

The phonetic constrains the social:
effects of phonetic distance and
social evaluation on phonetic
convergence

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Overview

- Background
- Experimental design
- Analysis of data
- Results
- Implications / conclusions

Phonetic convergence

(aka phonetic imitation, accommodation)

= when a speaker ('shadower') spontaneously adopts similarities to the speech of another ('model')

- **In different conditions**
 - spontaneous conversation (Pardo 2006)
 - asocial, lab-based tasks (Pardo et al. 2017)
- **Across different linguistic phenomena**
 - pause duration (Jaffe & Feldstein 1970)
 - VOT (Yu et al. 2013)
 - vowel formant frequency (Babel 2012)
- **Over different timescales**
 - immediately after exposure (Babel 2014)
 - up to 10 minutes later (Delvaux & Soquet 2007)

What facilitates convergence?

Social preference towards the model speaker?

e.g. Babel (2010), Babel et al. (2014), Yu et al. (2013)

Phonetic distance between shadow + model?

e.g. Babel (2010), Walker & Campbell-Kibler (2015)

Socio-indexical awareness of a given item?

e.g. Babel (2012), Walker & Campbell-Kibler (2015)

How do these work together?

How does phonetic distance and social evaluation jointly mediate vocalic convergence to model speakers of two distinct dialects – RP and Southern US?

stuck up clever
intelligent **RP** well-spoken relaxed lazy friendly
posh clever fun **SOUTH** happy
slow simple

Experimental design



77 N. American
male/female/other
Mechanical
Turkers

each shadowed one of four female models

RP 1



N=20

RP 2



N=18

South 1



N=19

South 2



N=20

1. pre-test



WORD LIST

*BATH, DRESS, FLEECE,
FOOT, GOAT, GOOSE,
KIT, LOT, THOUGHT*

2. exposure



10 SENTENCES
(listen and repeat)

3. post-test



WORD LIST

*BATH, DRESS, FLEECE,
FOOT, GOAT, GOOSE,
KIT, LOT, THOUGHT*

4. social evaluations

how _____ do you think the speaker you heard is?
(friendly, intelligent, articulate, fun...)

5. biographical information

what's your _____ ?
(age, gender, education / dialect history)

1. pre-test



WORD LIST

*BATH, DRESS, FLEECE,
FOOT, GOAT, GOOSE,
KIT, LOT, THOUGHT*

2. exposure

pre-test data informs
the study's
predictions of
convergence behavior

10 SENTENCES
(listen and repeat)

3. post-test

*BATH, DRESS, FLEECE,
FOOT, GOAT, GOOSE,
KIT, LOT, THOUGHT*

4. social evaluations

how _____ do you think the speaker you heard is?
(friendly, intelligent, articulate, fun...)

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what's your _____ ?
(age, gender, education / dialect history)

