

UKOG 2014 @ Manchester – Welcome!

Zochonis Building, Brunswick Street, University of Manchester.

Programme for the UK Orthography Group Workshop Meeting, Tuesday, 8th of July, 2014.

9:30 - 10:00 – Registration and Coffee (in “The Hub”, Ground Floor, Zochonis Building)

10:00 - 12:30 – Session 1 (Lecture Theatre C, Lower Ground Floor, Zochonis Building)

12:30 - 1:30 – Lunch (in “The Hub”, Ground Floor, Zochonis Building)

1:30 - 3:10 – Session 2 (Lecture Theatre C, Lower Ground Floor, Zochonis Building)

3:10 - 3:40 – Tea (in “The Hub”, Ground Floor, Zochonis Building)

3:40 - 5:45 – Session 3 (Lecture Theatre C, Lower Ground Floor, Zochonis Building)

6:30 – Workshop dinner (Carluccio’s @ Piccadilly Station)

Presentations:

Session 1: 10:00 - 12:30

- 10:00-10:25 Developmental surface dyslexia in a transparent orthography.
R. Hanley, A. Sotiroopoulos, & K. Dulay.
University of Essex.
- 10:25-10:50 tDCS to temporo-parietal cortex produces lasting improvements in nonwords reading in adults with developmental dyslexia.
I. McMillan, W. El-Deredy, & A.M. Woollams.
University of Manchester.
- 10:50-11:15 How strong is the relationship between general phonological processes and pseudo-word reading?
D. J. Roberts, B. Owen-Booth & M. J. Tainturier.
Bangor University.
- 11:15-11:40 Effects of length and stress on reading aloud in semantic dementia.
A.M. Woollams.
University of Manchester.
- 11:40-12:05 Moving beyond the monosyllable: model comparisons and large-scale data from pseudoword reading.
J. Sadat, B. Mousikou, R. Lucas, & K. Rastle.
Royal Holloway University of London.
- 12:05-12:30 Foiling the influence of orthography and semantics on lexical decision.
S.R. Welbourne, Y.-N. Chang, S. Furber & M.A. Lambon Ralph
University of Manchester.

Session 2: 1:30 - 3:10

- 1:30-1:55 SUBTLEX-UK: A word frequency database for British English based on subtitles.
W. van Heuven, P. Mandera, E. Keuleers, & M. Brysbaert.
University of Nottingham & Ghent University.
- 1:55-2:20 What's in a sandwich (prime)?
J.S. Adelman.
University of Warwick.
- 2:20-2:45 Does Translation Priming Survive Interveners?
X. Wang & F. Chan.
University of Oxford.
- 2:45-3:10 Computational and empirical investigations of the effect of orthographic
neighbourhood size.
C.J. Davis, J. S. Bowers, & M. Gubian.
Bristol University.

Session 3: 3:40 - 5:45

- 3:40-4:05 Lexical competition as an indicator of orthographic learning in children.
N.Tamura & K. Nation.
University of Oxford.
- 4:05-4:30 The role of Age of Acquisition (AoA) and Frequency on free recall in Turkish.
I. Raman, S. Ikier, E. Kilecioglu, D. E. Uzun, & S. Zeyveli.
Middlesex University & Yeditepe University.
- 4:30-4:55 A comparison of music and language reading: Rapid eye-movement effects of musical incongruence.
L. Hadley.
University of Edinburgh.
- 4:55-5:20 Becoming a written word: Eye movements reveal order of acquisition effects following incidental exposure to new words during silent reading.
H. Joseph, E. Wonnacott, P. Forbes & K. Nation.
University of Oxford.
- 5:20-5:45 Word learning, grain size and orthographic transparency.
A. Ellis, R. Kwok, M. Kaestner, M. Gerin, R. Avdyli, B. Bermúdez, & F. Cuetos
University of York & University of Oviedo.

Abstracts:

10:00-10:25

Developmental surface dyslexia in a transparent orthography.

R. Hanley, A. Sotiroopoulos, & K. Dulay.

University of Essex.

