

## Mixed quotation: The grammar of apparently transparent opacity \*

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Submitted 2013-07-08 / Accepted 2013-08-21 / Final version received 2013-09-08 /  
Published 2014-05-13

**Abstract** The phenomenon of mixed quotation exhibits clear signs of both the apparent transparency of compositional language use and the opacity of pure quotation. I argue that the interpretation of a mixed quotation involves the resolution of a metalinguistic presupposition. The leading idea behind my proposal is that a mixed-quoted expression, say, “*has an anomalous feature*”, means *what x referred to with the words ‘has an anomalous feature’*. To understand how this solves the paradox, I set up a precise grammatical framework, explicitly connecting various levels of linguistic analysis: phonological forms, categorial syntax, and a dynamic picture of the semantics-pragmatics interface. In this framework I formalize and evaluate a presuppositional account of mixed quotation. Finally, I address the phenomenon of unquotation and argue that it is an essential ingredient for an empirically adequate analysis of mixed quotation in natural language.

**Keywords:** metalinguistic reference; mixed quotation; unquotation; opacity; compositionality; syntax-semantic interface; presupposition

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\* I'd like to thank the two anonymous referees and the editor, Joshua Dever, for extensive and thought provoking commentaries. The referee who reviewed both versions of this paper in particular has given me much food for thought. I've been working on (mixed) quotation for a while now, so here is but a small sample of people who deserve thanks for helping me shape the ideas in this paper: Markus Werning, Bart Geurts, Chung-chieh Shan, Philippe de Brabanter, François Recanati, Philippe Schlenker, and Ede Zimmermann. Thanks to Kai von Fintel for assistance in the final stages of the editing process. This research is supported by the the EU under FP7, ERC Starting Grant 263890-BLENDS (E. Maier).

## 1 Introduction

We use language to talk about individuals, events, times, states of affairs, and possibilities, but we can also use it to talk about words, letters, sentences and utterances. Quotation is useful tool for doing the latter: using language to refer to linguistic entities.

Quotation is, however, not a unitary phenomenon. In addition to so-called pure quotation, there is a family of related linguistic phenomena, all associated with quotation marks and/or metalinguistic reference of some kind. Here are three example quotation types that will come up in this paper:

- (1) a. The word ‘anomalous’ has nine letters. [pure quotation]
- b. “Really, I could care less about that,” said Ann. [direct discourse]
- c. Ann said that she “could care less” about spelling. [mixed quotation]

This paper is about mixed quotation, so-called by [Davidson 1979](#), who characterizes it syntactically as a mix of indirect and direct discourse.

My goal in this paper is to resolve the paradox of mixed quotation, i.e., the puzzling fact that mixed quotation exhibits symptoms of both regular language use, and metalinguistic use, or *mention*. In section 2, I give a comprehensive overview of the data to establish this paradoxical behavior empirically. On the one hand, mixed quotation seems to involve verbatim quotation of part of a previous speech act. One of the basic observations in the linguistic and philosophical literature on mixed quotation is that it’s *opaque* in the sense that changes to the original are not permitted. A much discussed case in point would be the examples of shifted indexicals in mixed quotation. The relevant data here typically show mixed quotation patterning with pure quotation and direct discourse, rather than with indirect discourse. On the other hand, the literature also presents evidence of mixed quotation behaving more or less transparently and patterning more with indirect discourse than with direct and pure quotation. A case in point would be some attested examples where mixed-quoted indexicals are not shifted but adjusted to the quoting environment, or also the systematic SVO-to-SOV word order adjustment in Dutch mixed quotes.

To account for all these data, I propose a semantics based on the idea that a mixed quotation serves to *defer* the interpretation of an expression or phrase to a source different from the current speaker. More precisely, “*could care less*” in (1c) means *what Ann refers to when she said the words ‘could care less’*.

Taking seriously this “free relative paraphrase”, the first thing to note is the dependence of mixed quotation on pure quotation. In pure quotation, an expression in quotation marks refers to that very expression. But what exactly is this “expression” that a pure quote refers to? a phonological form? a sequence of letters? a syntactic expression? To spell out a theory of pure quotation (let alone mixed quotation) we will need to have a grammatical formalism that is very explicit about these different levels of linguistic form/meaning, separating phonological surface form, syntax, logical form, and model-theoretic interpretation. I present a suitable formal grammar with an account of pure quotation in section 3.

