

## 1. RC ATTACHMENT ASYMMETRIES

Variation in Relative Clause (RC) attachment across languages (a,b) and structures (b,d)([1], [4] a.o.) :

LOW ATTACHMENT, LA

a. Someone shot the maid, of the actress, that<sub>2</sub> was standing on the balcony

HIGH ATTACHMENT, HA

b. Algúien disparó contra la criada, de la actriz, que<sub>1</sub> estava en el balcón

LOW ATTACHMENT, LA

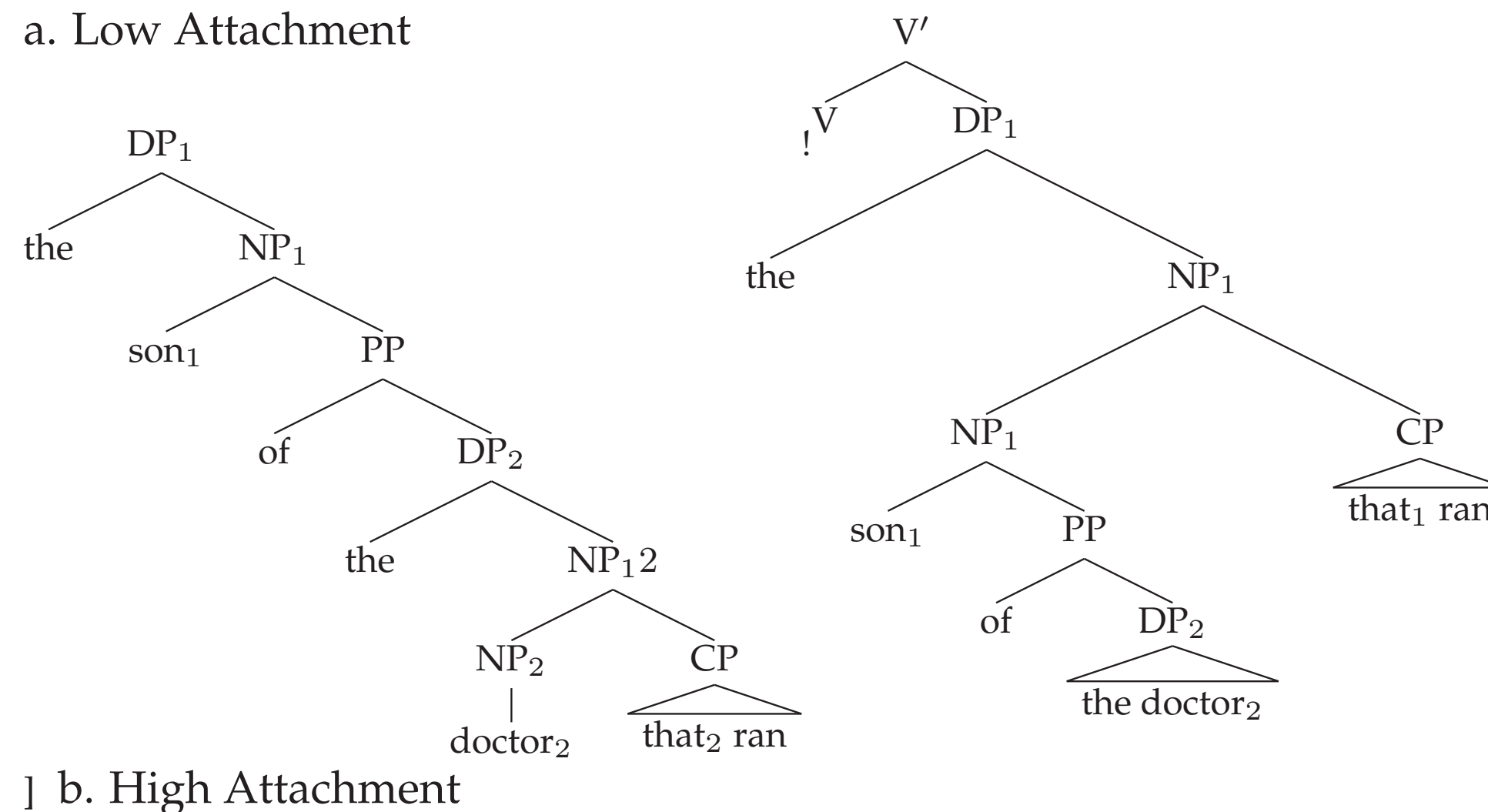
c. The lamp near the painting, of the house, that<sub>2</sub> was damaged by the flood

