

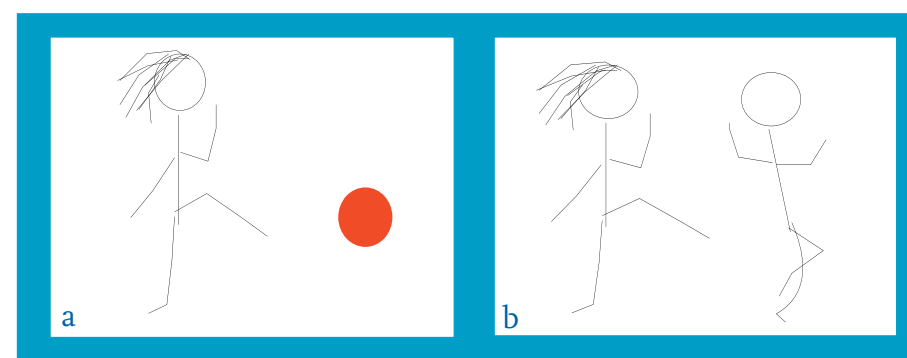
The interplay of animacy and verb class in representation building

Background

Why verb class? What is "more or less" transitive?

- „Very transitive situations“ are expressed by prototypically transitive verbs = prototypical distribution of semantic agent- and patient protoroles to arguments⁽¹⁾.
- deviation can be reflected in different linking pattern and case marking
- German: folgen, helfen, ähneln, weh tun (follow, resemble, hurt) assign dative and are "less transitive" than acc-assigning verbs⁽²⁾

Why object animacy?



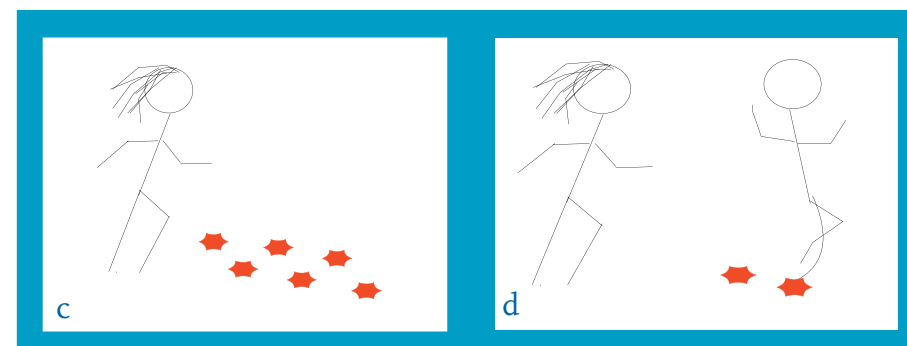
(a) Mary kicking a ball, (b) Mary kicking Peter
Kicking is prototypically transitive, therefore, ambiguity resolution for (a) is easier than for (b).

Fig. 1

- ambiguity resolution: easier with inanimate than with animate objects ⁽³⁾

Does this animacy effect hold for sentences with non-standard transitive verbs, too?

Semantic properties of subjects and objects are different for acc- and dat-assigning verbs.



(c) Mary following tracks, (d) Mary following Peter
Following is NOT prototypically transitive! Mary and Peter (and the tracks) get different semantic properties than in the pictures above. How does ambiguity resolution work here?

Fig. 2

Hypothesis:

In verb final transitive German sentences without morphological case marking,

- animate objects cause processing difficulties for acc-assigning verbs.
- animate objects do not cause processing difficulties for dat-assigning verbs.

Language Material

50 sentence quartets: 2 verbal case marking patterns X 2 object animacy conditions

case marking	object animacy	
	inanimate	animate
nom-acc (standard)	(a) Peter behauptet, dass Studentinnen Vorlesungen begeistert loben, und Ida behauptet das auch.	(b) Sven behauptet, dass Studentinnen Professoren begeistert loben, und Andreas behauptet das auch.
nom-dat (non-standard)	(c) Kevin behauptet, dass Studentinnen Vorlesungen begeistert applaudieren, und Franz behauptet das auch.	(d) Jan behauptet, dass Studentinnen Professoren begeistert applaudieren, und Tim behauptet das auch.

