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Gender and Change: Norwegian

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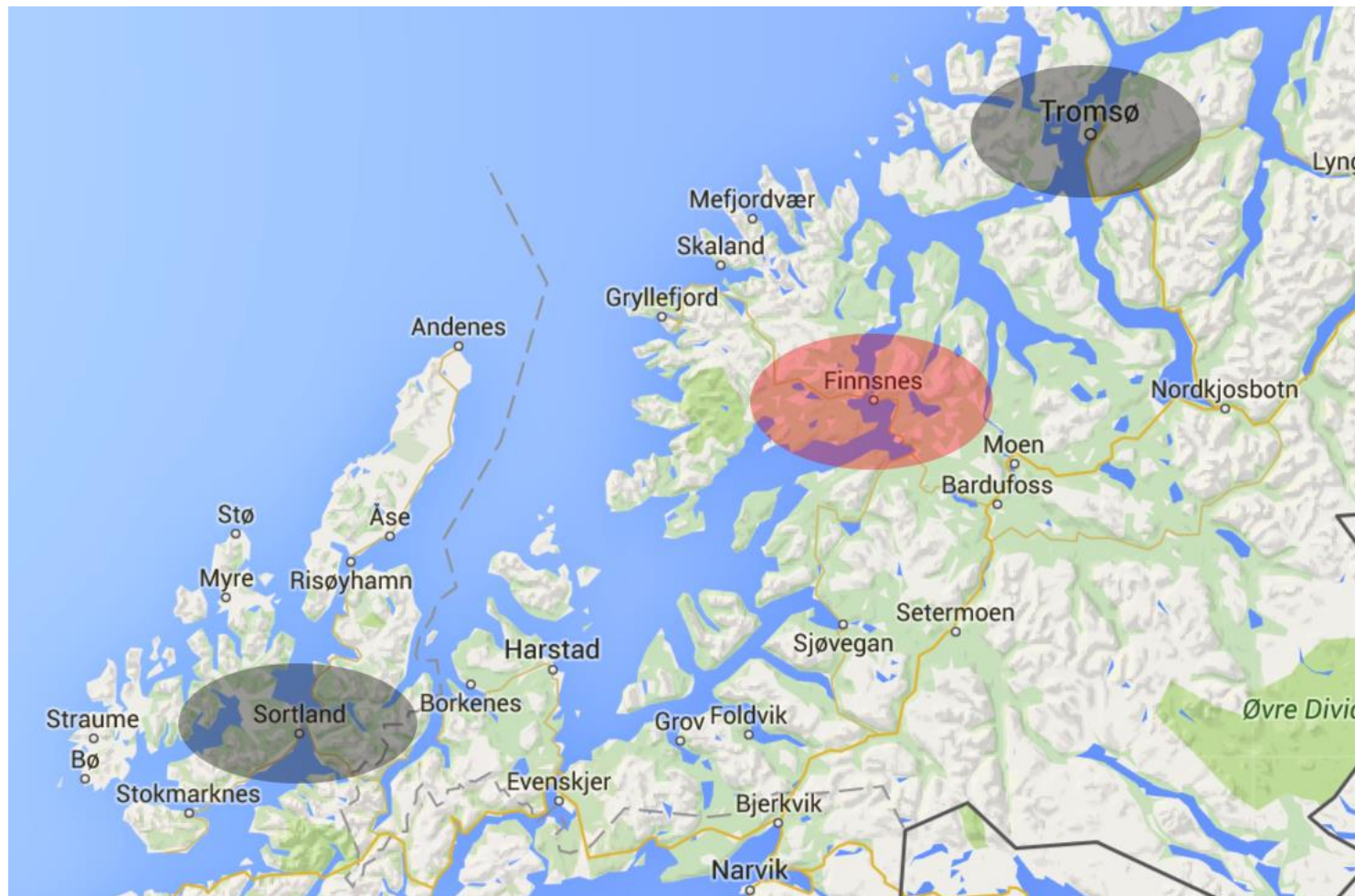
Psycholinguistic evidence for language change

Lundquist, B., Rodina, Y., Sekerina, I. A., & Westergaard, M. (2016). Gender change in Norwegian dialects: Comprehension precedes production. *Linguistics Vanguard*, 2(s1), 1-15. [DOI:10.1515/lingvan-2016-0026](https://doi.org/10.1515/lingvan-2016-0026)

Introduction

- **Change in gender system of Norwegian:**
 - Masculine, Feminine, Neuter → Common & Neuter
- Considerable **variation** among speakers / dialect contact areas / national level (oral & written registers)
- **What is the status of FEM in processing in speakers who do (FEM speakers) / do not (NoFEM speakers) produce them?**
- The study compares gender marking (indefinite articles) in online production and processing in **North Norwegian dialects:**
 - comprehension (online processing) of FEM markers is affected before production
 - processing of MASC markers is also affected during change.

Fieldwork areas: North Norway



Norwegian gender system

Tromsø dialect		Masculine	Feminine	Neuter
SG	Indefinite	en hest <i>a horse</i>	ei seng <i>a bed</i>	et hus <i>a house</i>
		en fin hest <i>a nice horse</i>	ei fin seng <i>a nice bed</i>	et fint hus <i>house</i>
	Double definite	den hesten <i>that horse</i>	den senga <i>that bed</i>	det huset <i>that house</i>

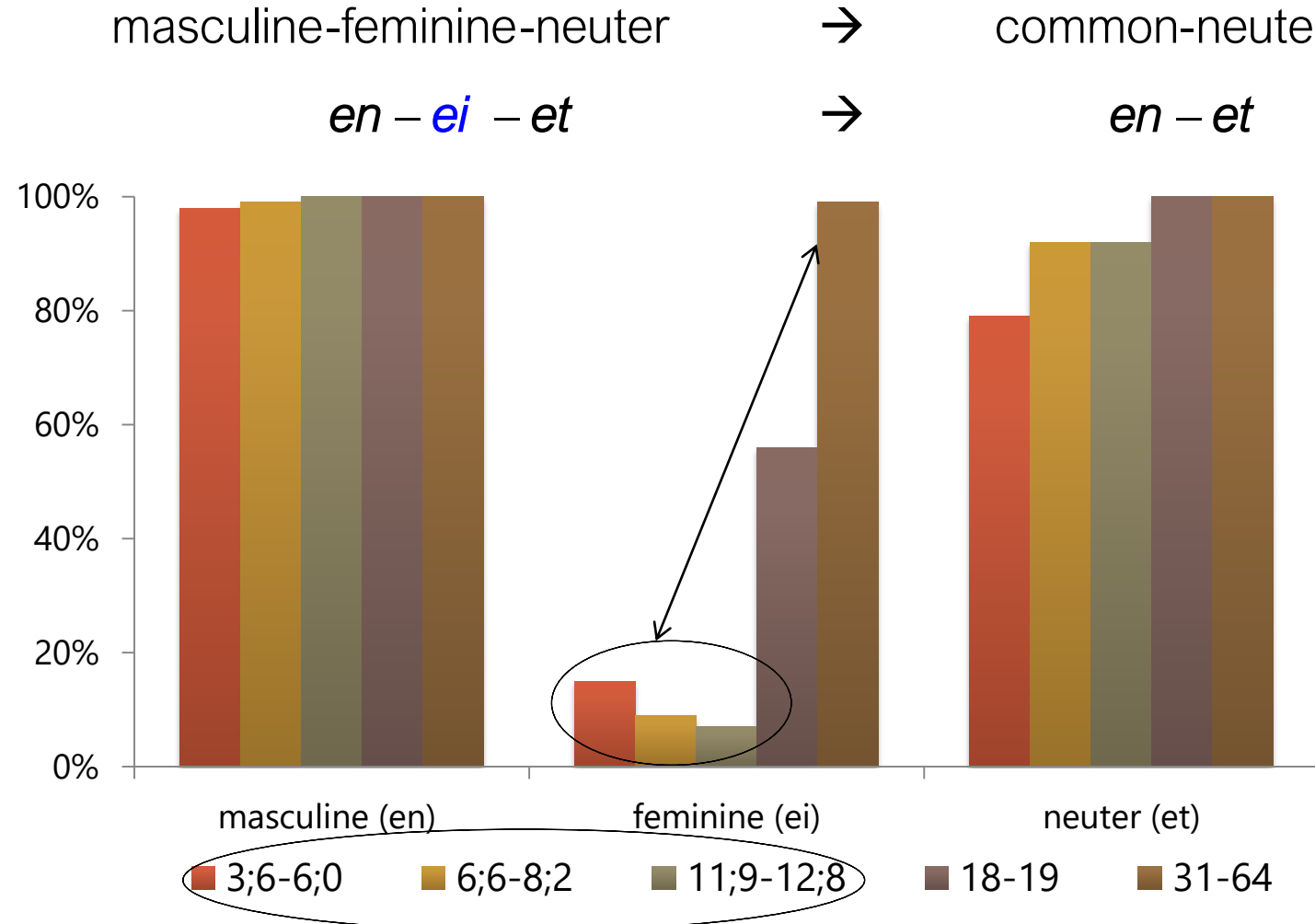
Frequencies in spontaneous speech (indef. article):

MASC: *en* - 62.6%, FEM: *ei* – 18.9%, NEUT: *et* – 18.5%

(adult data from Tromsø acquisition corpus, Anderssen, 2006)