LOW ATTACHMENT, LA

d. La lámpara cerca de la pintura, de la casa, que<sub>2</sub> fué dañada en la inundación

This asymmetry posed problems for the

a. Low Attachment



b. High Attachment

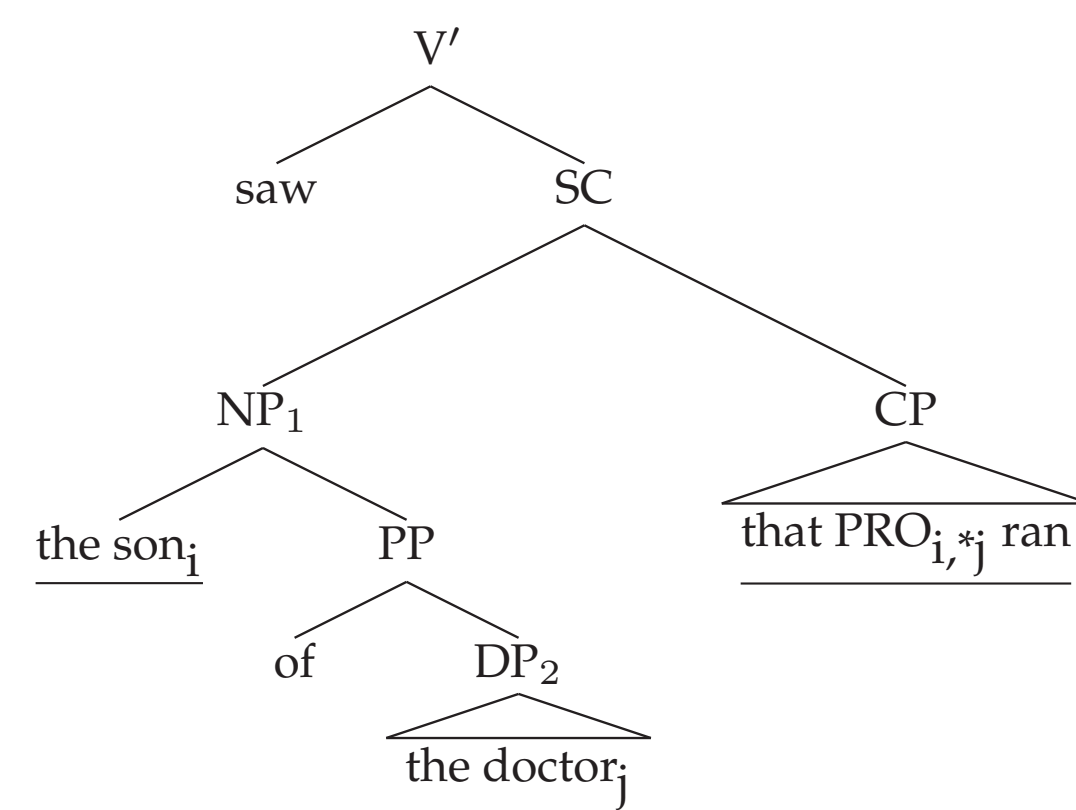
## 2. THE PR CONFOUND

Grillo & Costa 2012 [2]: In some languages and structures, apparent RCs can also be interpreted as Pseudo Relative Small Clauses (PRs).

