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Perspective-shifting with appositives and expressives*

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Abstract Much earlier work claims that appositives and expressives are invariably speaker-oriented. These claims have recently been challenged, most extensively by Amaral, Roberts & Smith 2007. We are convinced by this new evidence. The questions we address are (i) how widespread are non-speaker-oriented readings of appositives and expressives, and (ii) what are the underlying linguistic factors that make such readings available? We present two experiments and novel corpus work that bear directly on this issue. We find that non-speaker-oriented readings, while rare in actual language use, are systematic. We also find that non-speaker-oriented readings occur even outside of attitude predications, which leads us to favor an account based in pragmatically-mediated perspective shifting over one that relies on semantic binding by attitude predicates.

Keywords: appositive, expressives, perspective, corpus pragmatics, experimental pragmatics, regression analysis

1 Introduction

Amaral, Roberts & Smith 2007 (henceforth ARS) is a critical review of Potts 2005. The authors articulate challenging new questions for researchers working on conversational dynamics, pragmatic inference, scope, and quantification. The present paper addresses phenomena at the confluence of these areas: the range of readings available for appositives and expressives, and the underlying semantic and pragmatic factors that produce those readings.

We say that a clause C with denotation p is *speaker-oriented* in utterance U if, and only if, in uttering U, the speaker expresses, with C, a public commitment to p. For example, if I utter the clause *Ohio is the birthplace of aviation* with the intention of sincerely asserting it, then I express, in virtue of this utterance, my public commitment to the proposition that Ohio is the birthplace of aviation. Thus,

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Ohio is the birthplace of aviation is speaker-oriented in this case. We emphasize that speaker-orientation is a relation between an individual and a linguistic structure, but that the relationship depends not only on semantic denotations but also on utterances and their complex pragmatics.

Lakoff (1966), McCawley (1982, 1987, 1989), Asher (2000), Huddleston & Pullum (2002), Emonds (1976), Culicover (1992), Bach (1999), and Potts (2005) claim or assume that appositive relatives are always speaker-oriented, regardless of syntactic position, and Quang (1971), Cruse (1986), Aoun, Choueiri & Hornstein (2001), Corazza (2005), and Potts (2005) take a similar position on epithets like *the jerk*.[1] These generalizations were first challenged by Wang, Reese & McCready (2005) and Karttunen & Zaenen (2005). ARS present a variety of examples in which such clauses can be non-speaker-oriented when uttered (see also Potts 2005: 162, Potts 2007). We are persuaded by this new evidence. We take it as a starting point for answering the following more specific questions about the semantics and pragmatics of these constructions:

(1) a. How widespread are non-speaker-oriented readings of appositives and expressives?

b. What are the underlying linguistic factors that make such readings available?

We think that the investigative strategy of reporting basic intuitions about individual cases has run its course in this area. More and different evidence is needed. To this end, we present two human-subjects experiments and some novel corpus work. Taken together, the results from this research support clear answers to the questions in (1). We find that non-speaker-oriented readings, while rare in actual language use, are systematic: experiment 1 involves contexts in which non-speaker-oriented readings of appositives are favored, and experiment 2 pinpoints one of the pragmatic factors that facilitate non-speaker-orientation for expressives. We also find that non-speaker-oriented readings occur even outside of attitude predications, which leads us to favor an account based in pragmatically-mediated perspective shifting (Potts 2007) over one that relies on semantic binding by attitude predicates (Schlenker 2003, 2007; Sauerland 2007). The results challenge Potts's (2005) naïve view of speaker-orientation, but they are consistent with the multidimensional theory of composition he develops.

The paper is structured as follows. The next section describes our empirical focus in greater detail and reviews previous evidence for non-speaker-oriented readings. Sections 3 and 4 present our human-subjects experiments, and section 5 reports

1 An exception must be made for direct quotation; Potts 2005; Bach 2006; Anand 2007.

on our corpus work. Finally, section 6 draws some general conclusions from this evidence about the centrality of pragmatics in understanding these phenomena.

2 Appositives, expressives, and (non-)speaker orientation

Both Potts (2005) and ARS discuss many different kinds of appositive and expressive. In this paper, we restrict attention to just nominal appositives, as in (2a), appositive relatives, as in (2b), and nominal epithets like (2c).[2]

(2) a. Lucille Gorman, an 84-year-old Chicago housewife, has become amazingly immune to stock-market jolts.
[Treebank corpus; Marcus, Santorini, Marcinkiewicz et al. 1999]

b. uh, she starts a new job tomorrow, which should take her out of the house about four days a week.
[Switchboard corpus; Godfrey & Holliman 1993]

c. In traffic so heavy that there is no way for the jerk to pass, I might pull over, as if to look for a street number or name, (still ignoring the jerk) just to get the jerk off my tail.
[20_newsgroups corpus]

These constructions are ideal for present purposes because they have an extremely wide syntactic distribution. One can embed them in many different kinds of environments, and they are used in a wide variety of different discourse contexts to convey a wide variety of different messages.

It is uncontroversial that these expressions can scope out of the usual array of presupposition holes (interrogatives, negations, conditional antecedents, and modals; Karttunen 1973), in the sense that they can remain semantically unmodified by those operators even when in their syntactic scope. We illustrate briefly in (3) using conditionals; for additional examples and discussion, see Boër & Lycan 1976; Kaplan 1999; Aoun, Choueiri & Hornstein 2001; Karttunen & Zaenen 2005; Potts 2005, To appear.

(3) a. I think it would concern me even more if I had children, which I don't, [...] [Switchboard]

b. If that bastard Kaplan was promoted, then the Regents acted foolishly.
[Kaplan 1999]

2 One must take care to distinguish these appositives from sliftings like *Ed, it seems, is a werewolf* (Ross 1973; Asher 2000; Wagner 2004) and predicative clauses like *As president, I would launch a mission to Mars*. Indeed, almost everything we say about nominal appositives and appositive relatives is false of these other constructions.

In (3a), the appositive *which I don't* is syntactically inside the if-clause, but interpreting it there semantically would make this clause semantically contradictory, which is clearly not what the speaker intends. Rather, the appositive stands, unconditionalized, as a speaker commitment. Similarly, (3b) highlights, in Kaplan's (1999) words, the "failure of the conditional to conditionalize away expressive content".

It is also uncontroversial that appositives and expressives can scope out of the complements of attitude predicates and verbs of saying, thereby becoming speaker-oriented even as the clausal material around them is attributed to the embedding subject (Quang 1971; Cruse 1986; Bach 1999; Aoun, Choueiri & Hornstein 2001; Potts 2005; Taylor 2007). The following passage from the text of Aloni 2000 is useful for highlighting this exceptional scopal behavior for appositives:

(4) In front of Ralph stand two women. Ralph believes that the woman on the left, <u>who is smiling</u>, is Bea, and the woman on the right, <u>who is frowning</u>, is Ann. As a matter of fact, exactly the opposite is the case.

S1:	Bea ☹	Ann ☺
S2:	Bea ☺	Ann ☹
S3:	Ann ☹	Bea ☺
S4:	Ann ☺	Bea ☹

We have informally surveyed speakers about this example on a number of occasions. When asked to identify which situation at right accords with reality (or, the view of the passage's author), people reliably choose S4, in which just the names are reversed. This is Aloni's intended interpretation; the passage continues, "Bea is frowning on the right and Ann is smiling on the left." Why don't people choose S3, in which both the names and the facial expressions are reversed. This would seem, after all, to be more like "exactly the opposite" of Ralph's beliefs. The crucial factor is that the appositives *who is smiling* and *who is frowning*, despite being syntactically positioned below *Ralph believes*, are not interpreted there. To see what such interpretation would be like, we can look to simple conjunction, as in (5).