Developmental surface dyslexia is identified in English by inaccurate reading of irregular words. In more transparent orthographies, irregular words are much less common and an alternative means of identification is required. In this talk, I will discuss two possible cases of developmental surface dyslexia in transparent orthographies (Filipino and Greek). In Filipino, exceptions to the typical penultimate syllable stress are not marked in the orthography. The Filipino case shows a strong tendency to assign typical stress to words with unusual stress when reading aloud. He is accurate at reading nonwords and has good phonological awareness. The Greek case has also good phonological skills but shows slow reading of real words when reading aloud and displays poor spelling of the small number of Greek words that have atypical phoneme-grapheme correspondences. Interestingly, this case is bilingual and shows clear signs of surface dyslexia when reading and spelling English irregular English words.

10:25-10:50

tDCS to temporo-parietal cortex produces lasting improvements in nonwords reading in adults with developmental dyslexia.

I. McMillan, W. El-Deredy, & A.M. Woollams.

University of Manchester.

Developmental dyslexics (DD) show reduced lateralisation of the temporal-parietal cortex (TPC), an area associated with phonological processing. This study aimed to investigate the effects of left lateralising tDCS to the TPC on a reading aloud task, in both non-impaired and DD adults.

Participants read aloud 100 words and 100 non-words before, after, and one week on from receiving either active or sham tDCs. After active stimulation both groups showed a significant increase in non-word reading accuracy. This did not occur after sham. Gains were significantly larger in the dyslexic group compared to controls. In both groups the increased accuracy was maintained in the one week follow up. This study provides the first report of improved reading performance in DD due to a single session of tDCS designed to increase lateralisation of activation of TPC. These results clearly suggest that tDCS may have therapeutic benefits for developmental reading and language disorders.

10:50-11:15

How strong is the relationship between general phonological processes and pseudo-word reading?

D. J. Roberts, B. Owen-Booth & M. J. Tainturier.

Bangor University.

Parallel distributed models of reading claim that phonological dyslexia (PD) is due to a general, non-reading specific deficit to central phonological representations which manifests during pseudo-word reading due to the high demands they place on the phonological system. We present two patients who fall at opposite ends of phonological impairment: CWS with intact and KJ with severe impairment. The phonological deficit view predicts that KJ should also show impaired pseudo-word reading while CWS should not. Contrary to its predictions, the patient with a central phonological deficit (KJ) did not have impaired pseudo-word reading while the patient without a phonological deficit did. This unexpected double dissociation, which has not been reported before, demonstrates that a generalised phonological impairment does not necessarily co-occur with pseudo-word reading deficits. Although we are not refuting that phonological impairment and PD often co-occurs, our results suggest that they are not obligatorily linked.

11:15-11:40

Effects of length and stress on reading aloud in semantic dementia.

A.M. Woollams.

University of Manchester.

Semantic Dementia is a selective and progressive deterioration of conceptual knowledge associated with atrophy to the anterior temporal lobes. This disorder offers us a window into what reading aloud is like without semantics, which is directly relevant to differences in the nature of current computational models. Some computational models of the reading process have suggested that subword processing in normal reading aloud is a serial procedure, however an explicit investigation of this issue in semantic dementia patients will be presented that does not support this view. Turning to disyllabic words, it has also been suggested that stress assignment during reading aloud occurs via subword mechanisms, but evidence from semantic dementia patients will be presented that clearly indicates the key role of meaning in this process. The features of dyslexia seen in semantic dementia therefore provide a clear illustration of the importance of meaning in reading.

11:40-12:05

Moving beyond the monosyllable: model comparisons and large-scale data from pseudoword reading.

J. Sadat, B. Mousikou, R. Lucas, & K. Rastle.

Royal Holloway University of London.

More than 90% of English words are polysyllabic, yet the vast majority of work on reading aloud has focused on monosyllables. We conducted a large-scale study in which 41 participants read aloud 915 disyllabic pseudowords. Participants' reading aloud latencies, pronunciations, and stress placements were recorded, and these measures were compared where possible to the performance of rule-based (DRC, Rastle & Coltheart, 2000) and probabilistic (CDP++, Perry et al., 2010; Seva et al., 2009) models of reading. Analyses sought to establish (a) how various properties of the disyllabic pseudowords influenced human and model reading aloud performance; (b) whether stress placement can be predicted by a combination of phonological, orthographic, and morphological cues; and (c) the extent to which pronunciation uncertainty across participants influences human and model reading aloud performance.

