

The phonological properties of Catalan and Spanish (ir)reversible binomials. Evidence from real data corpora and judgment tests

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1. Introduction

- **Focus of this talk:** phonological properties of binomials in Spanish and Catalan
- **Binomials:** «the sequence of two words pertaining to the same form-class, placed on an identical level of syntactic hierarchy, and ordinarily connected by some kind of lexical link» (Malkiel 1959)
- **Some examples:** *fame or fortune, (without) rhyme or reason, trick or treat*, etc.

1. Introduction

- The **potential role of weight** in the order the binomial's constituents adopt has extensively been explored in English (Bolinger 1962, Cooper & Ross 1975, Pinker & Birdsong 1979, Benor & Levy 2006, Molin 2013, Ryan 2019), and also in French (Pinker & Birdsong 1979) or in German (Müller 1997).

1. Introduction

- **Weight “decides”** which order the components of the binomial adopt: the component that contains heavier elements tends to occur in second position (see, esp., Ryan 2019)

A. + WEIGHT	B. -WEIGHT
larger number of syllables	Fewer number of syllables
vowels with higher sonority	vowels with lower sonority
longer vowels	shorter vowels
presence of margins (onset, coda)	absence of margins (onset, coda)
complex onsets	simplex onsets
complex codas	simplex codas
low-sonority onsets	high-sonority onsets
high-sonority codas	low-sonority codas

1. Introduction

- Binomials in Spanish
 - Perspective of lexicology and semantics (García-Page 1998, Almela 2006)
 - Perspective of translation (Andrades 2014, Rodríguez 2014)
- Binomials in Catalan
 - No studies

2. Purpose

- On the basis of the analysis of the *a) irreversible (frozen) binomials* collected in Espinal (2004, 2006) ($n=492$) and in Almela (2006) ($n=350$), this talk reviews the **main phonological properties** that characterize binomials in Catalan and Spanish, and tries to determine which factors are more decisive in the order they adopt.
- Espinal, M.T. (2004, 2006). *Diccionari de sinònims de frases fetes*. (<https://dsff.uab.cat/>)
- Almela, R. (2006). Binomios irreversibles del español. *Lingüística española actual*, 28.

2. Purpose

To present the results of a judgment test in which 33 speakers with Catalan as L1 had to pick between pairs of sentences containing the two possible combinations of the same binomial. The test included:

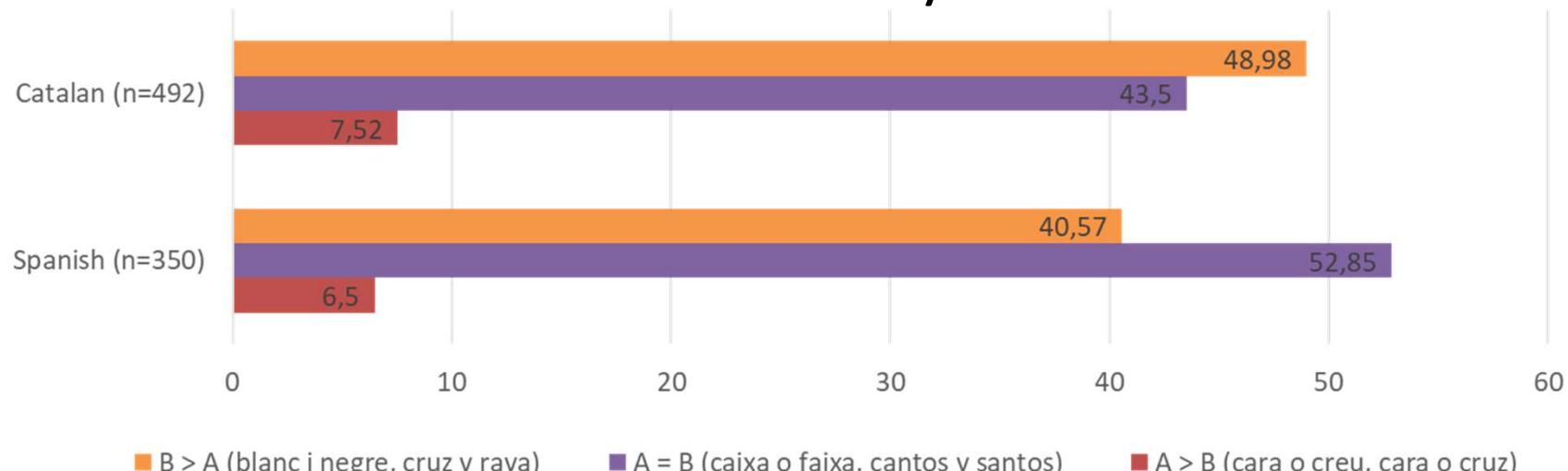
- b) **reversible binomials** with coordinated real adjectival components differing either just in syllable number or just in basic syllable structure (presence / absence of margins; complexity of the margins) ($n = 90$ sentences $\times 2$ possible combinations of each binomial)
- c) **reversible binomials** made up of coordinated nonce adjectival components, all monosyllabic and differing by only one of the following properties: *i*) onset complexity; *ii*) onset sonority; *iii*) coda sonority; *iv*) vowel sonority ($n = 41$ sentences $\times 2$ possible combinations of each binomial).