The next step is to extend this grammar to mixed quotation. In section 4, I explore a compositional analysis based on the free relative paraphrase. In section 5.1 I argue that quotation exhibits precisely the characteristic projection behavior of presuppositions. This puts the phenomenon out of reach of a compositional semantics, and necessitates a switch to dynamic semantics/pragmatics.

Reviewing the empirical coverage of the dynamic presuppositional account with respect to the data surveyed in section 2, it becomes clear that the analysis is somewhat skewed toward opacity. In other words, it still has trouble with transparency symptoms like non-constituent quotations, and the apparent possibility of various adjustments to the presupposed original speech acts. I propose that a process of unquotation lies at the root of these phenomena. In section 6, I enrich the presuppositional approach with an account of unquotation, and show how this extends our empirical coverage.

## 2 The paradox of mixed quotation

Davidson 1979 introduced philosophers to an interesting mix of indirect and direct discourse, which he termed mixed quotation:

(2) Quine said that quotation “has a certain anomalous feature”.

His discussion of this now famous example highlights not only the syntactic mix of direct and indirect discourse, but also the semantic mix of language use, associated with indirect discourse, and mention, associated with pure quotation and direct discourse. The sentence in (2) conveys that Quine said that quotation has a certain anomalous feature, but in addition it conveys that Quine uttered these very words. As Davidson put it, a mixed quote does “double duty” in semantics.

Since Davidson, a varied corpus of constructed and found mixed quotation examples has accumulated in the philosophical and linguistic literature on quotation and reported speech. In this section I provide a comprehensive, pre-theoretical overview of the prominent data that I will address in the remainder of the paper. I divide the data up into two main groups: (i) opacity indicators, which show mixed quotation patterning with direct discourse and pure quotation as opposed to non-quotative language use (as in indirect discourse), and (ii) transparency indicators, which show mixed quotation patterning with indirect discourse.

This method of classification results in an important restriction of the empirical scope of this paper. I exclude some phenomena that are typically seen as indicators of transparency, on the basis of the fact that they also apply to other forms of quotation. This includes well-known cases of ellipsis and pronouns that appear to get their antecedents from within a mixed quotation. Toward the end of section 2.2 I observe that this happens with pure and direct quotations as well, so, although that makes the phenomenon that much more puzzling and interesting for future research, it is not a problem to be addressed by a semantics of mixed quotation.

At the end of this section we will have a puzzling mix of characteristics indicating either transparency or opacity. In the sections to follow I offer an analysis in three steps: First, I present a general grammatical framework capable of referring to linguistic objects; then, I model mixed quotation as a presupposition trigger, predicting all the opacity and some transparency characteristics below; and finally, I add unquotation to capture the full range of transparency data.

## 2.1 Mixed quotation is opaque

Davidson already remarked that mixed quotations convey that the quoted words were used verbatim. The truth of (3) requires that Perry said or wrote the exact words *contrived phony mess*, in that order.

- (3) Perry said climate change is a “contrived phony mess”  
 ~> Perry uttered the words *contrived phony mess*.

I will refer to this central characteristic of mixed quotation as the *verbatim requirement*.

It is important to note that *verbatim* here is really a vague and context dependent notion. It depends on the contextual standard of precision whether,

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say, a literal translation in a different language, or a cleaned up version without pauses, hedges, hesitations and false starts, can count as a verbatim reproduction. In a colloquial setting where reporter and reportee speak different dialects, the contextual standard for verbatimness may be set rather low. On the other end of the spectrum we find contexts like a scholar scrutinizing the writings of another scholar, where verbatimness means faithfulness on a letter-by-letter basis, perhaps even including orthographic/paralinguistic markings like commas, capitalization, line breaks, and page breaks. In either case the context determines an equivalence relation between expressions that count as the same for the purposes of quoting (cf. Bonami & Godard's (2008) resemblance relation).

