

**No support for *more*-support:
synthetic comparatives are processed faster**

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Your webpage should have more violence. That would make it way awesomer.





MORE AWESOME
THAN A UNICORN
WITH EYE LASERS

HEY!

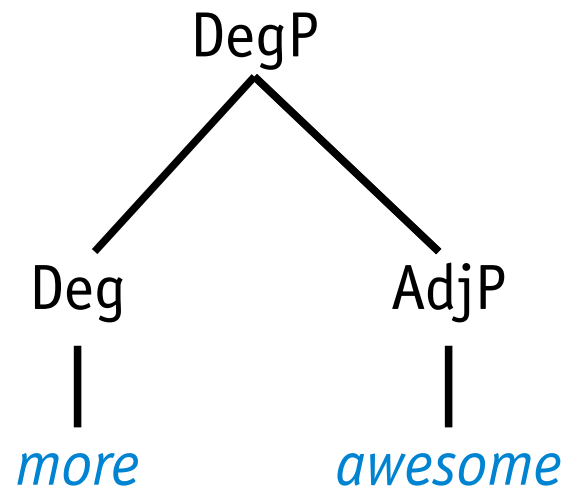


English comparative variants

Synthetic
(word)

{*awesome*} + {*er*} *awesomer*
[Adj] [̄COMP] [Adj, Comp]

Analytic
(phrase)



Morphological theory (eg. Ackerman & Stump 2004, Brown et al. 2012) should interpret both variants as morphological realizations of syntactic function COMPARATIVE

Some factors determining comparative alternation

(e.g. Hilpert 2008, Mondorf 2003, 2009)

- | | |
|----------------------|-------------------------------------------------------------------------------------------------------------------|
| Phonological | Number of syllables, final elements of base, stress pattern |
| Morphological | Number of morphemes, compound adjectives |
| Lexical | Positive frequency, comparative/positive ratio |
| Syntactic | <i>to</i> -infinitive complementation, following <i>than</i> , premodification, predicative vs. attributive usage |
| Semantic | Abstract vs. concrete meaning |
- ... and some more

More-support

in cognitively more demanding environments which require an increased processing load, language users [...] tend to compensate for the additional effort by resorting to the analytic form

(Mondorf 2009: 6)

- Analytic comparative is used to compensate for increased processing complexity
- Addressee-oriented (cf. Mondorf 2009: 7)
 - easier to parse
 - early signal of degree phrase

More-support

However: *More-support* only plausible if analytic comparatives themselves are easier to process than synthetic comparatives

But are they?

Processing effort of synthetic comparatives

Synthetic comparatives are **more difficult** to process

... if base adjective has low frequency

... if synthetic comparative form has low frequency

(e.g. Hay 2001, Hay & Baayen 2002, Taft 2004)

Processing effort of synthetic comparatives

Relatively high effort:

...like his hero Kipling but portraying a rawer world of nature.

(COCA, 1991_MAG)

Relatively low effort:

