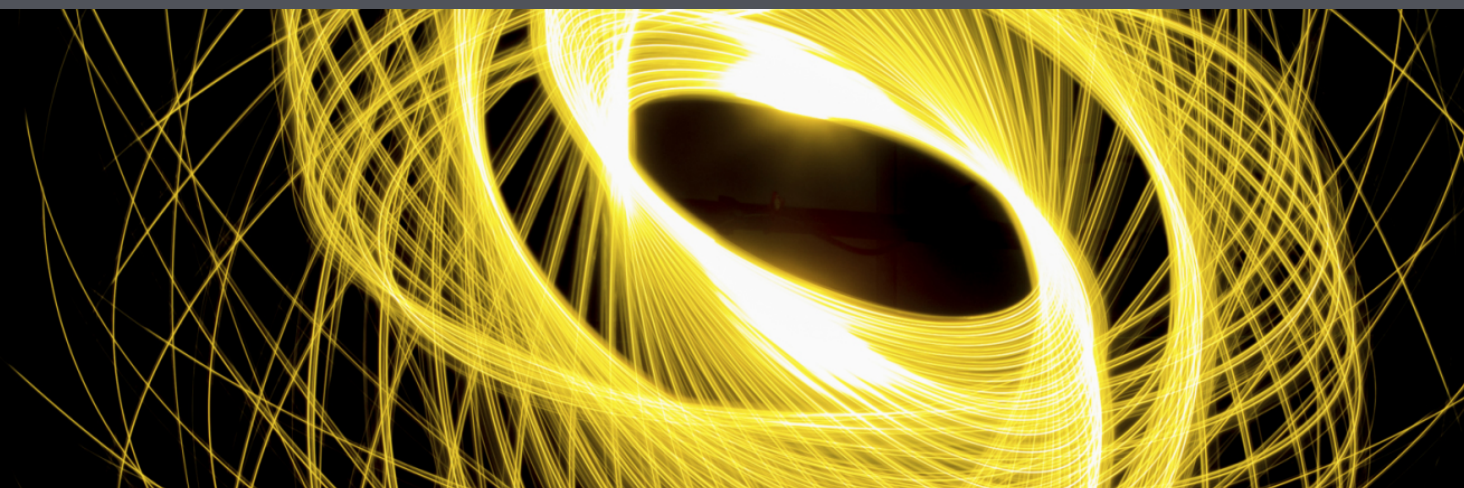


# LANGUAGE DOMINANCE AFFECTS HERITAGE SPEAKER COMPETENCE AND PROCESSING



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# A WORKING DEFINITION

..... the *heritage language* is acquired on the basis of an interaction with **naturalistic input** and whatever in-born linguistic mechanisms are at play in any instance of [**early**] **child language acquisition**. Differently [from monolingual acquisition], there is the possibility that quantitative and qualitative differences in *heritage language* input, influence of the societal majority language and differences in literacy and formal education can result in what on the surface seems to be arrested development of the *heritage language* or attrition in adult bilingual knowledge.

(Rothman, 2009:156)

## TYPICAL HSs....

- minimally understand and speak (on a continuum) their heritage language in adulthood
- are dominant in the other, majority environmental language
- display interesting, if not perplexing differences from monolinguals (on a continuum)

(e.g., Polinsky and Kagan, 2007; Montrul 2008, 2016; Rothman, 2009)

## HL IS (TYPICALLY) DIFFERENT FROM L1

	HL	L1
Abundant continuous input across the lifespan	✗	✓
High prestige of (both) language(s)	✗	✓
Formal education in the (both) language(s) from an early age	✗	✓
Apparent baseline differences in grammatical knowledge	✗	✓
The majority language is unaffected	✓/?	N/A

But its not always so typical....

# BUT WHAT HAPPENS WHEN TYPICAL VARIABLES MIGHT NOT APPLY?

	HL	L1
Abundant continuous input across the lifespan	✓	✓
High prestige of (both) language(s)	✓	✓
Formal education in the (both) language(s) from an early age	✓	✓
Apparent baseline differences in grammatical knowledge	?	✓
The majority language is unaffected	?	N/A

# SPANISH HS IN CATALONIA

- **Crucial difference:** Bilingualism is the default, not the exception
- Language at a national level= Spanish
- Language of the immediate context = Catalan
  - Osona (Catalan dominant area)
- Daily use:
  - Catalan is the preferred language spoken in the streets, but Spanish is of course available (media, shops, etc.)
- Education: Linguistic Immersion in the Schooling system (1983)
  - 3 to 6 hours of Spanish a week (Spanish language and literature)
  - Everything else in Catalan
- Everyone is proficient in both languages, but is dominant in one of the two.

# The Study



# RATIONALE OF THE STUDY

To investigate the extent to which language dominance affects the grammatical outcome of two types of early bilinguals in adulthood in an atypical heritage language and child L2 context:

- Heritage Speakers of Spanish (Spanish dominant) and early L2 learners of Spanish (Catalan dominant) in Catalonia

The “special context” allows us to:

Explore an under-studied (and interesting) scenario of HS competence, where dominance does not necessarily default to the larger majority language.