3. Basic methodology: irreversible binomials

- Catalan binomials contained in the online Catalan idiom dictionary of Espinal (2004, 2006) and Spanish binomials contained in Almela (2006) were categorized according to the number of syllables of each component.
- Binomials with an equal number of syllables per component were classified depending on:
 - the sonority of the stressed vowels
 - the presence or absence of word-initial onsets
 - the complexity of word-initial onsets
 - the relative sonority of word-initial consonants
- The percentage for each circumstance was calculated.

3. Results: irreversible binomials

Most decisive factor: number of syllables



A: first component; B: second component

- Productivity of B > A: Cat. *a les dures i a les madures*; Spa. *a ciencia y conciencia*
- Most cases of A > B or A = B: second component with a word-final heavy syllable: Cat. *cara o creu*; Spa. *cara o cruz*

3. Results: irreversible binomials

- Other factors: **(stressed) vowel sonority**
 - Only apparent in binomials which combine deictic or onomatopoeic elements (*ni fu ni fa; que si patatín, que si patatán*)
 - Tendency in both languages to have stressed vowels with the same sonority (Cat. *caixa o faixa*; Spa. *cantos y santos*) (about a 60% of the cases)
 - Sonority reversals (Cat. *espès i menut*; Spa. *santo y seña*) are more frequent than expected (about a 20% of the cases)

3. Results: irreversible binomials

- Other factors: **onset shape**
 - Tendency to the same shape in both components (\emptyset - + \emptyset : Spa. *antaño y hogaño*; C- + C-: Spa. *sano y salvo*; CC- + CC: Spa. *ni suena ni truena*): 83,17% (Catalan), 81,6% (Spanish)
- Other factors: **onset sonority**
 - Unexpected behavior, with high percentages for word-initial C of the second component with higher sonority (Spa. *a tontas y a locas*; Cat. *la Seca y la Meca*): 39,1% (Catalan) and 39,4% (Spanish).
 - Cf. 38,3% and 46,7%, with word-initial onset with equal sonority, for Spanish and Catalan, respectively (Spa. *ni quito ni pongo*; Cat. *de cap a peus*).