This is not to say that anything goes. Once a contextual standard of precision is in place, the speaker is committed to that level of verbatimness of his mixed quotations. It is this commitment that makes it possible for the hearer to object when she perceives a deviation from the norm:<sup>1</sup>

- (4) A: Bush said he has an “eclectic” reading list.  
B: No, that’s not right. He said he has an “eckullectic” reading list.

Such verbatimness objections, known otherwise as *metalinguistic negation* (Horn 1989), differentiate between mixed quotation and indirect discourse, where it’s not the wording (modulo the contextual equivalence relation of verbatim similarity) but the content that matters.

Similarly, mixed quoting while explicitly denying faithfulness to the original wording is unacceptable:<sup>2</sup>

- (5) #Perry said that climate change is a “contrived phony mess”, but he didn’t use those words.

Again, this differentiates between mixed quotation and plain indirect discourse.

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<sup>1</sup> Cf. Shan's (2011) (12b) for discussion of a similar observation.

<sup>2</sup> A reviewer suggests counterexamples like *Perry said that climate change is a “contrived phony mess”, but he didn't use those words, because he was speaking French*. I am not entirely convinced that the use of overt quotation marks in this particular version of the example is warranted, but in any case there remains a contrast between the mixed quotation in (5) (or the variant above) and its quotation-free counterpart. There are contexts with relatively high verbatimness thresholds in which: (i) (5) is infelicitous because of a violation of the verbatim requirement, while (ii) its unmarked indirect discourse counterpart would still be fully felicitous.

I will not explicitly formalize the context dependence of verbatimness. I simply assume an underlying primitive relation of “sameness<sub>c</sub>” between tokens of linguistic surface expressions in a context. We could use this equivalence to define a more abstract notion of an expression (cf. [Shan 2011](#)), or we could use it to relax our definition of pure quotation (on which, after all, mixed quotation relies). I will only briefly return to this matter at the very end of the paper, in section 6.3.

An immediate consequence of the verbatim requirement is opacity in the logician’s sense of blocking substitution of coreferential terms. The verbatim requirement would predict that synonyms like *buy - purchase* can’t be reliably substituted *salva veritate* in mixed quotations, even though they can be in indirect reports. That is, if John said, literally, “Great! I’ll purchase all of it”, we should be able to detect the following contrast:

- (6) a. John said that he wants to “purchase all of it”.
- b. #John said that he wants to “buy all of it”.
- c. John said he wants to buy all of it.

Given the confounding factor of variable verbatimness thresholds, which might make (6b) acceptable in some contexts, we should look for some more robust linguistic tests to detect opacity in mixed quotation. The semantics literature on context dependence and reported speech provides two main tests: indexical shift and *wh*-movement. So let’s see if mixed quotation patterns with pure/direct quotation or with indirect discourse in these respects.

The classic test for identifying quotation involves the interpretation of indexicals. According to [Kaplan 1989](#), an indexical like *I* always refers to the actual speaker of its utterance. The only apparent exception to this rule that Kaplan allows is if the indexical is merely mentioned, as in a pure or direct quotation. Now, the consensus in the literature is that an *I* in a mixed quotation need not refer to the actual speaker (e.g., [Geurts & Maier 2005](#), [Cumming 2005](#), [Anand 2006](#))

- (7) Bill Watterson said that reality “continues to ruin my life”.

In a sense, the indexical *my* in (7) refers to Bill Watterson, rather than to the actual speaker. The verbatim requirement would explain this indexical shift behavior — we’re quoting Watterson’s actual words, including his use of the word *my* to refer to himself.

However, we should be careful in concluding opacity from indexical shifting. Contrary to what Kaplan assumed, it is now widely accepted that (apparent) indexical shift is not restricted to mere mention of expressions. Schlenker (1999, 2003) and others have argued that various examples of shifted indexicals in different languages are best analyzed in terms of “monstrous” (= context shifting) operators that have nothing to do with quotation. The question then arises, could there be a monster hiding in (7)? According to some accounts, yes, mixed quotation itself introduces a context shifting operator (Recanati 2000, 2001). On the view I will develop in this paper, no, the apparent context shift is the result of a genuine quotation operator inducing a verbatim requirement.

