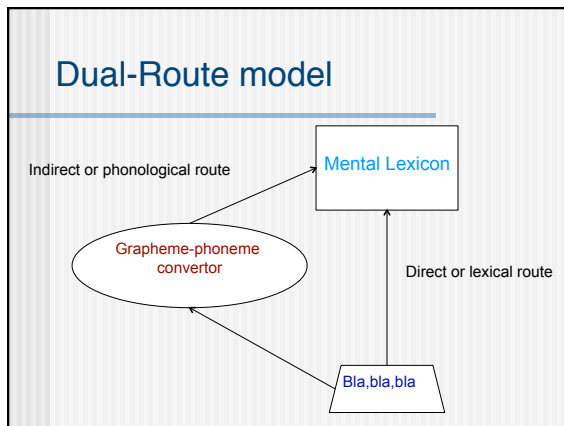


The Phonological Coherence Model of Reading and Spelling:

Its explanatory Power and its Limitations

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Stimuli 1st letter Task

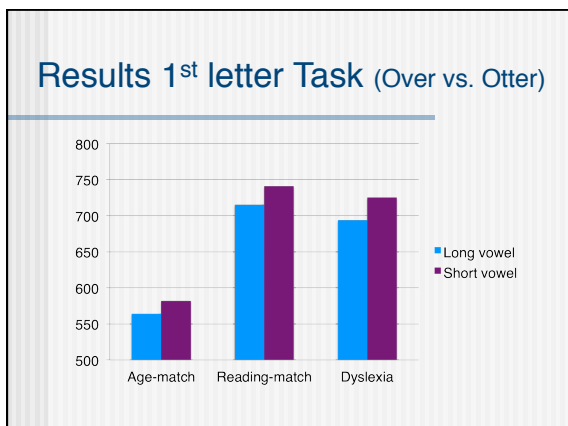
40 words with the initial sound being a vowel

- 20 words with a long vowel (e.g., **adem, eter, over**)
English example: OVER
- 20 words with a short vowel (e.g., **anker, enkel, orgel**)
English example: OTTER

Participants 1st letter Task

	<i>Age-match</i>	<i>Reading-match</i>	<i>Dyslexia</i>
Word reading ¹	70	37	37
Pseudoword reading ²	57	33	19
Age in years/ months	12;3	8;1	12;3
Girls/Boys	10/10	10/10	7/13

¹ = EMT or One-minute test, ² = Klepel



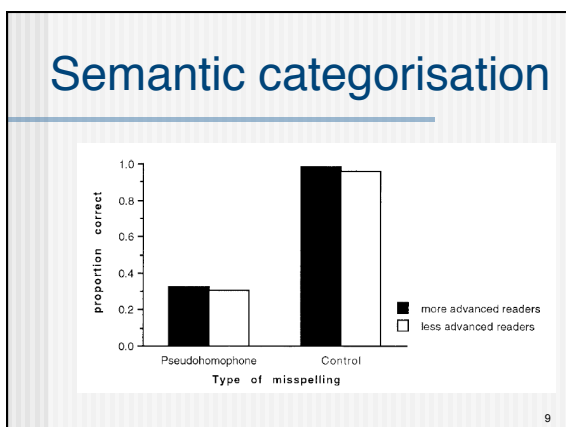
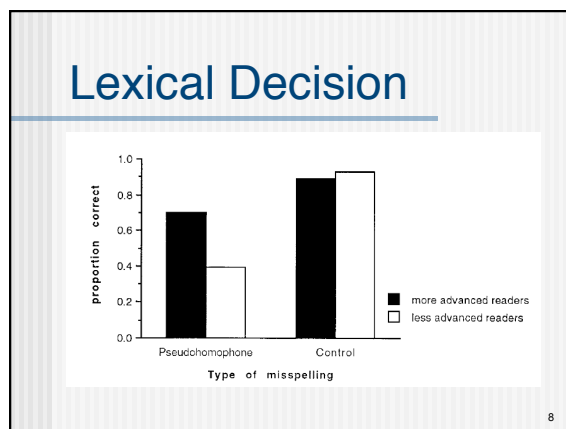
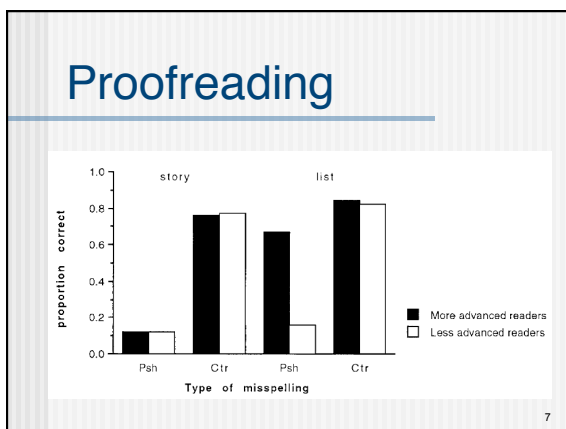
Stimuli Spelling-error detection