Analysis

Analysis: Social evaluations

- Principal Components Analysis → two meaningful dimensions

Competence

ambitious

articulate

competent

intelligent

reliable

Solidarity

cheerful

down-to-earth

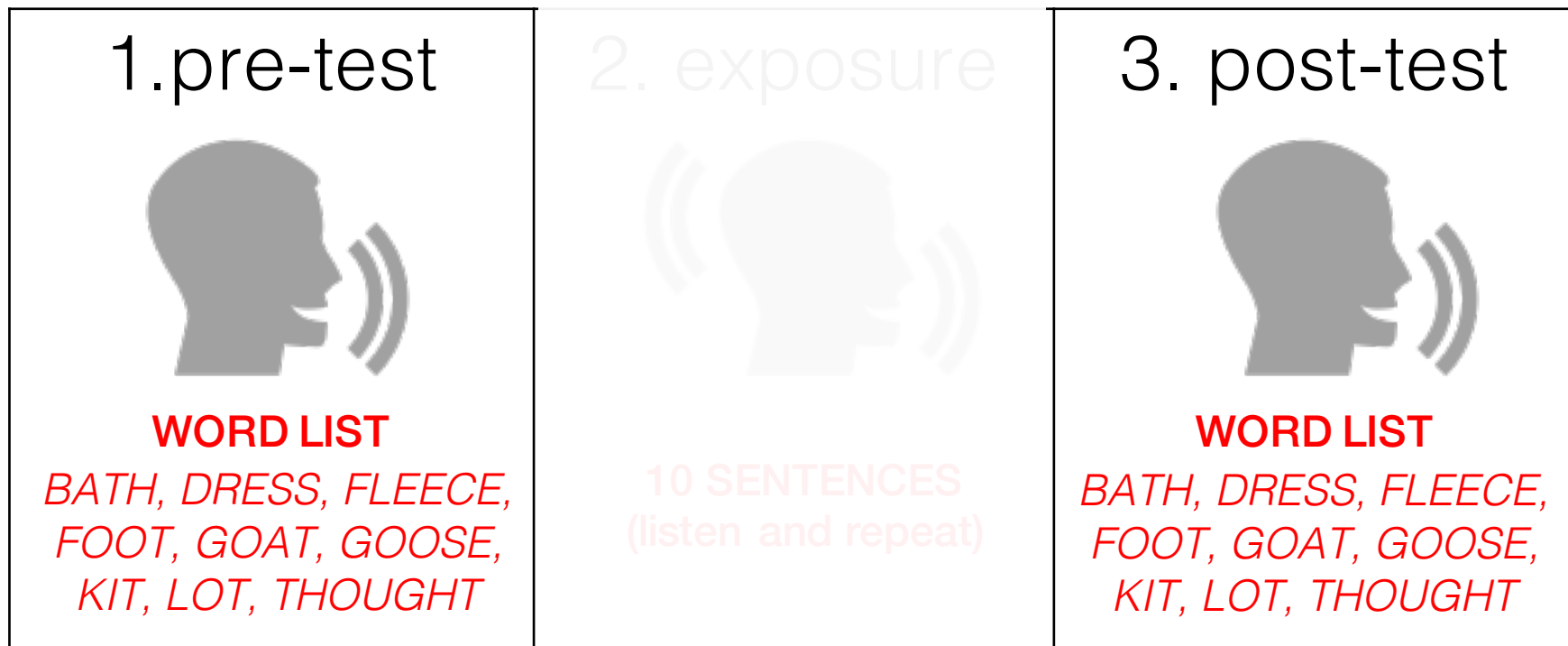
friendly

fun

pleasant

warm

Analysis: acoustic data



Vowel tokens FAVE-aligned; hand-corrected;
formants (F1, F2) FAVE-extracted; outliers
removed; Lobanov-normalized

Analysis: acoustic measures

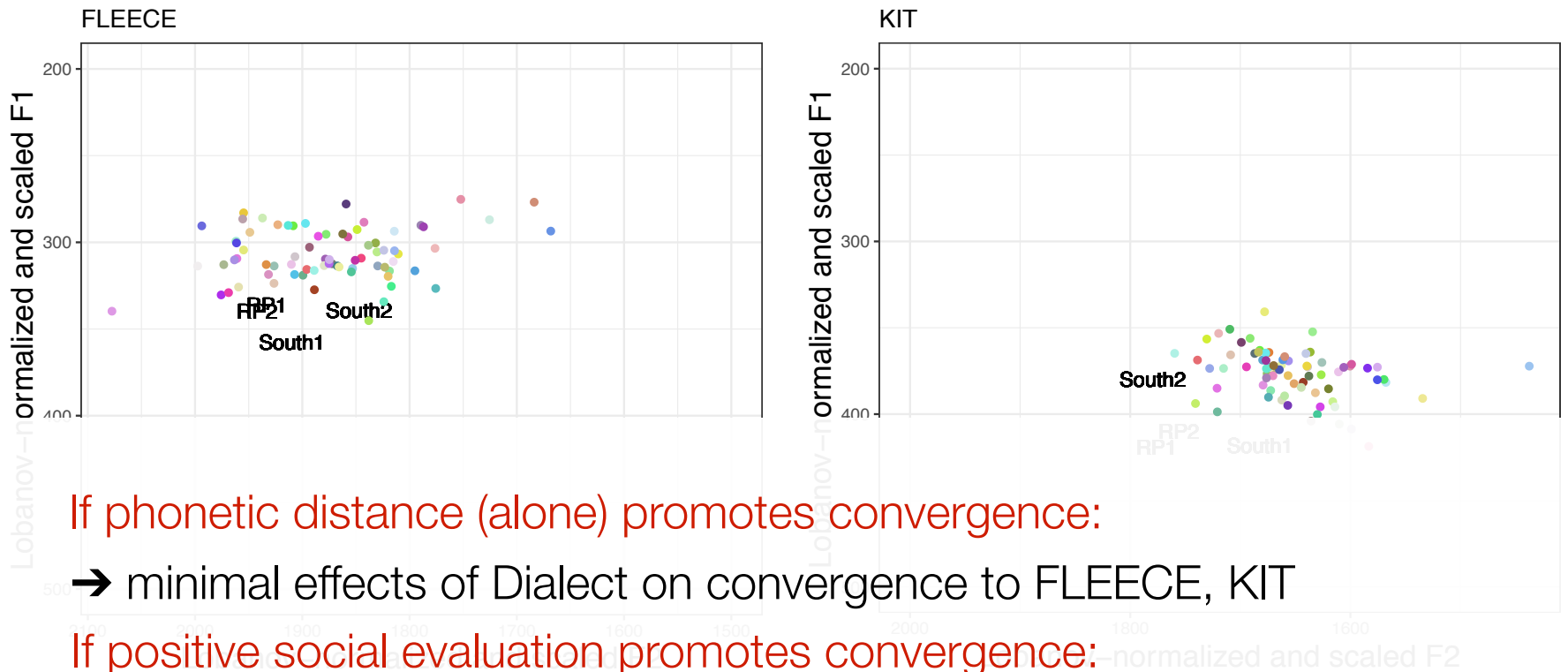
Convergence: Euclidean ‘Difference of Differences’
difference in Euclidean distance between shadower and model productions in pre- and post-test

Reduction: By-token reduction measure
difference in Euclidean distance between shadowers’ centroid and their realization of target vowel in pre- and post-test