(5) In front of Ralph stand two women. Ralph believes that the woman on the left is smiling and is Bea, and the woman on the right is frowning and is Ann. As a matter of fact, exactly the opposite is the case.

Here, syntactic position correlates with semantic scope; people reliably choose S3 as the one that characterizes reality, because all the conjuncts contribute semantically to the complement of the attitude predicate.

It is routine for expressives to scope outside of their embedded environments as well. Potts (2005) offers a number of attested cases. Here is a one involving an epithet, drawn from a weblog post; the author of this sentence is describing a complaint that he regards as frivolous:

(6) The complaint says that the idiot filled in a box labeled "default CPC bid" but left blank the box labeled "content CPC bid (optional)".
[http://www.theregister.co.uk/2008/04/23/google_adfraud_court/]

Naturally, the complaint does not contain the word *idiot*, as this would undermine its rhetorical position. In addition, the sentence preceding this in the weblog post says, "The plaintiff is an idiot who doesn't know what 'default' means", which presents the epithet's content as a direct predication. Thus, it is clear that *the idiot* encodes the speaker's dismissive opinion of the person who filed the complaint; whatever content the expressive carries (Potts 2007; Constant, Davis, Potts et al. 2008), it is not part of the complement to *say* semantically. It is, rather, speaker-oriented.

On the basis of examples like these, Potts (2005) concludes that appositives and expressives are invariably speaker-oriented, regardless of syntactic configuration and discourse context. Wang, Reese & McCready (2005) were, to our knowledge, the first to challenge this conclusion in print. Their short squib focuses on nominal appositives like *a professor, a famous one*, in which both the anchor *a professor* and the appositive clause *a famous one* are indefinite. Such appositives do indeed often give rise to non-speaker-oriented readings. For example, in (7), from a jaunty article about Alfred Kinsey, the biologist who founded the Institute for Research in Sex, Gender and Reproduction, the appositive *a Hoosier Dr. Mengele* is clearly intended to be embedded inside the complement to *claim*.

(7) Far out on the grassy knoll of sexology, there is a cult of prochastity researchers who claim that the late Alfred Kinsey was a secret sex criminal, a Hoosier Dr. Mengele, who bent his numbers toward the bisexual and the bizarre in a grand conspiracy to queer the nation and usher in an era of free sex with kids. [20_newsgroups corpus]

The example is rich in opposing emotive language: *grassy knoll of sexology* and *cult* contrast sharply with *Hoosier Dr. Mengele* and *the bisexual and the bizarre* to ensure that we have two distinct perspectives in play.

If the non-speaker-oriented cases were limited to doubly-indefinite examples like this, then we might be motivated to treat them as a special case. However, ARS find embedded readings with other kinds of appositive as well. In (8), for example, the appositive's anchor is a definite and the appositive is a full relative clause.

(8) Joan is crazy. She's hallucinating that some geniuses in Silicon Valley have invented a new brain chip that's been installed in her left temporal lobe and permits her to speak any of a number of languages she's never studied. Joan believes that her chip, which was installed last month, has a twelve year guarantee.

Karttunen & Zaenen (2005) discuss related examples of embedding, which lead them to conclude, "we agree with Potts that supplemental expressions give rise to conventional implicatures but we disagree with his view that the author is always unconditionally committed to them." ARS reach a similar conclusion: "in the cases where CIs are anchored to an agent other than the speaker, they do appear to take narrow scope relative to the embedding attitude predicate [. . .]" (p. 738). In addition, they find non-speaker-oriented examples involving expressives, in environments similar to the one in (8):

(9) [Context: We know that Bob loves to do yard work and is very proud of his lawn, but also that he has a son Monty who hates to do yard chores. So Bob could say (perhaps in response to his partner's suggestion that Monty be asked to mow the lawn while he is away on business):]

Well, in fact Monty said to me this very morning that he hates to mow the friggin lawn.

We conclude from these examples that Potts 2005 was wrong to claim that appositives and expressives are invariably speaker-oriented. In some utterances, they can describe the commitments of other individuals. The pressing question now is what conditions deliver such readings.

The literature offers two competing theoretical conceptions of how these non-speaker-oriented readings might arise:

(10) a. **Configurational**: The source of non-speaker-oriented readings of appositives and expressives is semantic binding: their content can be bound by higher operators like attitude predicates, thereby shifting it away from the speaker (Schlenker 2003: 98; Schlenker 2007: §4; Sauerland 2007).

b. **Contextual**: The source of non-speaker-oriented readings of appositives and expressives is the interaction of a variety of pragmatic factors. In general, these interactions favor speaker-orientation, but other orientations are always in principle available, regardless of syntactic configuration (Potts 2007).

Hypothesis (10a) is a natural response to the above examples, and it has independent theoretical interest as well, since it would connect expressives and appositives with work on indexical shifting and logophoric pronouns (Schlenker 2003; von Stechow 2003; Anand & Nevins 2004; Oshima 2006). Hypothesis (10b) allows us to retain the multidimensional view of semantic composition developed in Potts 2005, but it calls for a more nuanced view of speaker-orientation and the pragmatics of appositives and expressives.

Potts (2007, To appear) is led away from (10a) and to (10b) by examples in which syntactically unembedded expressives receive non-speaker-oriented readings. Example (11) is a case in point. It is from an essay by Lewis Lapham, the liberal, populist essayist and political commentator who edited Harper's Magazine for many years. The sentence of interest is the last one. In it, he seems to call the beliefs of poor people "idiotic". This is out of step with what we know about Lapham, to say the least.

(11) I was struck by the willingness of almost everybody in the room — the senators as eagerly as the witnesses — to exchange their civil liberties for an illusory state of perfect security. They seemed to think that democracy was just a fancy word for corporate capitalism, and that the society would be a lot better off if it stopped its futile and unremunerative dithering about constitutional rights. Why humor people, especially poor people, by listening to their idiotic theories of social justice?

[Lewis Lapham, Harper's Magazine, July 1995]

If we back up a few sentences, though, we see that a perspective shift has been achieved already going into this sentence. We have moved to the viewpoint of the senators and other powerful people involved. The adjective "idiotic" is meant to convey something about their views. There is no suggestion that they would overly say or endorse such a characterization, but rather that their perspectives entail or justify it. The most important thing about this example, though, is that the adjective in question is not embedded at all. Whatever shift has happened is not one that is controlled by an attitude predicate.

Example (12) makes a similar point. Again, we need a lot of context to achieve the intended shift in the final sentence. Here, it is clear that the entire sentence is to be evaluated from a non-speaker perspective; the epistemic modal shifts along with the negatively charged *cronies*.

