

Delayed ambiguity resolution in L2

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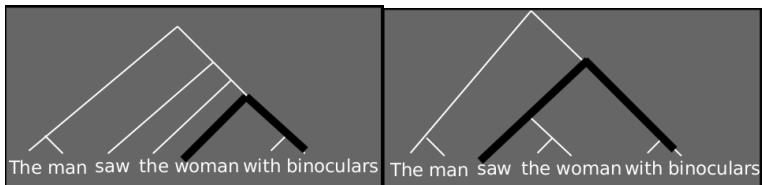


PROCESSING AMBIGUITIES

The man saw the woman with binoculars.

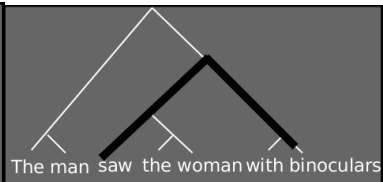
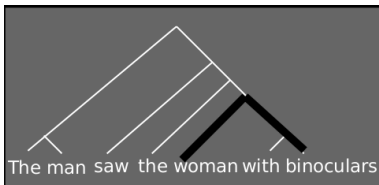
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RESOLVING AMBIGUITIES

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Subject-First strategy (Bever, 1970),

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Prominence Scales (Bornkessel & Schelewsky, 2006)

... allways favouring the simplest structure.

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Subject-*BEFORE*-Object

Object-*BEFORE*-Subject

Manipulations of Gender and/or Number can change interpretations towards non-preferred (default) RC structures.

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When ambiguity is solved towards a non-preferred structure, the incrementally built structure has to be reanalysed.

PROCESSING STRUCTURAL DISSIMILARITIES IN L2

L2 speakers never achieve Native-like processing.

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BASQUE

Canonical SOV (OV)

ERGATIVE-ABSOLUTIVE

Neskak (A) **mutila** (P) ikusi du.

Mutla (S) etorri da.

SPANISH

Canonical SVO (VO)

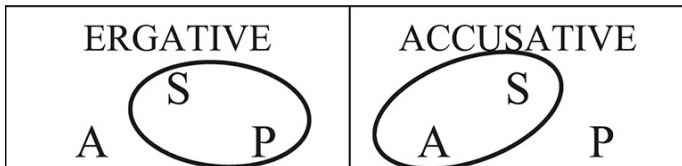
NOMINATIVE-ACCUSATIVE

La chica (A) ha visto **al chico** (P).

La chica (S) ha venido.

The girl (A) has seen *the boy* (P).

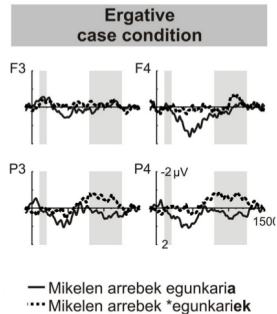
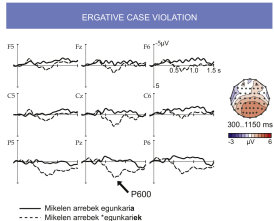
The girl (S) has arrived.