Language change: Tromsø dialect, offline production

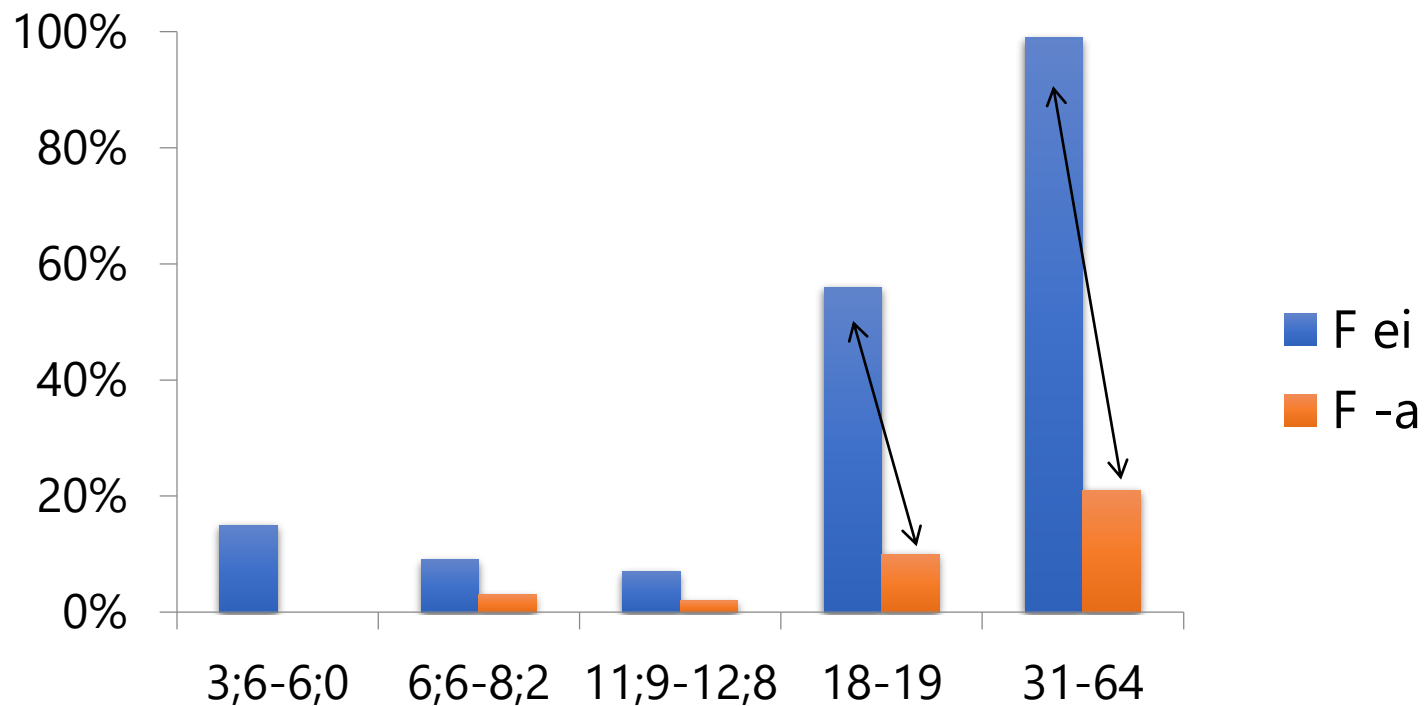
(Rodina & Westergaard, 2015)



Language change: Tromsø dialect, offline production

(Rodina & Westergaard, 2015)

Morphosyntactic cue for FEM: **ei dukka** → **ei / en dukke** = **en bakke**
a doll.FEM *a hill.Masc*



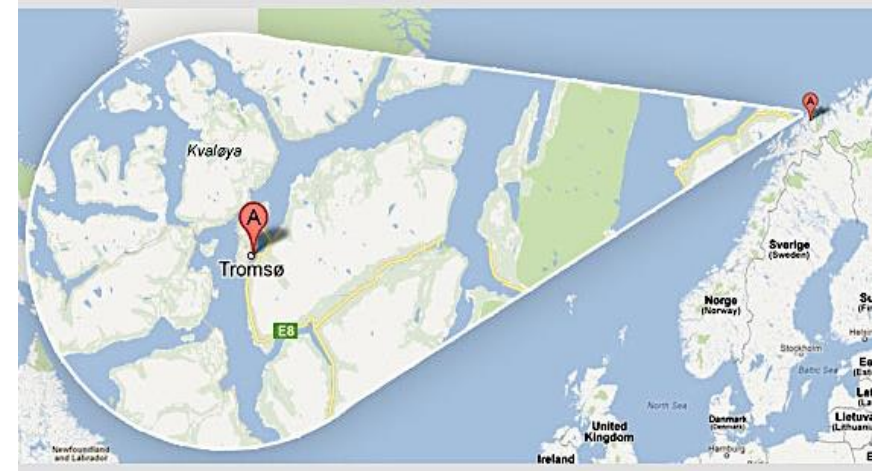
Hypotheses

1. **Production and comprehension are equally affected:** If gender distinctions are made in production, they are also used predictively in real-time comprehension.
2. **Production is affected before comprehension:** Speakers are still sensitive to three-gender distinctions made by other speakers in real-time comprehension, without necessarily making the same distinction in their own production.
3. **Comprehension is affected before production:** Speakers make three-gender distinctions in their production but do not use them to anticipate upcoming language, possibly due to inconsistency in the input.

Group 1: Tromsø city

Tromsø dialect contact area:

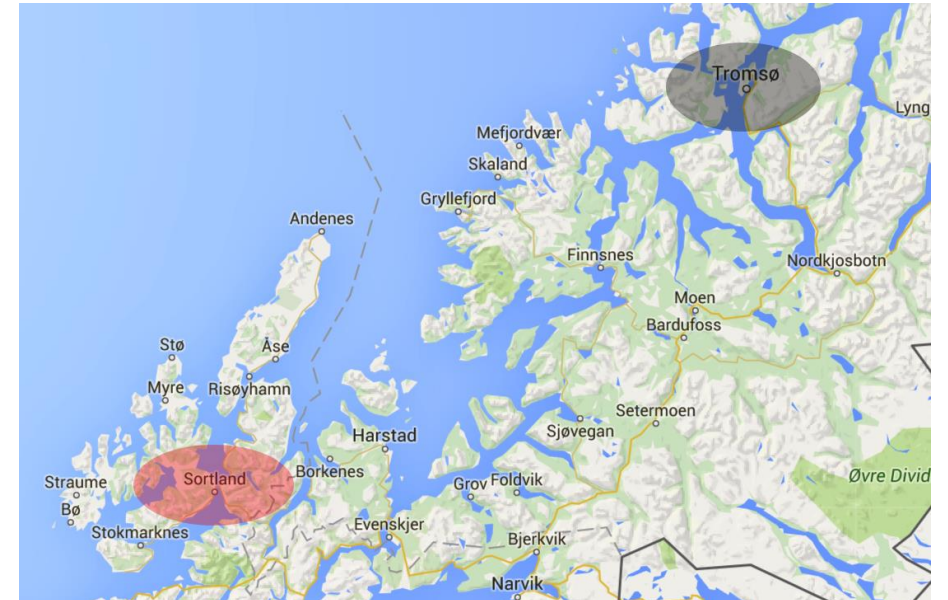
- considerable dialect mix
- loss of FEM *ei* in younger speakers (cf. Rodina & (Westergaard 2015))



Participants: Adult speakers of Tromsø dialect, $n=44$, age 21-59

Group 2: Sortland

- **Sortland:** stable dialect area, minimal dialect mix
- **Participants:** high school students, $n=54$, age 16-18
- **Online production: FEM speakers**
 - consistent use of FEM *ei*
 - inconsistent use of FEM *-a*

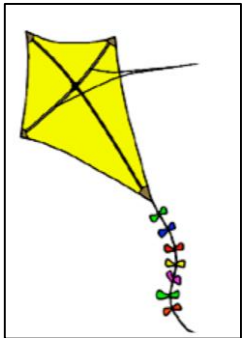


Experimental design: Online production

13 test contexts (colorized Snodgrass set)

Stimuli: *Æ ser en drage_M. Ser du nokka annet?*
I see a kite. Do you see something else?

Response: *Æ ser ei dukke_F.*
I see a doll.



Tromsø nline production results:

-FEM speakers: Adults using *ei*, $n=33$

-NoFEM speakers: Adults not using *ei*, $n=11$

Experimental design: Comprehension

The Visual World Paradigm

32 test nouns: 16 M x 8 F x 8 N

128 test contexts

	Target	Distractors
Condition (1) N-M	Neuter	Masculine
Condition (2) M-N	Masculine	Neuter
Condition (3) F-M	Feminine	Masculine
Condition (4) M-F	Masculine	Feminine

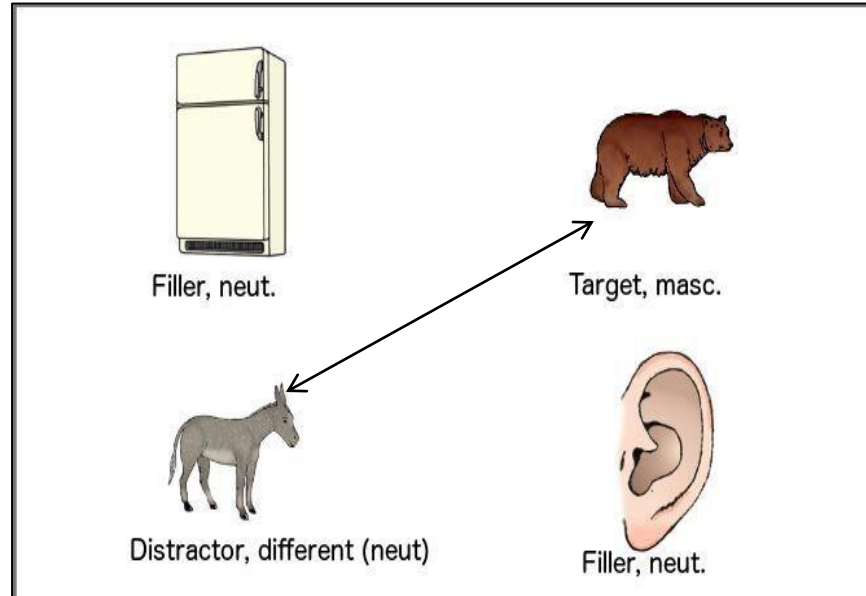
Combinations 1–4 in experimental condition (one referent with target gender) and control condition (two referents with target gender)