- (1) a. Ho visto [<sub>PR</sub> Gianni che correva] / He visto a [<sub>PR</sub> Juan que corria]  
b. \*I saw John that ran / I saw [<sub>SC</sub> John running]

→ CRUCIALLY, WHEN PR IS PROJECTED IN COMPLEX NP CONTEXTS, DP<sub>2</sub> IS NOT AN ACCESSIBLE SUBJECT :

- (2) Ho visto [<sub>SC</sub> il figlio<sub>i</sub> del medico<sub>j</sub> che EC<sub>1/2</sub> correva]



This is standard with clausal complements:

- (3) The students guessed [<sub>CP</sub> the answer<sub>1</sub> to the problem<sub>2</sub> was<sub>1/2</sub> in the book]

PRs and RCs are string identical, but have very distinct structural and interpretive properties:

Property	RCs	PRs
Refers to individuals	✓	✗
Available w. objects	✓	✗
Available w. Rel. Pronouns	✓	✗
NP modifier	✓	✗
Available w. Proper Names	✗	✓
Available in SC environments	✗	✓
VP modifier	✗	✓
Aspectual restrictions	✗	✓
Refers to propositions	✗	✓

## 3. VARIABLE SYNTAX, UNIFORM PARSING

(Grillo & Costa 2012) Everything else being equal (e.g. lexical, contextual and prosodic factors):

A. Low Attachment preference with genuine restrictive RCs, i.e. PRs not available, across languages and structures.

B. High Attachment preference is observed in languages and structures which allow PR.

VARIATION ACROSS LANGUAGES

Language	Attachment	PRs
English	Low	*
Romanian	Low	*
Basque	Low	*
Chinese	Low	*
Bulgarian	Low*	*
German	Low*	*
Russian (?)	High	*
Dutch	High	✓
Italian	High	✓
French	High	✓
Serbo-Croatian	High	✓
Japanese	High	✓
Korean	High	✓
Greek	High	✓

VARIATION ACROSS STRUCTURES

- (4) SUBJECTS (Hemforth et al., submitted)[3]

- a. The maid of the actress (that was) sitting on the balcony is blonde  
b. La criada de la actriz que estava sentada en el balcón es rubia

- (5) TYPE OF P (De Vincenzi and Job, 1993)[5]

- a. Qualcuno ha sparato alla governante con l'attrice che stava seduta in balcone  
b. Someone shot the maid with the actress (that was) sitting on the balcony

- (6) UNAMBIGUOUS RELATIVE PRONOUNS (Fernández, 2003, p.31)[6]

- Vi al hijo del medico el cual estaba en el balcón  
I saw the son of the doctor who<sub>rel-pro</sub> was on the balcony

- (7) NOMINALS see above ex. ??(c,d) (Gibson et al., 1996) [4]

→ LA preference in all RC contexts indicates universality of Locality Principles in Parsing

→ HA preference with PRs follows generally observed preference for the parser to construct a subject predicate relation (PR) over a RC (the horse raced past the barn fell).

## 4. PRESENT EXPERIMENT

To test the role of PR in attachment preferences we manipulated:

- i. PR availability in object position through verb type: event-introducing (PR ok) vs. states-introducing (\*PR) Verbs (e.g. see vs. live with)  
ii. PR availability in subject position through noun type: event-introducing (PR ok) vs. states-introducing (\*PR) Nouns.

EXPERIMENT: Ing- form attachment.

Method: Questionnaire, PC running Linger (Doug Rodhe, <http://tedlab.mit.edu/dr/Linger>). Participants: (n=12) English Speakers. Materials and Design: 2x2 crossing type(PR and noPR) and position (object vs. subject); 24 sets of target sentences (4 versions each), 48 fillers; Counterbalanced materials and questions.

Stimuli

- A. PR, object RC only  
Jim saw the son of the doctor having dinner
- B. PR, subject\* RC only  
The picture of the son of the doctor having dinner is old
- C. noPR, object RC only  
Jim shares the house with the son of the doctor having dinner
- D. noPR, subject RC only  
The car of the son of the doctor having dinner is old
- A. THE SON IS HAVING DINNER  
B. THE DOCTOR IS HAVING DINNER

## 6. DISCUSSION

As predicted, the experiment reveals a very strong effect of PR:

- LA is observed when PRs are not available
- HA is observed whenever PRs are available

→ Locality is a Universal Principle of the Human Language Parser

-Results match the ones previously found for PIC in European Portuguese.