Vowel Space Dispersion (VSD):
a proxy for phonetic ‘flexibility’
sum of Euclidean distances between centroid and mean of each vowel class (after Bradlow et al. 1996) -

Analysis: Pre-test data

Group I predictions



If phonetic distance (alone) promotes convergence:

→ minimal effects of Dialect on convergence to FLEECE, KIT

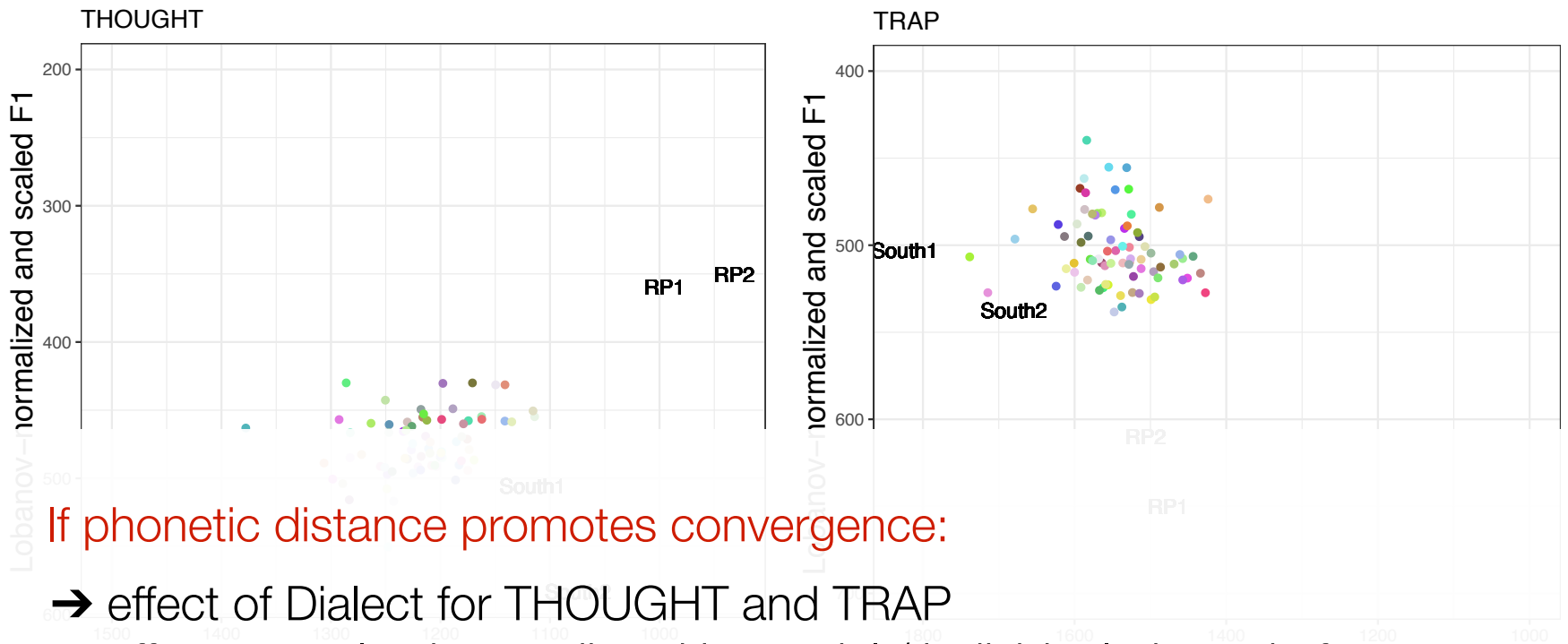
If positive social evaluation promotes convergence:

→ positive relationship between Competence/Solidarity and convergence

→ possible that one (e.g. Solidarity) affects convergence more than other

Analysis: Pre-test data

Group II predictions



If phonetic distance promotes convergence:

- effect of Dialect for THOUGHT and TRAP
- effect may also be mediated by social / individual phonetic factors

Analysis: statistical models

- Maximally simple mixed-effects linear regression models fit for:

Social dimensions

Response variable: {Competence / Solidarity}

Predictors: Dialect, participants' age, education, dialect history

Acoustic dimensions

for each of the four vowels in Group I, Group II :