Experimental design: Comprehension

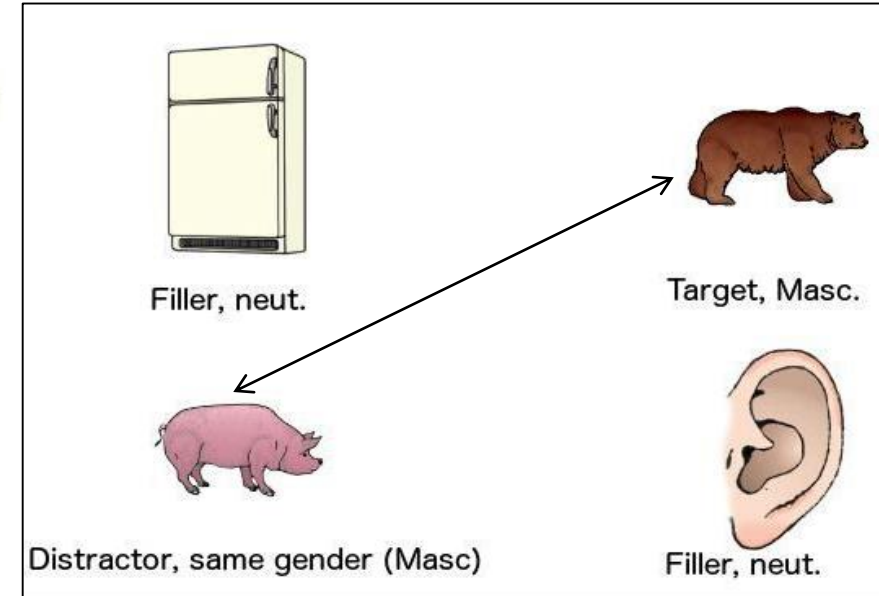
Audio stimuli: bear / ear / pig / fridge → I hide behind **en / ei / et N**

500 ms between onset of article and target noun.