4. Basic methodology: reversible binomials

- 33 speakers with Catalan as L1 had to pick between pairs of sentences containing the two possible combinations of the same binomial. The test included:
 - b) **reversible binomials** with coordinated real adjectival components differing either just in syllable number or just in basic syllable structure (presence / absence of margins; complexity of the margins) ($n = 90$ sentences $\times 2$ possible combinations of each binomial)
 - c) **reversible binomials** made up of coordinated nonce adjectival components, all monosyllabic and differing by only one of the following properties: *i*) onset complexity; *ii*) onset sonority; *iii*) coda sonority; *iv*) vowel sonority ($n = 41$ sentences $\times 2$ possible combinations of each binomial).
- Test presented to the speakers in Google Forms (items randomized)

4. Basic methodology: reversible binomials

Sample of sentences containing **reversible binomials** with coordinated real adjectival components

63. Llegeix en veu alta i digues quina frase et sona millor. *

- El llibre és únic i màgic.
- El llibre és màgic i únic.

21. Llegeix en veu alta i digues quina frase et sona millor. *

- En Joan és intel·ligent i llest.
- En Joan és llest i intel·ligent.

33. Llegeix en veu alta i digues quina frase et sona millor. *

- El llibre és divertit i simple.
- El llibre és simple i divertit.

4. Basic methodology: reversible binomials

Sample of sentences **containing reversible binomials** made up of coordinated nonce adjectival components

92. Llegeix en veu alta i digues quina frase et sona millor.*

- El llibre és la i ca.
- El llibre és ca i la.

88. Llegeix en veu alta i digues quina frase et sona millor.*

- El llibre és pla i pa.
- El llibre és pa i pla.

99. Llegeix en veu alta i digues quina frase et sona millor.*

- En Joan és bu i mu.
- En Joan és mu i bu.

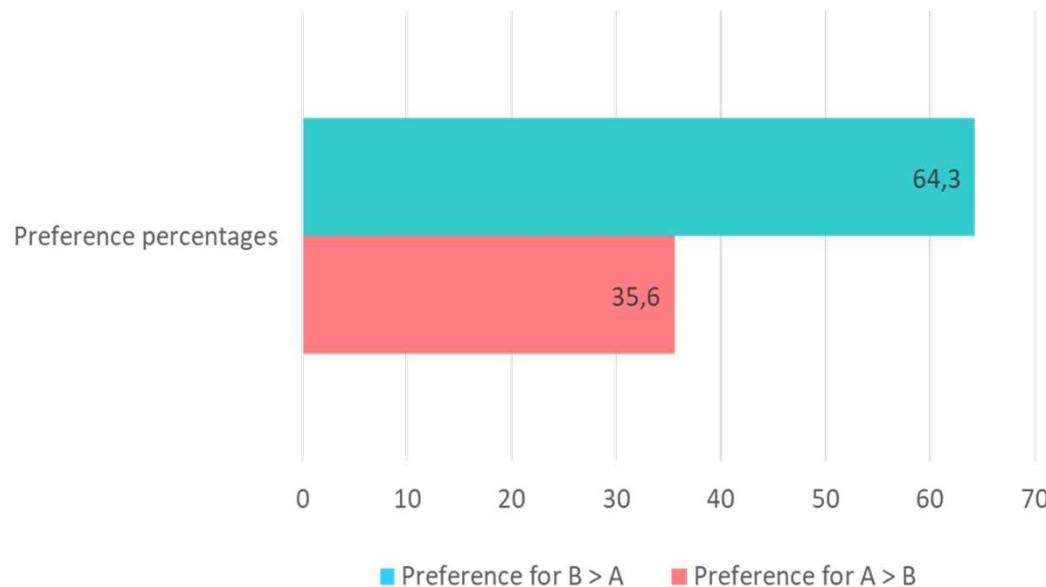
4. Results: reversible binomials

The results of the judgment test on real and nonce binomials in Catalan reproduce and, in some cases, “magnify” the tendencies detected for irreversible binomials and reveal the crucial character of some additional factors, such as the preference to avoid syllabic transitions with hiatus or the tendency to prefer second components with back vowels (see similar findings in Cooper & Ross 1975).

4. Results: reversible binomials

Reversible binomials with real components (judgement test).

