-alignment and semantics shape the auditory family size effect

by Hanno Müller, Louis ten Bosch, Mirjam Ernestus

February 8, 2022





Commonalities?



Family size

"The morphological family size is the type count of words in which a given target word (or, in the case of complex words, its base) appears as a constituent." - Winther Balling & Baayen (2008)

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 - ... the response latencies simply remain unchanged (Baayen et al., 2007)

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- Dutch irregular past participles such as 'gevochten' (fought) activate family of 'vechten' (to fight), but not 'vocht' (moisture) (De Jong IV et al., 2000)

Research question

Why is there no consistent family size effect in **auditory** word recognition?

Visual vs. auditory word recognition

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FS does not take sequential order into account

Morphological structure and family size



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Prefixed might elicit different effect than simplex words

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 - → How to operationalize semantic relationship?

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aanleren	afleren	bijleren	leer	leert	leerbaar	leerde	leraar	8
0.77	0.58	0.70	0.70	0.75	0.43	0.48	0.36	4.77

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- → Conceptually, each family member is weighted by its semantic similarity with target word
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- Baseline: GAMs (Wood, 2017) with several co-variates (next slide) fitted following 'parsimonious account' of Bates et al. (2015)

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 - Correlations between: Duration, FIP, PhonND, \rightarrow PCA

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Baseline	52242	-

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Model summary

	edf	Ref.df	F	p-value
s(FsOaSemantic):Simplex	2.710	3.350	19.643	< 2e-16***
s(FsOaSemantic):Prefix	1.768	2.216	2.999	0.06379.
s(FsOaSemantic):PrefixSuffix	1.001	1.002	0.691	0.40516
s(FsOaSemantic):Suffix	6.942	7.973	6.121	< 2e-16***





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Effect size of family size for suffixed words

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 - No effect for prefixed words → Due to decomposition of prefixed words? (CRUP; (Wurm, 1997))
 - In-depth analysis of FS for different morphological structures needed
 → subject of ongoing research

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 - → in prefixed words, the stem becomes accessible later than in simplex or suffixed words

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