(12) While shopping at one of my local Apple stores the other day, I overheard an earnest conversation about safeguarding Mac computers against things like viruses and trojans. The customer and companion were new to Mac life and were convinced that they should be very worried about viruses. The Apple salesperson on the floor repeatedly assured them that they would not need extra antivirus protection for their Mac. The customer then argued that Symantec makes an antivirus program for Macs, therefore, it must truly be a credible threat, otherwise there would be no such products. Some antivirus products are even sold in Apple stores. I've heard similar arguments before: if companies like Symantec or McAfee make antivirus applications for the Mac, then Macs must truly be vulnerable somehow, somewhere. Steve Jobs

and the rest of the Apple cronies must be lying. [http://news.digitaltrends.com/feature/79/antivirus-programs-for-mac-snake-oil-or-public-service]

In light of these examples, we should return to ARS's (8)–(9). Both use attitude predicates, but they also perform careful perspectival shifting in the lead-up to the target sentence. Examples (11)–(12) show that, at least for epithets, such contextual factors suffice to create non-speaker-oriented readings; while there is no doubt that attitude predicates facilitate shifting, they are not necessary for it to occur.[3]

We turn now to our experimental work, which bears directly on the choice presented by (10).

3 Experiment 1: Appositives and embedding

At the close of the previous section, we saw examples in which epithets receive non-speaker-oriented readings despite being in matrix clauses. We have not found comparable examples involving appositives, but our intuitions suggest that they are possible. Experiment 1 confirms these intuitions, thereby further supporting contextual hypothesis (10b) over configurational hypothesis (10a).

3.1 Materials and method

The materials consisted of an invariant context and a target sentence containing an appositive clause (underlined in (13)). Five of the appositives were nominal appositives, and three were appositive relatives. They appeared in a variety of different syntactic positions.

The experiment manipulated a single factor in the target sentence: whether the appositive was embedded under a verb of saying (A) or not (B). Our goal was to determine whether non-speaker-oriented readings arise outside of embedded contexts, and also to gauge whether embedding is a significant influence on such readings.

For all the successful non-speaker-oriented appositives and expressives we have seen, the speaker's perspective is sharply distinguished from that of another specific

3 The examples in this section bear a striking resemblance to Lasersohn's (2005) examples in which a predicate of personal taste has shifted off of the speaker and onto another agent:

(i) [Context: "Suppose John is describing to Mary how their two-year-old son Bill enjoyed a recent trip to the amusement park. Something like the following dialog might occur:"]

Mary: How did Bill like the rides?

John: Well, the merry-go-round was fun, but the water slide was a little too scary.

We are reluctant to bring predicates of personal taste too close to expressives, though. We are persuaded by Lasersohn's arguments that the two are different.

agent. We sought to reproduce this. All our contexts involve the speaker and a character with a notably distinct perspective from the speaker's. In the sample item (13), for example, the character is the roommate, and she is depicted by the speaker as paranoid.

(13) **Context**: I am increasingly worried about my roommate. She seems to be growing paranoid.

Target:

A. The other day, she told me that we need to watch out for the mailman, a possible government spy.

B. The other day, she refused to talk with the mailman, a possible government spy.

Whose view is it that the mailman might be a government spy?

Response:

a. Mine (Speaker)

b. My roommate's (Subject)

c. Mine and my roommate's (Both)

Participants were instructed to select which agent's perspective was reflected in the appositive content. They were given three choices: speaker's (a), subject's (b) or speaker's and subject's (c) perspective. In (13), for example, they were asked whether the view that the mailman is a possible government spy should be attributed to me (the speaker), my roommate (the subject), or to me and my roommate (both). The presentation order of the responses was randomly generated in each question.

The materials were divided into two balanced lists across four questionnaires, so that participants saw one and only one condition from each item. There were eight such pairs in all (given in appendix A), which were randomly interspersed with items from two other subexperiments (28 other experimental items, including 16 items from the experiment testing epithets described in section 4) and four genuine filler items, for a total of 40 items per questionnaire. Of the eight experimental items, three pairs contained an appositive relative, and five pairs contained a nominal appositive.

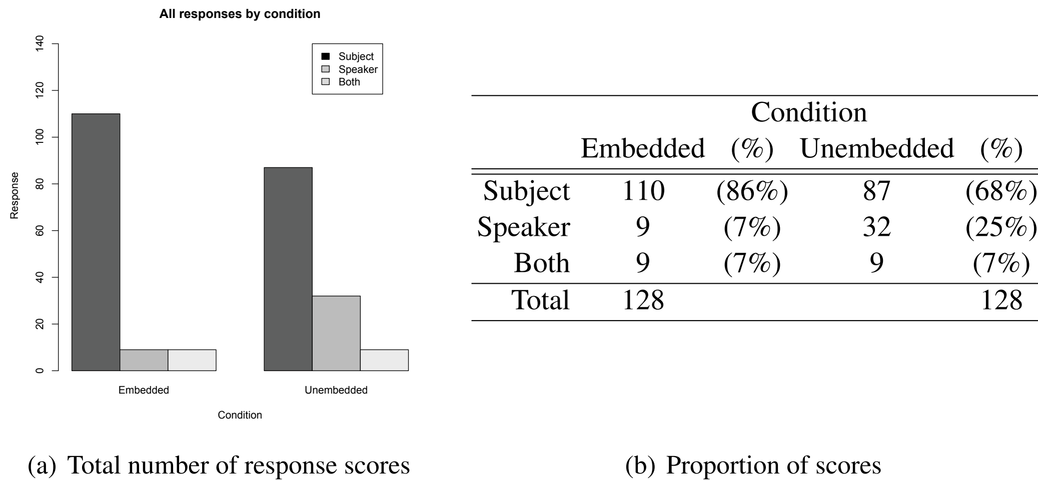
3.2 Participants

Thirty-one undergraduate students and one graduate student from UMass Amherst participated in the study online. Undergraduates received course credit for their participation.

3.3 Data analysis

3.3.1 Distribution of responses

Participants strongly preferred non-speaker-oriented interpretations of appositive content in both conditions: the Subject interpretation was selected 86% of the time for Embedded conditions and 68% of the time for Unembedded conditions. Speaker interpretations were more prominent in Unembedded conditions (25%) than Embedded conditions (7%). The Both response was selected 7% of the time in both the Embedded and Unembedded conditions. Figure 1 summarizes the distribution of scores by condition.



(a) Total number of response scores

	Condition			
	Embedded	(%)	Unembedded	(%)
Subject	110	(86%)	87	(68%)
Speaker	9	(7%)	32	(25%)
Both	9	(7%)	9	(7%)
Total	128			128

(b) Proportion of scores

Figure 1: Experiment 1 response data, by condition

3.3.2 The influence of syntactic position

Non-speaker-oriented readings were strongly favored in both the Embedded and Unembedded conditions, but they arose more often in Embedded conditions. Is this difference significant? That is, does syntactic embedding significantly influence whether people choose non-speaker-oriented readings? To answer this question, we subjected the data to a logistic regression analysis. (For discussion of logistic regression in the context of analyzing psycholinguistic data, see Baayen 2008; Jaeger 2008.)

For this analysis, we grouped the Both and Speaker responses into a single category of Non-Subject readings, as in table 2(a). We took this step because of the indeterminacy inherent in Both responses. While it is possible that, in these

cases, the content is genuinely perceived as a commitment of both speaker and subject, we suspect that these readings are the result of pragmatic enrichment: either the experimental subject attributed the content in question to the Subject and then inferred that the Speaker believed it also, or the reverse (see Karttunen's (1973) discussion of how presupposition plugs can 'leak'). Thus, we are unsure of how to count Both responses when the focus is on Subject readings, so we have decided to take the conservative approach of treating them as Non-Subject readings, even though we might lose genuinely Subject readings in this conflation.

