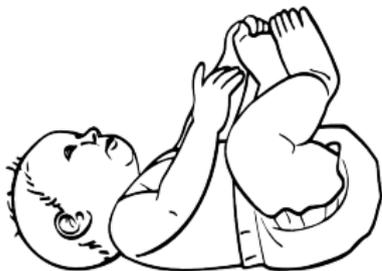


The Impact of Lexical Co-activation through Cognates on L2 Rule Learning

Kepa Erdozia & Noèlia Sanahauja



Summary



Language Acquisition (L1) vs. Language Learning (L2)

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Language Acquisition (L1) vs. Language Learning (L2)

RQ: **How could second language learning be eased?**

Hyp: **Cross-linguistic activation of the lexicon of the L1 facilitates the learning of an L2 grammatical rule.**

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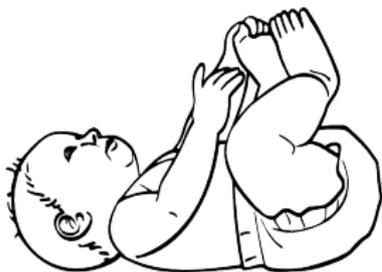
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Cognate (Spanish-Basque) - Non-cognate (only Basque)

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Expe: Two groups of Spanish native speakers learning two artificial minilanguages based on Basque. Same grammatical rule for both languages and different vocabulary:

Cognate (Spanish-Basque) - Non-cognate (only Basque)

Results: Accuracy and Reaction Times showed that rule **learning was greater using cognates than using non-cognates.**

Cognate Facilitation Effect

Cognates are words which share both form and meaning across two or more languages:



Guitar (En) - Guitarra (Sp) - Kitarra (Bq)

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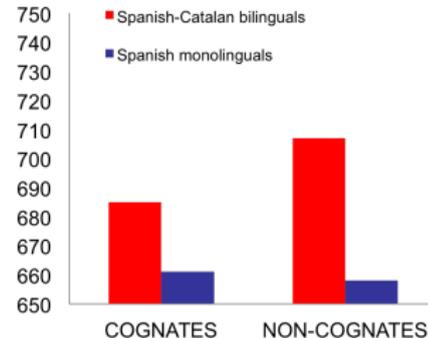
Cognate Facilitation Effect (Dijkstra et al., 1999): Cognates are processed faster and more accurately than non-cognates.



Cognate:
Lion = León (Sp)



Non-Cognate:
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Costa, Caramazza, Sebastián-Gallés, 2000

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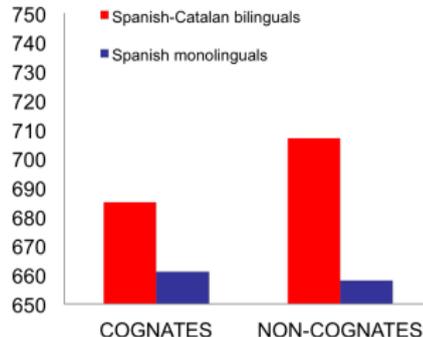
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Cog. Fac. Eff. observed in sentence context (van Hell & de Groot, 2008)

Less tip-of-the-tongue states (Gollan & Acenas, 2004)

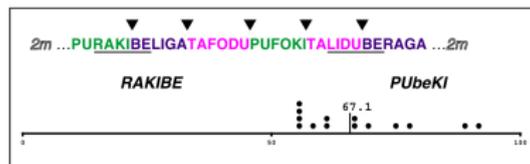
Faster to learn and harder to forget (de Groot & Keijer, 2000)

More sensitive to cross-linguistic priming (de Groot & Nas, 1991)

More resistant in patients with aphasia (Costa et al., 2012)

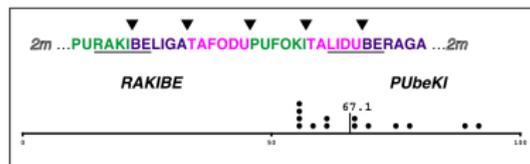
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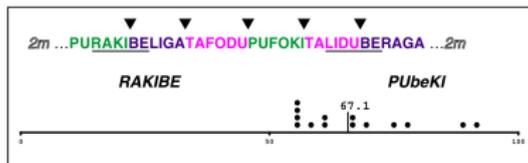


Japlish, English words and Japanese word order (Williams & Kuribara, 2008)