PROCESSING DISSIMILARITIES IN BASQUE

ERGATIVE PROCESSING Diaz et al., 2011, 2016

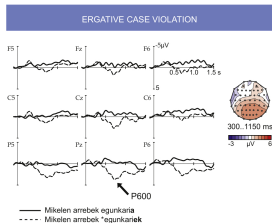
Non-natives: no-P600



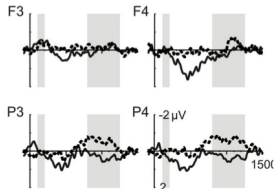
PROCESSING DISSIMILARITIES IN BASQUE

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Ergative case condition

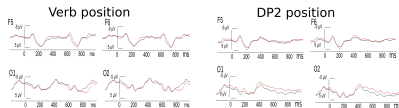


VO-OV PROCESSING Erdocia & Laka, 2018

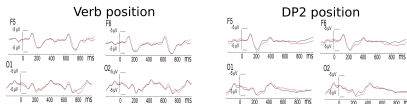
Natives: Negativity

Non-Natives: Positivity

Native speakers



Non-native speakers



PROCESSING AMBIGUITIES IN BASQUE

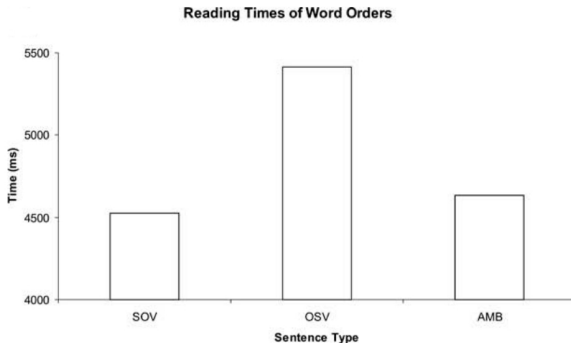
-AK is homophonous for singular ergative and plural absolutive.

AMB	Gizonak emakumeak ikusi ditu.	Man (?) woman (?) has seen.
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PROCESSING AMBIGUITIES IN BASQUE

-AK is homophonous for singular ergative and plural absolutive.

AMB	Gizonak emakumeak ikusi ditu.	Man (?) woman (?) has seen.
SOV	Gizonek emakumeak ikusi dituzte.	The men the women have seen.
OSV	Gizonak emakumeek ikusi dituzte.	The women the men have seen.



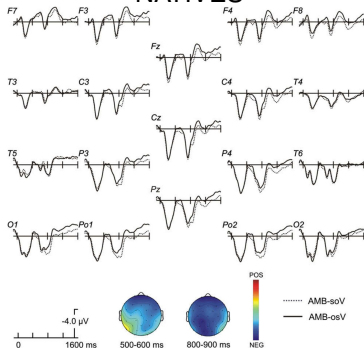
RESOLVING AMBIGUITIES IN BASQUE

SOV	OSV
Otsoak ardiak jan ditu The wolf the sheep(pl.) has eaten	Ardiak otsoak jan ditu The sheep(pl.) the wolf has eaten

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<p>Otsoak ardiak jan ditu</p> <p>The wolf the sheep(pl.) has eaten</p>	<p>Ardiak otsoak jan ditu</p> <p>The sheep(pl.) the wolf has eaten</p>

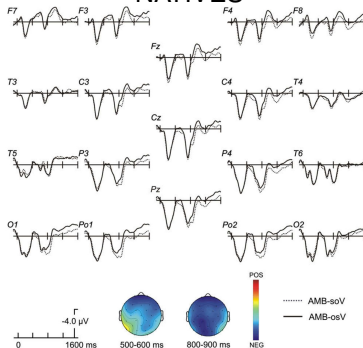
NATIVES



RESOLVING AMBIGUITIES IN BASQUE

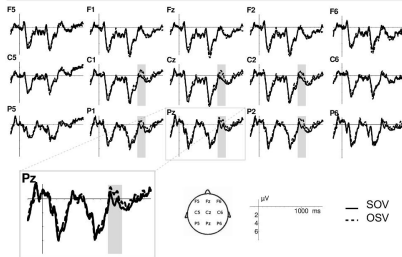
SOV	OSV
Otsoak ardiak jan ditu The wolf the sheep(pl.) has eaten	Ardiak otsoak jan ditu The sheep(pl.) the wolf has eaten

NATIVES



NON-NATIVES

AMBIGUOUS SENTENCES (VERB + AUX)



EXPERIMENT

Basque speakers interpret ambiguous sentences like canonical ones.

But, is that biased by a singular preference?

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- ▶ to disentangle the singular-plural ambiguity for the first argument.
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Plural demonstratives are syncretic for **Ergatives** and **Absolutives** in Basque.

Plural Demonstratives

HAUEK → those

HORIEK → those/these

HAIEK → these

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HAUEK → those

HORIEK → those/these

HAIEK → these

(1) **Neska hauek Mikel** ikusi dute.

'These girls have seen Mikel'

(2) **Neska hauek Mikelek** ikusi ditu.