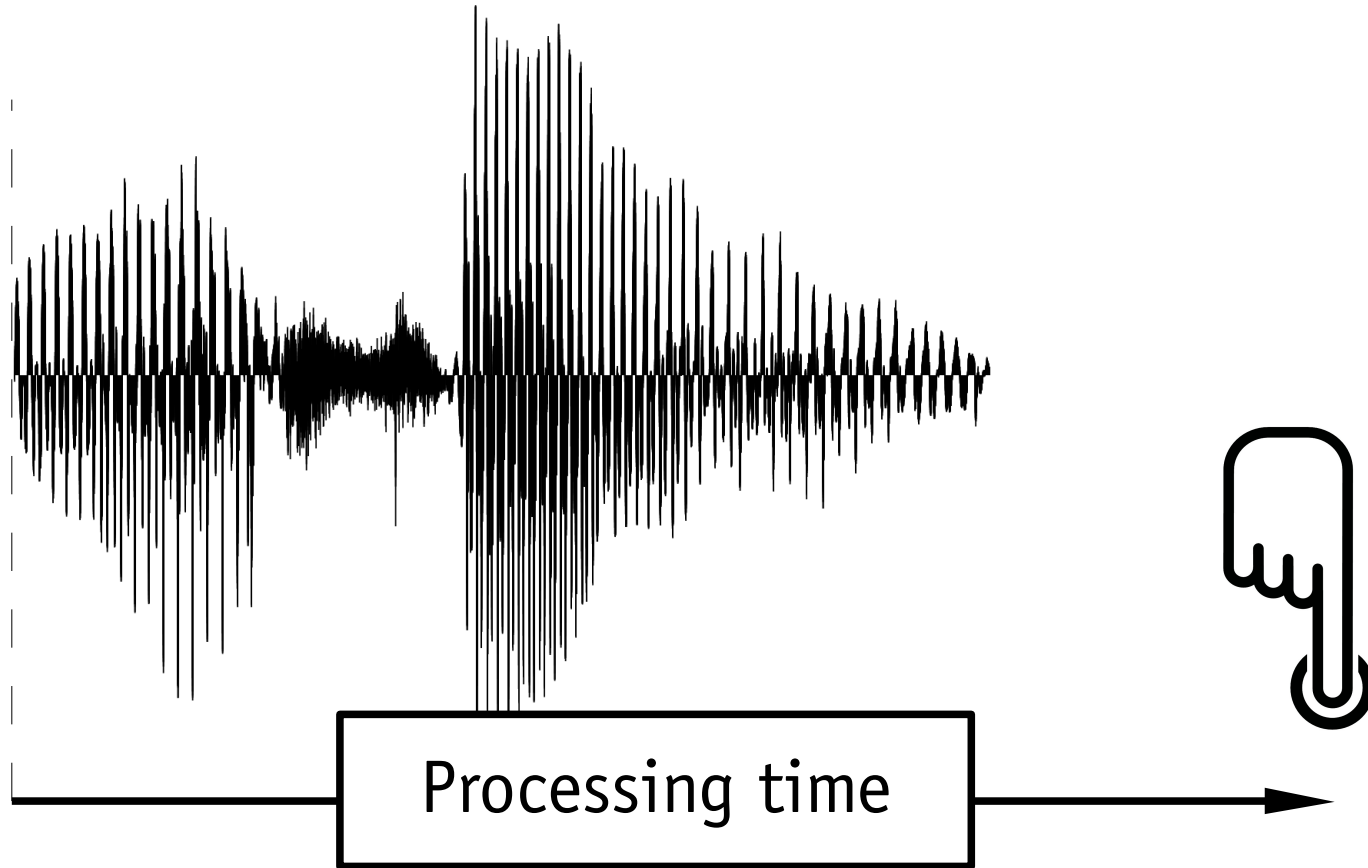
Private citizens have an easier burden of proof.

(COCA, 1991_NEWS)

Method:
Auditory Lexical Decision Task

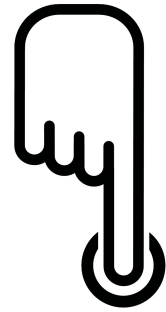
Testing processing complexity

more friendly (analytic)

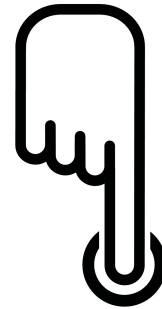


Expected difference

friendlier



more friendly



Experiment design

Adjectives

60 adjectives with both comparative forms attested in COCA

Stimuli

Synthetic (word)

colder

Analytic (phrase)

more cold

Control

**coldic*

60 x 3 = 180 stimuli, spoken by native speaker

Distractors

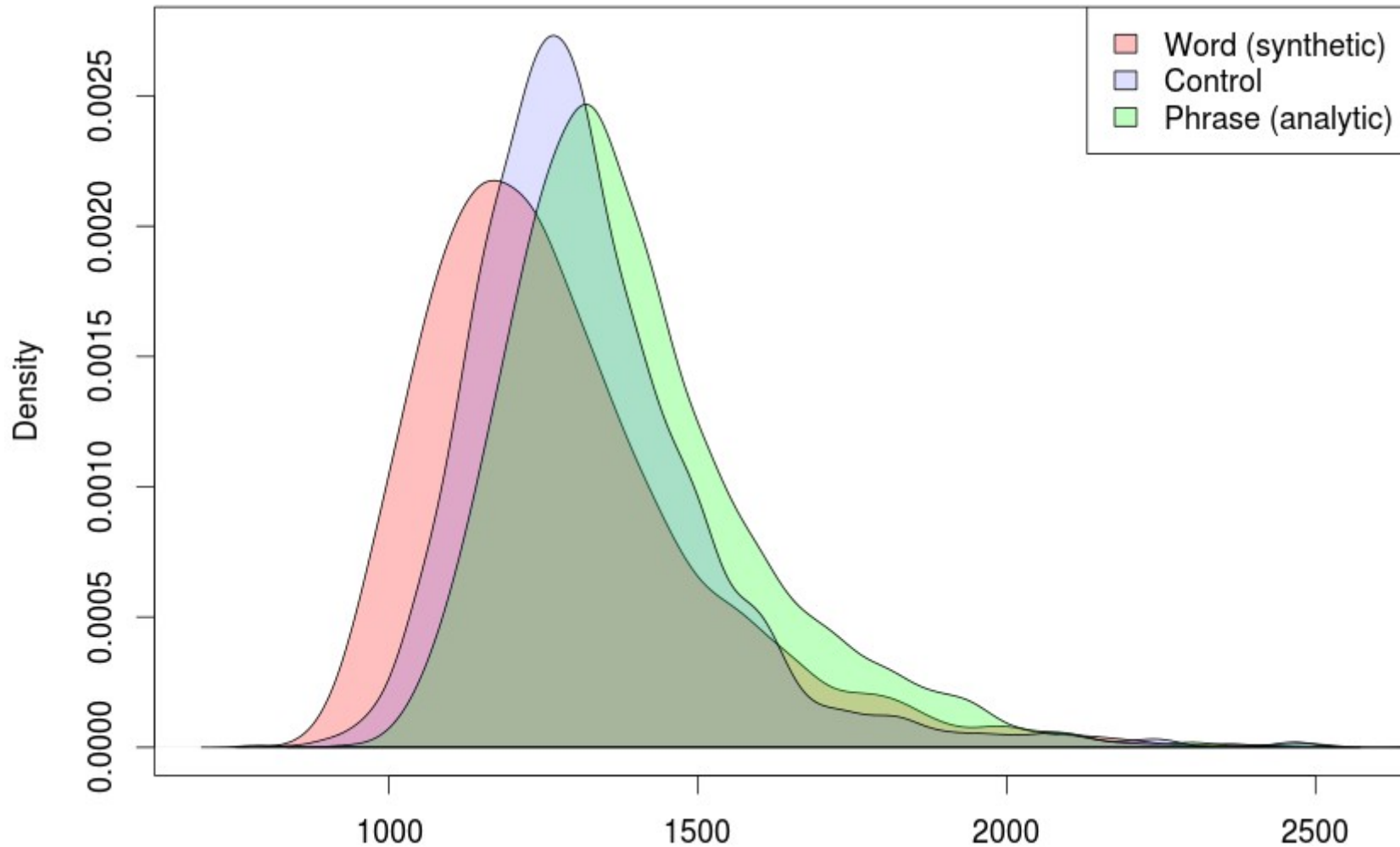
Non-existing and existing words and phrases (320 in total)

