

# Part I

## Brevity in Language and Thought

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# 1

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## Fragment Answers to Questions: A Case of Inaudible Syntax\*

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The processing of ellipsis has received considerable attention recently (Arregui et al 2006; Duffield and Ayumi 2009; Frazier 2009; Frazier and Clifton 1998, 2005; Garnham and Oakhill 1987; Kertz 2010; Kim and Runner 2009; Kim et al 2011; Martin and McElree 2008; Tanenhaus and Carlson 1990; and Kempson et al 2011c, among others). We extend the experimental investigation of ellipsis to ellipsis in questions. One reason for this extension is because the answer to a question often takes the form of a fragment instead of a complete sentence, as illustrated in (1.1).

- (1.1) Speaker A: What did John eat?  
Speaker B: Beans.

A second and more telling reason is because elliptical answers to questions have some very interesting properties that allow us to explore what is actually deleted in an ellipsis.

We focus on direct answers, as opposed to indirect answers, following the widely used analysis of questions as denoting the set of their answers (Karttunen 1977, but see Jacobson 2010 for a recent revision and references to the intervening literature). Direct answers supply a meaning that is an element of the meaning of the question and do not require an inference to determine their relation to the question. By

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contrast, indirect answers typically do require an inference to determine the relation to the question (eg, ‘Who is coming?’, ‘John is sick’), report the speaker’s perspective, and are easily taken to be partial rather than exhaustive answers (Groenendijk and Stokhof 1984). While the inference required for an indirect answer may narrow down the set of possible answers, the inference need not be in the answer set.

As an example of the perspectival differences, compare the reduced direct answer in (1.2a) and the indirect answer in (1.2b).

(1.2) Speaker A: What did John say about Sue?

Speaker B:

a. That her jerk of a husband abandoned her.

(fragment direct answer; John is probably the source of the description as ‘a jerk’)

b. Her jerk of a husband abandoned her.

(indirect answer; the speaker of the utterance is probably the source of the description)

A full, unreduced, direct answer to the question in (1.2) would be: ‘He said that her jerk of a husband abandoned her’; such an answer shares with the fragment direct answer in (1.2a) the likelihood that John is the source of the descriptive element ‘jerk’, and it fully answers the question. Based on a variety of syntactic arguments, Merchant (2004) proposed that fragment direct answers are derived by fronting a constituent of the answer that provides the new information to a clause-peripheral (focus) position, with the remainder of the sentence being elided (not pronounced); we will call this analysis the ‘movement + ellipsis’ analysis. On this analysis, in effect, Speaker B’s response to Speaker A in (1.1) is something like (1.3), but Speaker B does not pronounce ‘John ate’.

(1.3) Speaker B: Beans, John ate.

This analysis claims that there is unpronounced syntactic structure (inaudible syntax) in Speaker B’s response in (1.1). The goal of this chapter is to provide experimental evidence for this part of the analysis from two experiments: one on English, concerning the distribution of the complementizer *that*, and a second on German, concerning the distribution of prepositions in fragment answers.

The movement + ellipsis hypothesis explains a number of linguistic observations. It is well-recognized that only constituents can move, as illustrated in (1.4a), and similarly, that fragment answers to questions seem generally to pattern with such constituents, as illustrated in (1.4b).<sup>1</sup> If the derivation of fragment answers involves

<sup>1</sup> This presentation of the data is highly simplified: there are well known cases of elements that appear to have been moved out of ellipsis sites but which do not obey island constraints. The most well known such case involves sluicing (Ross 1969; Merchant 2001), though examples with fragments answers are also attested; for much fuller discussion and for attempts to distinguish the island-sensitive fragments from the

movement of the fragment, the fact that the response in (1.4b) is unacceptable is due to whatever grammatical constraints rule out (1.4a).

- (1.4) a. \*And sour<sub>i</sub>, John likes the sweet \_\_\_\_<sub>i</sub> combo.  
 b. Speaker A: Does John like the sweet and spicy combo?  
 Speaker B: \*No, and sour.