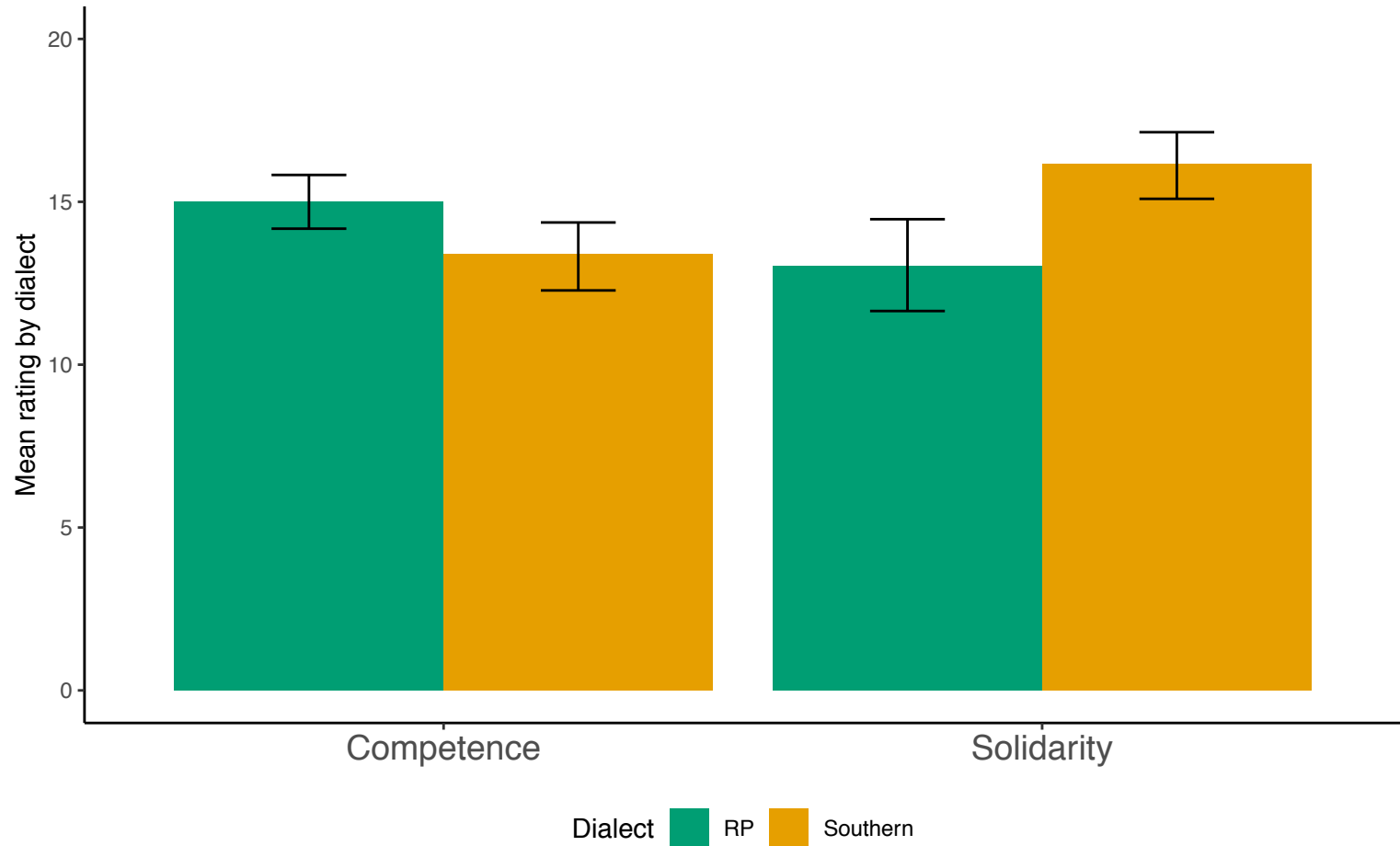
Response variable: {Euclidean difference of differences / Reduction}

Predictors: Dialect, VSD, competence/solidarity, age, education, dialect history

Random effect of word frequency

Results

Social Evaluations



Error bars = 95% bootstrapped confidence intervals

Group I: FLEECE, KIT

If phonetic distance (alone) promotes convergence:

→ minimal effects of Dialect on convergence to FLEECE, KIT

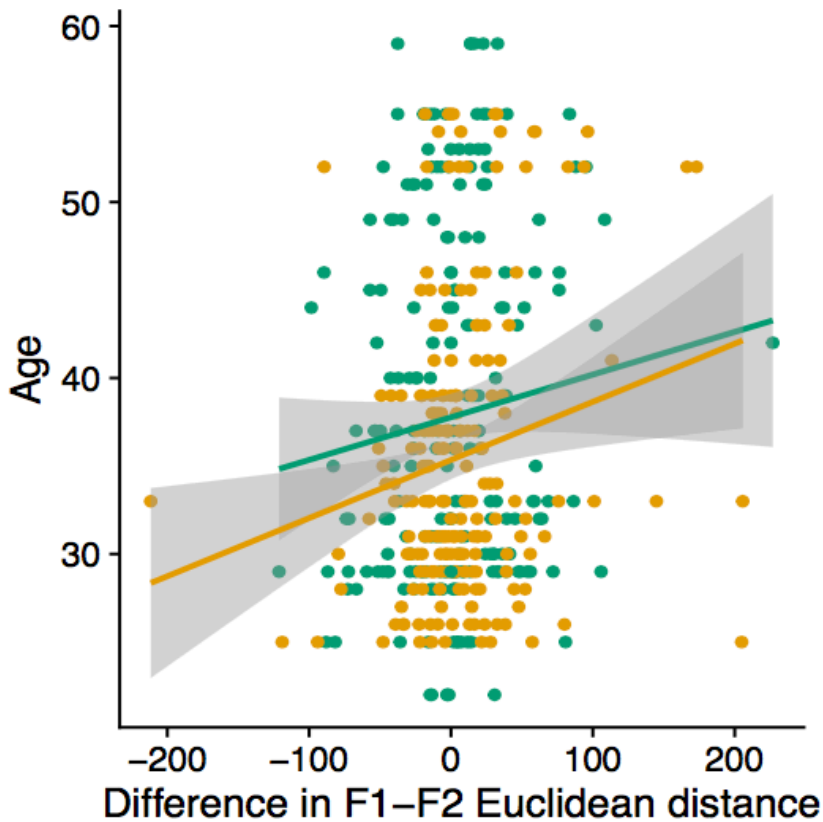
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→ positive relationship between Competence/Solidarity and convergence