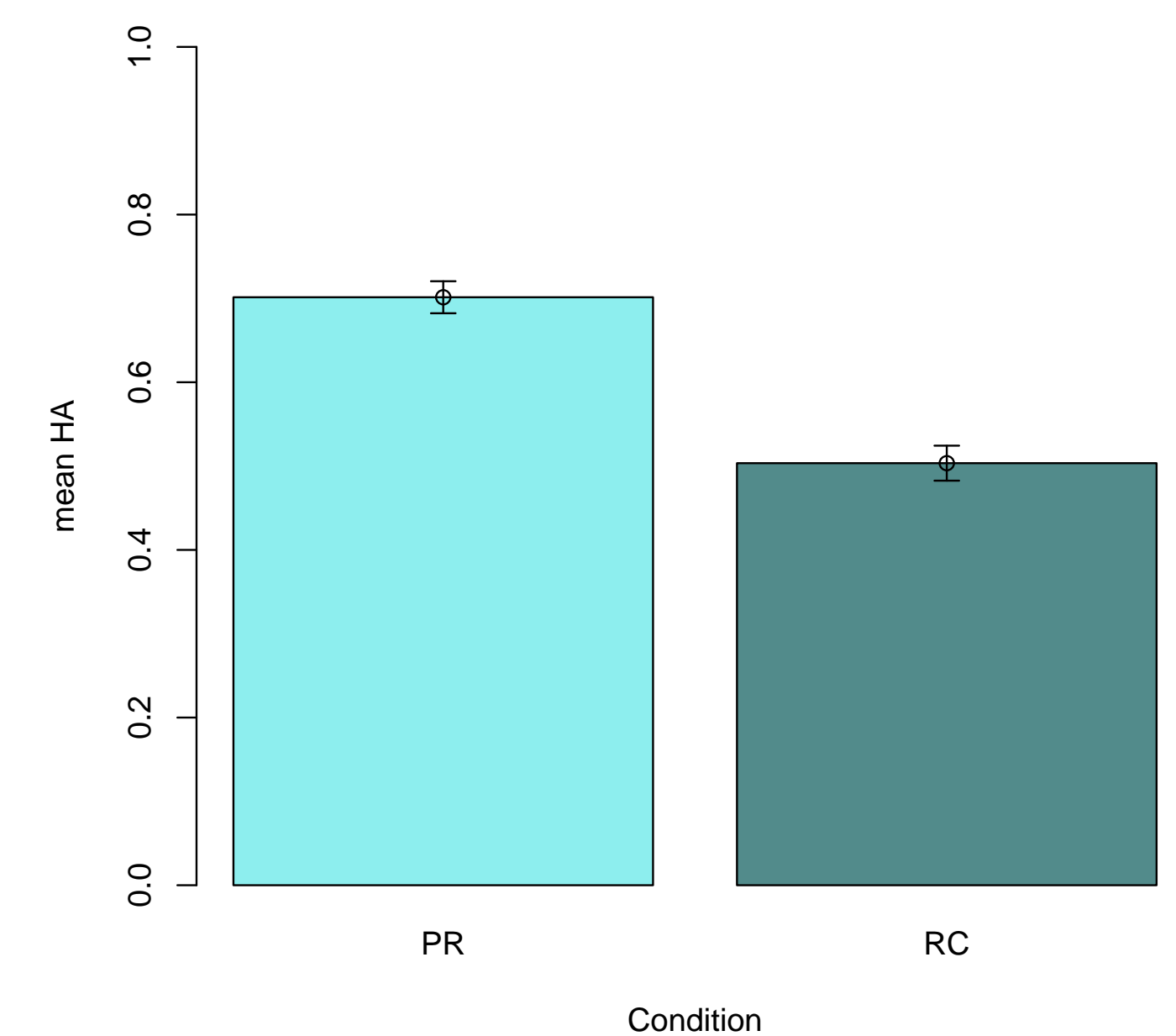
## 5. RESULTS & ANALYSIS

RESULTS TIMED QUESTIONNAIRE

Table 1: Results of linear mixed model fit for experiment 1. Items and participants were crossed random factors.

contrast	coefficient	SE	z-value	Pr(> z )
PR vs. RC	-0.9743	0.2587	-3.766	0.000166 ***