If a phrase cannot move out of an island in cases of overt movement (as illustrated in (1.5a)), then the phrase cannot move out of the island to a higher (focus) position either. Consequently, it cannot be a fragment answer, as illustrated in (1.5b).

- (1.5) a. \*Who does Abby speak the same Balkan language that \_\_\_\_ speaks?  
 b. Speaker A: Does Abby speak the same Balkan language that *Ben* speaks?  
 Speaker B: \*No, *Charlie*.  
 (from Merchant, 2004: example 87).

In languages such as German, objects of prepositions cannot be moved, as illustrated by the contrast between the pair in (1.6a, 1.6b). If movement is necessary for the generation of a fragment answer, then we expect that a PP fragment answer such as in (1.6c) should be fully acceptable, while an NP fragment answer as in (1.6d) should be degraded.

- (1.6) a. Speaker A: **Mit wem hat Anna gesprochen?**  
**with who has Anna spoken**  
 ‘With whom has Anna spoken?’  
 b. Speaker A: \***Wem hat Anna mit gesprochen?**  
**who has Anna with spoken**  
 (intended: ‘Who has Anna spoken with?’)  
 c. Speaker B: **Mit dem Hans.**  
**with the Hans**  
 ‘With Hans’.  
 d. Speaker B: ?? **Dem Hans.**  
**the Hans**  
 (literally: ‘Hans’.)

In the present chapter, we experimentally test two predictions of this approach to fragment answers. In the first study, we test the prediction that, in English, complementizers should be required in fragment answers; and in the second study, we test the prediction that in German, reduced answers to questions involving the

island-insensitive ones, see Merchant 2004, 2013; Culicover and Jackendoff 2005; Stainton 2006a; and Griffiths and Lipták 2013).

object of a preposition that repeat the preposition of the question should be preferred to those that do not repeat the preposition.

The reason that we expect that complementizers such as *that* in (1.7a) should be retained is because in non-elliptical versions of these sentences, as in (1.8), fronting a clause is possible only with an overt complementizer.

- (1.7) Speaker A: What did John deny?  
Speaker B: a. That he had lied.  
          b. \*He had lied.

- (1.8) a. That he had lied, John denied.  
      b. \*He had lied, John denied.

On Merchant's (2004) analysis, Speaker B's responses in (1.7) are structurally equivalent to the responses in (1.8), but the speaker has not pronounced 'John denied'. Thus, the reason why (1.7b) cannot be a fragment answer to Speaker A's question is the same reason that (1.8b) is ungrammatical: namely, because clauses move only when an overt complementizer (*that*) is present.

It is important to note that Merchant's analysis applies only to direct answers to questions, not to indirect replies to questions. The answer in (1.7b) is ungrammatical only as a direct answer. A listener given the response in (1.7b) could infer an acceptable answer to the question in (1.7). However, a direct answer is sometimes preferable in that it provides the information requested by the question without the need for the inference required by an indirect reply.<sup>2</sup>

In a written acceptability questionnaire, conducted in English, the question was whether readers are indeed sensitive to the invisible or unspoken structure posited in Merchant's (2004) analysis. The subjects rated question–answer pairs like (1.9) and (1.10) for acceptability on a 5-point scale where 5 = Perfect (complete list of materials in Appendix 1.1). If readers are sensitive to the postulated inaudible structure required by the fragment direct answer, they should prefer the fragment answer with the complementizer (1.9) over the form without the complementizer (1.10), since the latter would be ungrammatical as an unreduced direct answer if the struck-through structure (shown here to illustrate the analysis, but not included in the materials) were pronounced.

- (1.9) Speaker A: What did Kylie concede?  
      Speaker B: That she took the keys ~~Kylie conceded~~.
- (1.10) Speaker A: What did Kylie concede?  
      Speaker B: She took the keys ~~Kylie conceded~~.