Scrambled constructions

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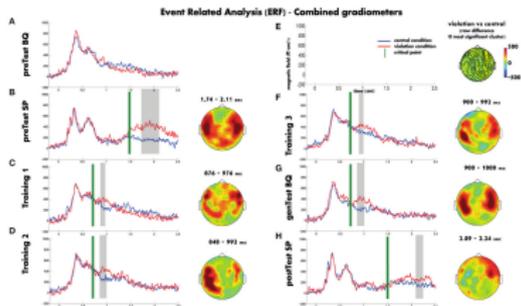
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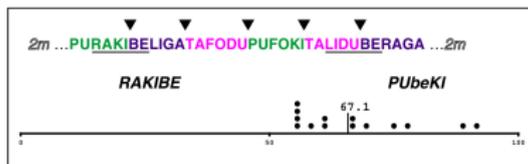
Hiru dado berdeak vs. **Los** tres dados berdes
The three green dices.

(Bastarrika & Davidson, 2017)



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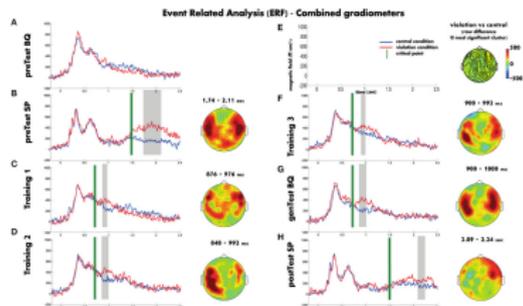
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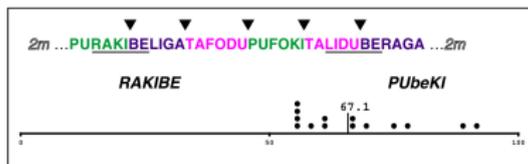


Cognates have an impact in syntactic processing (Hopp, 2017)

German V2 in English reduced relatives.

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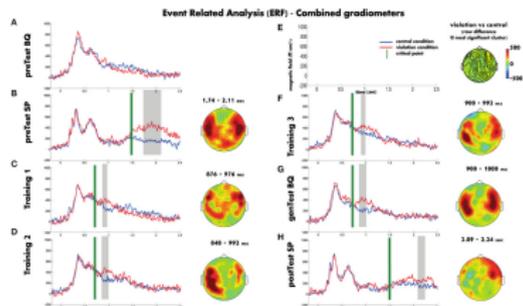
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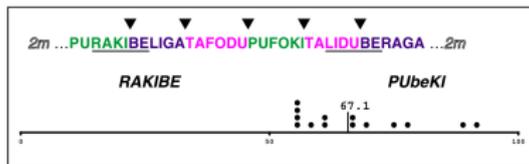


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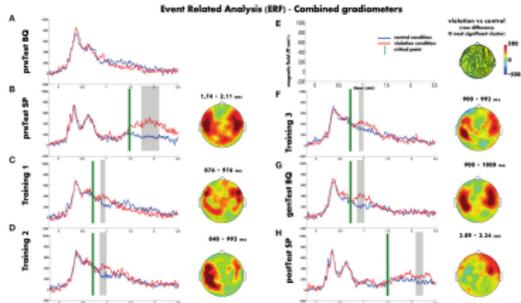
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Cognates have an impact in syntactic processing (Hopp, 2017)

German V2 in English reduced relatives.

However, any study has not investigate the facilitatory power of known vocabulary as compared to an unknown vocabulary in L2 rule learning.

EXPERIMENT

2 LANGUAGES

Two artificial languages have been created based on [Euskera](#). Both languages have a **reduced vocabulary** and a **grammatical rule** based on Basque language. The difference between the two being the cognate (Spanish-Basque) or non-cognate status of their lexical items.

- ▶ **Vocabularies**

1. 30 Cognate words (Spanish-Basque)
2. 30 Non-Cognate words (only Basque)

- ▶ **Grammatical Rule:**

- ▶ Subjects must take *-ak* and objects *-a*. S and O can appear at first or second position.

