Assessing cross-linguistic influence in L3 phonology through language switching tasks: the role of L1 dominance and individual differences in attention and inhibitory control.

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> Background and research context
> L3 Phonology (distinct from L2 Phonology?)
> Language switching tasks a testing ground for L3 phonology research (phonetic CLI)
> IDs in Attention and Inhibition mediate performance in language switching tasks
> Data (and preliminary results) from on-going project on IDs in phonological acquisition (L3) that uses some language switching tasks
Background

Our research context:

- Bilingual speakers learning an L3 (usually instructed SLA)
  - L1 & L2 acquired sequentially (home/school/job)
  - L1 & L2 acquired simultaneously (home/school/job)
  - L1 & L2 may be used daily to varying extents
- All possible combinations of bilingualism co-exist
- Acquisition order ≠ Language dominance
- Speakers may shift language dominance
- Large variation in L1/L2 experience, use and degree of dominance: Monolingualism → Bilingualism
  - \(L1 + L2 = L1\) or \(L1 + L2 = L1 + L2\)
  - \(L1\) & \(L2\) generally mostly active
- Not the right/best context to conduct L3 research?
- Research in this context relevant to other contexts: L1, L2, L3
Why L3 phonology?

- Different in nature from L2 phonology:
  - Multiple sources of Phonological CLI (PCLI)
  - Cumulative sensitization to phonological features (L1+L2 > greater perceptual sensitivity).
  - Complexity of L1-L2-L3 interactions.
  - L3 phonology effects on L2 larger than L1.
  - L2 phonology (& awareness) may be aided by L3 acquisition.
- Predictions of L2 speech learning models may not hold for multilingualism.

How can we investigate L3 phonology?
L3 phonology research

A, B, C = different degrees of dominance
1, 2, 3 = orders of acquisition

L1A + L2B + \text{L3C(A/B?)}
L1B + L2A + \text{L3C(LA)}
L1B + L2A + \text{L3C(LB)}

Many other options...

L1A + L2B + L3C
L1A + L2B + L3C(LA)
L1A + L2B(LA) + L3C
L1A + L2B + \text{L3C...?}

How can we investigate L3 phonology?
Language switching tasks

- Insight into phonological processing in multilinguals:
  - PCLI in processing = PCLI in acquisition?
  - Research: phonological processing vs acquisition.
  - Complexity of L1-L2-L3 interactions.
  - L3 phonology effects on L2 larger than L1.
  - L2 phonology (& awareness) may be aided by L3 acquisition.
- May provide interesting insights into the mechanisms of phonological processing in multilinguals.
- May provide more sensitive measures of CLI in language-contact situations (bilinguals learning L3 in bilingual context).
Language Switching Tasks

Bilingual picture naming (speeded, RTs)

Trials: - switch (L1-L2 / L2-L1) and non-switch (L1-L1 / L2-L2)
- language cued by background colour: L1 L2

Measure: RTs from stimuli onset to voice-key activation

Amount of inhibition = Level of proficiency
- Activation HIGH in L1 > strong inhibition
- Activation LOW in L2 (if proficiency is LOW) > little inhibition

(Costa & Santesteban, 2004; Costa, Santesteban & Ivanova, 2006; Calabria et al. 2012)
Language Switching Tasks

- RTs are slower in Switch than Nonswitch trials.
- L1-to-L2 and L2-to-L1 switching costs are asymmetrical:
  > shifting to L1 requires more time (to overcome inhibition)

(Costa & Santesteban, 2004; Costa, Santesteban & Ivanova, 2006; Calabria et al. 2012)
Language Switching Tasks

Spanish-Catalan highly proficient early bilinguals

(Costa & Santesteban, 2004; Costa, Santesteban & Ivanova, 2006; Calabria et al. 2012)
Language Switching Tasks

Bilingual picture naming (RT switching costs) L1 – L3

(Costa, Santesteban & Ivanova, 2006)
Language Switching Tasks

Bilingual picture naming (RT switching costs)
L2 – L3

(Costa, Santesteban & Ivanova, 2006)
Language Switching Tasks

Bilingual picture naming (RT switching costs)
L3 – L4

(Costa, Santesteban & Ivanova, 2006)
Bilingual picture naming (not speeded, asymmetric CLI)

(Goldrick et al., 2014; Olson, 2013, 2015)
Language Switching Tasks

Bilingual picture naming (not speeded, asymmetric CLI)