Experimental / diff. condition



Control / same condition

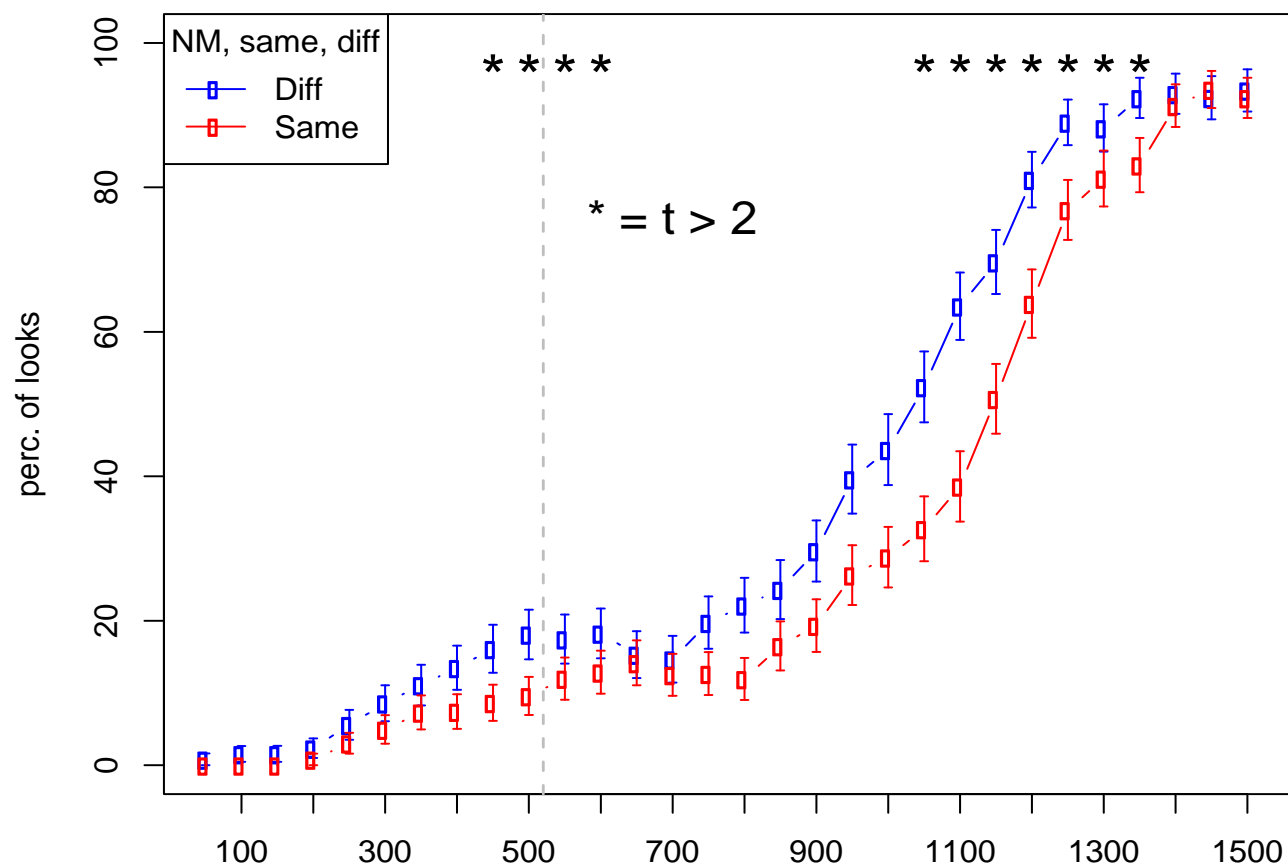


Combined online production & comprehension

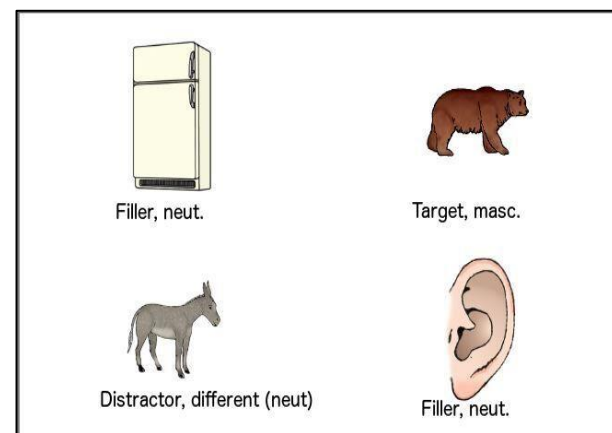


Condition 1: NEUT target, MASC comp

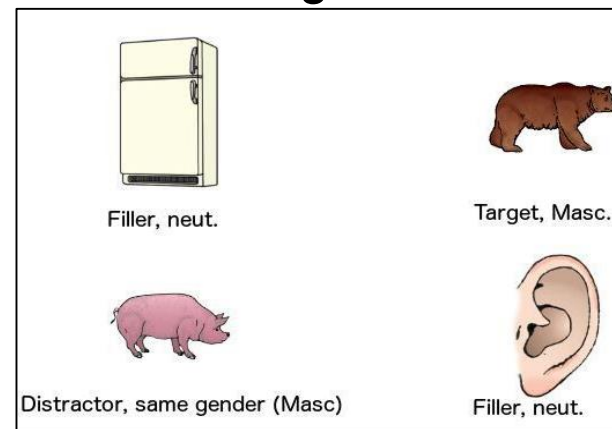
NEUT-MASC: different vs. same



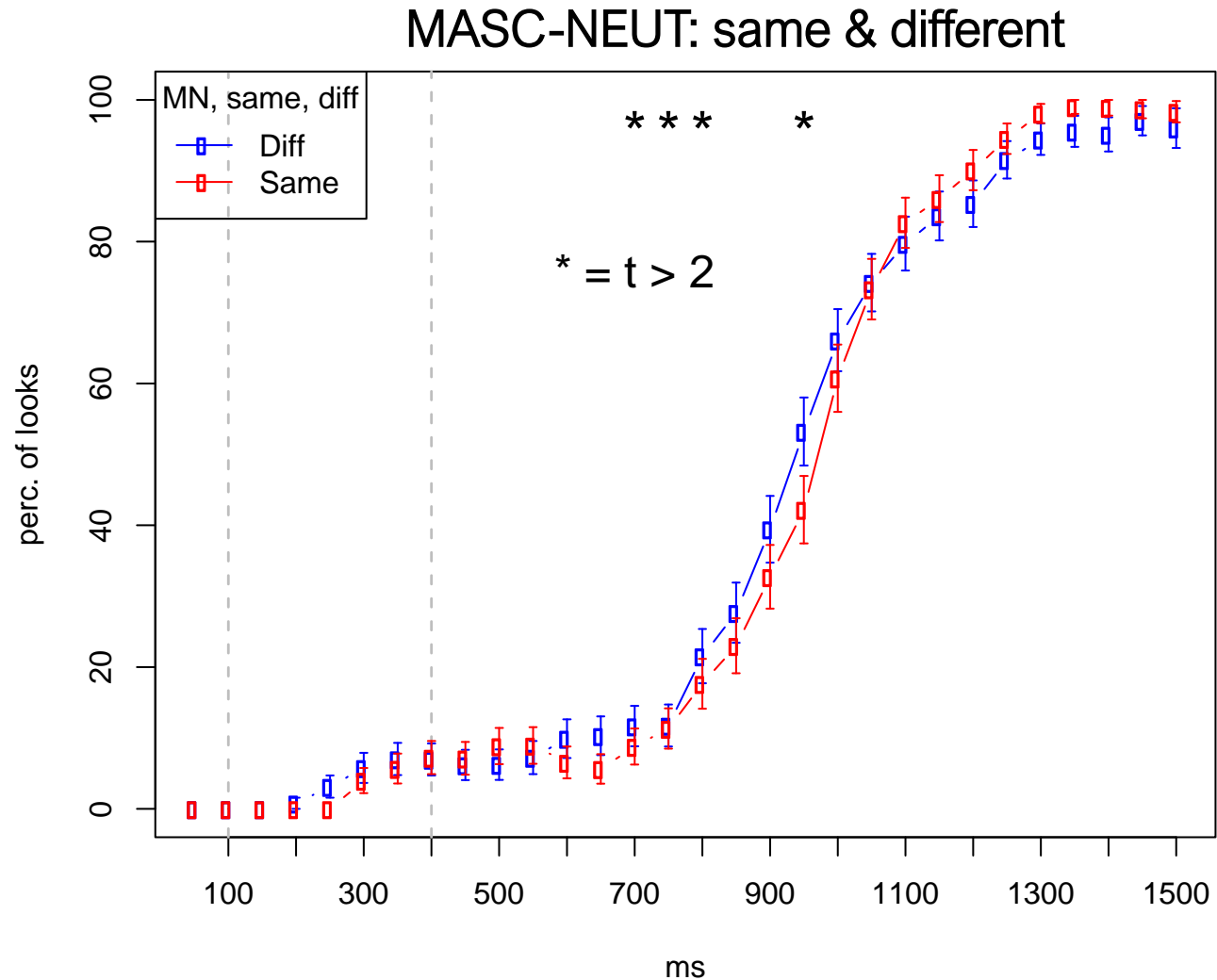
Different gender



Same gender



Condition 2: MASC target, NEUT competitor



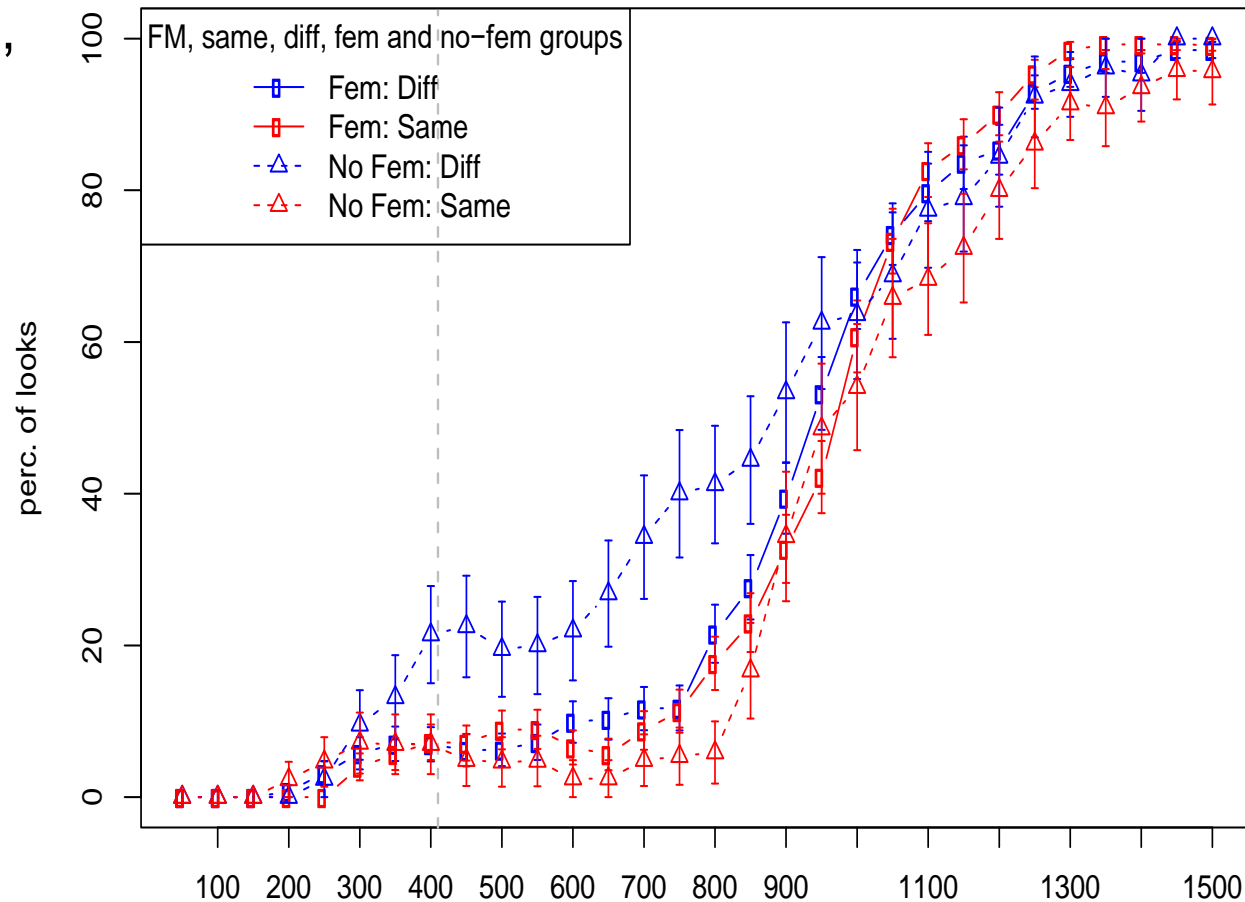
FEM vs. NoFEM speakers: Condition 2

MASC-NEUT

FEM speakers: Adults using ei ,
 $n=33$

NoFEM speakers: Adults not
using ei , $n=11$

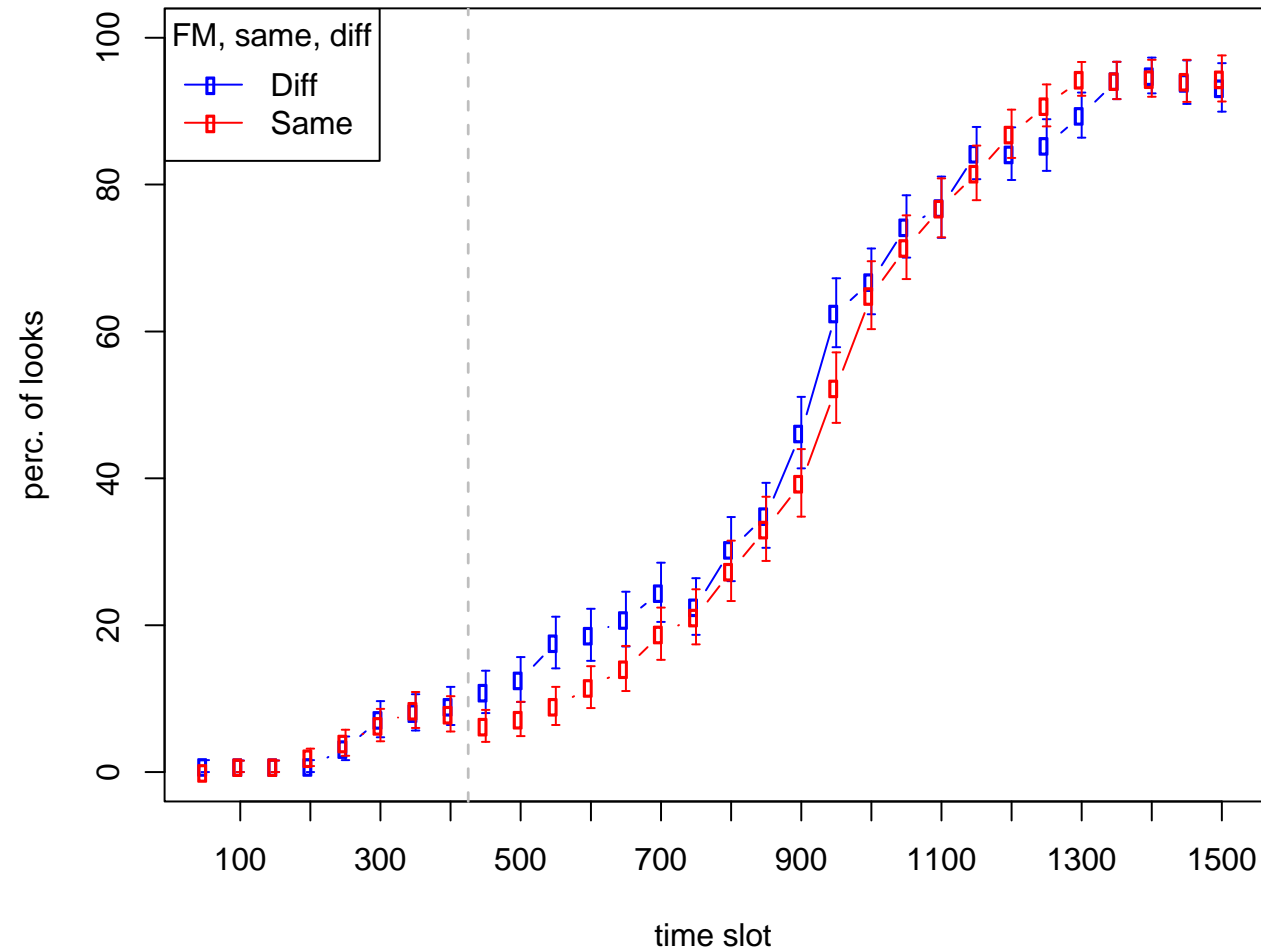
MASC-NEUT: different vs. same



Condition 3: FEM target, MASC comp

Condition 4: MASC target, FEM comp

FEM-MASC/MASC-FEM: different vs. same



Experiment 1, Tromsø: Results

Comprehension of *M en*, *F ei* and *N et*

	NoFEM speakers	FEM speakers
Condition (1) N-M	√	√
Condition (2) M-N	√	--
Condition (3) F-M	--	--
Condition (4) M-F	--	--

Experiment 2, Sortland: Results

Processing of *M en*, *F ei* and *N et*

	Tromsø		Sortland
	NoF speakers	F speakers	F speakers
Condition (1) N-M	√	√	√
Condition (2) M-N	√	--	--
Condition (3) F-M	--	--	--
Condition (4) M-F	--	--	--

Discussion: Discrepancies in processing of FEM & MASC markers

Why these differences between participants for FEM and MASC markers?