As a side note it is worth pointing out that examples like (7) suffice to discard truly pragmatic accounts of quotation that say that, *semantically* (i.e., as far as truth conditions are concerned), mixed quotation is just indirect discourse, and the quotation marks are merely adding some non-truth-conditional information (e.g. Gutzmann & Stei 2011). Clearly, the effect of mixed quotation is genuinely semantic: (7) has different truth conditions than the plain variant, *Bill Watterson said that reality continues to ruin my life*, which has Watterson talking about me.<sup>3</sup> We’ll return to these and other theoretical matters below. For now, note that, with respect to indexicals, mixed quotation is commonly assumed to behave like pure and direct quotation.

The second commonly used linguistic opacity test involves wh-movement. Genuine quotation, it is said, blocks wh-movement. In the literature this grammatical aspect of opacity is only explicitly discussed as a constraint on full direct quotation (Schlenker 1999, Anand & Nevins 2004), but the discussion by these authors suggests that it applies to mixed quotation as well (cf. Schlenker’s 2011 formulation: “grammatical dependencies cannot normally ‘cross’ quotation marks”). To apply this test, consider a case where someone didn’t quite hear the end of Davidson’s mixed quotation in (2). There is indeed a clear contrast between the responses in (8).

- (8) a. ??What did Quine say quotation “has”?  
b. What did Quine say quotation has?

<sup>3</sup> Recanati’s (2001) “radical pragmatic” account is not so easily refuted, because in his conception pragmatics does affect truth conditions. Note also that many phenomena that are pragmatic in the weak sense of “depending on language being situated in context”, such as presupposition and indexicality, are not “truly pragmatic” in the strong sense of “not truth-conditional”.

It looks like mixed quotation again patterns with direct rather than indirect discourse. However, in section 2.2 I'll show that the observation in (8) doesn't generalize well: mixed quotation sometimes does allow *wh*-movement, cf. (21). In fact, I will show there that indexical shifting is not universal either.

Given that indexical shift can have different sources, and that the *wh*-criterion is ultimately inconclusive, let's consider a final opacity test: language shift. Many researchers have pointed out that direct and mixed quotation, unlike regular indirect discourse reporting, allows the reporter to slip into the reported speaker's idiolect, reproducing any speech disfluencies, typos, grammar and spelling errors, sociolect, even a completely different language, without herself being associated with these linguistic peculiarities (Partee 1973, Banfield 1973, Clark & Gerrig 1990, Recanati 2001).

- (9)
- a. It's a picture of a cat who asks if he can "has cheezburger".
  - b. He wrote that Kant was "my wife's favoritest philososopher".
  - c. Palin tweeted that "peaceful Muslims" should "refudiate" the mosque being built at Ground Zero.<sup>4</sup>
  - d. If you were a French academic, you might say that the parrot was "un symbole du Logos" [(de Brabanter 2005)]

These data, arguably, are the clearest signs that genuine metalinguistic reference is involved and that mixed quotation patterns more with pure and direct quotation than with indirect. In addition, since removing the quotation marks from (9) does not even leave grammatical English sentences, these examples confirm that mixed quotation is not mere pragmatics, but really should be considered a part of grammar.

A final lesson to be drawn from language shift phenomena like (9) is this: If mixed quotation is to be analyzed in terms of a context shifting operator, it will have to be an operator that shifts not just the context as represented by a series of parameters from the model (time, place, speaker), but the language itself. I will not here argue explicitly against introducing such super-monstrous operators. Instead I merely point out that all the data presented in this section would follow immediately from associating a verbatim requirement with mixed quotation. This will therefore be the starting point of my analysis in section 4.

<sup>4</sup> [www.washingtonpost.com/wp-dyn/content/article/2010/07/19/AR2010071904916.html](http://www.washingtonpost.com/wp-dyn/content/article/2010/07/19/AR2010071904916.html)

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## 2.2 Mixed quotation is transparent

Mixed quotation shares all of the above characteristics with pure and direct quotation. We may take this as evidence that mixed-quoted words are mentioned as opposed to used. But mixed quotation also shares a number of characteristics with regular, quotation-less language use.