'Mikel has seen these girls'

EXPERIMENT: Materials

2 Conditions. 32 sentences per condition.



SOV

Otso

Wolf

hauek

these

ardi

sheep

haiek

those

jan

eaten

dituzte

have

EXPERIMENT: Materials

2 Conditions. 32 sentences per condition.



SOV	Otso	hauek	ardi	haiek	jan	dituzte
	<i>Wolf</i>	<i>these</i>	<i>sheep</i>	<i>those</i>	<i>eaten</i>	<i>have</i>
OSV	Ardi	hauek	otso	haiek	<u>jan</u>	dituzte
	<i>Sheep</i>	<i>these</i>	<i>wolf</i>	<i>those</i>	<i>eaten</i>	<i>have</i>
	'These wolves have eaten those sheep'					

EXPERIMENT: Methods

Participants

19 Basque native speakers (6 males, age = $19,6 \pm 2,7$)

19 Non-native speakers highly proficient in Basque (4 males, age = $19,5 \pm 2,7$; AoA ≈ 3).

Procedure

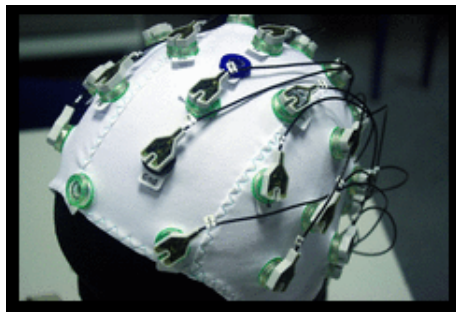
ACTICAP: 32 electrodes

64 experimental sentences + 416 fillers

Visually presented word by word.

RSVP: 350ms. + 250ms. ISI.

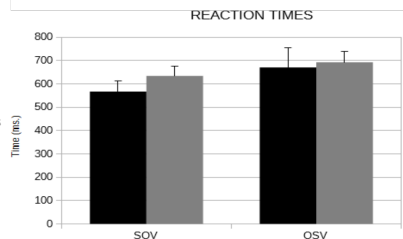
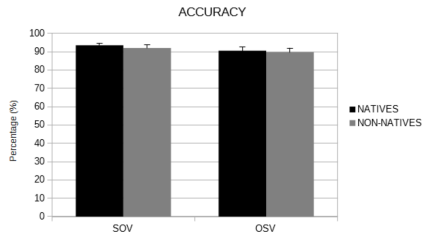
Duration: 1h 15m



Task

Acceptability Judgements

RESULTS: Behavioural



	SOV-accuracy	SOV-accuracy	SOV-time	OSV-time
NATIVES	93.6% (±1.1)	90.6% (±1.8)	567.4 (±46.6)	670.9 (±84.4)
NON-NATIVES	92.1% (±1.5)	89.8% (±2.2)	634.9 (±40.9)	693.1 (±44.7)

Accuracy: Both groups performed equally well on both experimental conditions.

Reaction Time: Both groups performed faster the task for canonical sentences than for non-canonical ones.