1. **NoFEM speakers** have fully developed two-gender system of common and neuter: Strong effect for MASC & NEUT markers in processing.
 2. **FEM speakers**: a) use *ei* consistently, but b) but do not use FEM *-a*
 - The vulnerable system causes “weak” connections between MASC & FEM markers and gender nodes in processing
- Despite the fact that FEM markers were produced by FEM speakers, these markers already lost predictive power in online processing (comprehension), rendering FEM speakers equivalent to NoFEM speakers.
 - During language change, comprehension can be affected faster whereas change in production is more gradual.

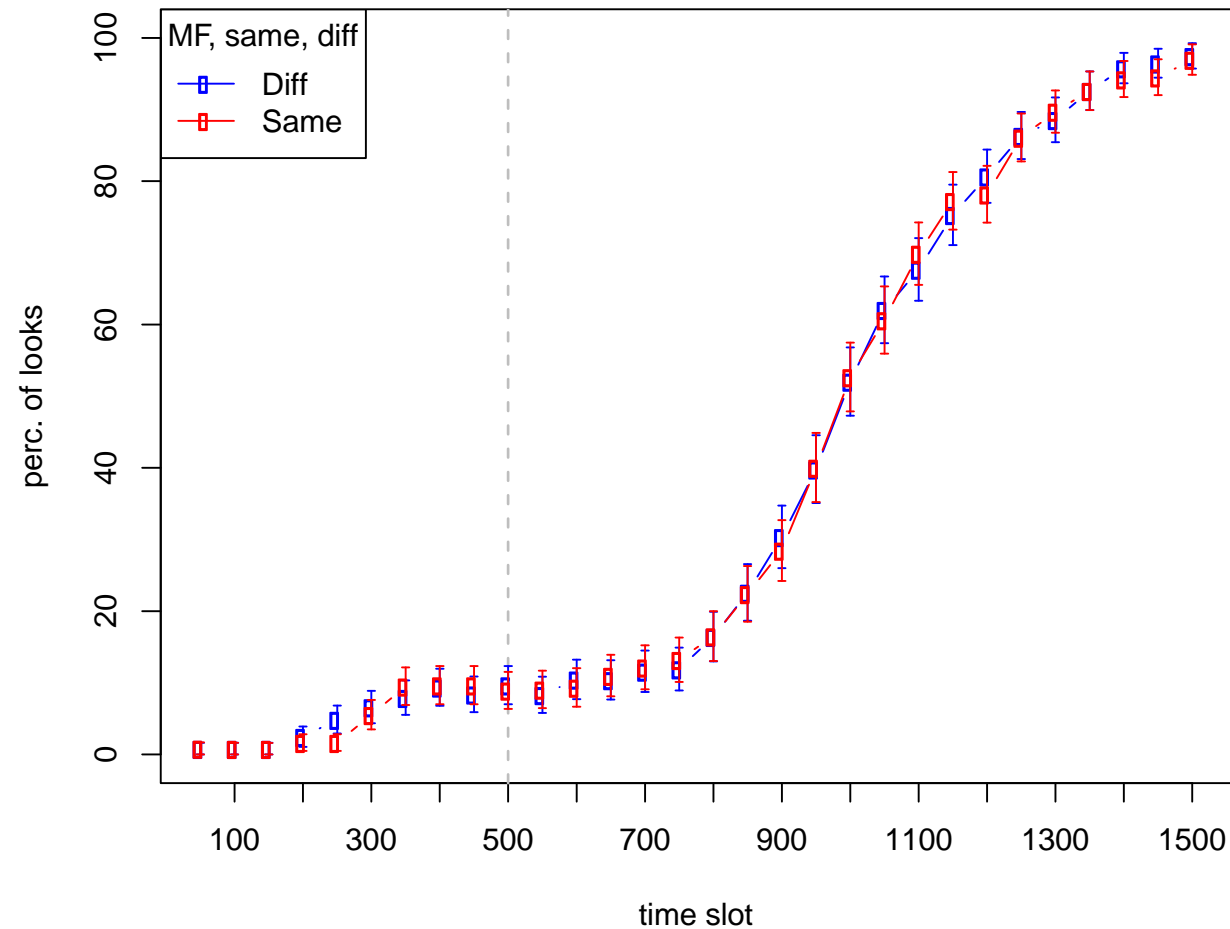
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Email me: Irina.Sekerina@csi.cuny.edu
if you'd like the articles and/or slides

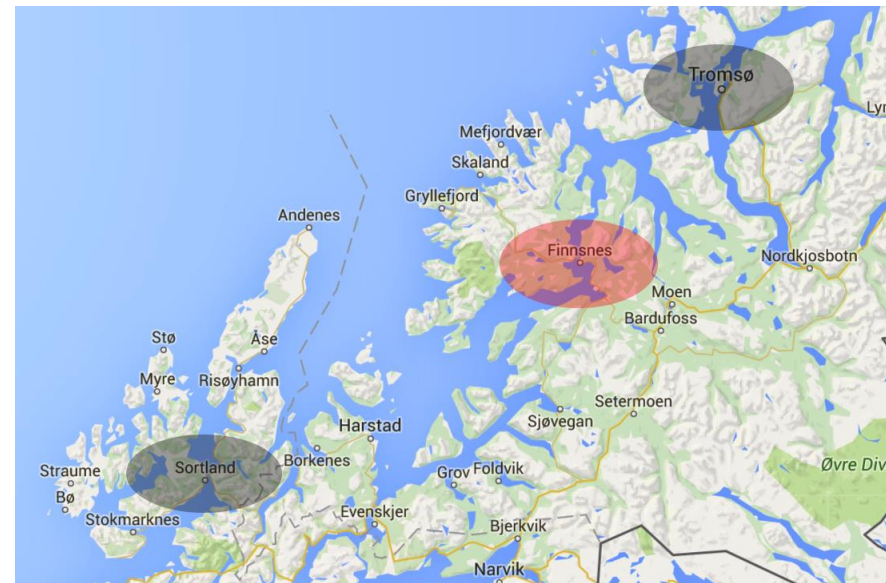
Condition 4. MASC target, FEM competitor

MASC-FEM: same & different



Experiment 3: Finnsnes

- **Finnsnes:** stable dialect area, minimal dialect mix
- **Participants:** high school students, $n=36$, age 16-17
- **Online production: StrongF speakers**
 - consistent use of F *ei*
 - consistent use of F -a



Experiment 3, Finnsnes: Results

Processing of **M en**, **F ei** and **N et**

	Tromsø		Sortland	Finnsnes
	NoF speakers	F speakers	F speakers	StrongF speakers
Condition (1) N-M	√	√	√	√
Condition (2) M-N	√			√
Condition (3) F-M				weak effect
Condition (4) M-F				

Experiment 2: Prenominal determiners, Finnsnes

How do **StrongF** speakers process **M/F DEN** vs. **N DET**?

One target **DET blå taket** vs. two competitors **DEN blå steinen**
the blue roof
the blue stone

the blue stone



Distractor, diff. (masc.)



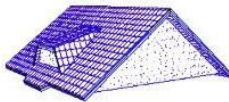
Filler, diff.



Distractor, same (neut.)



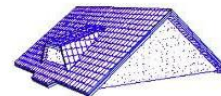
Filler, diff.



Target, Neut.



Distractor, diff. (masc.)



Target, neut.

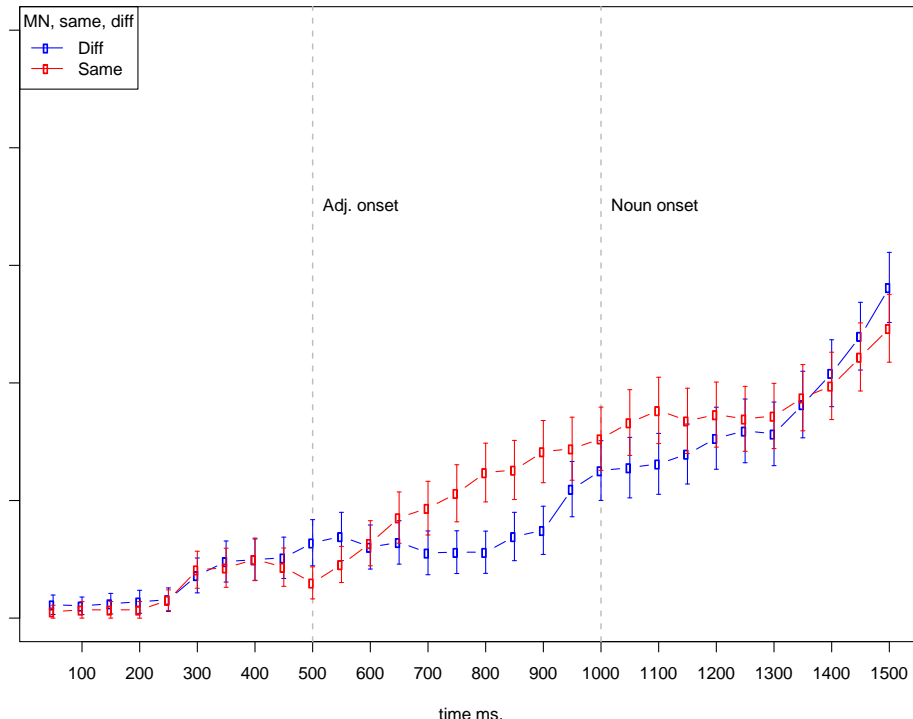
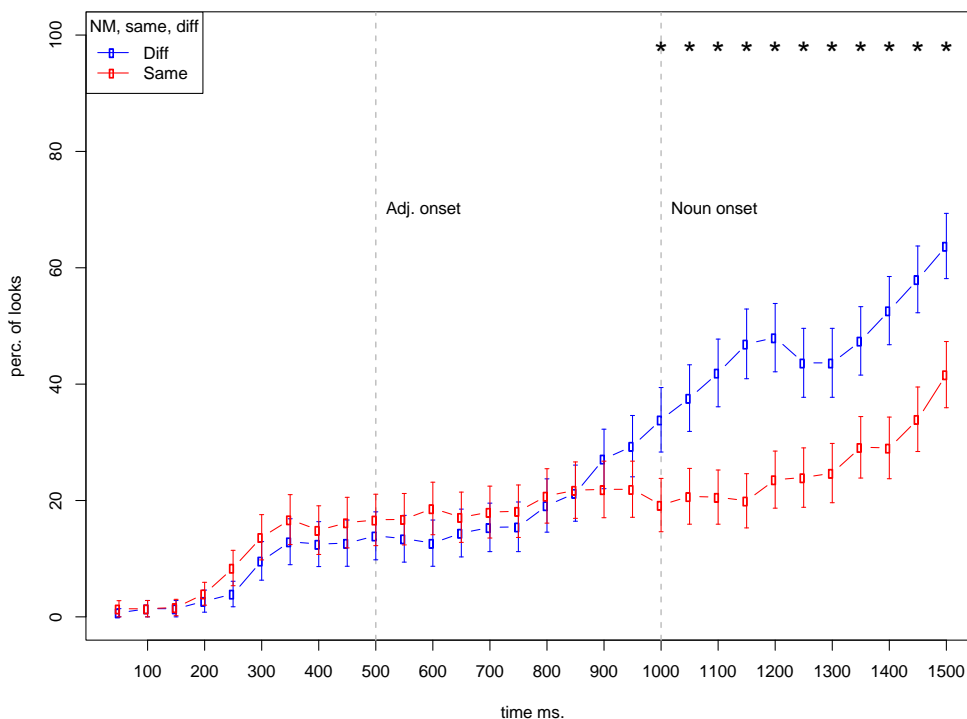


