**Speech errors in the L1, triggered by code switches from the L2**

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**Background:** L1 and L2 sounds share the same phonological space → bidirectional interference

**Research question:** Under which conditions do L2 sounds affect L1 sounds in L1 sentences containing code switches?

### Recent production study (Schlipf 2017):

- German speakers occasionally replaced German [ʔ]-sounds by retroflex English [ɾ] in German verbs (target) that preceded or followed English names (trigger), see example (1)

  (1) Der ehemalige Präsident Ronald Reagan (jagte gerne mit seinem Hund) The former president Ronald Reagan just like his dog

  "The former president Ronald Reagan likes to joust with his dog"

- Stimuli ➔ German sentences with code switches
  - Manipulation of position: target word before or after trigger word
  - Manipulation of word-internal position: /r/ in onset-initial position (e.g., Reagan, rauchte ‘smoked’) vs. /r/ as second member of an initial consonant cluster (e.g., Craig, bremste ‘braked’)
  - Both factors were manipulated within subjects and within items
  - 64 experimental trials (see example (1))
  - 16 filler sentences with other English names

- Participants: 16 monolingual native speakers, B2 level of English (18-29 years, 5 male)

- Procedure: Participants were asked to read a German and an English text aloud prior to the experiment
  - Sentences were presented on a computer screen one after the other

- Data treatment: Productions were coded auditorily as retroflex-ɾ, fricative-ɾ, or trilled-ɾ

- Results ➔ Percentage of retroflex /r/ in German words:

<table>
<thead>
<tr>
<th>Condition</th>
<th>order: Target-Trigger</th>
<th>order: Trigger-Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset-N // Onset-V</td>
<td>5,83 %</td>
<td>3,33 %</td>
</tr>
<tr>
<td>Onset-N // Cluster-V</td>
<td>8,33 %</td>
<td>4,16 %</td>
</tr>
<tr>
<td>Cluster-N // Onset-V</td>
<td>1,66 %</td>
<td>3,33 %</td>
</tr>
<tr>
<td>Cluster-N // Cluster-V</td>
<td>5,00 %</td>
<td>1,66 %</td>
</tr>
</tbody>
</table>

  No effect of position (p > 0.5) and onset-type (p=0.08), no interaction

### Questions:

- Do these results generalize to non-word-initial positions (within target)?
- Do these results also occur if English names start with other non-native approximants ([w]) or sounds that occur in both languages ([l,t,n,k,g])?
  ➔ Is there an activation of L2 in general / only by non-native sounds / by orthographic proximity

### Study I:

- Experimental manipulation:
  - 32 English participles verbs (e.g., erledigt ‘moved’) (see example (2))
  - 8 quadruplets of surnames as triggers (Eng-r, Eng-w, Eng-other, Ger-r)
  - 32 experimental trials
  - Different vowel in syllable of participle than in preceding name
  - Trigger type was manipulated within subjects, but between items
  - 128 filler sentences with or without code switches
  - Participles were matched for word frequency and frequency of stem syllable (cf. Geyken et al. (2012)).

- Stimuli:
  - 32 German participle verbs (e.g., gelegrückt ‘moved’) (see example (2))
  - 8 quadruplets of surnames as triggers (Eng-r, Eng-w, Eng-other, Ger-r)
  - 32 experimental trials
  - Different vowel in syllable of participle than in preceding name
  - Trigger type was manipulated within subjects, but between items
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  (2) Den Designertisch hatten sie vor das Sofa von Reagan gelegrückt
  The designer table had they in front of the sofa of Reagan move... They moved the designer table in front of the sofa of Reagan.

### Follow-up studies (Studies II-IV)

- Manipulation of several variables:
  - Number of code switches (in addition to targets) ranging from 8-128
  - Sentence position and verb type (...Reagan gelegrückt vs. Reagan rückte...)
  - Only surname vs. first and surname (Ronald Reagan)
  - Familiarity with names (Melody Readan vs. Ronald Reagan)
  - Memory load (remembering 5 digits vs no other tasks)

- Results of all studies:

### Discussion:

- Fewer r- errors compared to Schlipf (2017) in all studies.
  - Do the sentence-final/sentence-initial position draw ‘more attention’ and are they thus less likely for a speech error to occur?
  - Does the prefix ge- provide for a ‘planning period’ which allows the speaker to better monitor and (pre-)correct any mistakes?
  - Are the unfamiliar and semantically not preactivated English names less likely to trigger the English inventory?
  - Does disfluency minimize the number of speech errors?
  - Is a sole reliance on code switches without preactivation (e.g., by an English text) not ‘enough’ to trigger cross-linguistic speech errors?