Avoid a potential comparative fallacy (e.g., Bley-Vroman, 1984; Hopp and Schmid, 2013).

# LINGUISTIC ANALYSIS (NCI+SNM)

Both Spanish and Catalan are Negative Concord languages

- Catalan is an in-between strict and non-strict NC language (current debate)
- Spanish is a non-strict NC language

## Catalan

La Maria no vol res  
\*La Maria vol res  
'Maria does not want anything'

Ningú vol això  
**Ningú no vol això**  
'Nobody wants this'

## Spanish

María no quiere nada  
\*María quiere nada  
'Maria does not want anything'

Nadie quiere esto  
**\*Nadie no quiere esto**  
'Nobody doesn't want this'

(Haegeman & Zanuttini, 1991; Laka, 1990; Suñer, 1995; Tubau, 2008; Zanuttini, 1991; Zeijlstra, 2004) though for this study we follow Zeijlstra, 2004 and Espinal & Tubau 2014, 2016).

# LINGUISTIC ANALYSIS (DOM)

Standard Catalan and Central Catalan do not allow for DOM.

Spanish is a language that uses DOM.

## Catalan

\*La Maria busca a la Sandra  
La Maria busca la Sandara  
'Maria is looking for Sandra'

## Spanish

María busca a Sandra  
\*María busca Sandra  
'Maria is looking for Sandra'

- In Standard and Central Catalan, the object is left unmarked.
- Escandell-Vidall (2009) points out that there are certain dialects that require DOM in Catalan (e.g. Balearic Catalan)
- In Spanish the Object is marked when it is [+animate, + specific]
  - Leonetti (2004), Zagona (2012), etc

# SUMMARY OF THE PROPERTIES

**Table IX: Summary of the linguistic properties in the three languages**

	NCI+SN	NCI-SN	-DOM	+DOM
Catalan	YES	YES	YES	NO
Spanish	NO	YES	NO	YES

# STUDY: RESEARCH QUESTION

What is the relative role of LD in the end-state grammar of early bilinguals (child L2 and HSs) and related predictions of directionality for crosslinguistic effects under favorable environmental conditions such as those in Catalonia?

# STUDY: METHODOLOGY

## Participants

	Sp-L2	Sp-HS
N	20	23
Mean age	22	20
Mean proficiency Spanish	45/50	46/50
Mean proficiency Catalan	36/40	34/40



Figure A: Geographical place where data were collected

Table 1: Participants' information

# STUDY: METHODOLOGY

**Leap-Q Questionnaire**  
(Marian, et al. 2007)

**Catalan Proficiency test**  
Nivell D

**Spanish Proficiency test**  
DELE

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**Grammaticality  
judgment**  
(Catalan/Spanish)

**Self-paced Reading**  
(Catalan/Spanish)

# STUDY: METHODOLOGY

## Experimental tasks (1)

### Grammaticality Judgement Task

- In both languages
- 6-point Likert Scale + ‘I-do-not-know’ option
- 4 key conditions + 2 distractor conditions  
> 8 items per condition (total n=48)

	NCI+SN	NCI-SN	-DOM	+DOM	Dis1	Dis2
Catalan	YES	YES	YES	NO	YES	NO
Spanish	NO	YES	NO	YES	YES	NO