<sup>2</sup> An indirect reply does not answer the question posed, but rather supplies whatever information the speaker has that may be relevant to (partially) answering the question. In this sense it is a response to the question but not an answer.

**TABLE 1.1. Mean acceptability ratings (and standard deviations) on a scale from 1 to 5 (5 = perfect).**

|                     | Complementizer present | Complementizer absent |
|---------------------|------------------------|-----------------------|
| Experimental items: | 4.25 (0.28)            | 3.73 (0.35)           |
| 'Control' items:    | 2.58 (0.42)            | 4.09 (0.28)           |

Sixteen experimental sentence–answer pairs were tested with two forms of each, without and with the complementizer *that*, as illustrated in (1.9) and (1.10), respectively. These sentence–answer pairs were combined with 126 sentences of various forms (including the ‘control’ items described below, and stimuli from another experiment) plus 6 ‘catch’ trials included to identify subjects who were not paying attention. Each of the 16 experimental sentence–answer pairs was followed by a 5-point acceptability rating scale, which asked, ‘How acceptable was that dialogue?’ and provided ratings: ‘terrible’, ‘pretty bad’, ‘so-so’, ‘not so bad’, and ‘perfect’ associated with numerical ratings 1 to 5. Two clearly unacceptable ‘catch’ sentences were followed by the same rating scale, while the other sentences in the questionnaire were followed by a difficulty of comprehension rating scale, or by a question with a two-choice answer.

Forty-one University of Massachusetts undergraduates rated the acceptability of the sentences, where ‘acceptable’ was defined as referring to ‘a sentence that is an OK sentence you might expect to say or write yourself or to hear some other skilled speaker of English say’ with low ratings to be given to sentences or sentence-answer pairs that were ‘nonsensical or ungrammatical or really clumsy’. The means are presented in the top panel of Table 1.1.

As may be seen in Table 1.1 the experimental items were rated as more acceptable when the complementizer was present than when it was not. Analyses of variance with subjects and items as random effects indicated that the difference was highly significant ( $F(1,47) = 41.89, p < .001$ ;  $F(1, 15) = 25.61, p < .001$ ).

The absolute rating of the complementizer absent forms (3.73) was numerically quite high on the 5-point scale. However, it is the relative difference between experimental conditions that can be interpreted in a rating study. More critically, on the present account the complementizer-absent sentences are, taken by themselves, well-formed, and in principle they might be saved as replies to a question by assuming the speaker is offering only an indirect reply, as in, ‘I dont know. What may be relevant is...’ According to Merchant’s theory, the complementizer-absent forms are unacceptable as direct answers, but they can be acceptable as indirect answers, content permitting. An indirect reply is not impossible, but only less direct and at times less cooperative than a direct answer. It is this additional factor that we believe is responsible for the relatively high scores assigned to the complementizer-absent experimental items.

compleme  
ntizer

To address the uninteresting possibility that subjects simply prefer answers with a **complement** present, regardless of its relation to the question, an additional 16 control sentence–answer pairs involving first-person belief reports were tested. Again, each had two forms as illustrated in (1.11) and (1.12). For these items, the direct and the indirect answers both provide the same information, since the usual pragmatics of an utterance requires that the speaker believe the sentence to be true. Given the felicity of the indirect answer to these control items, we expected the need for the complementizer (which permits movement of the embedded clause in a fragment direct answer) to disappear. However, if readers simply prefer forms with complementizers to forms without, they should prefer the fragment answer in (1.11) to the full sentence reply in (1.12) to the same extent as they prefer (1.9) to (1.10). But if they prefer full sentences to elliptical ones as long as they provide information that answers the question, they might well show the opposite preference.

- (1.11) a. Speaker A: What do you think Lena did?  
b. Speaker B: That she wrote some letters.
- (1.12) a. Speaker A: What do you think Lena did?  
b. Speaker B: She wrote some letters.