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4 PHASES

1. Pre-test (only Basque Vocabulary)
2. Vocabulary Learning Phase (Cognate and Non-Cognate)
3. Test (Cognate and Non-Cognate)
4. Post-test (New Cognate Vocabulary)

MATERIALS: VOCABULARIES

30 cognate and 30 non-cognate words: 20 nouns and 10 verbs

Vocabularies

BASQUE	COGANTE	SPANISH	ENGLISH
idazkari	sekretari	secretaria	<i>secretary</i>
gidari	pilotu	piloto	<i>pilot</i>
gozogile	pastelero	pastelero	<i>pastry chef</i>
suhiltzaile	bonbero	bombero	<i>firefighter</i>
erizain	enfermera	enfermera	<i>nurse</i>
sorosle	sokorrista	socorrista	<i>lifeguard</i>
zelatatu	espiatu	espiar	<i>to spy</i>
margotu	pintatu	pintar	<i>to paint</i>
gainditu	superatu	superar	<i>to overtake</i>
...

Length of words was controlled for both vocabularies ($p > .05$).

Levenshtein phonological distance was almost inexistent (nouns=.35; verbs=.1).

30 extra cognate words (20 nouns and 10 verbs) were used in the Post-test.

Levenshtein phonological distance was almost inexistent: nouns=.6; verbs=.0

MATERIALS: CONDITIONS

Cognate Conditions (COG group)

SOV	Aktoreak	medikua	pintatu du.
	<i>The actor</i>	<i>the doctor</i>	<i>has painted</i>
OSV	Medikua	aktoreak	pintatu du
	<i>The doctor</i>	<i>the actor</i>	<i>has painted</i>
	'The actor has painted the doctor'		

MATERIALS: CONDITIONS

Cognate Conditions (COG group)

SOV **Aktoreak** **medikua** pintatu du.
The actor the doctor has painted

OSV **Medikua** **aktoreak** pintatu du
The doctor the actor has painted

'The actor has painted the doctor'

Non-Cognate Conditions (NCOG group)

SOV **Antzezleak** **sendagilea** margotu du.
The actor the doctor has painted

OSV **Sendagilea** **antzezleak** margotu du.
The doctor the actor has painted

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PROCEDURE I: PRE-TESTING PHASE

Aim: To ensure that participants do not know Basque.

Task: Listen experimental material and choice the correct.

Materials: 16 sentences (8 SOV and 8 OSV)

Similar for all participants.

Prediction: Chance (\approx %50).



AUDIO: Erizaina esatariak elkarrizketatu du.

PROCEDURE II: LEXICAL LEARNING PHASE

Aim: To learn the vocabulary.

Materials: Lexical items presented one by one.

Task: Explicit learning.

Participants divided in groups.



COG AUDIO: Aktore

NCOG AUDIO: Antzezle

PROCEDURE II: LEXICAL LEARNING PHASE

Aim: To learn the vocabulary.

Materials: Lexical items presented one by one.

Task: Explicit learning.

Participants divided in groups.

Aim: Measure the learning.

Materials: 30 pairs of items.

Task: Picture matching.

Learning: Reach %80 of correct answers.



COG AUDIO: Aktore

NCOG AUDIO: Antzezle



COG AUDIO: Aktore

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PROCEDURE III: TESTING PHASE

Aim: To measure the effect of L1 vocabulary activation while using L2 rule.

Materials: 40 sentences (20 SOV and 20 OSV).

Task: Listen experimental material and choice the correct.

Participants divided in groups.

Prediction: COG group < NCOG group.



COG AUDIO: Aktoreak medikua pintatu du.

NCOG AUDIO: Antzezleak sendagilea margotu du.

PROCEDURE IV: POST-TESTING PHASE

Aim: To measure the effect of L1 vocabulary activation while using L2 rule.

Materials: 20 sentences (10 SOV and 10 OSV)

Task: Listen experimental material and choice the correct.

Similar for all participants.

NEW Cognate words.

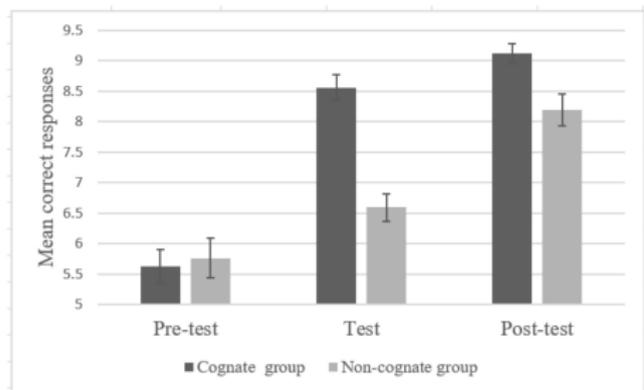
Prediction: COG group = NCOG group.