Table 2: Distribution of items in the GJTs



# STUDY: METHODOLOGY

## Experimental tasks (1)

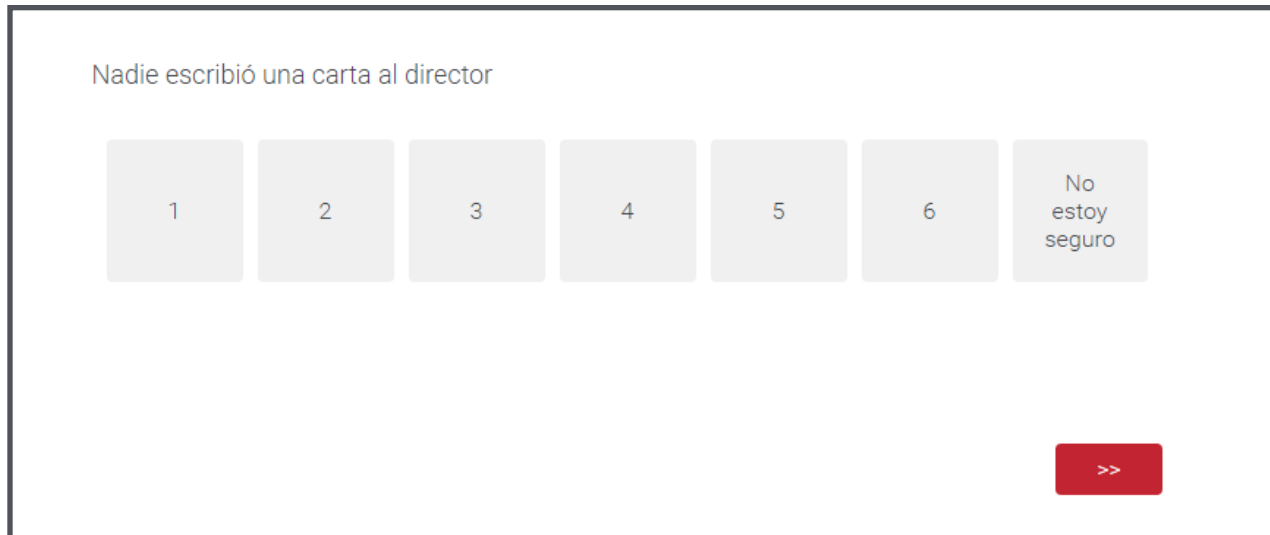


Figure B: Screenshot of an experimental item of the Spanish GJT

# STUDY: METHODOLOGY

## Experimental tasks (2)

### Self-Paced Reading Task

- In both languages
- 5-6 regions of interest (whether it is +/-DOM and +/-SNM)
- 4 key conditions + 2 distractor conditions
- 8 items per condition (total n=48)
- Content questions: 1/3 ratio

	NCI+SN	NCI-SN	-DOM	+DOM	Dis1	Dis2
Catalan	YES	YES	YES	NO	YES	NO
Spanish	NO	YES	NO	YES	YES	NO

Table 3: Distribution of items in the GJTs

# STUDY: METHODOLOGY

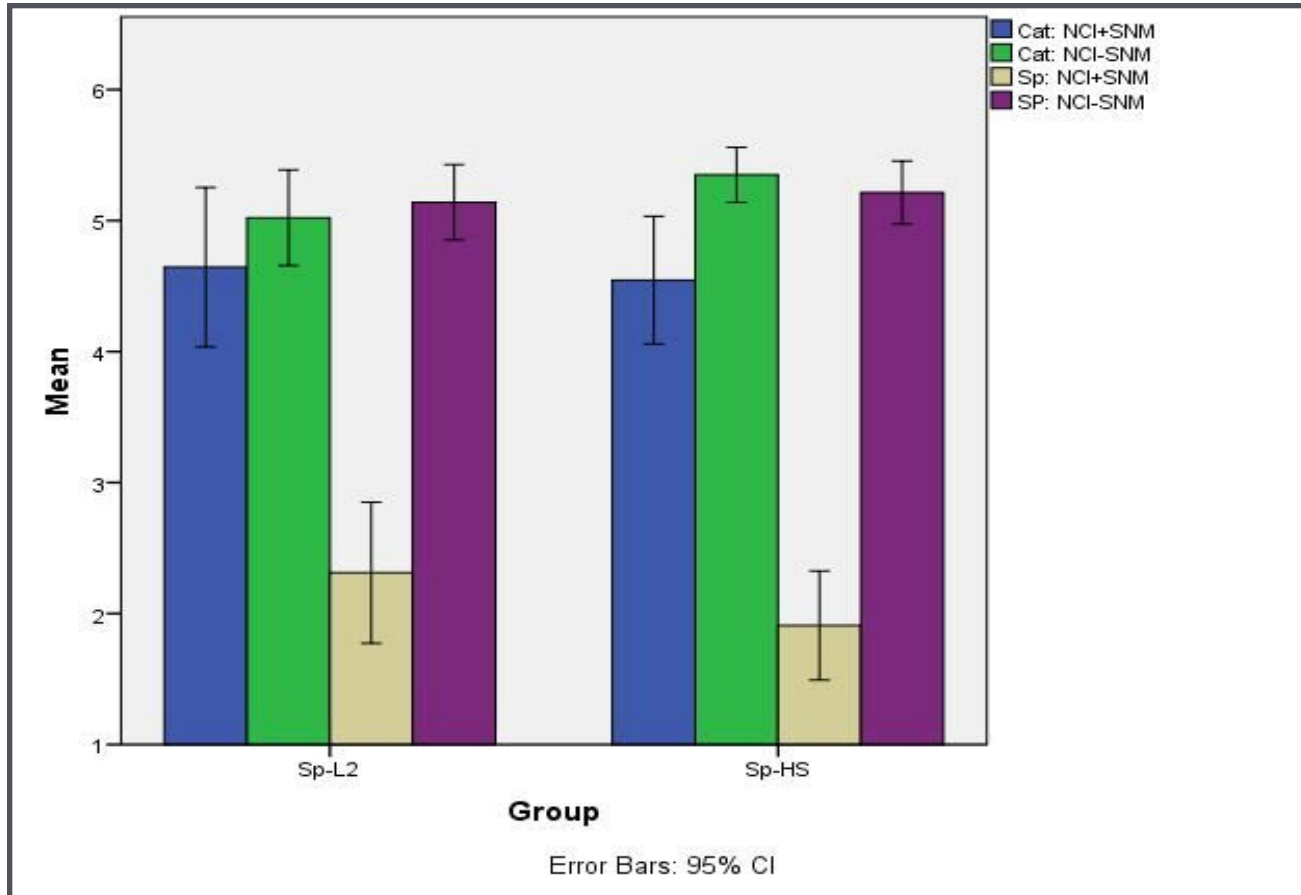
## Experimental tasks (2)