Mean HA per condition



meansRT PR RC 3508.281 4041.976

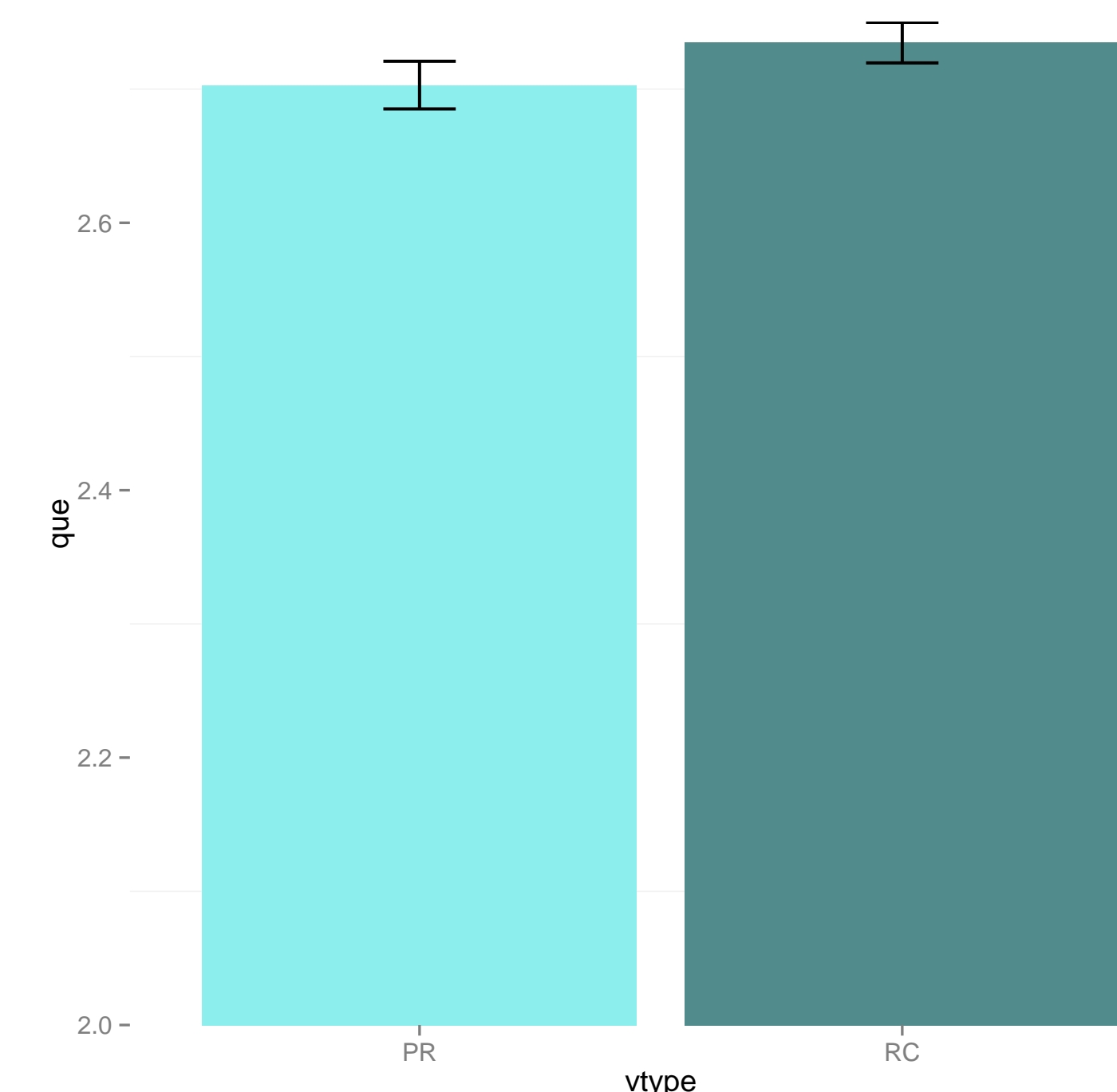
Table 2: Results of linear mixed model fit for experiment 1. Items and participants were crossed random factors.