Fig. 3

Fig. 3: Language Material

- (a) Peter behauptet, dass Studentinnen Vorlesungen begeistert loben, und...
Peter claims that students-fem.pl(nom) lectures-pl(acc) enthusiastically praise and...
„Peter claims that students enthusiastically praise lectures, and...“
- (b) Sven behauptet, dass Studentinnen Professoren begeistert loben, und...
Sven claims that students-fem.pl(nom) professors-pl(acc) enthusiastically praise and...
„Sven claims that students enthusiastically praise professors, and...“
- (c) Kevin behauptet, dass Studentinnen Vorlesungen begeistert applaudieren, und...
Kevin claims that students-fem.pl(nom) lectures-pl(dat) enthusiastically applaud, and...
„Kevin claims that students enthusiastically applaud lectures, and...“
- (d) Jan behauptet, dass Studentinnen Professoren begeistert applaudieren, und...
Jan claims that students-fem.pl(nom) professors-pl(dat) enthusiastically applaud, and...
„Jan claims that students enthusiastically applaud lectures, and...“

Experimental Results: Eye tracking studies

Natural reading

52 participants, pseudo-randomized stimuli (1/4 per subject) with filler sentences

Contribution of first pass times and overall dwelltimes (Fig.5) on a word to the overall reading time of each sentence were calculated for all words of the critical sentence. ANOVAs and T-Tests were run on the mean proportions of both.