First, from Davidson's (1979) seminal paper comes the observation that mixed quotes do not typically function as referential terms, but can instead fulfill any role in the clause. To appreciate this observation we need first a brief look at pure quotation and direct discourse.

A pure quotation functions syntactically as a referential term: one that refers to the arbitrary piece of linguistic material that is enclosed within its quotation marks. In direct discourse an entire main clause, or even a discourse, occupies an NP argument position of a transitive verb of saying (*Mary said {this, something, "Hey, get out of here!"}*). In both direct and pure quotation the quotation marks thus signify a syntactic operator that turns any underlying piece of language into an NP. I'll make this more precise in section 3. In the case of mixed quotation, by contrast, the quotation has the same grammatical role as the underlying fragment without the quotation marks.

(10) Perry said that climate change is a "contrived phony mess".

The phrase *contrived phony mess* itself is a common noun phrase, N.<sup>5</sup> The quotation in (10) fills the same slot as the phrase without the quotation marks would, and hence must be an N as well. Since no NP can replace the quoted phrase in (10), mixed quotation is truly different from pure and direct quotation.

(11) \*Perry said that climate change is a [<sub>NP</sub> { this / the words 'contrived phony mess' } ].

One way of putting it is that, unlike in direct discourse and pure quotation, the syntax doesn't see the quotation marks. A mixed quotation has the same internal structure as the constituent quoted, and that structure is fully incorporated in the larger structure provided by the reporting sentence environment.

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<sup>5</sup> Or N', or NP if you will. I will always keep the syntax as simple as possible because nothing hinges on it.

A more extreme variant of this grammatical incorporation aspect of mixed quotation is found in so-called non-constituent quotations.

- (12) She allowed as how her dog ate “strange things, when left to its own devices”. [(Abbott 2005)]

The quoted segment in (12) is not by itself a well-formed grammatical constituent on any independently motivated syntactic theory. Rather, despite the quotation marks, *strange things* functions as the direct object of *ate*, together forming the VP *ate strange things*, which is then modified by *when left to its own devices*.<sup>6</sup>

In some other examples, it may be syntactically possible to analyze the mixed quote as a single constituent, but doing so would lead to an unintended interpretation. (13) is a case in point:

- (13) The menu says that this restaurant serves “breakfast at any time”.<sup>7</sup>

In (13), *breakfast at any time* may be analyzed as a syntactic constituent in some contexts (*breakfast at noon is better than lunch at 8AM*), but, semantically, *at any time* in this particular context is intended to modify the serving, rather than the just the breakfast.

Quantifier raising has also been used to bring out the transparency of mixed quotation. In the intended interpretation of (14), the embedded universal quantifier takes scope over the existential.

<sup>6</sup> There are few if any purely syntactic restrictions on what can be mixed-quoted. Maier 2008 discusses mixed quotation starting subclausally but spanning multiple sentences, and even mixed quotation below the word level:

- (i) a. Pascal suspected that the mercury was really supported by the “weight and pressure of the air, because I consider them only as a particular case of a universal principle concerning the equilibriums of fluids.”  
 b. Mary said that the stalag“mites” were about to fall from the ceiling.

<sup>7</sup> This is actually the set up of a Steven Wright joke, which continues, *so I ordered French toast during the Renaissance*. Interestingly, the joke partly depends on interpreting the quotation as a single constituent and the parallel misconstruction this makes available for the punchline: ... [*ordered [French toast during the Renaissance]*]. However, as always with jokes: does the fact that you can get this reading here show that it is linguistically felicitous to analyze the quotation as a single constituent, or does the fact that it’s funny show that it isn’t?

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- (14) The dean asked that a student “accompany every professor”.  
[(Cumming 2005)]

Again, on purely syntactic grounds, the mixed quote in (14) could well be a constituent, but analyzing it semantically as a single constituent would give us the property of accompanying every professor as interpretation. Combining this property with the denotation of the subject (*a student*) gives us the strong  $\exists\forall$  reading, but cannot give us the intended inverse scope reading.