Participants

27 female, 4 male undergraduates from University of Alberta, Edmonton

Analysis and results

Overall distribution of reaction times



Reaction time (ms)

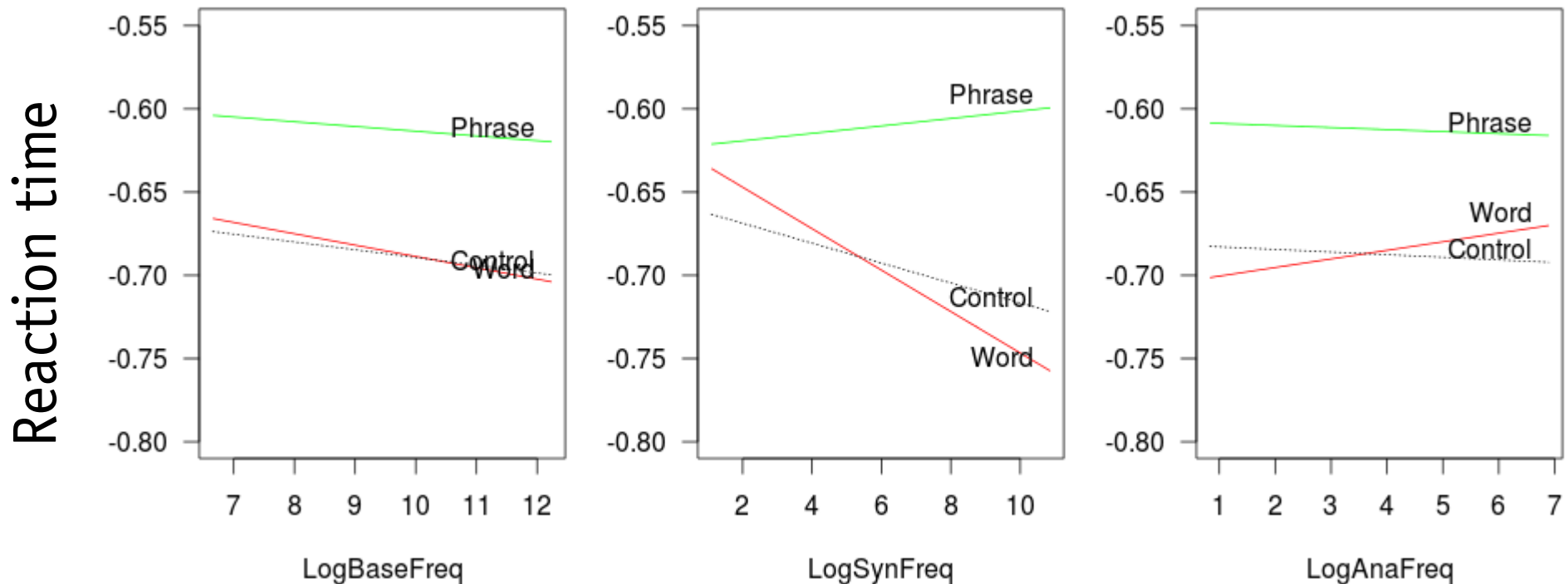
Statistical model

Analysis	Multivariate mixed-effects regression
Dependent variable	Reaction time, power-transformed from milliseconds
Main predictors	Base frequency by Class Synthetic frequency by Class Analytic frequency by Class (all from COCA)
Random intercepts	Participant, Base adjective