Figure C: Screenshot of an experimental item of the Catalan SPR

# STUDY: RESULTS

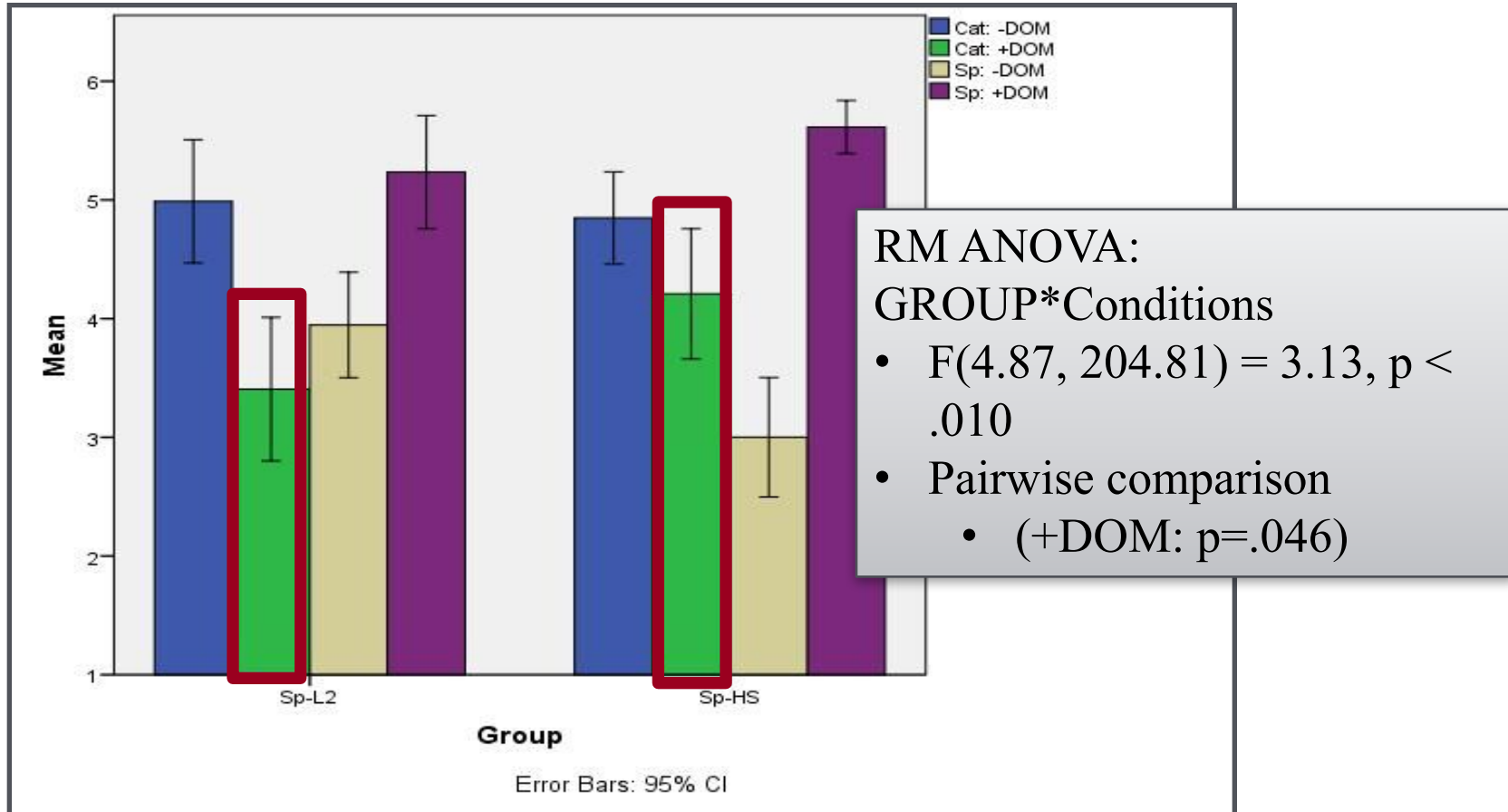
## Grammaticality Judgment Task



**Figure 1: Means of acceptability scores in the NCI conditions**

# STUDY: RESULTS

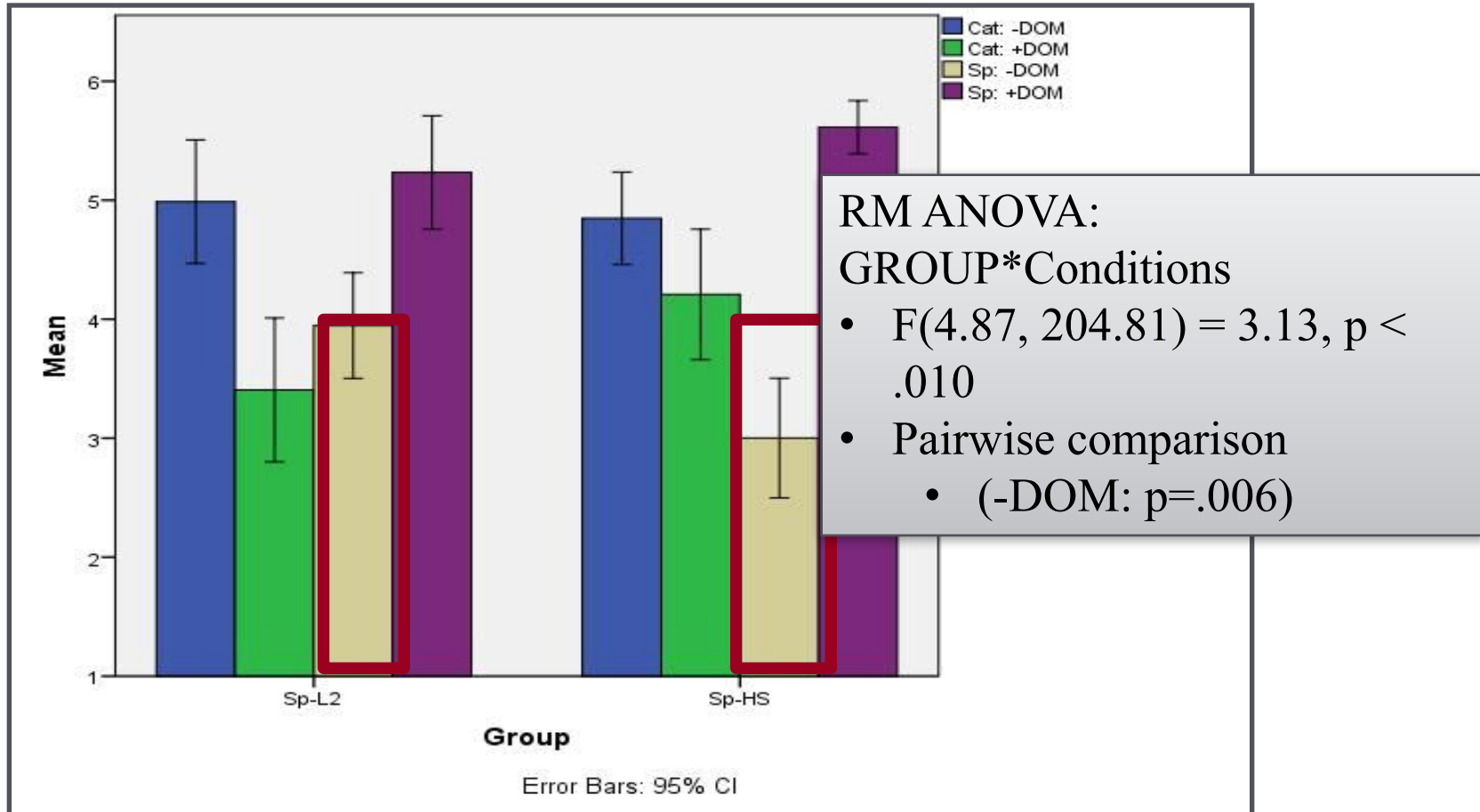