As can be seen in the lower panel of Table 1.1, these ‘control’ items were rated as being much more acceptable with the complementizer absent than with the complementizer present ( $F_1(1, 47) = 158.5, p < .001$ ;  $F_2(1, 15) = 615.7, p < .001$ ).

The main prediction that the experimental items would be rated as less acceptable without a complementizer than if one was confirmed. The control items show that the preference for a complementizer in the experimental items cannot be attributed to some general preference for sentence–answer pairs to contain a complementizer. The scores for these control cases can also be understood as reflecting the different nature of the question/answer pairs in these cases: unlike the experimental items, the *wh*-word ‘what’ corresponds syntactically to the object of the transitive ‘do’, and semantically to a predicate (which is why an even more natural answer to the questions in (1.11) would simply be ‘write some letters’, as two reviewers point out. Such a fragment answer raises additional questions for the movement analysis, and is discussed in Merchant (2004); since such a ‘VP’ fragment answer does not form a minimal pair with our experimental items, its felicity is orthogonal to our concerns here). This means that the fragment answer in (1.11b) with ‘that’ would have to be derived from an inferred antecedent such as ‘What do you think?’, yielding ‘That she wrote some letters, I think’. The fact that such deformations of the antecedent are possible but costly may account for some of the degradation associated with this kind of answer. Such costs need not affect answers like those in (1.12b), as the indirect strategy is available (alternatively, as Jeff Runner suggests, it may be that (1.12b) represents the minimal expansion of the VP answer to include a subject).



We take these results to support a syntactic analysis of elliptical answers where a constituent first fronts to a focus position and the rest of the sentence is then not pronounced. This analysis provides an explanation for the behaviour of the experimental items, while also accounting for a range of other observations (see Merchant (2004) and especially Merchant (2013) for discussions of the difficulties facing the movement account raised by Culicover and Jackendoff (2005) and Ginzburg and Sag (2000)).

Given that the complementizer *that* does not obviously add any lexical semantic meaning to the answers, it is difficult to see how a syntactic theory without inaudible syntax or movement for fragment answers could explain these results. Ginzburg and Sag (2000), Culicover and Jackendoff (2005), and Kempson et al (2011c) posit detailed theories that variously account for case-matching and other properties that fragments have, by proposing constraints that impose a matching requirement on the correlate (in these cases, the *wh*-phrase in the question) and the fragment. Such proposals eschew the movement component of Merchant's analysis in favour of more general (and possibly independent) constraints on the kinds of phrases that can serve as fragments: since movement picks out constituents, these constraints overlap to a large extent. But it is exactly cases like those presented here that distinguish the accounts. In our examples, the correlate *wh*-word is uniformly *what*, which is a DP object, not a CP headed by a complementizer. The verbs in question, such as *concede*, allow both for 'that' CP complements and for *that*-less complements. Why answers to questions containing such predicates should require 'that' in the short answer does not follow from these non-movement accounts, but follows directly from the movement + ellipsis account.

A second experiment investigated the effect of retaining vs omitting a preposition in fragment answers in German. If fragment answers in other languages also involve fronting of the phrase expressing the new information to a focus position, then we expect language-particular grammatical constraints on the form of fronted constituents to be attested in fragment answers. In a language like German, full noun phrase objects of prepositions may not be fronted without the preposition, as seen in the contrast between (1.13a), with a licit governing preposition accompanying its object noun phrase, and (1.13b), a failed attempt to leave the governing preposition in situ.

- (1.13) a. Mit der Frau haben sie gesprochen.  
with the woman have they spoken  
'With the woman, they spoke.'
- b. \*Der Frau haben sie mit gesprochen.  
the woman have they with spoken  
(Intended: 'The woman, they spoke with'.)

If elliptical structures are subject to the same constraints that non-elliptical structures are subject to, then we expect the same pattern to emerge in fragment

answers to questions involving prepositions. In (1.14), by hypothesis, the prepositional phrase answer ‘with the woman’ is fronted to a focus position, with the remainder of the sentence elided.