AUDIO: Pirata dentistak atropeilatu du.

Results

ACCURACY



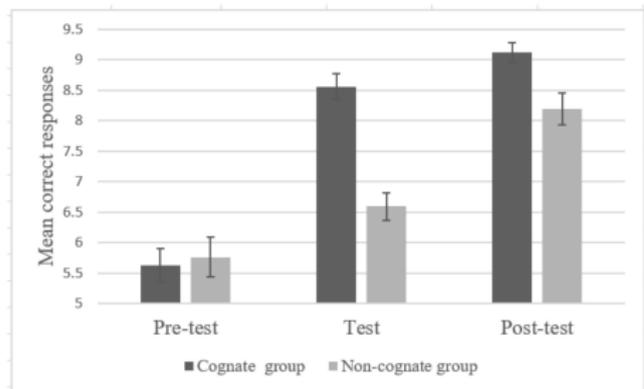
PRE-TEST: by chance.

TEST: COG > NCOG

POST-TEST: COG > NCOG

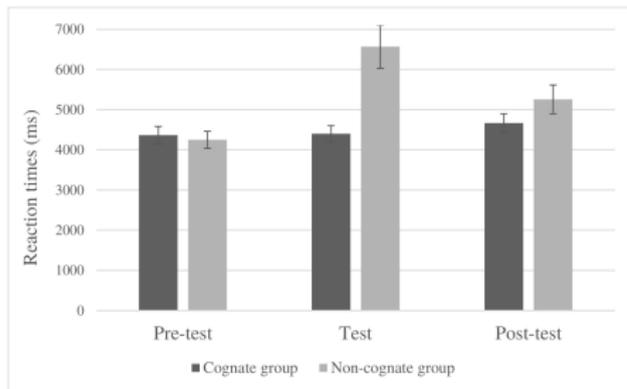
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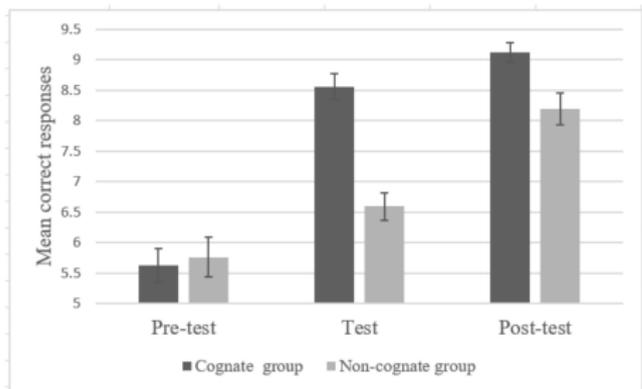
REACTION TIMES



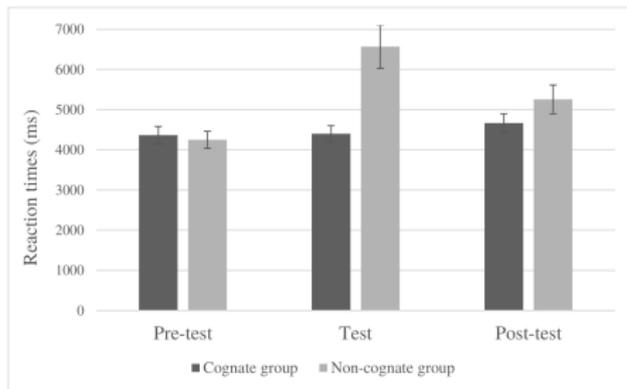
PRE-TEST: Same reaction times.
TEST: COG < NCOG
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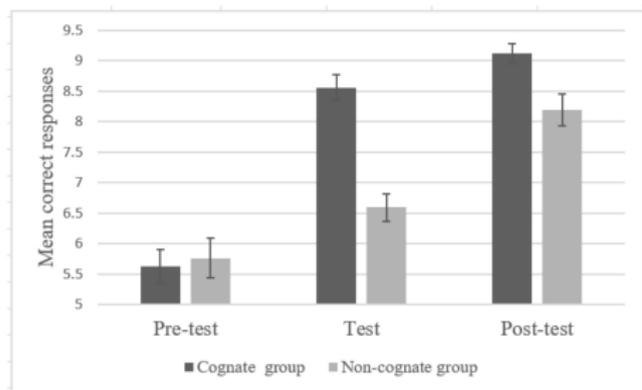
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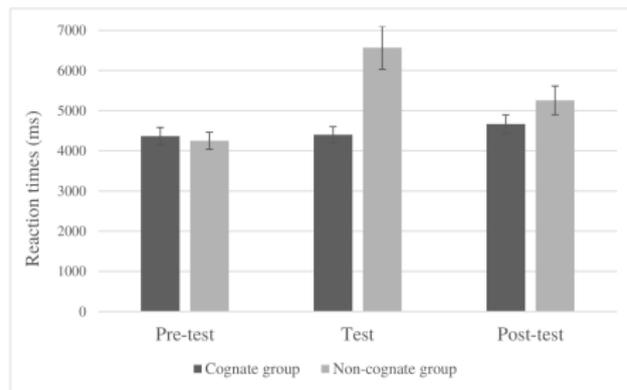
Overall, COG group performed better across sessions.