Two types of stimuli

Pseudohomophones: GIJT, SOUS, PEG
 English examples: *DYME* (dime), *CHEEP* (cheap)

Control Pseudowords GEIP, SAUM, PACH
 English examples, *DIPE* (dime), *CHEAM* (cheap)

6



Stimuli Lexical-decision task

120 spelling-sound consistent stimuli

60 woorden

- 30 words: sound-spelling consistent (e.g., MENS, SOMS)
English examples: MAT, DOOR
- 30 words: sound-spelling inconsistent (e.g., FIJN, SAUS)
English examples: FEAR (feer), FRAIL (frale)

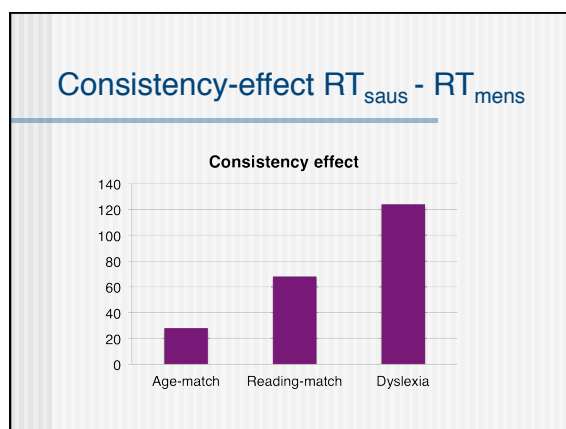
60 pseudoworden

- 30 sound-spelling consistent (e.g., PRUG, KERT)
- 30 sound-spelling inconsistent (e.g., HIJF, BAUS)

Participants in Lexical-Decision Task

	Age-match	Reading-match	Dyslexia
Word reading ¹	69	31	31
Pseudoword reading ²	65	29	21
Age in years/ months	12	7;8	12
Girls/Boys	11/12	9/14	13/10

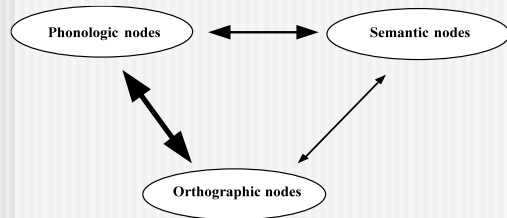
¹ = EMT or One-minute test, ² = Klepel



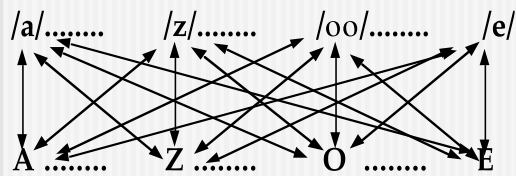
Conclusions

- Phonology is a fundamental aspect of reading
- Phonology is a fundamental aspect of spelling
- Reading and spelling are fundamentally interactive

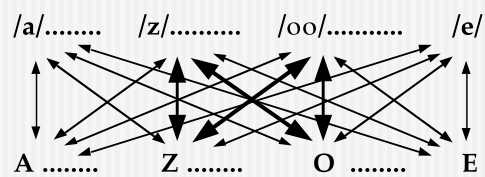
Phonological Coherence Model



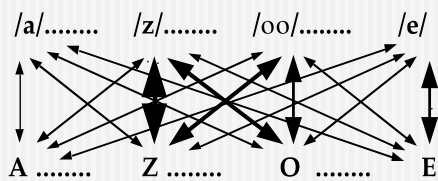
Untrained network (non-reader)



