How do articulatory rehearsal and attentional refreshing interact with phonological similarity in the complex span paradigm?
Gérôme Mora, Valérie Camos, Klaus Oberauer

To cite this version:
Gérôme Mora, Valérie Camos, Klaus Oberauer. How do articulatory rehearsal and attentional refreshing interact with phonological similarity in the complex span paradigm?. The Fourth European Working Memory Workshop (EWOMS 4), Sep 2008, Bristol, United Kingdom. hal-01880846

HAL Id: hal-01880846
https://u-bourgogne.hal.science/hal-01880846
Submitted on 25 Sep 2018

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
How do articulatory rehearsal and attentional refreshing interact with phonological similarity in the complex span paradigm?

Mora G., Camos V., & Oberauer K.
1 Université de Bourgogne, 2 Institut Universitaire de France, 3 University of Bristol

Different accounts of decay and maintenance of verbal information in working memory

<table>
<thead>
<tr>
<th>Phonological Loop (Baddeley, 1986)</th>
<th>Time-Based Resource-Sharing model (Barrouillet et al., 2004)</th>
<th>Interference model (Oberauer &amp; Kliegl, 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• time related decay</td>
<td>• time related decay</td>
<td>• feature overwriting</td>
</tr>
<tr>
<td>• articulatory rehearsal</td>
<td>• attentional refreshing</td>
<td></td>
</tr>
</tbody>
</table>

How to account for phonological similarity effect: Articulatory Rehearsal or Feature Overwriting?

How to account for maintenance: Articulatory Rehearsal or Attentional Refreshing?

Aim of the study is to explore the impact of attention demand on phonological similarity effect

<table>
<thead>
<tr>
<th>Phonological similarity</th>
<th>Effect</th>
<th>Feature overlap</th>
<th>Attention load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No effect</td>
<td>???</td>
<td>No effect</td>
</tr>
<tr>
<td></td>
<td>No effect</td>
<td>???</td>
<td>Effect</td>
</tr>
<tr>
<td></td>
<td>Effect</td>
<td>Effect</td>
<td>No effect</td>
</tr>
</tbody>
</table>

Exp 1

Complex span paradigm

2 different processing tasks (Within-S):
- Simple Reaction Task (SRT): Press a key when square appears
  - Low attentional demanding
- Choice Reaction Task (CRT): Press the key that corresponds to the square position (up/down)
  - High attentional demanding

3 different lists to maintain (Within-S):
- Lists of 6 monosyllabic English nouns
  - High similarity lists (HS)
  - Low similarity lists:
    - with high phoneme overlapping words (HO)
    - with low phoneme overlapping words (LO)

In SRT No similarity effect
In CRT Similarity effect (p < .01)

Results:
- Task effect (p < .001): SRT > CRT
- Similarity effect (p < .05): HS < HO = LO
- Interaction Task x Similarity (p < .05)

Instructions
- No specific instruction to maintain words (No Instruction)

Strategy used for maintenance

- No articulatory constraint
- Articulatory constraint

1. Effect of similarity as predicted by phonological loop model and interference model
2. Effect of feature overlapping only with rehearsal instruction and low attentional demanding processing task → feature overwriting involves when both articulatory rehearsal and attentional refreshing are used simultaneously?
3. Effect of attentional load as predicted by TBRS