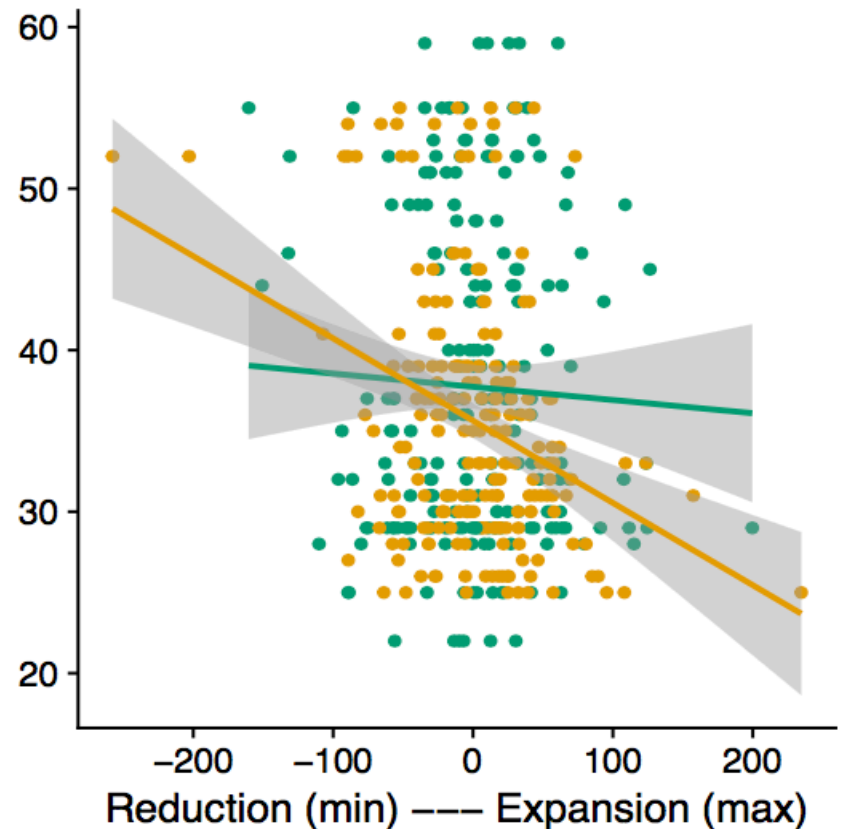
→ possible that one (e.g. Solidarity) affects convergence more than other

Group I: FLEECE

main effect of age ($p = 0.016$)