(1.14) Speaker A: Haben **sie** mit dem MANN gesprochen?  
have **they** with the man spoken  
‘Have they spoken with the *man*?’

Speaker B: Nein mit der FRAU.  
no with the woman  
‘No, with the woman’.

By contrast, in (1.15), a mere noun phrase has been fronted. The effect of this is that the preposition has been stranded (left behind) in the unpronounced clause, leading to the prediction that the acceptability of (1.15) should be lower than the acceptability of (1.14), tracking the difference between (1.13a) and (1.13b).

(1.15) Speaker A: Haben **sie** mit dem MANN gesprochen?  
have **they** with the man spoken  
‘Have they spoken with *the man*?’

Speaker B: ??**Nein**, der FRAU.<sup>3</sup>  
**no** the woman  
‘No, the woman’.

Sixteen pairs of sentence–answer pairs, one with a prepositional phrase answer as in (1.14) and one with a noun phrase answer as in (1.15) were constructed. They were combined with 64 other sentence pairs instantiating different kinds of information-structural manipulations, as well as a set of 24 control items (complete list of materials in Appendix 1.2). Three types of unacceptable control sentences were included: sentences containing either a prepositional selectional restriction violation (eg, *Die Suppe wurde gegen versalzen*, ‘the soup was against oversalted’), a verb selectional restriction violation (eg, *Der Zug wurde gekaut*, ‘the train was chewed’), or a combination of the two (eg, *Der Priester wurde im asphaltiert*, ‘the priest was in the asphalted’).

Sentence–answer pairs were counterbalanced across lists so that a subject never saw more than one version of a sentence but contributed equally to all conditions. The sentence–answer pairs were combined with filler sentences to yield a total of 104

<sup>3</sup> We indicate the informed judgment of the answer in (1.15) by ‘??’, a lesser deviance than we assign to the string in (1.13b), consonant with the results we report below. We have not run a direct comparison to stimuli like (1.13b), though we suspect we would find a difference, if for no other reason than that (1.13b) is unacceptable under any possible parse, while the string in (1.15) is perfectly well-formed in other contexts. This observation is the same as the one we made above regarding the acceptability of indirect answers in the first experiment.

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**TABLE 1.2 Mean ratings of acceptability of German fragment answers on 7-point scale.**

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(Standard deviations given in parentheses)

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|                     |             |
|---------------------|-------------|
| PP-fragment answer: | 5.99 (1.64) |
| NP-fragment answer: | 4.76 (2.03) |

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items per list. A seven-point rating scale with labelled endpoints appeared after each item ranging from 1 (*sehr schlecht*, ‘very bad’) to 7 (*sehr gut*, ‘very good’). We do not attach any importance to the choice of a 7-point rather than a 5-point rating scale. The scales simply reflect the standard practices of the two laboratories where the studies were conducted.

Forty native German speakers, undergraduates at the University of Potsdam, were tested. They were asked to interpret words in CAPITALS as receiving a pitch accent (while pitch accents are not required for all short answers, they are typical both for the new focus kind of short answer and for the contrastive focus kind: this instruction to subjects was meant to indicate this, and follows standard orthographic practice in German for interpreting all capitals). Subjects were instructed to assess the acceptability of the answer sentence, as well as the appropriateness of the answer given the question, and were presented with two sample items, one each for totally unacceptable and perfectly acceptable answers.

The results are presented in Table 1.2.<sup>4</sup> As predicted by Merchant’s analysis, the PP fragment answers were rated more acceptable than the NP fragment answers (two tailed t-tests reached significance for participants,  $t(1,39) = 6.35$ ,  $p < .001$ , and for items,  $t(2,15) = 5.17$ ,  $p < .001$ ).