We use logistic regression to predict the probability of Subject readings based on the syntactic position of the appositive (Embedded vs. Unembedded). The fitted model is[4]

(14) $$\Pr(\text{Subject}) = \text{logit}^{-1}(0.75 + 1.06x)$$

where $x = 1$ for the Embedded condition and 0 for the Embedded condition. This model says that the probability of an embedded interpretation when $x = 0$ (when the appositive is unembedded) is $\text{logit}^{-1}(0.75) = 0.68$, whereas the probability of an embedded interpretation when $x = 1$ (when the appositive is embedded) is $\text{logit}^{-1}(0.75 + 1.06) = 0.86$. (We can also calculate probabilities for non-Subject readings, by subtracting the Subject probabilities from 1.) Table 2(b) provides additional information about the model. The estimated coefficient for the Embedded predictor is more than three standard errors from 0, and thus it is significant; $p < 0.001$. We can therefore conclude that (at least for these examples) syntactic embedding positively correlates with non-speaker-oriented readings.

3.4 Discussion

Experiment 1 supports three central conclusions:

(15) a. Non-speaker-oriented readings are available for appositives, both when they are syntactically embedded inside attitude predications and when they are in matrix clauses.

b. In perspectivally-rich contexts, non-speaker-oriented readings are even preferred under some circumstances.

c. Embedding inside an attitude context significantly increases the likelihood of a non-speaker-oriented reading.

These conclusions seriously challenge the view of Potts 2005 that appositives are invariably speaker-oriented. The experimental items involve both nominal

4 For all the regression modeling in this paper, we used the `glm` (generalized linear model) function in R (R Development Core Team 2008).

	Condition			
	Embedded	(%)	Unembedded	(%)
Subject	110	(86%)	87	(68%)
Non-Subject	18	(14%)	41	(32%)
Total	128		128	

(a) The experiment 1 response data with the Speaker and Both categories combined into a single Non-Subject category.

	Coefficient estimate	Coefficient standard error
(Intercept)	0.75	0.19
Embedded	1.06	0.32

(b) The Embedded coefficient is statistically significant; syntactic embedding is a significant predictor of non-speaker-oriented readings.

Figure 2: The organization of the response data for the experiment 1 regression analysis, with details of the model in (14).

appositives and appositive relatives, with a variety of different morphological forms, positioned in various places in the main clause. We expect that these findings reflect the general state of affair for these clauses.

Conclusion (15a) supports the contextual hypothesis (10b) and challenges the configurational hypothesis (10a), which ties non-speaker-oriented readings too closely to the presence of an embedding operator. Our findings are consistent with a theoretical position on which we enrich Potts's (2005) multidimensional view of semantic composition with a theory of perspective taking in context (Giannakidou & Stavrou 2008; Lasersohn 2005). However, hypothesis (10a) is partly vindicated: it seems that embedding is a significant positive influence on non-speaker-oriented readings.

In (15b), we see a glimpse of what factors guide speakers to interpret a given appositive as embedded or unembedded, but we still do not have a clear picture of the details. However, we have made progress on this question for the case of epithets. In the next experiment, we examine how contextual factors can influence the orientation of perspective for such expressives.

4 Experiment 2: Epithets and perspective shift

At the end of section 2, we saw that non-speaker-oriented readings are available even for unembedded epithets like *the jerk*. Harris (To appear) reports on a pilot study that

further supports this basic finding and also begins to identify the pragmatic factors that favor one orientation over the other. Experiment 2 follows up on this pilot study with a more complex manipulation.

4.1 Materials and method

This experiment tested whether the emotional content associated with epithets could be non-speaker-oriented in unembedded environments. After Harris (To appear), we reasoned as follows: if participants were given evidence that the subject of the attitude report held a negative emotive stance towards the referent of an epithet, they would more often interpret that epithet as non-speaker-oriented. Conversely, if they were not given such biasing evidence, then they would more often favor speaker-orientation, which is arguably the default strategy.

We further hypothesized that the stronger the evidence for an emotional relationship between the subject and referent of the epithet, the stronger the inferences required for perspective shift would be. We sought to strengthen this evidence by using intensives like *really*, *totally*, and *super* (Beaver & Clark 2008; Potts & Schwarz 2008) to amplify the modifiers used to create the bias; it is one thing to be upset (or delighted) that *X* is *fantastic* and another to be upset (or delighted) that *X* is *totally fantastic*.

Thus, the experimental design crossed two factors: the polarity of Context (Negative, Positive) with the presence of an Intensifier (Y, N). The central hypothesis mainly concerns the effect of Context on the availability of non-speaker-oriented interpretations. We did not, for instance, predict that these two factors would interact in a meaningful way.

The experimental items consisted of sixteen quadruplets, with the same pattern as the sample item (16). Each varied only in whether the context was positive or negative and whether there was an intensifier before the adjective or not. The materials were presented in the same experiment as the materials from experiment 1, described in section 3. Appendix B gives the full set of non-filler materials.

(16) **Suppose you and I are talking and I say:**

A. My classmate Sheila said that her history professor gave her a low grade. (Negative, N)

B. My classmate Sheila said that her history professor gave her a really low grade. (Negative, Y)

C. My classmate Sheila said that her history professor gave her a high grade. (Positive, N)

D. My classmate Sheila said that her history professor gave her a really high grade. (Positive, Y)

Whose view is it that the professor is a jerk?

Response:

a. Mine (Speaker)

b. Sheila's (Subject)

c. Mine and Sheila's (Both)

4.2 Participants

The study involved the same thirty-two participants from experiment 1, as described in section 3.2

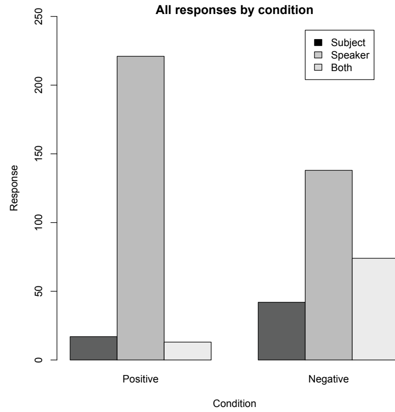
4.3 Data analysis

4.3.1 The distribution of responses

We first examine our data by the Context condition. Unlike in experiment 1 on appositives, speaker-oriented interpretations were preferred across conditions. However, while 88% of the judgments for the Positive condition were speaker-oriented, just 55% were speaker-oriented in the Negative condition. Conversely, subject-oriented responses increased to 17% in the Negative condition, up from 7% in the Positive condition. Similarly, Both responses rose to 29% in the Negative condition, up from 5% in the Positive condition. This response data is summarized in figure 3.[5]

Table 4 gives the overall distribution of responses with the Intensifier condition included. It is clear from the proportions that Intensifier did not successfully manipulate the availability of Subject responses, as confirmed in the analysis below. As a result, we do not consider the Intensifier condition in much detail.

5 A typo affecting the first nine participants in one item was found. Responses for this item were coded as "NA" and removed from further analysis.