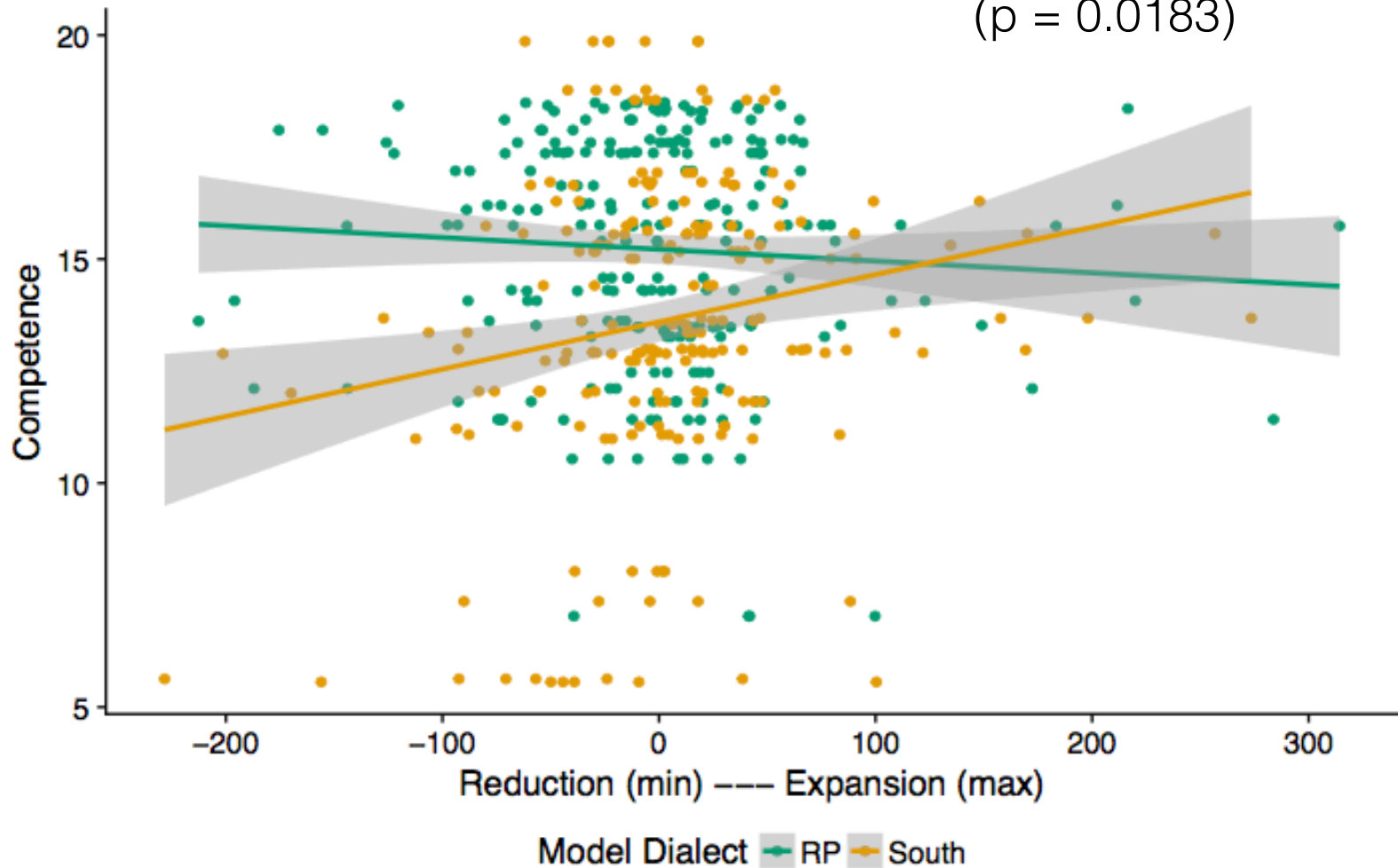
main effect of age ($p < 0.0004$)
age*dialect interaction ($p = 0.0054$)



Model Dialect — RP — South

Group I: KIT

dialect * competence interaction
($p = 0.0183$)



Group II: THOUGHT, TRAP

If phonetic distance promotes convergence:

→ an effect of Dialect for THOUGHT and TRAP

→ effect may also be mediated by social factors

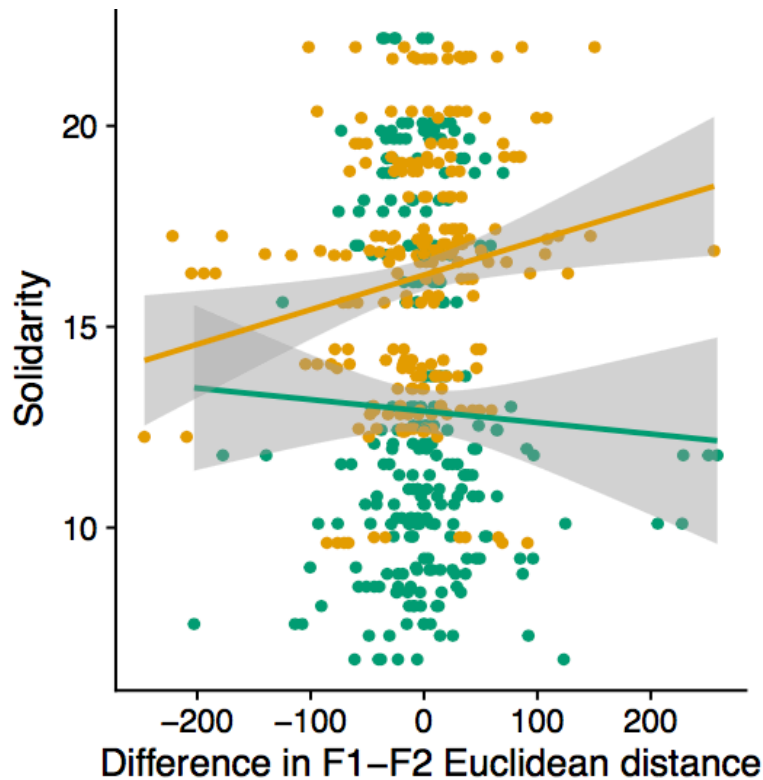
no significant convergence or reduction
effects for THOUGHT