The results follow immediately from the hypothesis that the fragment answer involves a phrase that moves out of a clause which is elided given that, in general, namely in pronounced clauses, prepositions cannot be stranded in German. The absolute value of the mean judgments for the NP fragments (4.76) may seem surprisingly high given that it is located in the ‘acceptable’ half of the 7-point scale. But as in Experiment 1, we maintain that it is the relation between the means for the NP and the PP fragments that matters. The inaudible syntax hypothesis predicts just that judgments for NP fragments to be degraded compared to those for the PP counterparts, but neither ours *nor* other theories of ellipsis, to our knowledge, specify to which degree.

<sup>4</sup> The means for the unacceptable sentences were 2.35 for the Preposition Selection Restriction violation sentences, 2.06 for the Verb Selection Restriction violation sentences, and 1.31 for the Combined violations. These results are in line with those obtained for the same items in earlier rating studies.

Further, the part of the instructions that emphasized the acceptability of the answer might be taken to account for the high value, since both forms of answers correspond to acceptable structures in other contexts. The inclusion of highly unacceptable selectional restriction violation sentences also should have the effect of raising the absolute value of all other sentence forms in the experiment.

## Conclusions

Sentences sometimes have more syntax than is audible. Even in very simple examples, such as the German fragment answers, it appears that a phrase may have more syntax than is apparent just from categorizing the words of the sentence and then joining those words together into a legitimate phrase. Our experimentally gathered acceptability judgment data show effects predicted by the movement + ellipsis hypothesis, which posits inaudible syntax. Note, of course, that any general hypothesis positing inaudible syntax must be fleshed out by detailed postulation of the attributes of such inaudible syntax, such as Merchant's hypothesis about the structure of fragment answers to questions. The fact that experimental data and linguistic arguments converge is reassuring. It would be disconcerting at best if conclusions based on syntactic argumentation and conclusions based on the results of experimental and processing studies conflicted with each other. In the present case, the experimental evidence confirms the intuitions assumed by Merchant and shows that those intuitions are stable and generalizable across participants and items.

One might wonder whether the inaudible structures in fragment answers might in some sense just be implicit, not computed by the listener, during ordinary conversation. For example, perhaps when replying to a question, an answer will be well-formed only if the actual fragment answer could be expanded to make up a complete sentence, and only answers that could have been fleshed out grammatically are permitted. Though this idea is tempting (and indeed was proposed to us in one form, by John MacFarlane), it does not account for the data presented here (though it would account for some connectivity effects, such as those requiring the case of a fragment answer to match the case it would have in the corresponding full sentence). Note that in English, either the answer with an overt complementizer or the answer without could be fleshed out to a complete, grammatical English sentence. Likewise, both the fragment NP and the fragment PP could be fleshed out to a full sentence response in German. Another possibility, suggested to us by Janet Fodor, is that the speaker begins to answer a question with a full answer, but simply doesn't say words and structure that are repeated. But this too would founder on the German results: the preposition is already contained in the question and therefore should be omitted. So although alternative accounts based on 'fleshing out' the fragment or on omission of repeated words and structures might at first blush appear attractive, in fact they do not account for the data presented here. We conclude that the inaudible structure in

fragment answers is not an artefact of metalinguistic abilities, such as the ability to compare sentences across derivations, but rather it is part of the structure computed during normal language processing.

Finally, competing accounts of fragment answers and related phenomena such as sluicing, such as those proposed by Ginzburg and Sag (2000); Ginzburg and Cooper (2004); Culicover and Jackendoff (2005); Fernández et al. (2006); Kempson et al (2011c), and others, while successful in accounting for a number of connectivity effects (matching effects between the form of the correlate and that of the fragment), do not require that fragments be a subtype of the kind of phrases that can be moved (of that head unbounded dependencies, on non-movement accounts of these). As such, and unlike the movement + ellipsis account of Merchant (2004), they fail to predict that ‘that’ in English and prepositions in German should be retained preferentially—a retention that is, furthermore, in violation of more general constraints preferring the elimination of redundant material, as these elements are. It appears that the specific, grammatical mechanisms underlying movement restrictions in the two languages examined here provide better predictors for the shape of short answers in these languages.