## Grammaticality Judgment Task



**Figure 2: Means of acceptability scores in the DOM conditions**

# STUDY: RESULTS

## Grammaticality Judgement Task



**Figure 4: Means of acceptability scores in the DOM conditions**

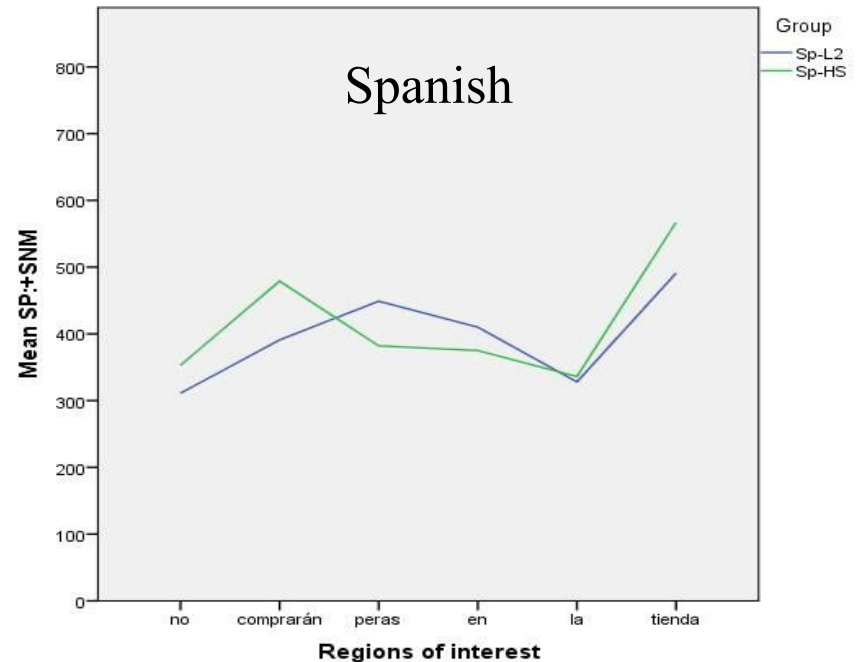