RESULTS: ERPs

VERB POSITION

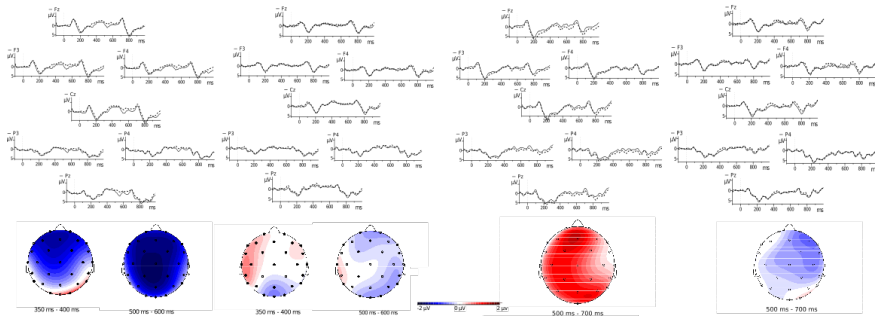
AUXILIARY POSITION

NATIVES

NON-NATIVES

NATIVES

NON-NATIVES



NATIVES

VERB: Neg. 350-400 ms
Neg. 500-700 ms

AUXILIARY: NS

NON-NATIVES

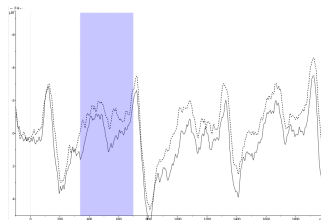
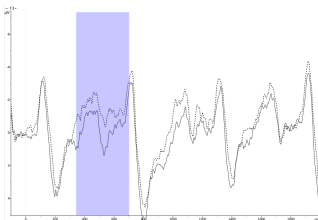
VERB: NS

AUXILIARY: Neg. 400-450 ms
Neg. 500-700 ms

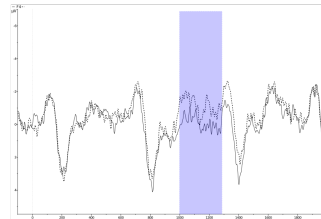
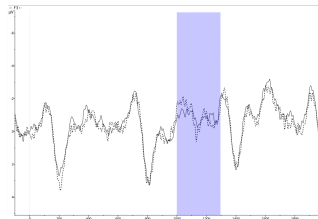
RESULTS: ERPs

Natives

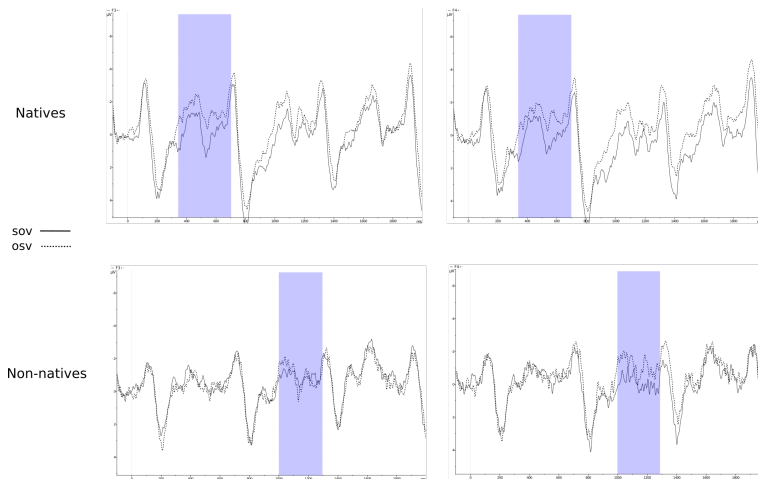
SOV —
OSV ·····



Non-natives



RESULTS: ERPs



GROUP COMPARISON:

VERB: 350-400 (ORDERxAPxGROUP, $F(2,72)=4.185$; $P(HF)=0.040$)

700-800 (ORDERxHxGROUP, $F(1,36)=4.199$; $P(HF)=0.048$)

AUXILIARY: 800-850 (Midline, ORDERxGROUP, $F(1,36)=6.001$; $P(HF)=0.019$)

CONCLUSIONS

Non-native bilinguals of Basque who acquired the L2 early ($\approx 3y.o.$) and whose proficiency is high **do not process** temporary ambiguous sentences disambiguated towards a non-preferred word order **as native speakers do**. This can be due to the typological differences between L1 (Sp.) and L2 (Bq.) regarding argument alignment (Case System) and word order (VO vs. OV).

The question whether natives and non-natives make use of the **same** or different **neural mechanisms** when reanalysing syntactically complex sentences remains unsolved. If our results are interpreted as a **delay** on disambiguation and reanalysis, we can conclude that non-native processing differs **quantitatively**, not qualitatively, from that of natives. Thus, world knowledge modulates the **syntactic processing** of non-natives who become more **native-like**. Further research on other types of language pairs is needed to support this conclusion.

Moltes Gràcies Eskerrik Asko



Gogo Elebiduna