- L1-L2 switches
- L2-L1 switches
- VOT in L1/L2 switch trials
- VOT in L1/L2 non-switch trials
- Also...
- RTs at L1/L2 switch trials
- RTs at L1/L2 non-switch trials

L1: copa /k-/  
L2: carrot /k-/
L2: cow /k-/  
L1: cabra /k-/
Bilingual picture naming (not speeded, asymmetric CLI)

Non-target representations (partially active during lexical access in picture naming) have an effect on phonetic processing > phonetic CLI (e.g. VOT)

- Effects larger for switches into non-dominant language: VOT on English words is more Spanish-like (in a balanced context)
Bilingual picture naming (not speeded, asymmetric CLI)

Non-target representations (partially active during lexical access in picture naming) have an effect on phonetic processing > phonetic CLI (e.g. VOT)

- Larger phonetic CLI when switching between languages
- Effects larger for switches into dominant language: For Spanish-dominant speakers VOT on Spanish words is more English-like (if the context is biased towards English).

⇒ asymmetries in degree of phonetic CLI!

(Olson, 2013)
Language Switching Tasks

**Code-switching in read-aloud tasks**

Previously activated non-target representations may have an effect on phonetic processing > phonetic CLI (e.g. VOT)

Carrier sentences:
- Greek target in English sentence
- English target in Greek sentence

(Antoniou et al, 2011)
Language Switching Tasks

Code-switching in read-aloud tasks

Previously activated non-target representations may have an effect on phonetic processing > phonetic CLI (e.g. VOT)

Code-switched sentences:

- **Los viajeros** | packed their bags
  - Spanish..............English..........................

- **The university** | paga muy poco a los empleados
  - English..............Spanish............................................

- **Todos mis amigos** talked Spanish as kids
  - Pre-switch | Switch | Post-Switch

- **The typhoon damaged techos y paredes**
  - Pre-switch | Switch | Post-Switch

(Bullock et al, 2016)
Language Switching Tasks

**Code-switching in read-aloud tasks**

Previously activated non-target representations may have an effect on phonetic processing > phonetic CLI (e.g. VOT)

![Mean VOT Across Site: L1 English speakers](Bullock et al, 2016)
Language Switching Tasks

Code-switching in read-aloud tasks

Previously activated non-target representations may have an effect on phonetic processing > phonetic CLI (e.g. VOT)

Mean VOT Across Site: L1 Spanish speakers

(Bullock et al, 2016)
Language Switching Tasks

Code-switching in read-aloud tasks

Read-aloud paragraph (error rate and language intrusions)

Grammatical Low-switch
He then lit it by striking un cerillo debajo del asiento de su chair. The truly meticulous manera en que hacía papá his cigarettes was indeed an art. He took his first puff, detuvo la respiración, and then exhaled smoke through his nose with a healthy satisfaction. Blowing smoke through his nose siempre me fascinaba. For me it was nothing short of a miracle. Me pregunté, how did he do it? Someday I would find out. Someday yo aprendería, porque todos los hombres learn how, and I would get to be a man como mi padre.

(Gollan & Goldrick, 2016)
Language Switching Tasks

Code-switching in read-aloud tasks

Read-aloud paragraph (error rate and language intrusions)

**Ungrammatical High-switch**

Luego lo lit by striking a match debajo del seat of his chair. The verdadera meticulous manner in which Dad rolled his cigarrillos era un art. He dio el primer puff, held his breath, and luego echó humo through his nose with a healthy satisfaction. Blowing humo through his nose always me fascinaba. For me it was nothing short de un miracle. I asked myself, ¿cómo did he do it? Someday yo would find out. Someday yo aprendería how, because all hombres learn how, and I would get to be a hombre como mi papá.
Language Switching Tasks

Code-switching in read-aloud tasks

Intrusion Errors, Switch Sites Only
— Grammatical  — Ungrammatical

Older Bilingual  Younger Bilingual

Not tested for phonetic CLI!

(Gollan & Goldrick, 2016)
What we know from research on code-switching:
- Asymmetries (in RT & phonetic CLI) occur as a function of differences in language proficiency / dominance.
- Size of asymmetries could vary as a function of inhibitory control: Weaker inhibitory control $\rightarrow$ greater phonetic CLI (to be investigated!)

Can the code-switching paradigm be used to test hypothesis about phonetic interference in L3 phonology?
- Language dominance
- Order of acquisition
- L1 / L2 primacy?