12:05-12:30

Foiling the influence of orthography and semantics on lexical decision

S.R. Welbourne, Y.-N. Chang, S. Furber & M.A. Lambon Ralph

University of Manchester.

Recent studies have shown that visual lexical decision performance depends heavily on the nature of nonword foils (Evans, Lambon Ralph & Woollams, 2012). Most models of lexical decision focus exclusively on either orthographic information (Coltheart, Rastle, Perry, Langdon & Ziegler, 2001; Grainger & Jacobs, 1996), or semantic information Plaut (1997). However, the data would be better explained by a single model that could integrate information from multiple levels of representation simultaneously. We developed a recurrent connectionist model of single word reading including visual, orthographic, phonological, and semantic processing. The model differentiated words from nonwords by integrating measures of polarity across these four key processing layers. The relative contribution of orthographic and semantic information was influenced considerably by the nature of the nonword foils. When the foils were consonant strings the decision was reached early on the basis of orthographic information. Pseudohomophone foils forced the model to rely more on semantics.

1:30-1:55

SUBTLEX-UK: A word frequency database for British English based on subtitles.

W. van Heuven¹, P. Mandera², E. Keuleers², & M. Brysbaert².

¹University of Nottingham & ²Ghent University.

Word frequency databases based on subtitles are available in a number of languages (e.g., American English, Chinese, Dutch, French, Spanish). However, no word frequency database based on subtitles existed so far for British English. Therefore, we collected subtitles from BBC television channels over a period of three years. This resulted in a corpus of 200 million words. The word frequencies based on this corpus were able to explain more of the variance in the lexical decision times of the British Lexicon Project than the words frequencies of the British National Corpus and SUBTLEX-US. SUBTLEX-UK provides not only word frequencies but also word bigram frequencies, contextual diversity information, part-of-speech information, and word frequencies of children programmes.

1:55-2:20

What's in a sandwich (prime)?

J.S. Adelman.

University of Warwick.

Lupker and Davis (2009) introduced the sandwich priming paradigm to investigate orthographic similarity between distantly related primes and targets, for which priming is typically absent in the standard priming paradigm. The sandwich is formed by a 33ms preview of the target before the prime, which they posit inhibits competitors of the target; these competitors are the presumed cause of the lack of priming in the standard paradigm. If this is the case, a preview that is a word that is competitive with the target should have the opposite effect of reducing priming by inducing inhibition. This prediction is disconfirmed in three experiments. An alternative account proposes that in the standard paradigm, both unrelated and distantly related push target activation to floor, but in the sandwich paradigm, the preview lifts this activation further from floor, permitting stronger differences to emerge between distant and unrelated primes.

2:20-2:45

Does Translation Priming Survive Interveners?

X. Wang & F. Chan.

University of Oxford.

Forster (2009, 2013) demonstrates that form priming survives visible interveners, but not invisible interveners, in the masked priming paradigm. In addition, identity priming seems to be able to survive invisible interveners, but not visible interveners. These results can be explained by the Capacity Limit Hypothesis, which assumes that the lexical processor tries to access the intervener while having to abandon processing the prime. The current study investigates whether cross-script translation priming would survive three types of invisible interveners (word, nonword, %%%). The results show that translation priming, which is semantic effect, survived all three types of interveners, while the priming effect significantly reduced under the word intervener condition. This means that the bilingual lexical processor tried to access the word after the prime in one language, prior to processing the target in the other, supporting the Capacity Limit Hypothesis.

2:45-3:10

Computational and empirical investigations of the effect of orthographic neighbourhood size.

C.J. Davis, J. S. Bowers, & M. Gubian.

Bristol University.

Many studies have assessed the impact of orthographic neighbours on visual word identification, using a variety of tasks. In this talk I will describe the predictions from different theoretical frameworks, review the empirical literature, and present some previously unpublished experimental data. I will demonstrate how some of these theoretical predictions can be derived by using the *easyNet* software for computational modelling. The empirical data lead to the conclusion that the number of neighbours (N) may influence the speed of lexical decisions in some situations, but that N does not influence the speed of visual word identification for undegraded stimuli. Implications for some well-known models will be considered.

3:40-4:05

Lexical competition as an indicator of orthographic learning in children.

N.Tamura & K. Nation.

University of Oxford.