(a) Total number of response scores

	Context			
	Pos	(%)	Neg	(%)
Subject	17	(7%)	42	(17%)
Speaker	221	(88%)	138	(54%)
Both	13	(5%)	74	(29%)
Total	251		254	

(b) Proportion of scores

Figure 3: Experiment 2 response data, by condition

		Context			
Response	Intensifier	Pos	(%)	Neg	(%)
Subject	N	8	(3%)	17	(7%)
	Y	9	(4%)	25	(10%)
Speaker	N	114	(45%)	73	(29%)
	Y	107	(43%)	65	(25%)
Both	N	4	(1%)	38	(15%)
	Y	9	(4%)	36	(14%)
Total		251		254	

Figure 4: Proportion of scores for experiment 2, crossing Context by Intensifier

4.3.2 The influence of context

We first address the issue of the Intensifier condition. As we noted above in connection with table 4, it was not a significant predictor of how an epithet was interpreted. This was confirmed by fitting the data to a logit model; neither the Intensifier condition nor its interaction with the Context condition had a significant coefficient. If they contributed at all, it was in an unexpected direction. This is somewhat evident in table 4 for Speaker responses as well: rather than enhancing the bias created by the Context, the Intensifier seemed to diminish it slightly. For this reason, we henceforth leave the Intensifier condition out of our models.[6]

6 The reported models were first compared to more complex models, using the top-down model-fitting technique discussed in Crawley (2007). We kept the simplest model that explained the highest amount of variance.

We again face a choice about how to view the Both data. As in experiment 1, we opt to combine the Speaker and Both responses into a single category of Non-Subject responses. In this case, treating the scores this way essentially biases against our hypothesis, because it reduces the difference between Positive and Negative Contexts, as shown in table 5(a).

Our goal for the regression model is to better understand the extent to which the nature of the context (Positive or Negative) predicts Subject readings. The fitted model is

(17) $$\Pr(\text{Subject}) = \text{logit}^{-1}(-2.62 + 1.00x)$$

where $x = 1$ if the context is Negative and $x = 0$ if it is Positive. Thus, the model assigns Subject readings a probability of $\text{logit}^{-1}(-2.62) = 0.07$ for Positive contexts and $\text{logit}^{-1}(-2.62 + 1.00) = 0.17$ for Negative contexts. As the model summary in table 5(b) shows, the coefficient for the Positive predictor is more than three standard errors from 0, and thus the model is significant; $p < 0.001$. It thus seems that Negative contexts are genuinely more likely to correlate with non-speaker-oriented readings.

	Context			
	Pos	(%)	Neg	(%)
Subject	17	(7%)	42	(17%)
Non-Subject	234	(93%)	212	(83%)
Total	251		254	

(a) The experiment 2 response data with the Speaker and Both categories combined into a single Non-Subject category.

	Coefficient estimate	Coefficient standard error
(Intercept)	−2.62	0.25
Positive	1.00	0.30

(b) This logistic regression model tests whether the nature of the context (Positive vs. Negative) significantly correlates with the proportion of subject-oriented responses. The Positive coefficient is a significant factor.

Figure 5: The organization of the response data for the experiment 2 regression analysis, with details of the model in (17).

4.4 Discussion

The results of experiment 2 further support the claim that non-speaker-oriented readings are possible for expressives, if the right contextual factors are present. The results also suggest that such readings do not require syntactic embedding, and thus they further challenge the configurational hypothesis (10a).

The experiment manipulated carefully controlled contexts so that changing a single word, and thereby alternating the general positive or negative emotive polarity of the context, triggered a series of inferences about whether the subject of the attitude report stood in a negative relation to the referent of the epithet. The response data suggest that these inferences affected how speakers understood the epithets. (We did not, though, find evidence that intensives reliably contribute here.)

5 Corpus study

The results of experiment 1 (section 3) suggest that embedding attitude predicates, while not required for non-speaker-oriented readings of appositives, can facilitate such readings. The present section shifts the emphasis slightly. Now that we know speaker-oriented and non-speaker-oriented readings are both possible, we would like to know what people are actually doing with their appositives. In particular, how frequent are non-speaker-oriented readings in naturally occurring text? We address this question with a new corpus of embedded appositives (Potts & Harris 2009).[7]

5.1 Data sources

This data set is concerned only with appositive relatives with nominal anchors that appear in the syntactic complements to attitude verbs and verbs of saying, as in (18).

(18) Hartzenberg said he would ask Terre'Blanche, who heads the extremist Afrikaner Resistance Movement (AWB), if he would meet Mandela.

The data are drawn from the following sources, all of which are freely available on the Net:

7 The corpus distribution includes all the data in XML format as well as a browser-based search function, our own annotation manual, the instructions that the assessors received, and screenshots of the browser-based annotators used by us and by the assessors.

(19) a. The Gigaword fragment downloadable from the LDC website
b. The 20_newgroups corpus
c. The sample of the Penn Treebank distributed with NLTK
d. Novels downloadable from Project Gutenberg
e. TV show transcripts downloadable from CNN.com

In all, this amounts to about 177 million words in a variety of styles and genres. The first step in unearthing the relevant examples was pulling out all the sentences that match the following regular expression:

(20)
```
PREDS(es|s|ed)?.*[A-Z][a-z]*\,\s+(who|whom|whose)\s
```

Here, `PREDS` stands in for a long disjunctive list of attitude predicates:

(21)
```
affirm          allege      announce        argue
assert          believe     certain         claim
conclude        conjecture  declare         guess
imply|implies   judge       move            presume
request         remark      report          rumor
say|said        suggest     suppose         sure
think|thought   trust       understand      ask
question        request     query|queries
```

We then went through these results by hand, throwing out spurious matches. This left us with 278 examples.[8]

5.2 Annotation

With the examples collected, we conducted a two-stage annotation project. In stage 1, we went through the examples ourselves (first independently, and then together), looking for *textual* evidence for the intended interpretation of the appositive and summarizing that evidence in short prose statements. In stage 2, our evidence was assessed by two independent annotators. This process is described in more detail in the next two subsections

5.2.1 Stage 1: Seeking textual arguments

In stage 1, we were the annotators. We had two related tasks. The first was to answer the question ‘At which level does the speaker intend the appositive to be interpreted?’ The choices for this annotation were as follows:

8 At this stage, we also tagged the relevant examples for the root form of the embedding verb.

(22) a. Textual evidence for text-level
b. Textual evidence for embedded
c. No textual evidence detected; seems text-level
d. No textual evidence detected; seems embedded
e. No textual evidence detected; intentions unclear

We deliberately focused the annotation task on speaker intentions. It seems reasonable to conclude from experiment 1 that all embedded appositives are semantically underspecified for the perspective of the appositive, so the interesting question is probably not what is allowed, but rather what was actually intended (or what an audience is likely to assume the speaker intended).

Where we judged the example to have textual evidence (the first two options in (22)), we summarized that evidence succinctly, citing the relevant passages and seeking to explain their relevance to the question at hand. Here are two examples, the first arguing for a text-level interpetation, the second for an embedded interpretation; these examples are available along with their full textual contexts as part of the corpus distribution.

(23) a. **Target sentence**: A government prosecutor said Wednesday he plans to drop vandalism charges against a Malaysian teenager allegedly involved in a spate of spray painting cars with a young American, Michael Fay, who was caned recently.
b. **Evidence**: A later sentence elaborates on the details of Fay's punishment: "[. . .] was given four strokes of a rattan cane two weeks ago [. . .]".

(24) a. **Target sentence**: Israel says Arad was captured by Dirani, who may have then sold him to Iran.
b. **Evidence**: The connective 'then' presupposes that if the complement clause is interpreted as embedded, then so too must the appositive. There is no evidence contraindicating an embedded reading of the complement clause. The epistemic modal also seems to be anchored to the subject, Israel.

We also included in the data some arguments that we considered to be poor, either because they did not restrict attention to textual evidence or because they did not necessarily support a particular judgment. We did this as a cautionary measure; in the event that our textual arguments were all good ones, we wanted to prevent our assessors from growing accustomed to providing positive assessments.