What factors influence phonetic interference in code-switching?
- Language proficiency / dominance
- Context biases & language modes
- Individual differences in: inhibitory control
  attention
  WM (PSTM)
  L3 phonology?
Factors in L2 / L3 phonological development

Contextual factors (in L2):

Age- and experience-related factors

- L1 background
- Age of Onset of L2 learning
- L2 exposure (Length of Residence)
- Frequency/amount of L1/L2 use

Immigrant populations living in L2 community

(Baker et al., 2008; Baker and Trofimovich, 2005; Flege 2009; Flege, Bohn, & Jang, 1997, Flege, Yeni-Komshian, & Liu, 1999; Guion et al., 2000; Moyer 2009; among others)

➔ The earlier the better for L2 phonology
➔ Higher L2 quality and quantity input received is better

➔ Does this apply to L3 phonological development?
Factors in L2 / L3 phonological development

Contextual factors:

- Instructed SLA:
  - Classroom instruction
  - Short-term immersion / study abroad

  (Avello, 2013; Avello, Mora & Pérez-Vidal, 2012; Bongaerts, van Summeren, Planken, & Schils, 1997; Cebrian, 2006; Díaz-Campos, 2004; Fullana, 2006; García-Lecumberri & Gallardo, 2003; Højen 2003; Llanes, Mora & Serrano, 2016; Llanes & Muñoz, 2013; Mora, 2008; Muñoz & Llanes, 2009; Piske, 2007; among others)

  ➔ Very limited gains in L2 phonology

  - Phonetic training in the lab (esp. high variability)

  (Bradlow et al. 1999; Hazan et al., 2005; Iverson and Evans 2009; Logan et al. 1991; Ylinen et al. 2010; among others)

  ➔ Robust gains in L2 speech perception and production

Student populations in Foreign Language

Adult learners in L1 & L2 contexts
Factors in L2 / L3 phonological development

Very large inter-subject variation even in the LAB context where input and exposure factors are tightly controlled in the experimental design.


Individual factors:

- Motivation
- Personality (extroversion, introversion)
- Musicality (singing and musical ability)
- Sound processing skills (auditory acuity, frequency discrimination)
- Imitation skills (aptitude for oral mimicry)
- Cognitive skills (memory, attention, inhibition)
- ….. \(\rightarrow\) in L3 phonological processing and acquisition

(Bongaerts et al., 1997; Christiner & Reiterer, in press; Hazan & Kim, 2012; Kim & Hazan, 2010; Lengeris & Hazan, 2010; Moyer, 1999; Gottfried, 2007; Slevk and Miyake, 2006; Reiterer et al. 2011; Hu et al. 2013)
Factors in L2 / L3 phonological development

Cognitive factors (IDs in executive function):
- Working memory - Phonological short-term memory
- Acoustic memory
- Attention Control: attention switching, selective attention
- Inhibitory control
- ...

Cognitive resources likely to be used in L2/L3 speech processing.

Do IDs in EF mediate CLI in L3?

* e.g. Inhibitory Control / Attention / PSTM / ...

EFs Important for L2/L3 speech processing & acquisition

**Factors in L2 / L3 phonological development**

**Phonological Processing**
- L1
- L2
- L3
- ...

**Phonological Acquisition**
- L1
- L2
- L3
- ...

**Code-Switching Tasks**
- (testing cross-language phonetic interference)
- (testing predictions of L3 models)
- (testing production & perception in L3 phonology)
Attention & Inhibition in L2 / L3 phonology

Cognitive factors: Attention (ATT) & Inhibition (INH)

Phonological Processing

• ATT → guides auditory processes in selecting acoustically relevant information for phonological processing (Akeroyd, 2008; Astheimer et al. 2016; Baese-Berk et al., 2015; Bialystok et al., 2012).
• ATT → facilitates perceptual learning (Adank & Janse, 2010; Francis & Nusbaum, 2002; Francis et al. 2000; Janse & Adank, 2012)
• ATT → facilitates processing of L2 phonological contrasts (Darcy et al., 2015; Safronova & Mora, 2013; Ou et al., 2015)
• ATT → selection of cross-linguistically co-activated representations (Kroll et al, 2008)
• INH → diminishes cross-language interference in lexical selection and phonological processing. (Mercier et al., 2013; Spivey & Marian, 1999)

WM (PSTM) is by far the most widely researched EF in SLA & L2 phonology
Cognitive factors: Attention (ATT) & Inhibition (INH)

Phonological Acquisition

- INH → reduced access to L1 phonology during L2 processing and use. (Levy et al., 2007)
- INH → modulates amount of cross-language interference.
- INH & ATT → enhanced L2 phonological processing in instructed SLA (Darcy & Mora 2016; Mora & Darcy, 2016).