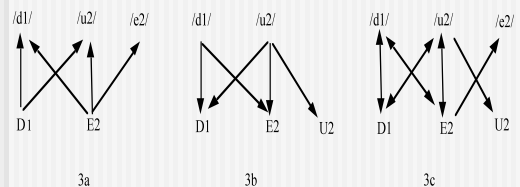
Training the network

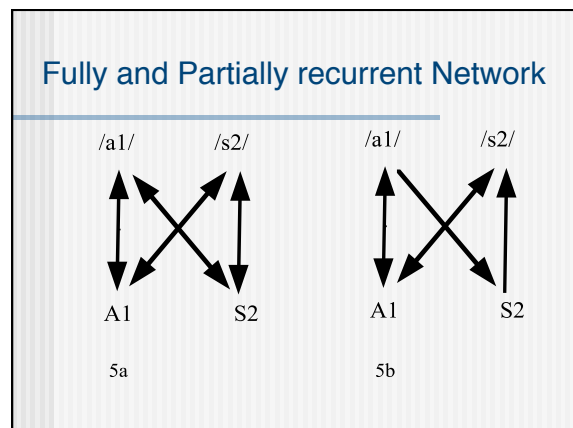
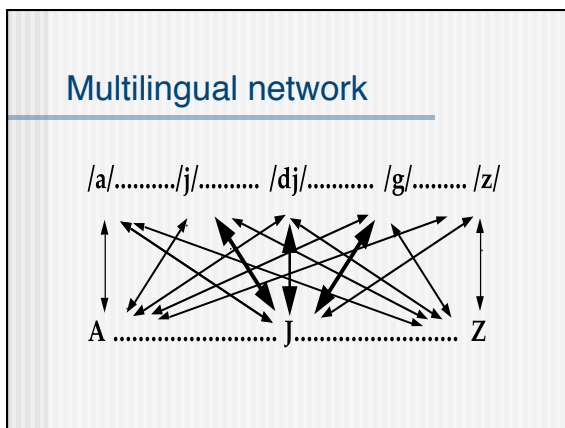
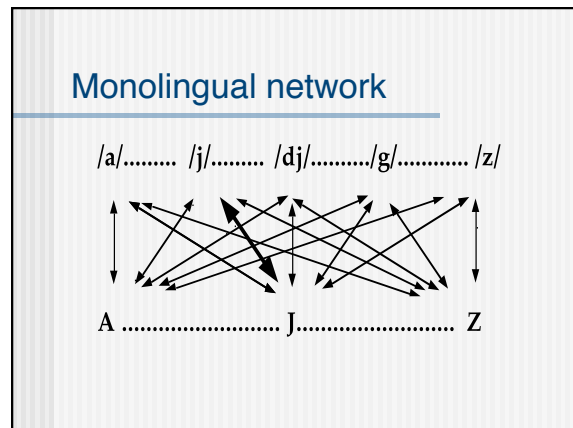
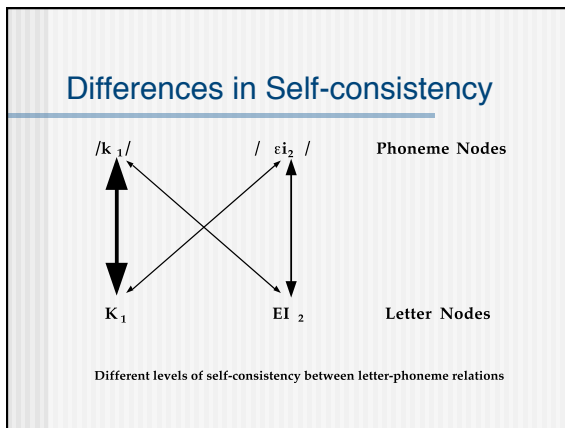


Trained network



Micro-level of the PCM





- ### Explanatory power
- Phonology is fundamental to reading and spelling
 - Reading and spelling processes are fundamentally interactive
 - Reading and spelling problems reside in the reduced flexibility of phoneme ⇔ grapheme couplings

- ### Limitations of the model
- Letter recognition is assumed
 - Phoneme recognition is assumed
 - Reading sentences is not included
 - Context is not implemented
 - ????

THE END

Thanks for your attention