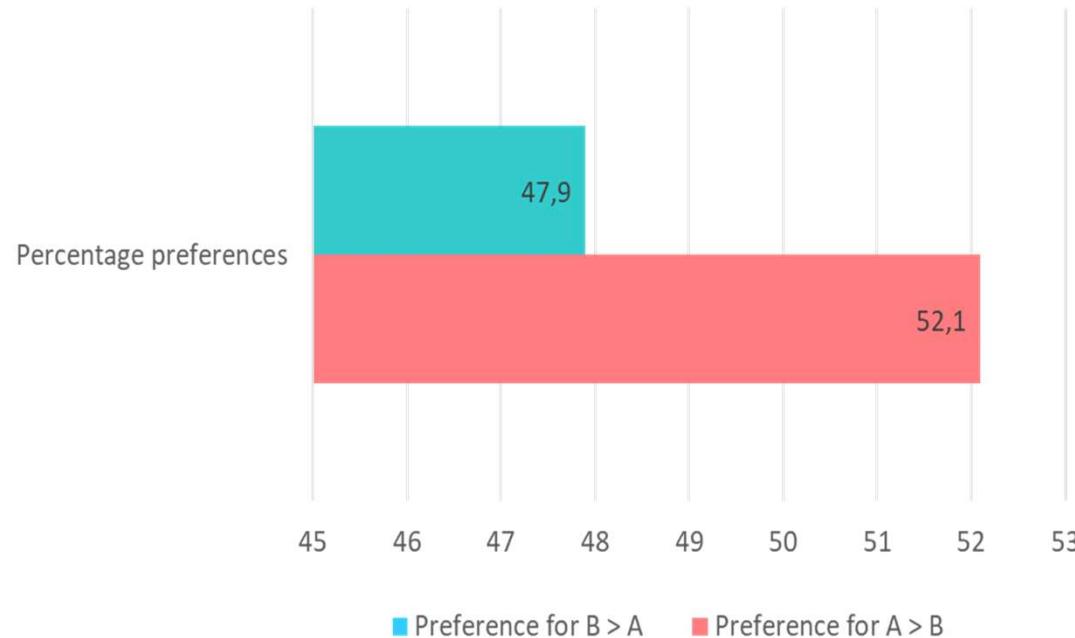
Factor: syllable number



(n= 50: En Joan és just i modest vs. En Joan és modest i just;
Includes all syllabic combinations: 1+2; 1+3; 1+4; 2+3, 2+4...)

4. Results: reversible binomials

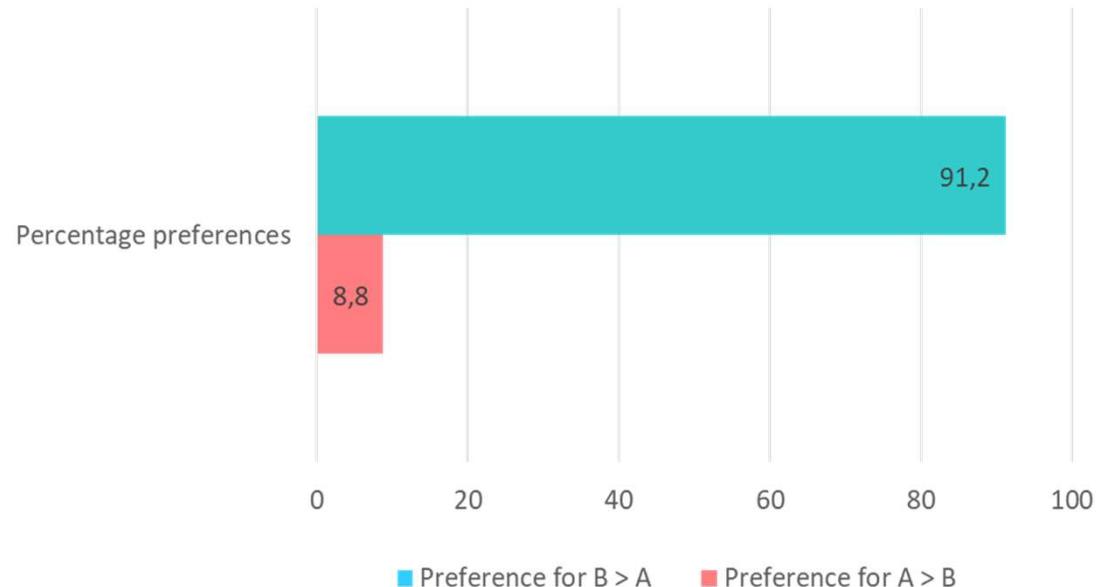
Reversible binomials with real components (judgement test).
Factor: syllable number inhibited by *HIATUS



