

The University of Hong Kong
Department of Psychology

Departmental Seminar

***ORTHOGRAPHIC AND PHONOLOGICAL EFFECTS
DURING SENTENCE READING***

Date: January 27, 2014 (Monday)
Time: 11:30 a.m. – 12:30 p.m.
Venue: Room 8.13, 8/F The Jockey Club Tower, Centennial Campus,
HKU
Speaker: Dr. Steven Frisson
University of Birmingham

Single word recognition experiments have shown that when a word is primed by an orthographic neighbour (e.g. *blur* primed by *blue*), reaction times to the target increase (e.g., Davis & Lupker, 2006; De Moor & Brysbaert, 2000; Drews & Zwitserlood, 1995; Nakayama et al., 2008). Models of word recognition like the Interactive Activation (IA) model (McClelland & Rumelhart, 1981) and the SOLAR model (Davis, 2003) assume that during word recognition, the word itself, as well as orthographically similar words (neighbours), are automatically activated, resulting in competition between lexical candidates. Paterson, Livensedge, and Davis (2009) showed comparable inhibitory priming effects during the reading of normal sentences.

I will present 3 eye-tracking experiments which investigated this effect further. One possible confound in the masked priming single word experiments is that no distinction is made between different kinds of overlap. Experiment 1 used the fast priming methodology (Serenio & Rayner, 1992) and 4 types of overlap: (1) high-phonological high-orthographic end-overlap (P+O+: *track-crack*), (2) P+O+ begin-overlap (*swoop-swoon*), (3) low-phonological high-orthographic overlap (P-O+: *bear-gear*), and (4), high-phonological low-orthographic overlap (P+O-: *fruit-chute*).

Results showed that orthography and phonology interact during processing and that masked and fast priming might tap into different levels of processing.

Experiment 2 was a normal reading paradigm (cf. Paterson et al., 2009), contrasting the 4 overlap types. For example:

(1) O+P+: Orthographic + phonological overlap (rhyming):

The birds ruffled their **wings** [*tails*] as the **kings** watched from their palace.

(2) O+P+: Orthographic + phonological overlap (non-rhyming):

The captain found it a **strain** [*burden*] to negotiate the **strait** at the end of a long voyage.

(3) O+P-: Orthographic-only overlap:

On noticing the giant **bear** [*tree*] John changed **gear** and pedalled away quickly.

(4) O-P+: Phonological-only overlap:

The husband had a big **smile** [*fight*] walking down the **aisle** of the local supermarket.

Results showed that only O+P+ overlap resulted in inhibition.

Finally, Experiment 3 only used O+P+ items and tested whether the inhibition effect was reduced when the distance between prime and target increased and whether the syntactic structure the prime and target appeared in (with or without sentence break) affected processing. In addition, we tested whether the inhibition could be related to the level of reading comprehension. We found clear effects of distance, with reduced inhibition with increased distance, as well as an interaction with comprehension skill.

Together, these results show that not all orthographic neighbours are the same, that fast priming and masked priming can give opposite results, and that good and poor (less good) comprehenders differ in how they deal with competition during word processing.