Recent data on L3 phonological processing:
- IDs in INH & ATT
- Language Switching Tasks
- L1 degree of dominance in bilingual context
- L3 English in instructed SLA
On-going study on IDs & L3 phonology

Participants:
- 29 L1-Catalan dominant Catalan-Spanish bilinguals selected from a larger pool of bilinguals varying in degree of dominance in Cat / Sp
- Bilingual Language Profile (BLP) questionnaire adapted: scores 0-268 (Bridsong et al. 2012; Safronova, 2016).
- L1 = Catalan, L2 = Spanish, L3 = English (sequential bilinguals)
On-going study on IDs & L3 phonology

Participants:

Self-reported % Cat Use Score (0-400)
On-going study on IDs & L3 phonology

Participants:

Self-reported % Cat Use

Mora & Darcy (in prep.)
On-going study on IDs & L3 phonology

Tasks

L3 Phonology
/iː/-/ɪ/; /æ/-/ʌ/
VOT

Perception
- ABX discrimination
- Lexical Decision

Production
- VOT in picture naming

Attention
Domain-general
- Flanker
Linguistic
- Auditory stroop

Inhibition
Domain-general
- Simon
Linguistic
- Retrieval-ind. forgetting
- Auditory inhibition

Mora & Darcy (in prep.)
L3 Phonology: ABX categorical discrimination

ABX categorical discrimination task (forced choice) tests perceptual sensitivity to a pair of contrasting sounds:

- $X =$ male/female voice different from $A$ or $B$
- Nonwords presented at $ISI = 500$ ms

<table>
<thead>
<tr>
<th>AB</th>
<th>/lə'piːfən/</th>
<th>/lə'pɪfən/</th>
<th>/lə'pɪfən/</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>/lə'piːfən/</td>
<td>/lə'pɪfən/</td>
<td>/lə'pɪfən/</td>
</tr>
</tbody>
</table>

Measure:
- Accuracy (proportion correctly identified $X$s)
- RT in milliseconds (from $X$ onset)

Mora & Darcy (in prep.)
L3 Phonology: ABX categorical discrimination

Results

RT (milliseconds)

Error Rate (proportion)
L3 Phonology: ABX categorical discrimination

Results

RT (milliseconds)

Error Rate (proportion)
## L3 Phonology: Lexical Decision

Auditory presentation of test (target /i:/-/ɪ/ contrast) and control (/ɪ/-/æ/) words and nonwords (words with changed vowels):

<table>
<thead>
<tr>
<th>word /ɪ/</th>
<th>nonword /i:/</th>
<th>word /i:/</th>
<th>nonword /ɪ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 gift</td>
<td>geeft</td>
<td>leaf</td>
<td>liff</td>
</tr>
<tr>
<td>2 kiss</td>
<td>keess</td>
<td>please</td>
<td>pliz</td>
</tr>
<tr>
<td>3 drip</td>
<td>dreep</td>
<td>beam</td>
<td>bim</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measures:
- Accuracy (proportion correctly identified nonwords)
- RT in milliseconds (from trial onset)

124 trials

Mora & Darcy (in prep.)
L3 Phonology: Lexical Decision

Results
L3 Phonology: Lexical Decision

Results

![Graph showing results of L3 Phonology: Lexical Decision](image)
L3 Phonology: bilingual picture naming

- Trial Types
  - Switch
  - Non-Switch

- Naming Language
  - Catalan (L1) ➔ English (L3)

- Language switches occurred unpredictably

We measured VOT on word-initial /p/ and /k/ before stressed Vs:
Cat (Sp): 0-25 ms (short-lag)
En: 30-80 ms (long-lag)
Results
A switching cost was only observable for English. VOT in English was significantly shorter after naming in Catalan.