(n= 13: En Joan és fort iatent vs. En Joan és atent i fort)

4. Results: reversible binomials

Reversible binomials with real components (judgement test).
Factor: syllable number magnified by *HIATUS

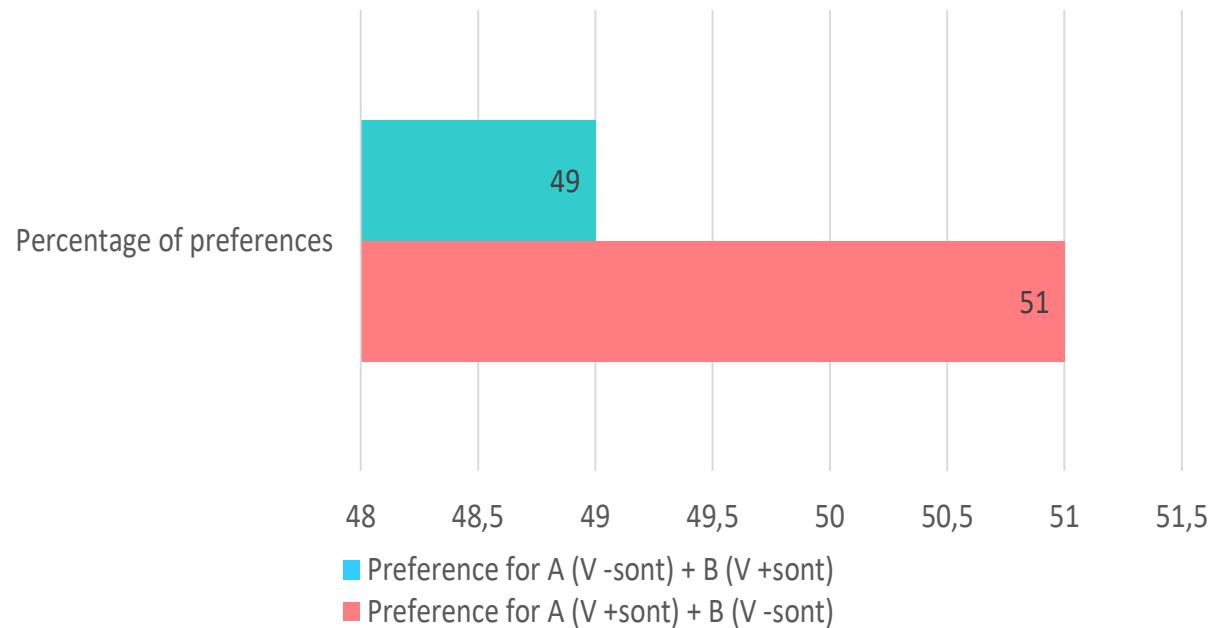


(n= 1: En Joan és alt_i morè vs. En Joan és mor_e_i alt)

4. Results: reversible binomials

Reversible binomials with nonce components.