This experiment investigated lexical competition as an indicator of orthographic learning in children aged 9 to 11. Lexical competition was indexed by a prime-lexicality effect in masked form priming. Children were exposed to rare English target words embedded in stories on three separate days. Each target word was the only orthographic neighbour of a high-frequency base word (e.g. bruit - fruit). Prior to training, target words were expected to behave like nonwords when used as form primes for their base words in a lexical decision task. After training, they were expected to behave like real words in the same task, i. e. engage in lexical competition. This prime-lexicality effect was evident in facilitation by target primes prior to training compared to inhibition after training. Children also showed good explicit learning of target word meanings and spellings.

4:05-4:30

The role of Age of Acquisition (AoA) and Frequency on free recall in Turkish.

I. Raman¹, S. Ikier², E. Kilecioglu², D. E. Uzun², & S. Zeyveli².

¹Middlesex University & ²Yeditepe University.

Although the role of AoA on word and picture processing in Turkish has long been documented (Raman, 2006), its influence on free recall is less understood and limited to English with inconclusive findings. The aim of the study was to explore the role of AoA and frequency in a free recall task using 25 early acquired and 25 late acquired pictures and their corresponding names in Turkish, in either a pure list or a mixed list, in a mixed design. Participants were asked to recall as many of the items as possible shown to them during the study phase. Number of correct scores were recorded. Data were subjected to a mixed ANOVA and the results show a main effect for AoA and frequency together with an interaction for list type. The implications of these findings are discussed in view of picture and word processing in Turkish and in other orthographies.

4:30-4:55

A comparison of music and language reading: Rapid eye-movement effects of musical incongruence.

L. Hadley.

University of Edinburgh.

Written language is processed incrementally, as shown by the disruption of eye movements when anomalous sentences are read. If people comprehend written music in a similar way, we would expect to see this phenomenon during music reading. We conducted two experiments in which expert pianists' eyes were tracked while they read and played single-line melodies. The melodies were either congruent or incongruent, the incongruity involving a harmonic change of a single chord. Such incongruity led to rapid disruption to participants' reading, particularly in terms of regressions from the target bar, and in measures of subsequent reading. Furthermore, in cases of increased cognitive load, when pianists played in time with a metronome, rapid pupil dilation was found for incongruent melodies. These results suggest that pianists rapidly interpret written music, just as readers interpret written language, leading to further comparison of the processing of musical and linguistic orthographies.

4:55-5:20

Becoming a written word: Eye movements reveal order of acquisition effects following incidental exposure to new words during silent reading.

H. Joseph, E. Wonnacott, P. Forbes & K. Nation.

University of Oxford.

We examined incidental word learning during reading by focusing on the finding that words which are acquired early in life are processed more quickly than those acquired later. Novel words were embedded in meaningful sentences and presented to adult readers early (day 1) or later (day 2) during a five-day exposure phase. At test adults read the novel words in semantically neutral sentences. Participants' eye movements were monitored throughout. Results showed a decrease in reading times for all novel words over exposure, and significantly longer total reading times at test for early than late novel words. Early-presented novel words were also remembered better in an offline test. Our results show that order of presentation influences processing time early in the course of acquiring a new word, consistent with partial and incremental growth in knowledge occurring as a function of an individual's experience with each word.

5:20-5:45

Word learning, grain size and orthographic transparency.

A. Ellis¹, R. Kwok¹, M. Kaestner¹, M. Gerin¹, R. Avdyli², B. Bermúdez², & F. Cuetos²

¹University of York & ²University of Oviedo.

When skilled readers of English read aloud short and longer nonwords that are then repeated several times, the large length effect observed for the first presentation diminishes across the following presentations. Typically, the length effect becomes nonsignificant after 4-6 presentations (Kwok & Ellis, *in press*; Maloney et al., 2009). We report a set of experiments involving word learning in three transparent orthographies (Spanish, German and Italian). Participants read aloud shorter and longer nonwords presented 10 times across 10 blocks of trials. Naming latencies decreased with repetition, but RTs did not converge as quickly or as completely in these transparent orthographies as they do in English. We propose that, in line with the grain size theory of Ziegler et al. (2001), lower-level units play a role in the conversion of orthography to phonology in transparent orthographies at a point where readers of English have largely switched to large-scale (lexical) units.