- L1 > L2 CLI only;
- no L2>L1 CLI
L3 Phonology: bilingual picture naming

Results

English /p/ and /k/ at switch
Results

Catalan /p/ and /k/ at switch
Results

English naming switch cost (English non-switch minus English switch VOT)
Attention: Flanker (domain general)

Ability to ignore visual information in the background

Look at the arrow in the centre.
Press the left key for the left-pointing arrow, as fast as you can.
Press the right key for the right-pointing arrow, as fast as you can.
Look at the arrow in the centre.
Press the left key for the left-pointing arrow, as fast as you can.
Press the right key for the right-pointing arrow, as fast as you can.
Look at the arrow in the centre.
Press the left key for the left-pointing arrow, as fast as you can.
Press the right key for the right-pointing arrow, as fast as you can.

Attention: Flanker (domain general)
Ability to ignore visual information in the background
Attention: Flanker (domain general)

Ability to ignore visual information in the background

Look at the arrow in the centre.
Press the left key for the left-pointing arrow, as fast as you can.
Press the right key for the right-pointing arrow, as fast as you can.

Measure: RTs Incongruent – RT congruent
Attention: Flanker (domain general)

Results

![Bar chart showing response times (RT) in milliseconds for different conditions. The y-axis is labeled 'RT in milliseconds' ranging from 200 to 500. The x-axis has categories: Right Congruent, Right Incongruent, Left Congruent, and Left Incongruent. Error bars are present indicating 95% CI.]
Attention: Flanker (domain general)

Results

- **RT in milliseconds**
  - **Congruent**
  - **Incongruent**
  - **Inhibition**

- Error Bars: 95% CI

- Flanker score distribution
Attention: Auditory stroop (linguistic – speech)

Ability to suppress conflicting lexical activation
Participants listen to 6 words (2 test words, 4 filler words) spoken by one male and one female voice:
72 trials (6 words x 6 realizations x 2 voices)

HOME, NATA, NÚVOL, OCA, OLI, NOIA
man, cream, cloud, goose, oil, young woman

Decide on the voice: male or female
- Response latencies longer for Incongruent trials
  HOME by female voice    NOIA by male voice
- Response latencies shorter for Congruent trials
  HOME by male voice      NOIA by female voice

Measure: RTs Incongruent – RT congruent
Attention: Auditory stroop (linguistic – speech)

Results

Mora & Darcy (in prep.)
Attention: Auditory stroop (linguistic – speech)

Results

Mora & Darcy (in prep.)
Inhibition: Simon (domain-general)

Press the left key for the GREEN square, and the right key for the RED square (ignore the position of the square)

Ability to inhibit response based on spatial position
Inhibition: Simon (domain-general)

Press the left key for the GREEN square, and the right key for the RED square (ignore the position of the square)
Inhibition: Simon (domain-general)

Press the left key for the GREEN square, and the right key for the RED square (ignore the position of the square)
Inhibition: Simon (domain-general)

Press the left key for the GREEN square, and the right key for the RED square (ignore the position of the square)

Measure: RTs Incongruent – RT congruent
Inhibition: Simon (domain-general)

Results

![Bar chart showing reaction times (RT) in milliseconds for different conditions.

- Blue Congruent
- Blue Incongruent
- Red Congruent
- Red Incongruent

Error Bars: 95% CI]
Inhibition: Simon (domain-general)

Results

- **RT in milliseconds**
  - Congruent: [Bar Graph]
  - Incongruent: [Bar Graph]
  - Simon_Score: [Bar Graph]

Error Bars: 95% CI
Inhibition: Retrieval-induced forgetting

- Task conducted in L1 (Catalan)
- Based on lexical retrieval RTs
- Inhibition of lexical items achieved by increasing activation of lexical items in the same category

Memorize

**Vegetables**
- Lettuce
- Potato
- Artichoke
- Onion
- Spinach
- Tomato

Practice: type & say vegetable

<table>
<thead>
<tr>
<th>Practice</th>
<th>Vegetable</th>
</tr>
</thead>
<tbody>
<tr>
<td>L ______</td>
<td>Lettuce</td>
</tr>
<tr>
<td>P ______</td>
<td>Potato</td>
</tr>
<tr>
<td>A ______</td>
<td>Artichoke</td>
</tr>
</tbody>
</table>