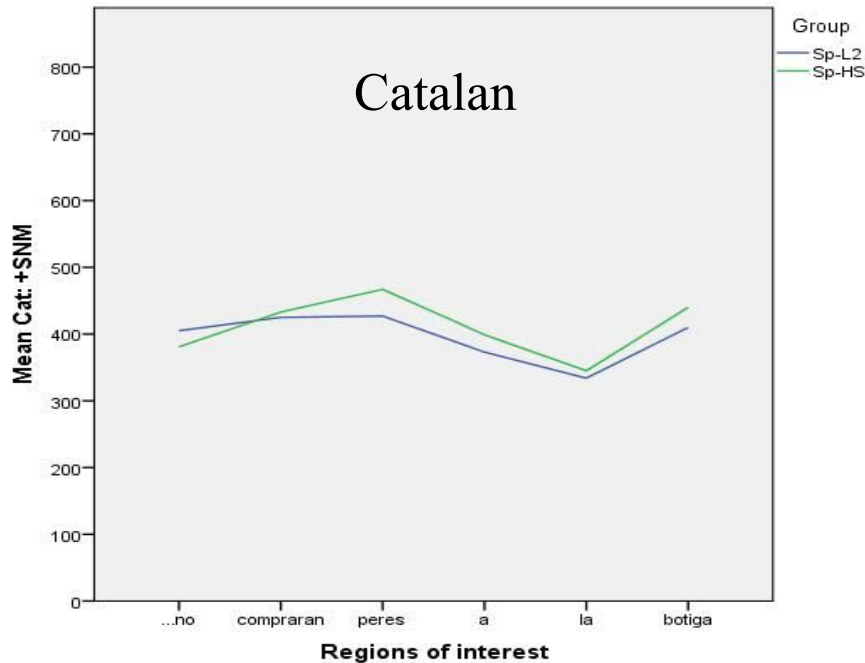
# STUDY: RESULTS

## Self-Paced Reading

RM ANOVA:

GROUP\*Regions

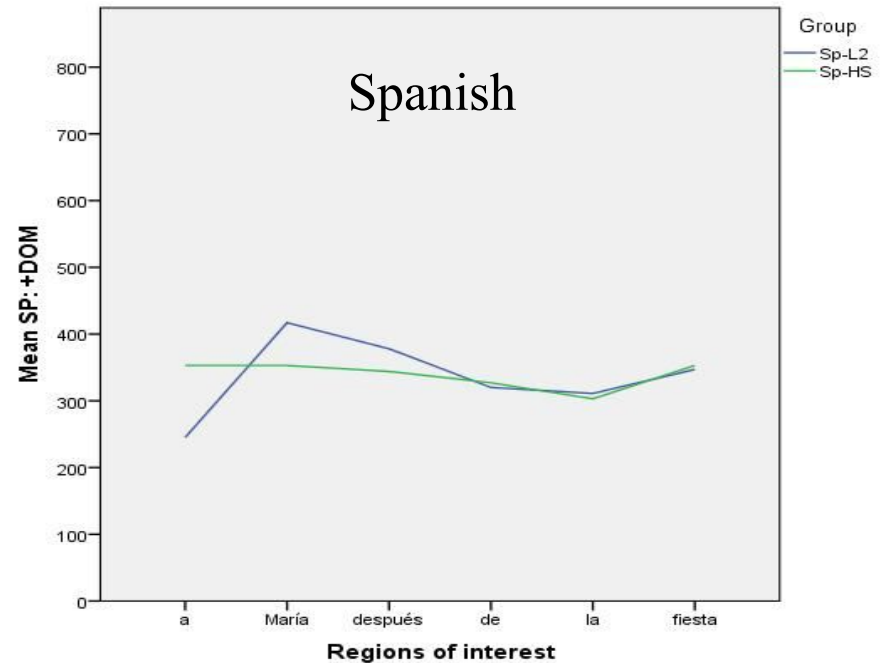
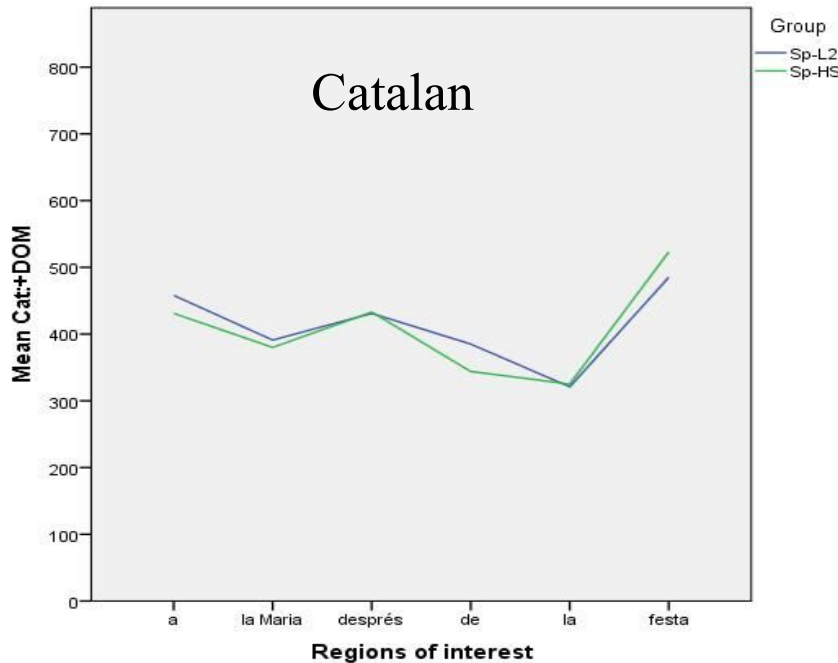
- $F(2.23, 94.02) = .873, p = .431$