Distractor, same (neut.)

Finnsnes, Prenominal determiners: N DET vs. M DEN

N target: Det blå taket 'The blue roof.'

M target: Den blå bilen 'The blue car.'



StrongF speakers: - clear effect for **M en** in Experiment 1

- no effect for **M/F DEN** in

Experiment 2

Discussion: Discrepancies in processing of FEM & MASC markers

- **StrongF speakers** have traditional three-way gender system and retain morphosyntactic cues for F -a: Strong connections between M & F markers and gender nodes in processing.

	Tromsø		Sortland	Finnsnes
	NoF speakers	F speakers	F speakers	StrongF speakers
N-M: <i>et vs. en</i>	√	√	√	√
M-N: <i>en vs. et</i>	√			√
F-M: <i>ei vs. en</i>				weak effect
M-F: <i>en vs. ei</i>				
M/F-N: <i>den vs. det</i>	√ ?	?	?	

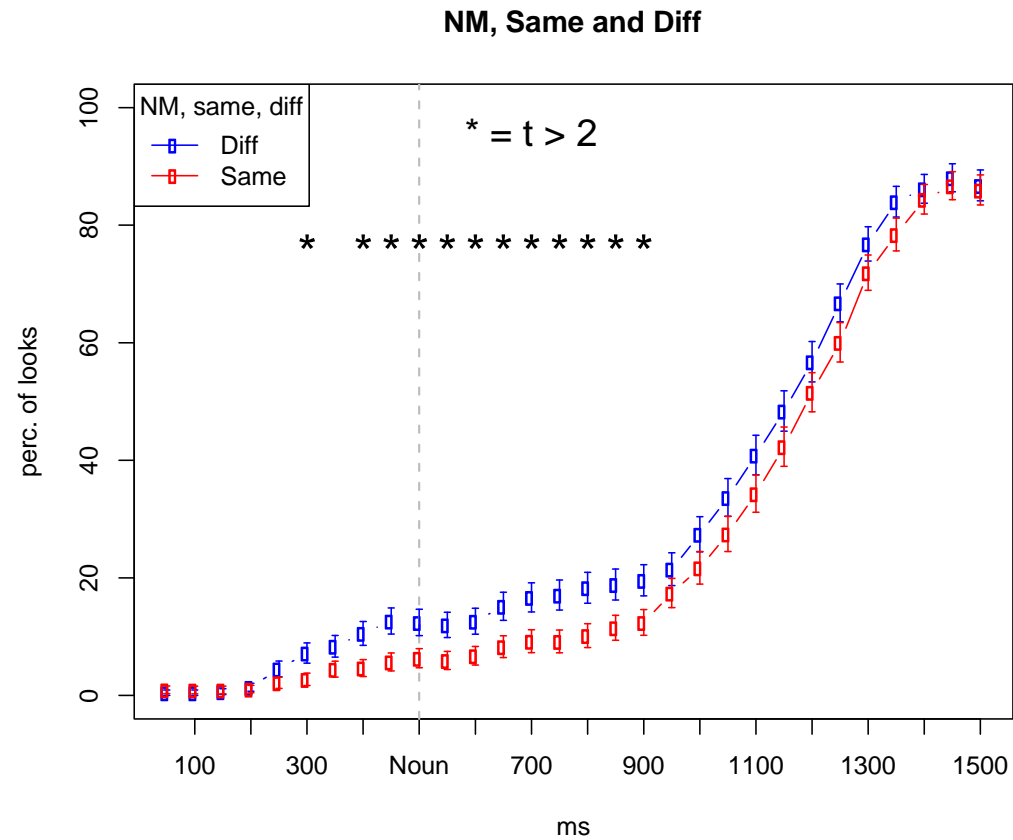
Experiment 2, Sortland: Results

Processing of **M en**, **F ei** and **N et**

	Tromsø		Sortland
	NoF speakers	F speakers	F speakers
Condition (1) N-M	√	√	√
Condition (2) M-N	√		
Condition (3) F-M			
Condition (4) M-F			

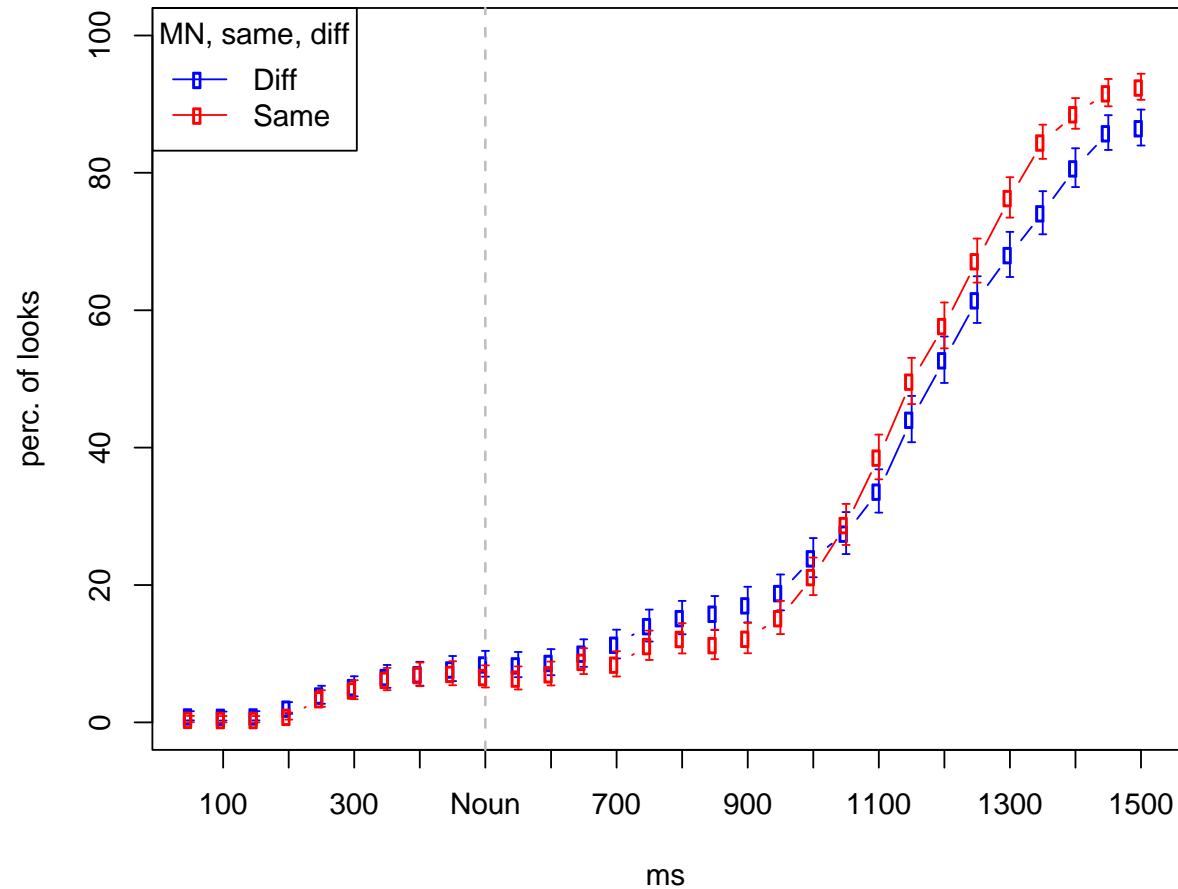
Condition 1: NEUT target, MASC competitor