### **Appendix 1.1. Materials used in Experiment 1**

1. = Merchant’s example (2004: example 94)
  - A. What are you ashamed of?  
That I ignored you.
  - B. What are you ashamed of?  
I ignored you.
2. What did Jane admit to?
  - A. That she wasted the day.
  - B. She wasted the day.
3. What is Josh upset about?
  - A. That he lost his job.
  - B. He lost his job.
4. What is Mary so happy about?
  - A. That she won.
  - B. She won.
5. What is Gore afraid of?
  - A. That oil prices will go down.
  - B. Oil prices will go down.
6. What is Tom upset about?
  - A. That he failed.
  - B. He failed.

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7. What is the gardener screaming about?
  - A. That the rabbit tore up his garden.
  - B. The rabbit tore up his garden.
8. What is the babysitter sad about?
  - A. That the children are mean to each other.
  - B. The children are mean to each other.
9. What did Greg boast?
  - A. That he fixed the car.
  - B. He fixed the car.
10. What did Lou conceal?
  - A. That he asked Ann out.
  - B. He asked Ann out.
11. What did Susan confess?
  - A. That she stole from her roommate.
  - B. She stole from her roommate.
12. What did Kylie concede?
  - A. That she took the keys.
  - B. She took the keys.
13. What did Sam predict?
  - A. That McCain would win.
  - B. McCain would win.
14. What did Amy ask?
  - A. That she be allowed to retake the test.
  - B. She be allowed to retake the test.
15. What did Jeff deny?
  - A. That he broke his leg.
  - B. He broke his leg.
16. What does Ron regret?
  - A. That he joined the navy.
  - B. He joined the navy.

*Controls:*

17. What do you think Lena did?
  - A. That she wrote some letters.
  - B. She wrote some letters.
18. What do you think Greg did?
  - A. That he resigned.
  - B. He resigned.
19. What do you think Pam did?
  - A. That she lied.
  - B. She lied.
20. What do you think Kyle did?
  - A. That he impressed the Dean.
  - B. He impressed the Dean.

21. What do you think Josh did?
  - A. That he got an award.
  - B. He got an award.
22. What do you think Chuck did?
  - A. That he bought a Porsche.
  - B. He bought a Porsche.
23. What do you think Anna did?
  - A. That she visited her parents.
  - B. She visited her parents.
24. What do you think Lottie did?
  - A. That she fainted at the opera.
  - B. She fainted at the opera.
25. What do you think Greg did?
  - A. That he fixed the car.
  - B. He fixed the car.
26. What do you think Lou did?
  - A. That he asked Ann out.
  - B. He asked Ann out.
27. What do you think Kate did?
  - A. That she went snowboarding.
  - B. She went snowboarding.
28. What do you think Kira did?
  - A. That she took a film class.
  - B. She took a film class.
29. What do you think Ben did?
  - A. That he got promoted.
  - B. He got promoted.
30. What do you think Jessica did?
  - A. That she memorized an epic poem.
  - B. She memorized an epic poem.
31. What do you think Jeff did?
  - A. That he broke his leg.
  - B. He broke his leg.
32. What do you think Ron did?
  - A. That he joined the Navy.
  - B. He joined the Navy.

### Appendix 1.2. Materials used in Experiment 2

- 1 a **Haben sie mit dem MANN gesprochen? \\ Nein, mit der FRAU.**  
have they with the man spoken no with the woman
- b **Haben sie mit dem MANN gesprochen? \\ Nein, der FRAU.**  
have they with the man spoken no the woman