Figures (5-6) Line graphs of RTs (ms) in the regions of interest in the NCI+SN condition

# STUDY: RESULTS

## Self-Paced Reading Tasks



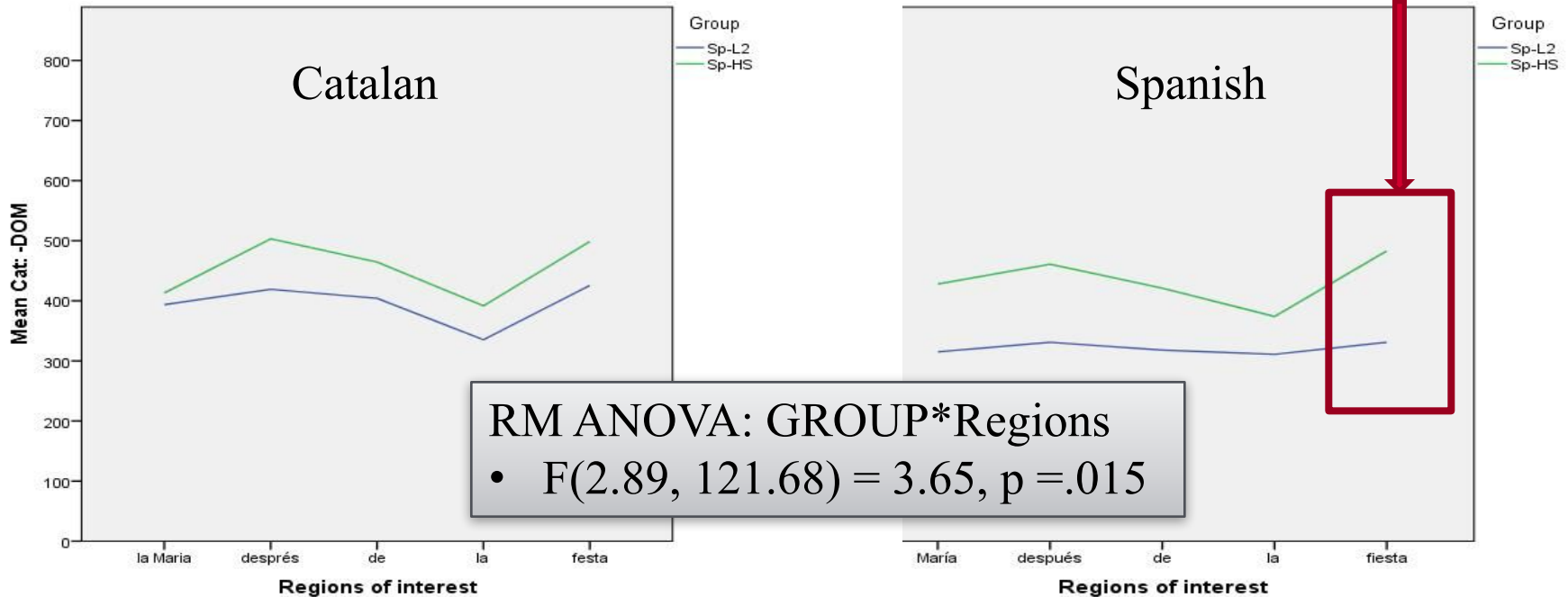
**Figures 7-8: Line graphs of RTs (ms) in the regions of interest in the +DOM condition**



# STUDY: RESULTS

## Self-Paced Reading Tasks

Post-hoc pairwise comparison:  
Spanish\_FR\_-DOM:  
 $p=.038$







Figures (9-10) Line graphs of RTs (ms) in the regions of interest in the -DOM condition

# STUDY: DISCUSSION

## 1. Back to our research question...

What is the relative role of LD in the end-state grammar of early bilinguals (child L2 and HSs) and related predictions of directionality for crosslinguistic effects under favorable environmental conditions such as those in Catalonia?