Practised > high activation
Unpractised > inhibited

Inhibition: Retrieval-induced forgetting

Memorize ➔ Practice ➔ Recognize

**Vegetables**
- Lettuce
- Potato
- Artichoke
- Onion
- Spinach
- Tomato

**Animals**
- Duck
- Snake
- Elephant
- Horse
- Tiger
- Cow

**Occupations**
- Plumber
- Teacher
- Fireman
- Carpenter
- Engineer
- Nurse

**Vegetables**
- Lettuce
- Potato
- Artichoke
- Onion
- Spinach
- Tomato

**Animals**
- Duck
- Snake
- Elephant
- Horse
- Tiger
- Cow

**Occupations**
- Plumber
- Teacher
- Fireman
- Carpenter
- Engineer
- Nurse

Increased activation ➔ Inhibited

Control (non practiced category)

Inhibition score = (RT to inhibited)/(RT to control)

PLUS additional items never presented before (e.g. secretary)
Inhibition: Retrieval-induced forgetting

Results

![Bar graph showing RT (milliseconds) for control and inhibited conditions with error bars indicating +/- 1 SE.](image)
Inhibition: Retrieval-induced forgetting

Results

![Graph showing inhibition score for different subjects. The x-axis represents subject numbers, and the y-axis represents the inhibition score ranging from 0 to 1.60. The graph shows an increase in inhibition score as the subject number increases.]
Inhibition: Auditory Inhibition

Bilingual sentence comprehension task involving auditory INH

L1  el gat persegueix el gos
L2  the cat is chasing the dog
L2-L1 the cat is chasing the dog

Who is doing the “bad” action?
- Simultaneous presentation of:

Test: Active-Passive Male-Female voice L1-L2
Control: Act-Act / Pass-Pass L1-L1 / L2-L2

Attend to M / F voice

Based on Filippi et al. 2012, 2014
Inhibition: Auditory Inhibition

Results

![Graph showing RT in milliseconds for different subjects.](image_url)
Inhibition: Auditory Inhibition

Results

![Bar graph showing proportion of correct responses for different subjects. The y-axis represents the proportion of correct responses ranging from 0.0 to 1.0, and the x-axis represents subjects numbered 116 to 146. The graph shows an increasing trend in proportion of correct responses as the subject number increases.]
Results and discussion

What did we find?

L3 Phonology 
/iː/-/ɪ/; /æ/-/ʌ/
VOT

Perception
- ABX discrimination
- Lexical Decision

Production
- VOT in picture naming

Attention
Domain-general
- Flanker

Linguistic
- Auditory stroop

Inhibition
Domain-general
- Simon

Linguistic
- Retrieval-ind. forgetting
- Auditory inhibition

Mora & Darcy (in prep.)
Results and discussion

Results revealed an interplay between inhibition and phonological measures in processing speed (not accuracy):

\[
\begin{align*}
\text{ABX RTs} & \leftrightarrow \text{Auditory Stroop} \quad r=0.389, p=0.045 \\
& \leftrightarrow \text{Auditory Inhibition} \quad r=0.499, p=0.018
\end{align*}
\]

Stronger inhibitors were faster at discriminating the target vowels in the ABX test condition.
Results and discussion

Results show that inhibition and dominance have an effect on phonetic CLI in language switching tasks:

Inhibition

Auditory Inhibition $\leftrightarrow$ VOT at En Switch $r=.398$, $p=.060$

$\leftrightarrow$ VOT at Cat Switch $r=.516$, $p=.012$

Auditory stroop $\leftrightarrow$ VOT En Switch cost $r=.417$, $p=.027$

The slower participants were at inhibiting their L1 (poorer inhibitory control) in the auditory language inhibition task (perception switching), the longer (i.e. the more English-like) their VOT was on English and Spanish trials after a switch in the Picture Naming Task.
Results and discussion

Results show that inhibition and dominance have an effect on phonetic L1>L2 CLI in language switching tasks:

Dominance

% Cat use ⇔ VOT at Cat Switch \( r = -0.452, p = 0.035 \)

⇔ VOT En Switch cost \( r = 0.385, p = 0.077 \)

The more dominant participants were in Catalan...
- the more Catalan-like (shorter) their VOT was in Cat at switch trials (i.e. Less CLI from English)
- the larger the L1>L2 CLI on English VOT at switch

The magnitude of phonetic L1>L2 CLI was smaller the more dominant participants were in Catalan.
Potential of language switching tasks as testing ground for L3 (phonetic) CLI patterns, as regards:

- the role of dominance
- the role of IDs in inhibition on CLI
- maybe also for hypotheses from L3 acquisition models
Dziękuję!

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