...but several for TRAP

Group II: TRAP

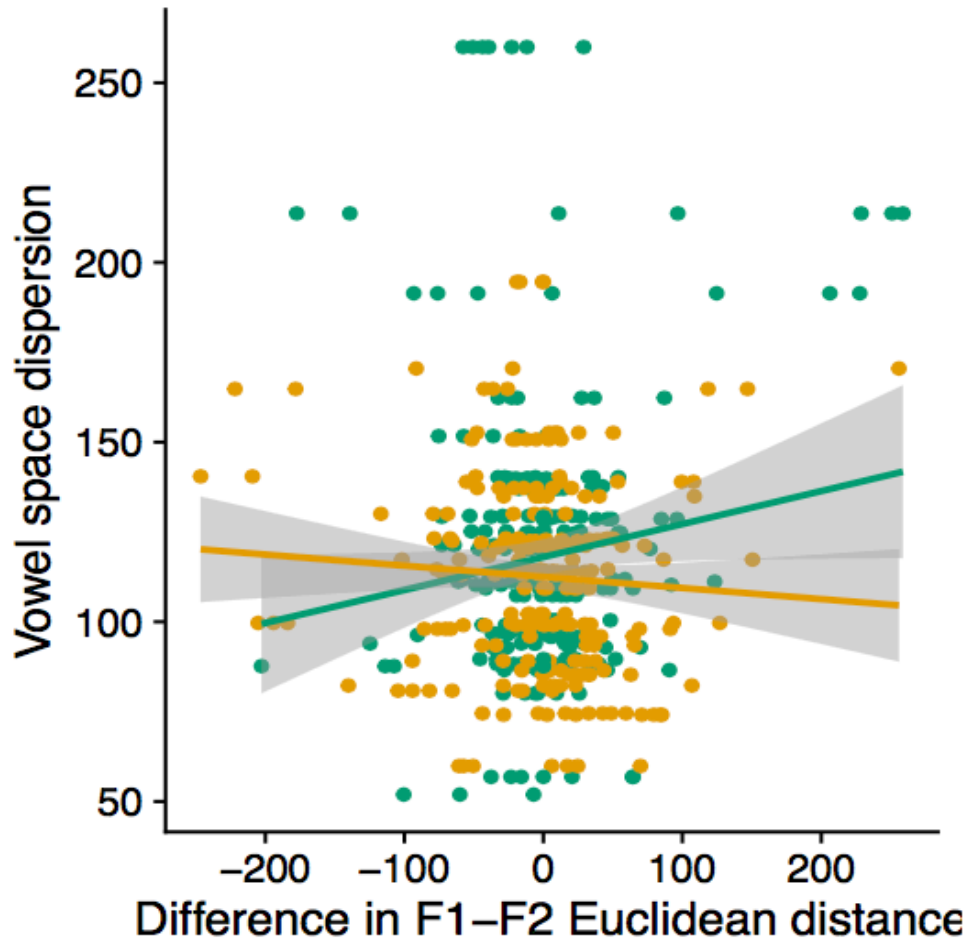
Overall, more convergence to RP than Southern ($p=0.03$)

Convergence increased with perceived solidarity ($p=0.013$)



Interaction between Dialect and Solidarity ($p = 0.005$)

Group II: TRAP



Convergence increased
with VSD ($p = 0.005$)

Summary

Group I (FLEECE, KIT)

No convergence effects... *but*: reduction effects

FLEECE: older participants reduced more in response to Southern models cf. RP models

KIT: participants reduced more when Southern model perceived as less Competent

Group II (THOUGHT, TRAP)

No effects whatsoever for **THOUGHT**

TRAP: Dialect, Solidarity, and VSD all affect degree of convergence

What facilitates convergence?

Phonetic distance (effect of Dialect for TRAP)

Attitude / social preference (TRAP)

Phonetic repertoire (TRAP)

.... why TRAP???

Why TRAP?

‘Selective’ convergence (Babel 2012)

- low vowels promote convergence more than high vowels
- doesn’t explain differences between TRAP and THOUGHT

Saliency?

- TRAP: greater socio-indexical saliency than THOUGHT?
- TRAP-backing has recognizable social meanings (‘valley girl’)

Why TRAP?

highly salient variables —> less convergence
(Walker & Campbell-Kibler 2015)

more social information:

—> more likely to use 'explicit' knowledge of
patterns of production

—> increased convergence to the variable
encoding more salient socioindexicalities

Summary

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Group II (THOUGHT, TRAP)