In general, finding and formulating textual arguments was demanding. It required a close-reading of the text as well as sensitivity to a wide various textual clues. Very often, the author's intentions were clear but finding evidence for those intentions was considerably more challenging. We did this work ourselves, rather than passing it along to our annotators, because we wanted to decouple the task of finding textual evidence from the task of assessing that evidence and using it to make a judgment about the author's intentions. We were the detectives, and we let our assessors judge what we found.

Though it is not sensible to give a comprehensive list of all the different kinds of evidence we used, we can outline some of the general considerations that we had in mind as we worked:

(25) a. Presupposition triggers dependent on the truth of the appositive.

b. Text-level anaphoric devices (especially sentential *it*, *that*, and *this*) that depend anaphorically on the appositive.

c. Patterns of contradiction in the broad sense defined by de Marneffe, Rafferty & Manning (2008).

d. Discussion that pragmatically presupposes the truth of the appositive content.

e. Independent text-level assertions of the appositive content (fairly common in newspaper articles, which summarize at the start and then expand on that summary throughout the remaining text).

We emphasize *textual* in all this. In many of the cases where the given annotation is 'no textual evidence detected', the content seemed clearly intended to be interpreted as text-level. Such content tends to be a matter of historical record, or was intended to be given as a piece of new, albeit secondary content. Here are two examples:

(26) a. The king said that he and his wife were "greatly saddened" by the death of Onassis, widow of former US president John Kennedy, who was assassinated in Dallas in November 1963.

b. Texas Air Corp said it named Norman McInnis as president of its Britt Airways unit, succeeding Bill Britt, who retired March one.

In neither of these cases did the text verify the appositive's content independently, so they were included in the 'no textual evidence' category.[9]

9 The corpus contains many examples like (26b), in which all the central facts are reported under verbs of saying, which effectively act as evidential markers.

Our goal in relying on textual evidence was to avoid circularity of argumentation. If the evidence for text-level interpretation is merely that our intuitions point to such an interpretation, then the judgment is easily challenged and hard to further support. Relying on textual evidence means that we have somewhat more objective criteria for the annotations, though it should be kept in mind that these criteria are intricate and depend on defeasible inferences. For highly relevant discussion, see Zaenen, Karttunen & Crouch 2005 and Manning 2006.

5.2.2 Stage 2: Independent assessment

Our assessors worked with a browser-based annotation tool that we designed. It presented the appositive in its textual context, highlighted in yellow. It also presented our textual evidence. The assessor's job was to answer two questions:

(27) What kind of reading is this evidence for?

a. Text

b. Embedded

c. Unclear

(28) What is the status of the textual argument?

a. Good

b. Bad

There was also an optional text box of supplying notes.

5.3 Analysis

There are a number of ways in which we can view the annotated data. Our primary goal for this section is to use the data to assess how frequent non-speaker-oriented readings are in real discourse. We thus focus on the most restrictive subset of the annotated data: the set of examples for which we have three-way agreement (Harris and Potts, plus our two assessors) that the textual evidence found for them is Good. There are 34 such examples in our data, just two of which are non-speaker-oriented (Embedded, in the annotation scheme): example (7) and example (24). The remaining 32 examples are speaker-oriented (Text). We cannot think of any reasons why the demand for text-level interpretations would bias in favor of non-speaker-oriented interpretations. Indeed, if anything, we would expect non-speaker-oriented to be more likely to appear with textual evidence, since the speaker is likely to feel

some pressure to disavow the content. And yet still the bias is heavily in the other direction, with just 6% of the examples plausibly intended as non-speaker-oriented.

Before we close, a few words on inter-annotator (inter-assessor) agreement are in order, as these provide some sense for how reliable the annotations are. We calculated two different kappa scores of agreement. For both these calculations, we left ourselves out of the picture, focusing instead on the level of agreement between the two assessors.

If we consider our two assessors as selecting, for each example, a single annotation from the set {'Good', 'Bad'} and another single annotation from the set {'Text', 'Embedded', 'Unclear'}, then there are 6 possible categories. The kappa measure for our assessors is, from this perspective, about 39%; table 6 provides the details. This is a moderate level of agreement, not especially encouraging on its own, but arguably reasonable given the difficulty of the task.

		Good			Bad		
		Text	Embedded	Unclear	Text	Embedded	Unclear
Good	Text	32	0	0	11	0	2
	Embedded	0	5	0	0	2	0
	Unclear	0	0	0	0	0	0
Bad	Text	10	1	0	11	0	1
	Embedded	0	3	0	1	4	0
	Unclear	0	0	1	1	1	0

Figure 6: Inter-assessor agreement. The kappa measure for the entire table is a modest 39%, but if we restrict attention to the examples for which both assessors thought our evidence was good (upper left quadrant), then the agreement rate is 100%.

If we restrict attention to the examples for which both assessors regarded that status of the argument as Good, then we can measure the degree to which they agreed on what the evidence was good for: Embedded, Text, or Unclear. This is the upper left quadrant of table 6. Here, we have 100% agreement.

Taken together, these kappa results suggest that there is uncertainty about which arguments are good and which are bad, but that where there is agreement that the argument is good, the judgments about the nature of that evidence are highly reliable.

We hope that, in making the corpus, annotations, manuals, and instructions available, we are helping to pave the way to higher-fidelity annotations in the future. For discussion of the challenges facing tasks like this (and a criticism of existing data sets with similar ambitions), we refer to Zaenen, Karttunen & Crouch 2005.

5.4 Discussion

A speaker who utters an appositive with the intention of having it be understood as non-speaker-oriented has undertaken a risky communicative strategy in the following sense: it runs counter to hearer expectations about how these constructions will be used. Thus, this is a reliable strategy only in contexts that are rich enough to support another perspective in just the right ways. To put it another way: you might always be free to intend your appositive to be understood as non-speaker-oriented, but your audience will often be unable to recover your intentions. And you probably know that your addressee will be unable to recover your intentions, which will lead you to adopt another strategy (assuming you wish to be understood). So, in this broadly game-theoretic fashion, we arrive at the apparent defaults evident in our corpus results, while at the same time allowing that conditions like those in our experiments might lead to different outcomes.

We think this imbalance has an underlying theoretical cause. Suppose appositives and expressives are inherently underspecified for their orientation. Semantically, we might achieve this by including a free variable that determines the *epistemic anchor* or *judge* for the content in question (Farkas 1992; Giannakidou 1999; Giannakidou & Stavrou 2008; Lasersohn 2005). Since there is no general morphological convention for specifying this information directly, it must always be left to the context. Appositives have many of the morphosyntactic and intonational properties of regular asserted declaratives, which are also overwhelmingly speaker-oriented, so perhaps it is unsurprising that appositives are generally speaker-oriented as well.

6 Conclusions

Potts (2005: 1) writes, “I hope readers of this book are struck by how little pragmatics it contains”. ARS take him to task for this, arguing that the important questions about appositives and expressives are largely pragmatic. At this point, we are inclined to agree; a unifying theme of the experimental and corpus work described here is that the important, challenging interpretive questions about appositives and expressives concern where and how they are used.