NEUT-MASC: same & different



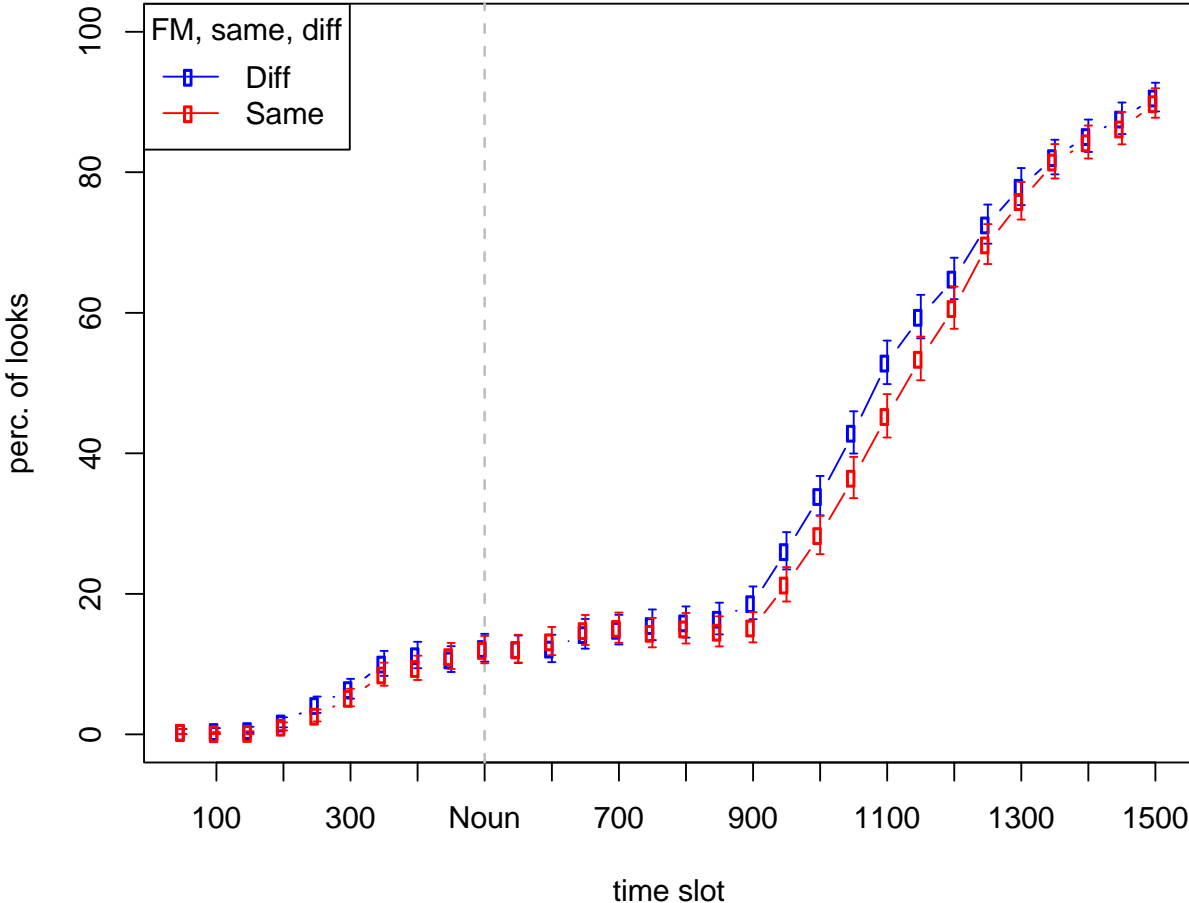
Condition 2: M target, N competitor

M-N: same & different

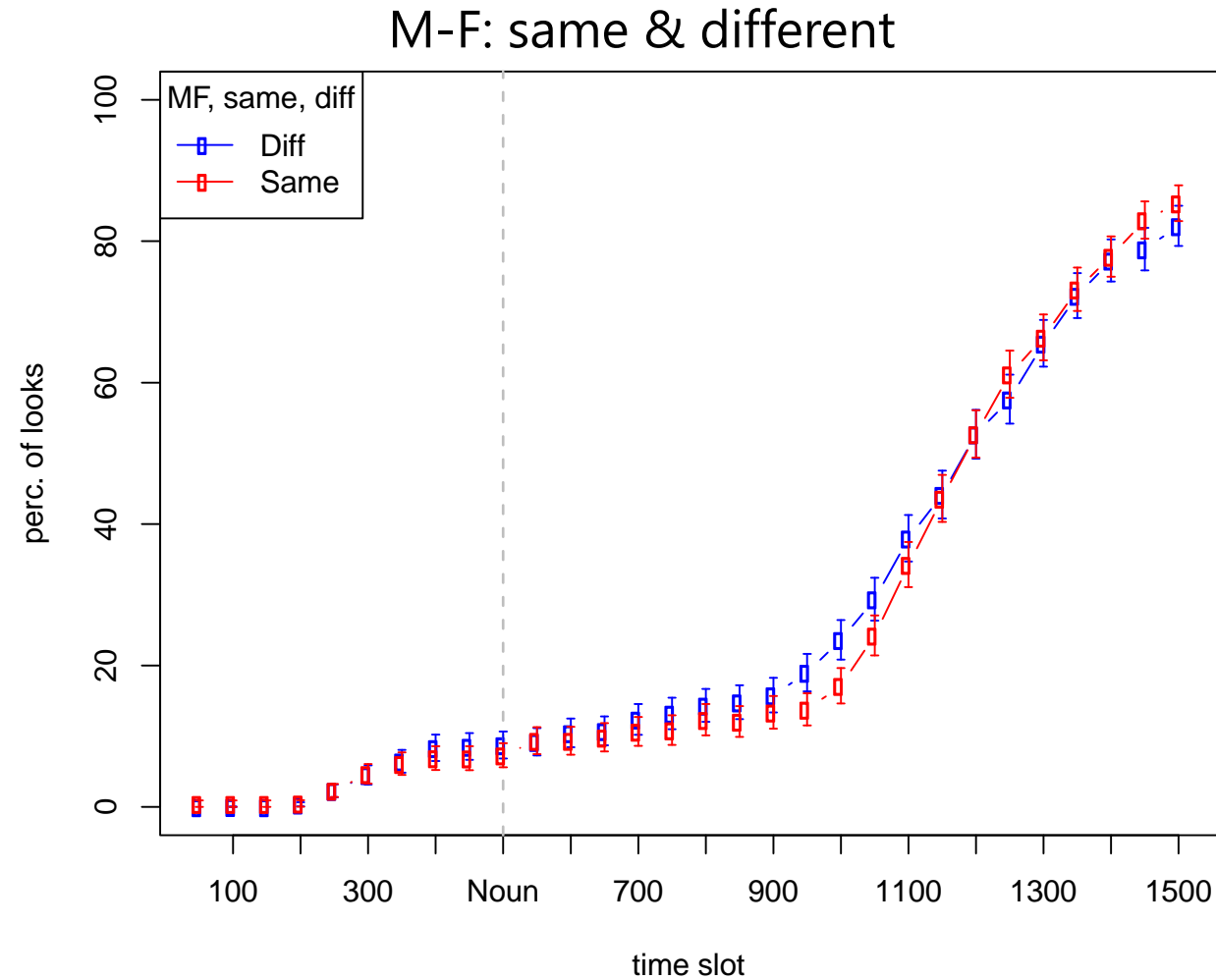


Condition 3: F target, M competitor

F-M: same & different

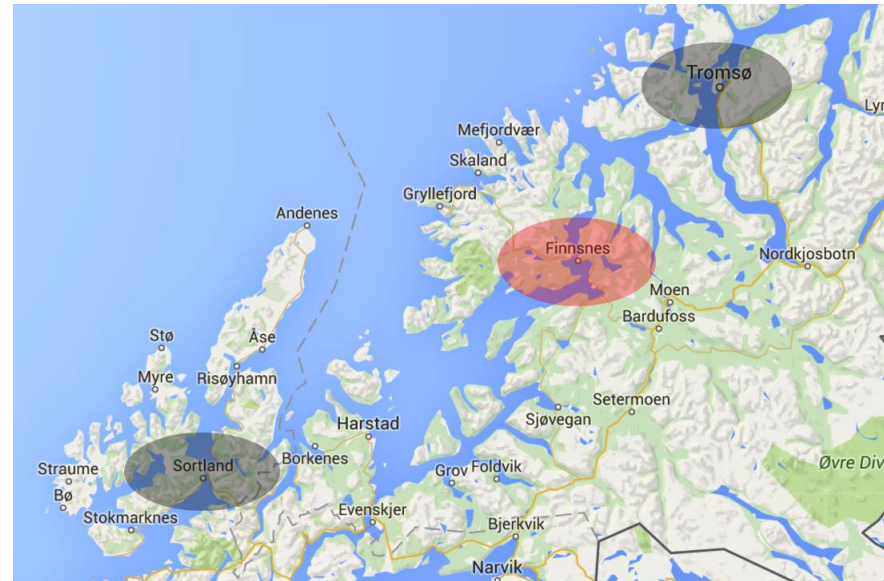


Condition 4. M target, F competitor

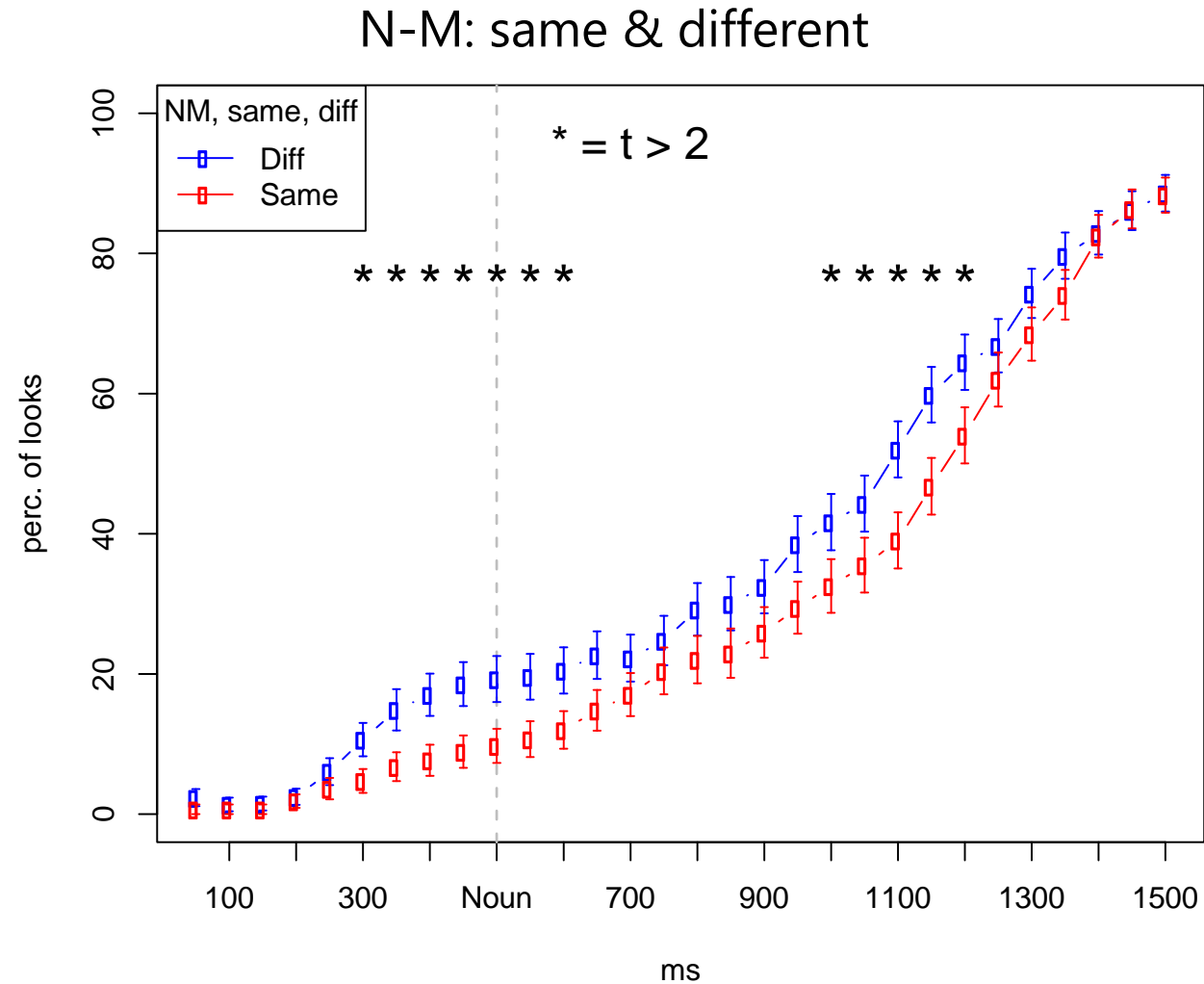