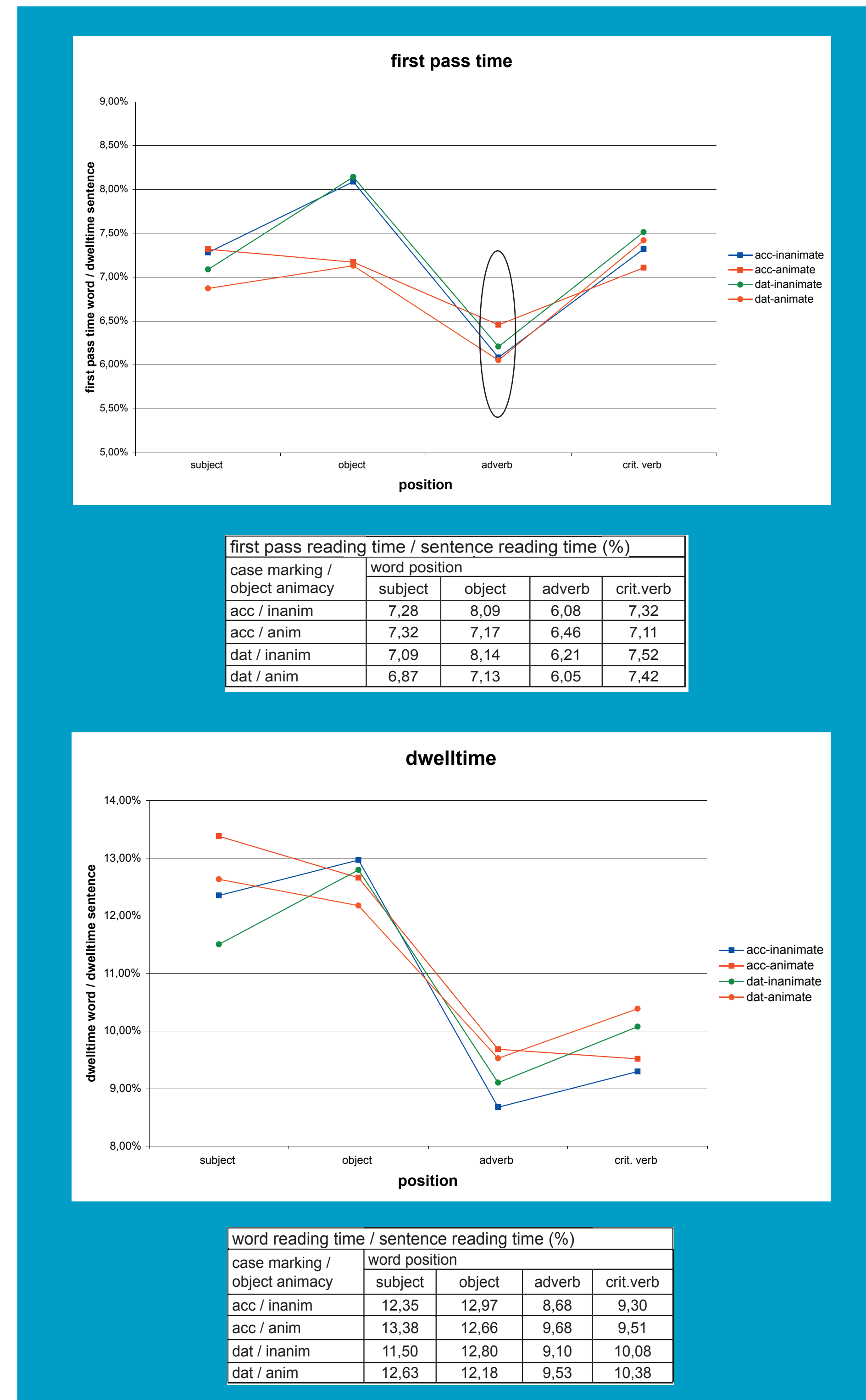


Fig. 4: Results eye-tracking study natural reading

Results eye-tracking study with natural reading(Fig. 4):

First pass time analysis (Fig. 4, upper diagram and table):

- acc-assigning verbs: object animacy effect on adverb
- dat-assigning verbs: inverse/no object animacy effect on adverbs

Dwelltime analysis (Fig. 4, lower diagram and table):

- both verb types: object animacy effect on subject and adverb
- no interaction between object animacy effect and verb class

The reported effects are significant.

Are the interaction effects due to parafoveal preview on the verb from the adverb position?

Moving boundary paradigm

52 participants, pseudo-randomized stimuli (1/4 per subject) with filler sentences

Words 3 („dass“) to 8 („und“) were masked with nonsense letters of similar silhouette. Words were unmasked after 5 ms of direct fixation, thus allowing comfortable reading while excluding the possibility of parafoveal preview of words to the right. Calculations were the same as for the first experiment.