Factor: vowel sonority (\rightarrow reversal behavior)

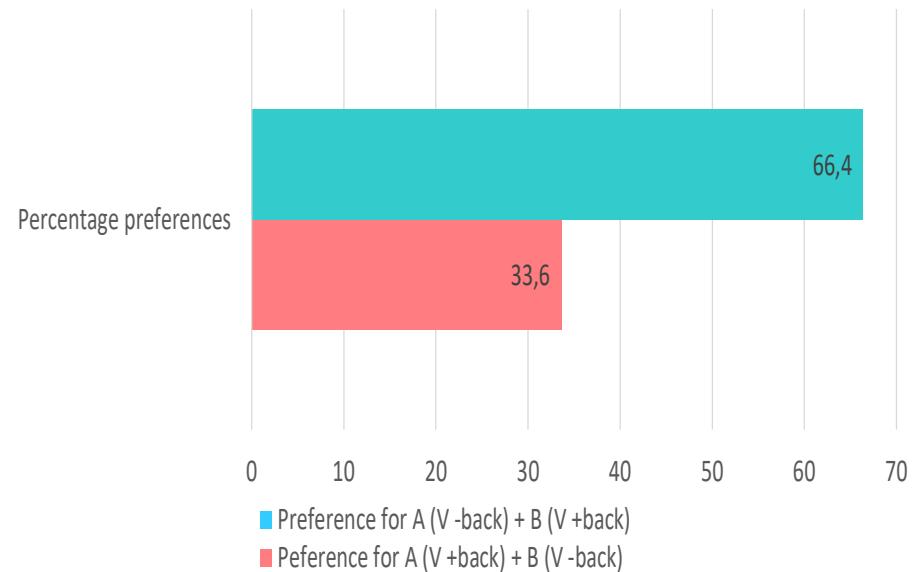


(n= 18: El sofà és pric i prac vs. El sofà és prac i pric)

4. Results: reversible binomials

Reversible binomials with nonce components (judgement test).

Factor: vowel sonority (→ reversal behavior)



(n= 15: El sofà és pric i pruc vs. El sofà és pruc i pric)

5. Summary of the results

A. + WEIGHT (Expected in the second component)	B. -WEIGHT (Expected in the first component)	Irreversible binomials	Irreversible binomials (real + nonce)
larger number of syllables	Fewer number of syllables	✓	✓
vowels with more sonority	vowels with less sonority	✗ (tendency to parallelism)	✗ (moderate reversal)
longer vowels	shorter vowels	(does not apply)	(does not apply)
presence of margins (onset, coda)	absence of margins (onset, coda)	✗ (tendency to parallelism)	✓ (especially for onsets)
complex onsets	simplex onsets	✗ (tendency to parallelism)	✓ (especially in nonce binomials)
complex codas	simplex codas	not analyzed yet	not analyzed yet
low-sonority onsets	high-sonority onsets	✗ (tendency to parallelism + reversals)	✗ (reversals)
high-sonority codas	low-sonority codas	not analyzed yet	not analyzed yet

5. Summary of the results

- Additional effects (not expected):
 - *Hiatus
 - Non-back vs. back vowels

6. Concluding remarks

This line of research is relevant not only because of the lack of literature focused on this topic in Catalan and Spanish, but also because the structural distributions detected in the binomials are a window into the role of each of the factors adduced as “weight bearers” in the phonology of Catalan and Spanish, a window that would otherwise remain (at least) half closed.

5. Summary of the results

A. + WEIGHT (Expected in the second component)	B. -WEIGHT (Expected in the first component)	Irreversible binomials	Irreversible binomials (real + nonce)
larger number of syllables	Fewer number of syllables	✓	✓
vowels with more sonority	vowels with less sonority	✗ (tendency to parallelism)	✗ (moderate reversal)
longer vowels	shorter vowels	(does not apply)	(does not apply)
presence of margins (onset, coda)	absence of margins (onset, coda)	✗ (tendency to parallelism)	✓ (especially for onsets)
complex onsets	simplex onsets	✗ (tendency to parallelism)	✓ (especially in nonce binomials)
complex codas	simplex codas	not analyzed yet	not analyzed yet
low-sonority onsets	high-sonority onsets	✗ (tendency to parallelism + reversals)	✗ (reversals)
high-sonority codas	low-sonority codas	not analyzed yet	not analyzed yet