Co-variates in mixed-effects model

Experimental	Experimental booth, Trial by Class, Trial by Prepause, Previous RT by Class
Subject	Handedness, Sex, Age
Phonological	Metrical structure (S: <i>proud</i> , Sw: <i>friendly</i> , wS: <i>polite</i>), Number of phonemes
Lexical	Number of phonological neighbours, Mean RT both by Class (from English Lexicon Project, Balota et al. 2007), Age of Acquisition by Class (from Kuperman et al. 2012), Inflectional Entropy by Class (Moscoso del Prado Martín et al. 2004)

Stimulus class and frequency effects



Frequency effects of synthetic comparatives as expected

→ **Analytic** comparatives **never easier to process** than **synthetic** comparatives

Discussion

Speaker-oriented *more-support*?

Regression analysis of proportion of analytic comparatives in COCA

- Proportion of analytic comparative increases (weakly, but significantly) with increasing lexical decision times (from Balota et al. 2007)

Speaker-oriented *more-support*?

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Production experiment in Boyd (2007)

- Probability of analytic comparative increases in syntactically and semantically complex conditions

Speaker-oriented *more-support*?

On the way: Production experiment

- (1) Elicit reaction times for adjectives
- (2) Elicit comparative constructions

Are reaction times from (1) predictive of comparative constructions chosen in (2)?

Inflectional exponence

Synthetic comparatives: morphological processing

Analytic comparatives: apparently no morphological processing

- no notable effect of base frequency
- no notable effect of analytic frequency

→ Are analytic comparatives **morphological** constructions after all, or are they purely **syntactic** instead?

Future research: Find out if analytic comparatives are processed like other syntactic phrases instead

Conclusion

More-support:

Whenever things get complex, speakers prefer the analytic comparative for the sake of the listeners

But:

- No processing advantage of analytic forms in perception
- Analytic comparatives are cognitively more complex
- Addressee-oriented compensatory mechanism unlikely

References

- Ackerman, F. & Stump, G. (2004), Paradigms and periphrastic expression, *in* Andrew Spencer & Louisa Sadler, ed., 'Projecting Morphology', CSLI Publications, Stanford, CA, pp. 111-158.
- Balota, D. A.; Yap, M. J.; Cortese, M. J.; Hutchison, K. A.; Kessler, B.; Loftis, B.; Neely, J. H.; Nelson, D. L.; Simpson, G. B. & Treiman, R. (2007), 'The English Lexicon Project', *Behavior Research Methods* **39**(3), 445-459.
- Boyd, J. (2007), 'Comparatively speaking. A psycholinguistic study of optionality in grammar', PhD thesis, University of California, San Diego.
- Brown, D.; Chumakina, M.; Corbett, G.; Popova, G. & Spence, A. (2012), 'Defining 'periphrasis': key notions', *Morphology* **22**(2), 233-275.
- Hay, J. B. (2001), 'Lexical frequency in morphology: is everything relative?', *Linguistics* **39**(6), 1041-1070.
- Hay, J. B. & Baayen, R. H. (2002), Parsing and productivity, *in* Geert E. Booij & Jaap van Marle, ed., 'Yearbook of Morphology 2001', Kluwer Academic Publishers, Dordrecht, pp. 203-235.
- Hilpert, M. (2008), 'The English comparative. Language structure and language use', *English Language and Linguistics* **12**(3), 395-417.
- Kuperman, V.; Stadthagen-Gonzalez, H. & Brysbaert, M. (2012), 'Age-of-acquisition ratings for 30,000 English words', *Behavior Research Methods* **44**(4), 978-990.
- Mondorf, B. (2003), Support for *more*-support, *in* Günter Rohdenburg & Britta Mondorf, ed., 'Determinants of grammatical variation in English', Mouton de Gruyter, Berlin, pp. 251-304.
- Mondorf, B. (2009), *More support for more*-support, John Benjamins, Amsterdam.
- Moscoso del Prado Martín, F.; Kostić, A. & Baayen, R. H. (2004), 'Putting the bits together. An information theoretical perspective on morphological processing', *Cognition* **94**(1), 1-18.
- Taft, M. (2004), 'Morphological decomposition and the reverse base frequency effect', *The Quarterly Journal of Experimental Psychology* **57A**(4), 745-765.