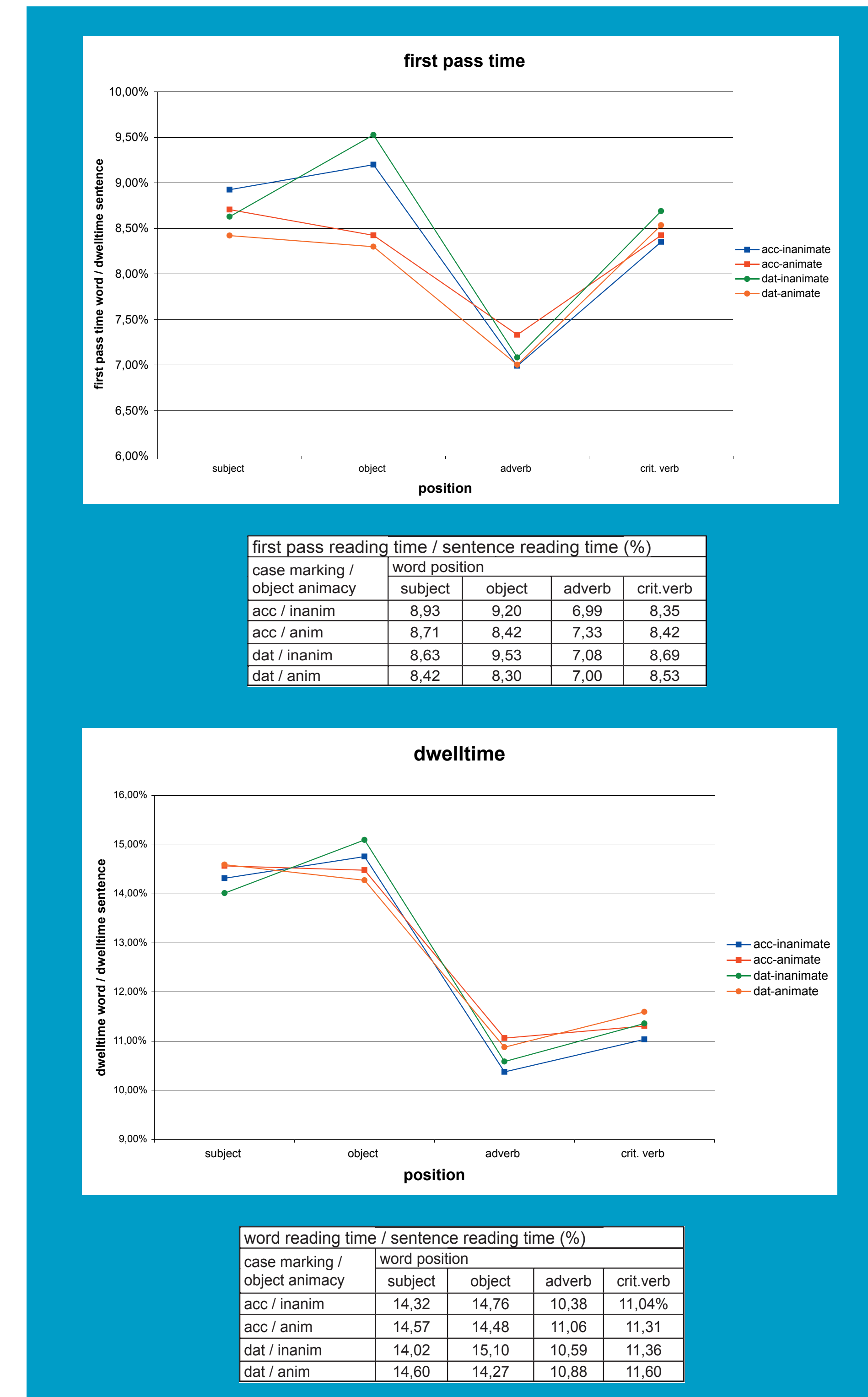


Fig. 5: Result eye-tracking study moving boundary paradigm

Results eye-tracking study with moving boundary paradigm (Fig. 5):

First pass time analysis (Fig. 5, upper diagram and table):

- no interaction between object animacy and verb class effects

Dwelltime analysis (Fig. 5, lower diagram and table):

- object animacy effect on subject, adverb and crit. verb
- no interaction between object animacy and verb class effects

The reported effects are significant.

If parafoveal preview is excluded with a moving boundary paradigm, no interaction effects between verb class and object animacy effects can be found.

Conclusion and Outlook

Natural reading

- object animacy effect on first pass times on adverbs in the acc-condition
- no (or inverse?) object animacy effect on first pass times on adverbs in dat-condition - preview effects?
- no interaction effect in measures of later processing steps.

Once verb-class information has become available, dat-assigning verbs do not show object animacy effects, or not the same object animacy effects as acc-assigning verbs.

This supports our initial hypothesis.

Moving boundary paradigm

- no interaction between object animacy and verb class effects in first pass reading times
- object animacy effects on subject, adverb and crit verb in dwelltimes for both verb classes

Once parafoveal preview has been excluded, no interaction effects between object animacy and verb class are found. Main effects are still present, indicating that the paradigm does not exclude measuring correlates of sentence processing in general.

The interaction effects are only found in natural reading. Participants appear to access and process verb class information already during parafoveal preview.

Other experiments (finished)

- self-paced reading experiment: interaction effects between verb class and object animacy, but at a later point in time.
- EEG experiment: Data are currently being analyzed.

The results from my experiments indicate an interaction between verb class and object animacy information in sentence processing. The effects I find are statistically reliable, but small compared to the main effects, especially the object animacy effect. The exact point in time at which the interaction effect is found appears to depend on the method used.

The results presented here will be compared to the results of my other experiments and discussed with respect to their interpretation according to different models of sentence processing.

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