contrast	coefficient	SE	t-value
PR vs. RC	-0.05639	0.02650	-2.13

RESULTS SELF-PACED READING

Table 3: RTs at Comp

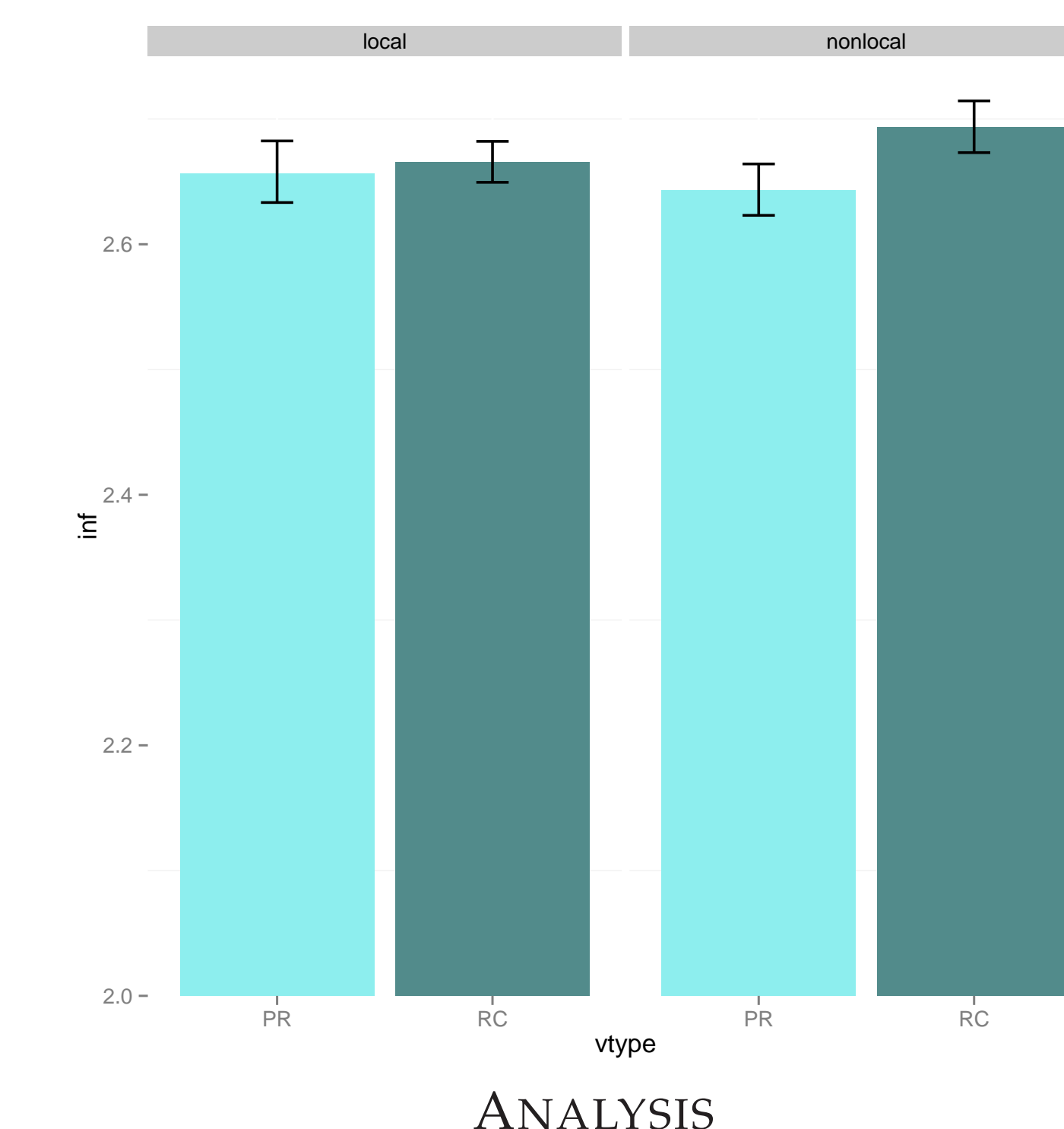
PR	RC
570ms	616ms



Significant effect of V-type, faster RTs with PR than RC-only at Comp (coefficient = 0.032478, SE = 0.012161, t-value = 2.67)

Table 4: RTs at inf, one word downstream from disambiguation point

	Local	NonLocal
PR	570	571
RC	605	629



Significant interaction V-type\*locality (coefficient = 3.5039, SE = 0.016396, t-value = 3.33).

## ACKNOWLEDGEMENTS

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