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 - consistent use of F *ei*
 - consistent use of F -a

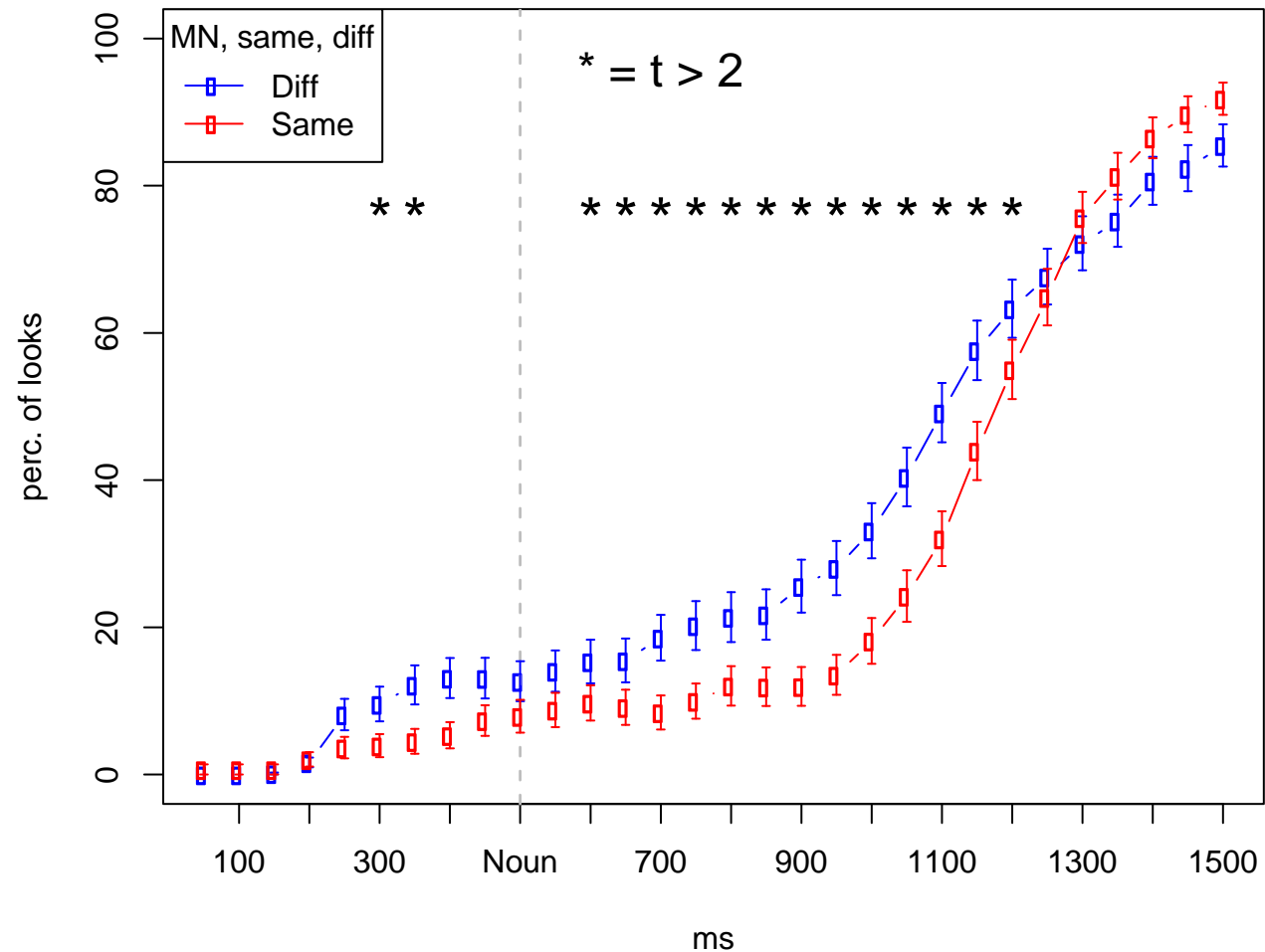


Condition 1: N target, M competitor



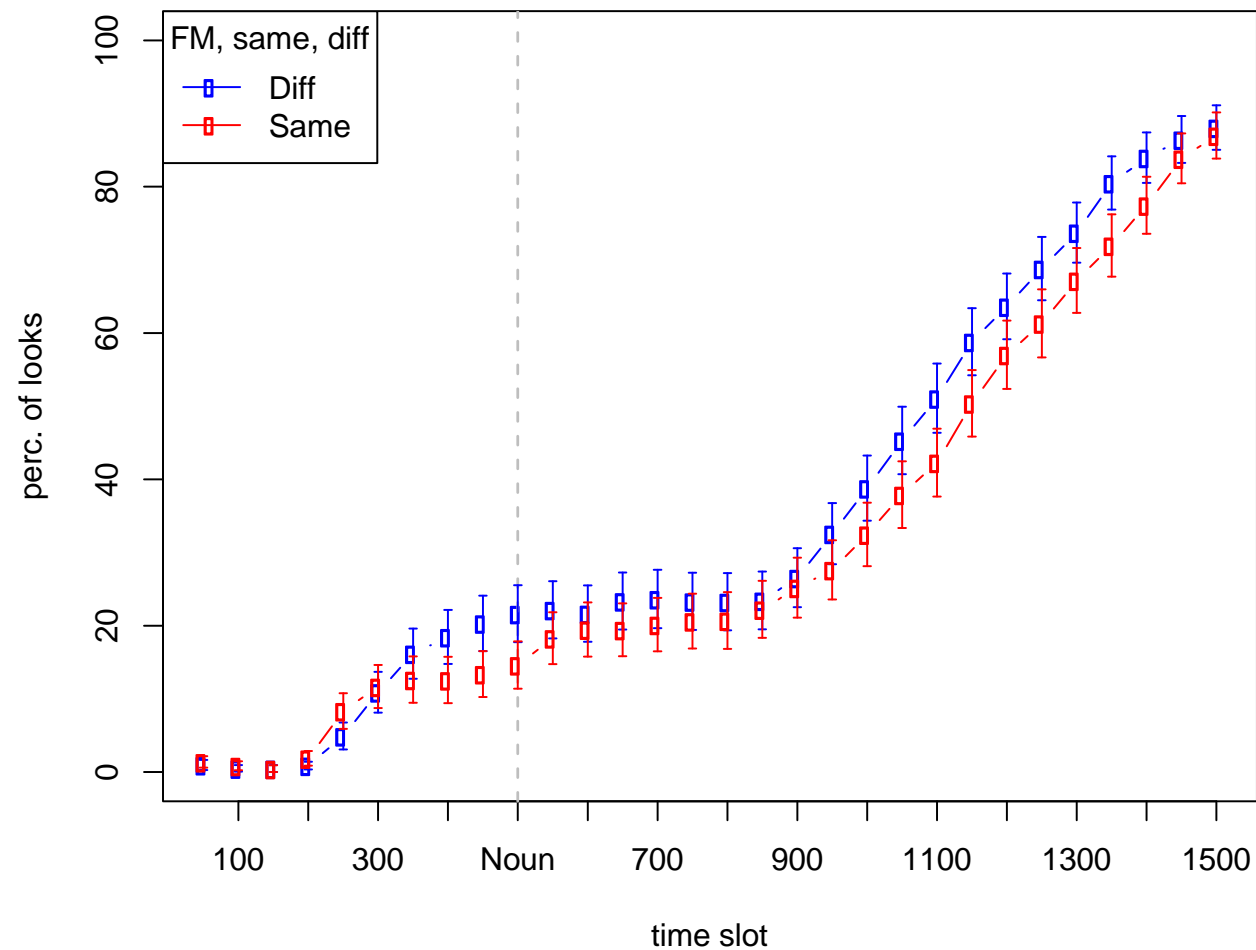
Condition 2: M target, N competitor

M-N: same & different



Condition 3: F target, M competitor

F-M: same & different



Condition 4. M target, F competitor

M-F: same & different