Experiment 1 shows that non-speaker-oriented readings of appositives arise even outside of embedded contexts, thereby calling into question any account of such readings that depends on semantic mechanisms. Experiment 2 enhances this general conclusion by identifying a significant contextual predictor of the interpretive orientation of epithets like *the idiot*. Taken together, these finding suggest that we should look to the discourse, rather than to the logical forms, to determine how these constructions are understood. Whatever indexicality inheres in these phenomena seems to more closely resemble the discourse-based logophoricity of Kuno (1987)

and Pollard & Sag (1992) (see also Büring 2005: §11) than the bound indexicals of Schlenker (2003), von Stechow (2003), Anand & Nevins (2004), and related work.

The corpus work complements the experimental work, by suggesting that speaker-oriented readings of appositives dominate in real discourse, even when the appositive is syntactically positioned in such a way as to potentially favor non-speaker-orientation. The bias looks significant enough that we should seek a theoretical understanding of it, perhaps by looking away from categorical generalizations and towards those that are based in speaker and hearer expectations and the relative pragmatic stability that they create (Lewis 1969, 1975).

A Appositive materials

The experiment consisted of just one condition, which manipulated whether the appositive was embedded in an attitude report or not. Target sentences for each condition were preceded by the same sentence, which provided some context for the target. The slash (/) separates Embedded conditions from Unembedded conditions.

1. I am increasingly worried about my roommate. She seems to be growing paranoid. The other day, she told me that we need to watch out for the mailman, a possible government spy. / The other day, she refused to talk with the mailman, a possible government spy.

2. My friend Sal is absurdly optimistic. He told me that the lottery ticket he bought yesterday, a sure winner, is the key to his financial independence. / All he could talk about at dinner was the lottery ticket he bought yesterday, a sure winner.

3. My aunt is extremely skeptical of doctors in general. She says that dentists, who are only in it for the money anyway, are not to be trusted at all. / Dentists, who are only in it for the money anyway, are not to be trusted at all.

4. My friend Ellen is a huge snob about music. She says that rock-n-roll, a degenerate genre, is no better than elevator music. / According to her, rock-n-roll, a degenerate genre, is no better than elevator music.

5. Poor Joan seems to have grown crazier than ever. She now claims that her apartment was bugged by the Feds, who are listening to her every word. / Her apartment was bugged by the Feds, who are listening to her every word.

6. My brother Sid hates school. He says that he puts off his homework, a complete waste of time, to the last minute. / He puts off his homework, a complete waste of time, to the last minute.

7. I talked to an outlandish theater critic at a party. He told me that modern theater, which has been on the decline for years, is near its end. / According to him, modern theater, which has been on the decline for years, is near its end.

8. My kid sister Loni is obsessed with comic books. She says that a good graphic novel, man's greatest achievement, can keep her up reading until dawn. / A good graphic novel, man's greatest achievement, can keep her up reading until dawn.

B Epithet materials

The experiment consisted of two conditions. The slash (/) indicates which adjective or verb was used to create a Positive/Negative context, while the Intensifier is given in parentheses.

1. My classmate Sheila said that her history professor gave her a (really) high/low grade. The jerk always favors long papers.
2. My neighbor Maria said that her roommate has the (absolute) best/worst sense of humor. The idiot never stops talking.
3. My roommate Glen said that his uncle tells the (absolute) funniest/lamest jokes. The stooge can never get through a single one of them without giggling.
4. My sister Trudy said that her blind date showed up wearing an (incredibly) expensive/tasteless suit. The idiot spent a lot of money to impress her.
5. My buddy Steve said that his landlord plays the trumpet (very) well/badly. The twerp never takes a night off.
6. My co-worker Miranda said that our boss gave her a (super) generous/stingy Christmas bonus. The skinflint has always treated the pretty ones better.
7. My brother Ken said that his math tutor has been in (such) a great/terrible mood lately. The jerk is always nicer when he's paid in advance.
8. My friend Mike said that his housemate threw a (totally) fantastic/horrible party last weekend. The cretin always invites a lot of people.
9. My aide Sandy said that the good-looking bike messenger is always (so) sweet/rude to her. The creep tried to seduce her in the past.
10. My colleague Sarah said that the president of the company (totally) supported/denied her promotion. The jerk doesn't know the first thing about talent.
11. My sister Katie said that her art teacher (really) praised/criticized her painting in front of the whole class. The moron thinks anything in watercolor is a masterpiece.
12. My cousin Claire said that her landlord (totally) lowered/raised the rent last all of a sudden. The bastard is trying to take advantage of her.

13. My friend Carl said that his lab partner got the (absolute) best/worst score on the midterm. The twerp barely cracked a book all term.
14. My classmate Heidi said that the judge awarded her (such) a great/lousy prize at the science fair. The cretin was probably taking bribes.
15. My buddy Connar said that his boss bought (such) expensive/cheap computers for the office. The imbecile wants to impress the CEO at the next board meeting.
16. My sister Lyra said that her ex-boyfriend tried to take her to a (super) pricey/trashy restaurant on their anniversary. The cheapskate keeps trying to win her back.

References

Aloni, Maria. 2000. *Quantification under Conceptual Covers*. Ph.D. thesis, Universiteit van Amsterdam, Amsterdam. Published in the ILLC Dissertation Series, 2001-1.

Amaral, Patricia, Craige Roberts & E. Allyn Smith. 2007. Review of *The Logic of Conventional Implicatures* by Chris Potts. *Linguistics and Philosophy* 30(6): 707–749.

Anand, Pranav. 2007. Re-expressing judgment. *Theoretical Linguistics* 33(2): 199–208.

Anand, Pranav & Andrew Nevins. 2004. Shifty operators in changing contexts. In Kazuha Watanabe & Robert B. Young (eds.) *Proceedings of SALT 14*, 20–37. Ithaca, NY: CLC Publications.

Aoun, Joseph, Lina Choueiri & Norbert Hornstein. 2001. Resumption, movement, and derivational economy. *Linguistic Inquiry* 32(3): 371–403.

Asher, Nicholas. 2000. Truth conditional discourse semantics for parentheticals. *Journal of Semantics* 17(1): 31–50.

Baayen, R. Harald. 2008. *Analyzing Linguistic Data: A Practical Introduction to Statistics*. Cambridge University Press.

Bach, Kent. 1999. The myth of conventional implicature. *Linguistics and Philosophy* 22(4): 367–421.

Bach, Kent. 2006. Review of christopher potts, ‘the logic of conventional implicatures. *Journal of Linguistics* 42(2): 490–495.

Beaver, David & Brady Zack Clark. 2008. *Sense and Sensitivity: How Focus Determines Meaning*. Oxford: Wiley-Blackwell.

Boër, Steven E. & William G. Lycan. 1976. *The Myth of Semantic Presupposition*. Bloomington, IN: Indiana University Linguistics Club.

Büring, Daniel. 2005. *Binding Theory*. Cambridge University Press.

Constant, Noah, Christopher Davis, Christopher Potts & Florian Schwarz. 2008. The pragmatics of expressive content: Evidence from large corpora. To appear in *Sprache und Datenverarbeitung*.

Corazza. 2005. On epithets qua attributive anaphors. *Journal of Linguistics* 41(1): 1–32.

Crawley, Michael J. 2007. *The R Book*. West Sussex, UK: Wiley.

Cruse, D. A. 1986. *Lexical Semantics*. Cambridge: Cambridge University Press.

Culicover, Peter W. 1992. English tag questions and Universal Grammar. *Lingua* 88(1): 21–54.

Emonds, Joseph E. 1976. *A Transformational Approach to English Syntax*. New York: Academic Press.