# STUDY: DISCUSSION (NCI)

	Spanish Dominant	Catalan Dominant
Spanish	NCI +/- SNM 	NCI +/- SNM 
Catalan	NCI +/- SNM 	NCI +/- SNM 

# STUDY: DISCUSSION (DOM)

**Spanish Dominant**

**Catalan Dominant**

<b>Spanish</b>	+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
	✓	✗	✓	✗
	+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
	✓	✓	✓	✗
<b>Catalan</b>	+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
	✗	✓	✗	✓
	+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
	✓	✓	✓	✓

# STUDY: DISCUSSION (DOM)

**Spanish Dominant**

**Catalan Dominant**

<b>Spanish</b>	+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
	✓	✗	✓	✗
	+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
	✓	✓	✓	✗
<b>Catalan</b>	+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
	✗	✓	✗	✓
	+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
	✓	✓	✓	✗

# STUDY: DISCUSSION (DOM)

**Spanish Dominant**

**Catalan Dominant**

**Spanish**

+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
✓	✗	✓	✗
+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
✓	✓	✓	✗
+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
✗	✓	✗	✓
+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
✓	✓	✓	✗

**Catalan**

# STUDY: DISCUSSION (DOM)

**Spanish Dominant**

**Catalan Dominant**

**Spanish**

+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
✓	✗	✓	✗
+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
✓	✓	✓	✗
+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
✗	✓	✗	✓
+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
✓	✓	✓	✗

**Catalan**

# STUDY: DISCUSSION (DOM)

**Spanish Dominant**

**Catalan Dominant**

**Spanish**

+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
✓	✗	✓	✗
+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
✓	✓	✓	✗

**Catalan**

+DOM (GJT)	-DOM (GJT)	+DOM (GJT)	-DOM (GJT)
✗	✓	✗	✓
+DOM (SPR)	-DOM (SPR)	+DOM (SPR)	-DOM (SPR)
✓	✓	✓	✗



# BUT WHAT HAPPENS WHEN TYPICAL VARIABLES MIGHT NOT APPLY?

	HL	L1
Abundant continuous input across the lifespan	✓	✓
High prestige of (both) language(s)	✓	✓
Formal education in the (both) language(s) from an early age	✓	✓
Apparent baseline differences in grammatical knowledge	✓/?	✓
The majority language is unaffected	✓/?	N/A

# CONCLUSION

- The results of our study supported the idea that LD plays a role in the end-state grammars (no surprise), but in an interesting way given our context
- The off-line results of the HSs show more divergence to the Spanish monolingual expectations than the on-line results (overall), which might indicate that behavioral measures alone are not telling us the whole story (cf. Villegas, 2014).
- But they also indicated in one condition a processing anomaly that does not correlate to the behavioral results, so in a way that suggests the processing is different when the behavior is perfectly expected. So, it can go both ways.
- This does not mean that behavioral tasks are not effective or revealing, minimally they indicate a problem of explanation. We simply suggest with Alvaro that more cross-modality studies should be done. methodology is CRUCIAL

# ACKNOWLEDGEMENTS

**Thank you!**

**¡Gracias!**

**Gràcies!**

**Tusen takk!**

**Ollu giitu!**

# WHY NO MONOLINGUAL CONTROL?

- (i) avoid comparative fallacy specially for bilinguals (Hopp & Schmid, 2013; Ortega, 2013; Rothman, 2008).
- That would be quite difficult for one of language (Catalan)
- Its really not the point. The goal is not to compare them to monolinguals because they aren't, but the comparison to each other by crucially testing each in both languages is what is interesting and revealing.
- Then the descriptions in the literature are used as a guide as opposed to the expected “gold stanard”.

# STUDY: RESULTS

## Grammaticality Judgement Task (Catalan and Spanish)

(NCI conditions)

	Catalan				Spanish			
	NCI+SNM		NCI-SNM		NCI+SNM		NCI-SNM	
	M	SD	M	SD	M	SD	M	SD
Sp-L2 (21)	4.64	1.33	5.02	0.80	2.31	1.18	5.14	0.63
Sp-HS (23)	4.54	1.13	5.34	0.48	1.90	0.96	5.21	0.55

# LINGUISTIC ANALYSIS (NCI+SNM)

**Table 1: Summary of the linguistic properties in the three languages**

	NC	NCI	SNM	PS operation
Spanish	Non-strict NC	$\exists$ [uNeg]	[iNEG]	Obliteration
Catalan	In-between	$\exists$ [uNeg]	[iNEG] [+ $\sigma$ ]	Obliteration -

# STUDY: METHODOLOGY

## Experimental tasks (2)

		Pre-R	CR	R1	R2	R3	FR
NCI'+SN	Ningú	no	comprarà	pomes	a	la	botiga
	Nadie	no	comprará	piña	en	la	tienda
NCI- SNM	Ningú		comprarà	pomes	a	la	botiga
	Nadie		comprará	piña	en	la	tienda
+DOM	...veuran	a	la	Maria	a	la	festa
	verán	a	María	en	la	fiesta	X
-DOM	...veuran		la	Maria	a	la	Festa
	verán		María	en	la	fiesta	X

Table X: Regions of interest of experimental items