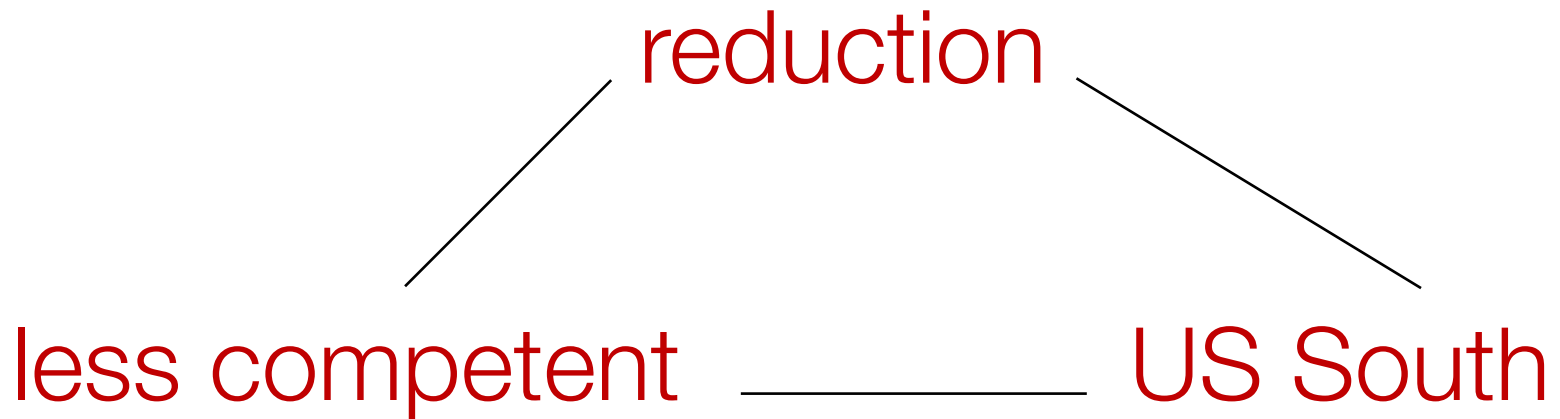
No effects whatsoever for **THOUGHT**

TRAP: Dialect, Solidarity, and VSD all affect degree of convergence

Reduction as resource

Speakers draw freely on all kinds of semiotic and linguistic resources to make meaning and show affect

→ Reduction as a semiotic resource?

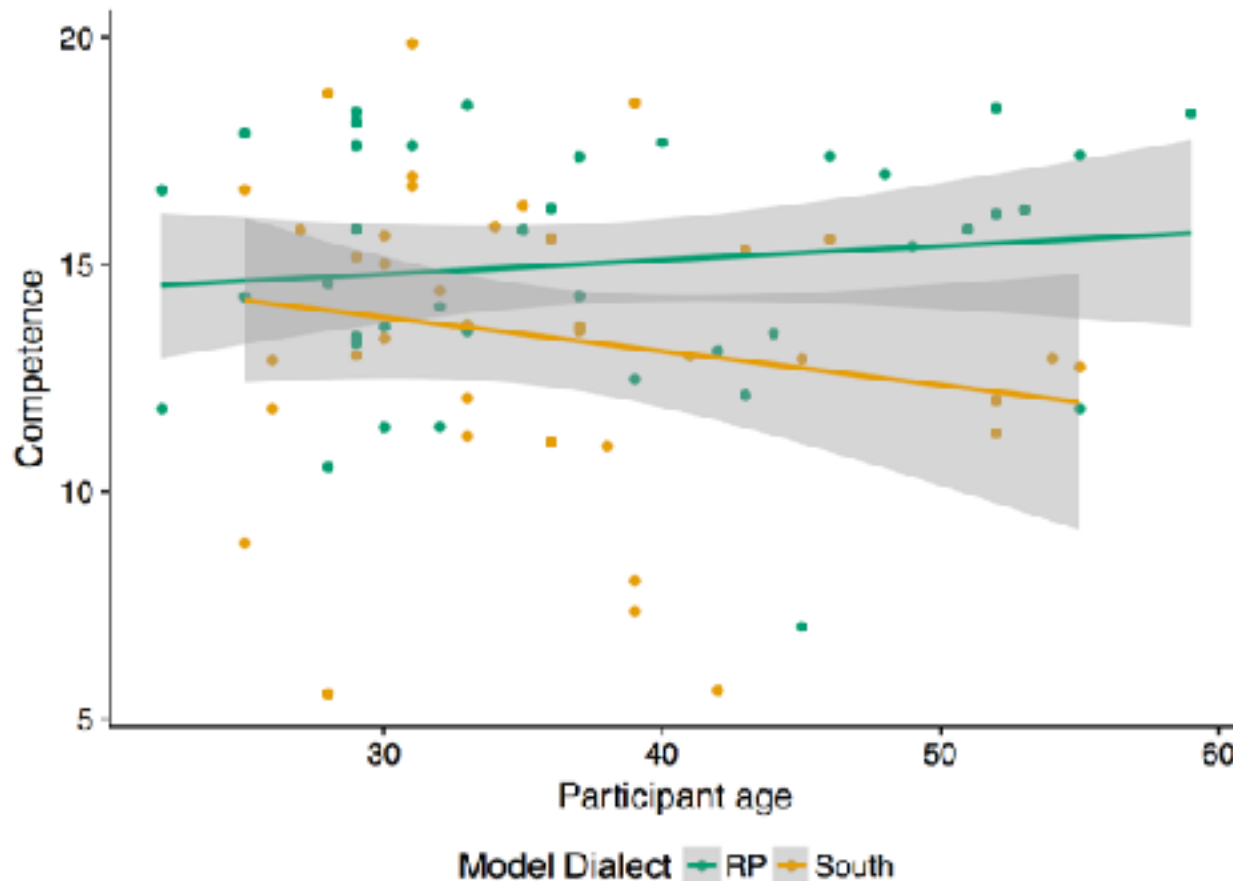


Iconic potential of reduced production

→ analogous to hyper-articulation vs. lenition of /t/
(Eckert 2012)

FLEECE: older participants reduced more in response to Southern models cf. RP models

KIT: participants reduced more when Southern model perceived as less Competent



What facilitates convergence?

Phonetic distance

Positive social evaluation

Phonetic repertoire

... if the item is socially salient (in this paradigm)

... and as long as we don't underestimate
speakers' semiotic resourcefulness

Thanks!

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and big thanks to the
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