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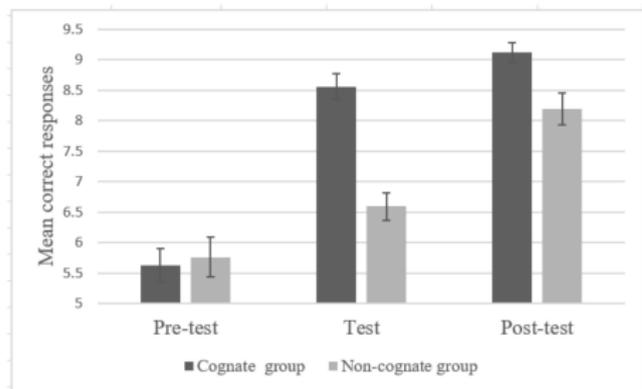
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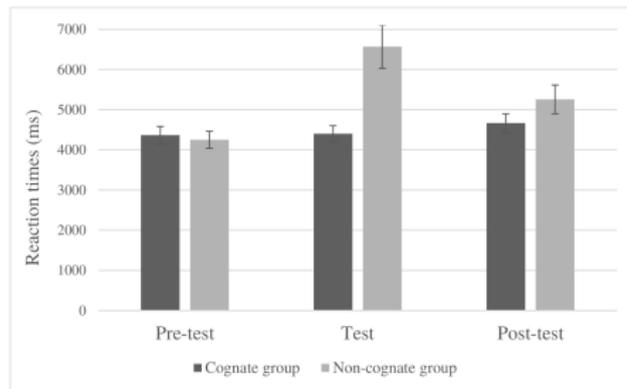
Pre-test to test: Accuracy increased more for COG than for NCOG.

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Pre-test to test: Accuracy increased more for COG than for NCOG.

Test to post-test: Accuracy increased more for NCOG than for COG.

DISCUSSION

Cognate Processing

Lexical retrieval: The differences observed in the performance of both groups can only be attributed to the lexical retrieval of the vocabulary items.

Cognate Facilitation Effect: cognates are processed more easily than non-cognates.

Cross-linguistic activation in the COG group but not in the NCOG group.

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Explicit Learning. 1h experiment

Implicit vocabulary learning, effective for intermediate and advanced learners.

Explicit vocabulary learning: benefits for low-proficient L2 learners.

No-Cognate learners do not grasp a long-lasting knowledge of the lexical items.

Cognate learners do not have to memorize the words, overlapping with Spanish.

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Rule Learning Through Cognates

Cross-linguistic activation of the L1 (Spanish) through cognates unburdened lexical access to the vocabulary items of the L2 (mini-Basque). COG participants devoted fewer resources to lexical retrieval than NCOG participants. The resources saved up could be destined to learning the rule of the language.

By contrast, NCOG learners could not employ as many resources to learn the grammatical rule, most of those resources being destined to lexical retrieval.

This explains why non-cognate learners' performance was slower and less accurate or, in other words, why they had more difficulty learning the rule of the artificial language.

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This study showed the learning of a grammatical rule is eased by cognates.



THANK YOU

Questions and Comments



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Gogo Elebiduna