Farkas, Donka F. 1992. On the semantics of subjunctive complements. In Paul Hirschbühler (ed.) *Romance Languages and Linguistic Theory*, 69–104. Amsterdam: John Benjamins.

Giannakidou, Anastasi & Melita Stavrou. 2008. On metalinguistic comparatives and negation in Greek. In *Greek Syntax and Semantics*. MIT Working Papers in Linguistics, Cambridge, MA: MIT Linguistics.

Giannakidou, Anastasia. 1999. Affective dependencies. *Linguistics and Philosophy* 22(4): 367–421.

Godfrey, John J. & Ed Holliman. 1993. Switchboard-1 transcripts. Linguistic Data Consortium, Philadelphia.

Harris, Jesse A. To appear. Epithets and perspective shift: experimental evidence. In María Biezma, Chris Davis & Jesse Harris (eds.) *University of Massachussets Occassional Papers in Linguistics: Papers in Pragmatics*, vol. 39. Amherst, MA: GLSA Publishing.

Huddleston, Rodney & Geoffrey K. Pullum. 2002. *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.

Jaeger, T. Florian. 2008. Categorical data analysis: Away from ANOVAs (transformation or not) and towards logit mixed models. *Journal of Memory and Language* 59(4): 447–456.

Kaplan, David. 1999. What is meaning? Explorations in the theory of *Meaning as Use*. Brief version — draft 1. Ms., UCLA.

Karttunen, Lauri. 1973. Presuppositions and compound sentences. *Linguistic Inquiry* 4(2): 169–193.

Karttunen, Lauri & Annie Zaenen. 2005. Veridicity. In Graham Katz, James Pustejovsky & Frank Schilder (eds.) *Annotating, Extracting and Reasoning about Time and Events*. No. 05151 in Dagstuhl Seminar Proceedings, Dagstuhl, Germany: Internationales Begegnungs- und Forschungszentrum für Informatik (IBFI), Schloss Dagstuhl, Germany. URL http://drops.dagstuhl.de/opus/volltexte/2005/

314.

Kuno, Susumo. 1987. *Functional Syntax: Anaphora, Discourse, and Empathy*. Chicago: University of Chicago Press.

Lakoff, George. 1966. Deep and surface grammar. Ms., Harvard University.

Lasersohn, Peter. 2005. Context dependence, disagreement, and predicates of personal taste. *Linguistics and Philosophy* 28(6): 643–686.

Lewis, David. 1969. *Convention*. Cambridge, MA: Harvard University Press. Reprinted 2002 by Blackwell.

Lewis, David. 1975. Languages and language. In Keith Gunderson (ed.) *Minnesota Studies in the Philosophy of Science*, vol. VII, 3–35. Minneapolis: University of Minnesota Press. Reprinted in Lewis 1983, 163–188. Page references are to the reprinting.

Lewis, David. 1983. *Philosophical Papers*, vol. 1. New York: Oxford University Press.

Manning, Christopher D. 2006. Local textual inference: It's hard to circumscribe, but you know it when you see it – and NLP needs it. Ms., Stanford University.

Marcus, Mitchell P., Beatrice Santorini, Mary A. Marcinkiewicz & Ann Taylor. 1999. Treebank-3. Linguistic Data Consortium, Philadelphia.

de Marneffe, Marie-Catherine, Anna N. Rafferty & Christopher D. Manning. 2008. Finding contradictions in text. In *Proceedings of the Association for Computational Linguistics 2008*, 1039–1047. Columbus, OH: Association for Computational Linguistics.

McCawley, James D. 1982. Parentheticals and discontinuous structure. *Linguistic Inquiry* 13(1): 91–106.

McCawley, James D. 1987. Some additional evidence for discontinuity. In Geoffrey J. Huck & Almerindo E. Ojeda (eds.) *Syntax and Semantics*, vol. 20: Discontinuous Constituency, 185–200. Orlando, FL: Academic Press.

McCawley, James D. 1989. Individuation in and of syntactic structures. In Mark R. Baltin & Anthony S. Kroch (eds.) *Alternative Conceptions of Phrase Structure*, 117–138. Chicago: University of Chicago Press.

Oshima, David. 2006. *Perspectives in Reported Discourse*. Ph.D. thesis, Stanford University.

Pollard, Carl & Ivan A. Sag. 1992. Anaphors in English and the scope of the binding theory. *Linguistic Inquiry* 23(2): 261–303.

Potts, Christopher. 2005. *The Logic of Conventional Implicatures*. Oxford Studies in Theoretical Linguistics, Oxford: Oxford University Press.

Potts, Christopher. 2007. The expressive dimension. *Theoretical Linguistics* 33(2): 165–197.

Potts, Christopher. To appear. Conventional implicature and expressive content. In Claudia Maienborn, Klaus von Heusinger & Paul Portner (eds.) *Semantics:*

An International Handbook of Natural Language Meaning. Berlin: Mouton de Gruyter.

Potts, Christopher & Jesse Aron Harris. 2009. Embedded appositives (annotated data). URL http://people.umass.edu/potts/data/embeddedappositives/.

Potts, Christopher & Florian Schwarz. 2008. Exclamatives and heightened emotion: Extracting pragmatic generalizations from large corpora. Ms., UMass Amherst.

Quang, Phuc Dong. 1971. English sentences without overt grammatical subject. In Arnold M. Zwicky, Peter H. Salus, Robert I. Binnick & Anthony L. Vanek (eds.) *Studies out in Left Field: Defamatory Essays Presented to James D. McCawley on the Occasion of his 33rd or 34th birthday*, 3–10. Amsterdam: John Benjamins.

R Development Core Team. 2008. *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. URL http://www.R-project.org/. ISBN 3-900051-07-0.

Ross, John Robert. 1973. Slifting. In Maurice Gross, Morris Halle & Marcel-Paul Schützenberger (eds.) *The Formal Analysis of Natural Languages*, 133–169. The Hague: Mouton de Gruyter.

Sauerland, Uli. 2007. Beyond unpluggability. *Theoretical Linguistics* 33(2): 231–236.

Schlenker, Philippe. 2003. A plea for monsters. *Linguistics and Philosophy* 26(1): 29–120.

Schlenker, Philippe. 2007. Expressive presuppositions. *Theoretical Linguistics* 33(2): 237–245.

von Stechow, Arnim. 2003. Binding by verbs: Tense, person and mood under attitudes. In Makoto Kadowaki & Shigeto Kawahara (eds.) *Proceedings of the 33rd North East Linguistics Society Meeting*. Amherst, MA: GLSA.

Taylor, Kenneth A. 2007. Misplaced modification and the illusion of opacity. In Michael O'Rourke & Corey Washington (eds.) *Situating Semantics: Essays on the Philosophy of John Perry*, 215–250. Cambridge, MA: MIT Press.

Wagner, Michael. 2004. Asymmetries in the syntax and prosody of verb-intial interpolated clauses in German. In Sylvia Blaho, Luis Vincent & Eric Schoorlemmer (eds.) *Proceedings of CONSOLE XII*, 201–215. Leiden: The Student Organization of Linguistics in Europe.

Wang, Linton, Brian Reese & Eric McCready. 2005. The projection problem of nominal appositives. *Snippets* 10: 13–14.

Zaenen, Annie, Lauri Karttunen & Richard Crouch. 2005. Local textual inference: Can it be defined or circumscribed? In *ACL Workshop on Empirical Modelling of Semantic Equivalence and Entailment.* Ann Arbor, MI: Association for Computational Linguistics.