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- 2 a Sollen wir neben dem FENSTER stehen? \ Nein, neben der TÜR.  
should we next.to the window stand no next.to the door  
b Sollen wir neben dem FENSTER stehen? \ Nein, der TÜR.  
should we next.to the window stand no next.to the door
- 3 a Willst du auf den TORHÜTER verzichten? \ Nein, auf den STÜRMER.  
want you on the goalkeeper do.without no on the forward  
b Willst du auf den TORHÜTER verzichten? \ Nein, den STÜRMER.  
want you on the goalkeeper do.without no the forward
- 4 a Wohnt er in der KANTSTRASSE? \ Nein, in der GOETHESTRASSE.  
lives he in the Kantstreet no in the Goethestreet  
b Wohnt er in der KANTSTRASSE? \ Nein, der GOETHESTRASSE.  
lives he in the Kantstreet no the Goethestreet
- 5 a Erinnert dich das an den BRUDER? \ Nein, an den VATER.  
reminds you that of the brother no of the father  
b Erinnert dich das an den BRUDER? \ Nein, den VATER.  
reminds you that of the brother no the father
- 6 a Seid ihr mit dem AUTO gekommen? \ Nein, mit dem ZUG.  
are you with the car come no with the train  
b Seid ihr mit dem AUTO gekommen? \ Nein, dem ZUG.  
are you with the car come no the train
- 7 a Reden sie über den HÄUPTLING? \ Nein, über den MEDIZINMANN.  
talk they about the chief no about the medicine.man  
b Reden sie über den HÄUPTLING? \ Nein, den MEDIZINMANN.  
talk they about the chief no the medicine.man
- 8 a Demonstriert sie gegen die ATOMKRAFT? \ Nein, gegen den KRIEG.  
protest they against the atomic.energy no against the war  
b Demonstriert sie gegen die ATOMKRAFT? \ Nein, den KRIEG.  
protest they against the atomic.energy no the war
- 9 a Haben sie mit einem MANN gesprochen? \ Nein, mit einer FRAU.  
have the with a man spoken no with a woman  
b Haben sie mit einem MANN gesprochen? \ Nein, einer FRAU.  
have the with a man spoken no a woman
- 10 a Wohnt er neben einem SUPERMARKT? \ Nein, neben einer BÄCKEREI.  
lives he next.to a supermarket no next.to a bakery  
b Wohnt er neben einem SUPERMARKT? \ Nein, einer BÄCKEREI.  
lives he next.to a supermarket no a bakery
- 11 a Wurde er von einem ARZT untersucht? \ Nein, von einem KRANKENPFLEGER.  
was he by a doctor examined no by a nurse  
b Wurde er von einem ARZT untersucht? \ Nein, einem KRANKENPFLEGER.  
was he by a doctor examined no a nurse
- 12 a Hat sie das ohne ein KABEL hinbekommen? \ Nein, ohne einen STECKER.  
has she that without a cable managed no without a plug  
b Hat sie das ohne ein KABEL hinbekommen? \ Nein, einen STECKER.  
has she that without a cable managed no a plug



- 13 a Sucht sie nach einem SCHREIBBLOCK? \ Nein, nach einem BLEISTIFT.  
seeks she for a writing.tablet no for a pencil  
b Sucht sie nach einem SCHREIBBLOCK? \ Nein, einem BLEISTIFT.  
seeks she for a writing.tablet no a pencil
- 14 a Arbeiten sie in einer FABRIK? \ Nein, in einer WÄSCHEREI.  
work they in a factory no in a laundromat  
b Arbeiten sie in einer FABRIK? \ Nein, einer WÄSCHEREI.  
work they in a factory no a laundromat
- 15 a Sitzt sie jetzt bei einem POLIZISTEN? \ Nein, bei einem JOURNALISTEN.  
sits she now with a policeman no with a journalist  
b Sitzt sie jetzt bei einem POLIZISTEN? \ Nein, einem JOURNALISTEN.  
sits she now with a policeman no a journalist
- 16 a Waren alle da außer einer LEHRERIN? \ Nein, außer einer MUTTER.  
was everyone there except a teacher no except a mother  
b Waren alle da außer einer LEHRERIN? \ Nein, einer MUTTER.  
was everyone there except a teacher no a mother