Just like the obvious non-constituent quotation in (12), the mixed quotations in (13) and (14) cannot be treated as single constituents that get interpreted as a unit, let alone as a referential NP. In this respect mixed quotation behaves differently from pure and direct quotation.

The data in this subsection so far show syntactic transparency, i.e., the syntax here seems oblivious to the quotation marks. But we have not yet seen a direct contradiction of the semantic opacity induced by the verbatim requirement from section 2.1 above. In the remainder of this section we turn to aspects of apparently transparent integration that do contradict the verbatim requirement and thereby pose a significant threat to the type of analysis alluded to at the end of section 2.1.

A first example comes from Dutch, a language where word order marks the difference between a main clause and a subordinate clause (e.g., indirect discourse complement). As it turns out, this word order adjustment is mandatory, even if it parts of the subordinate clause are mixed-quoted. Take (15), a main clause with typical SVO word order:

- (15) Ik zal die idioot een koekje van eigen deeg geven.  
*I will that idiot a cookie of own dough give*  
'I'll give that idiot a taste of his own medicine.'

To report (15) in indirect discourse I'd have to switch to SOV, but if object and verb are mixed-quoted this contradicts the verbatim requirement. Interestingly, as far as I can tell introspectively, the word order adjustment requirement in Dutch always beats the verbatim requirement:

- (16) Jan zegt dat  
*John says that*  
a. \*hij “zal die idioot een koekje van eigen deeg geven”.  
*he will that idiot a cookie of own dough give*

- b. hij “die idioot een koekje van eigen deeg zal geven”  
*he that idiot a cookie of own dough will give*  
 ‘John says he’ll “give that idiot a taste of his own medicine”.’

Grammatical gender agreement works similarly. Shan 2011 provides the following Italian example showing the adjustment of a mixed-quoted adjective. Ken says:

- (17) Gli uomini italiani mi sembrano molto carini.  
*the.M.PL men Italian.M.PL to me look very cute.M.PL*  
 ‘Italian men look very cute to me.’

I want to report Ken, mixed quoting the part around *cute*, but paraphrasing *Italian men* with an expression that happens to have a different grammatical gender. Shan observes that it is impossible to retain the original gender on the adjective in the new environment. Instead we have to adjust it to agree with its new antecedent outside the quote.

- (18) Ken ha detto che le persone italiane “mi sembrano molto carine”.  
*Ken has said that the.F.PL people Italian.F.PL to me look very cute.F.PL*  
 ‘Ken said that Italian people “look very cute to me”.’

In both cases the quoted fragment is modified from the original to conform morphosyntactically to the surrounding indirect discourse embedding. This is in direct contradiction with the verbatim requirement identified in the previous subsection. What’s more, these adjustments appear to be mandatory. This last fact shows that the adjustments cannot be explained away as the result of a contextually low verbatimness threshold which does not care about word order. We can apply the tests discussed at the top of section 2.1 above to prove this. Observe, for instance, that there is *no* context, no matter how precise its citation practices, in which one can felicitously object to and “correct” a Dutch report’s adjusted word order:

- (19) \*Nee dat klopt niet. Jan zegt dat hij “zal die idioot een koekje van eigen deeg geven”.  
 ‘No, that’s not right. Jan says that he “will that idiot a taste of his own medicine give”.’

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In light of this evidence of transparent integration of mixed quote and surroundings, it is worth reconsidering the evidence from the previous subsection where I reviewed some evidence that mixed quotations were *not* so fully integrated in their quoting environments. A closer look at the data reveals that there are indeed counterexamples to the observed indexical shifting, and the blocking of wh-movement.

In 2.1 I suggested that the indexical shift behavior may be derived from the verbatim requirement. However, it turns out there are many examples of mixed quotations in which an original indexical pronoun is adjusted to the quoting environment and replaced with, for instance, a third person pronoun or another indexical. For instance, in (20) we see the following adjustments: *our* → *its*, *I* → *he*, and *your* → *my*.

- (20) a. The row over the EU's plan to label tar sands oil as highly polluting escalates as Canada says it "will not hesitate to defend its interests".<sup>8</sup>  
b. When asked, Bob Dylan said that he continues his music career because "he made a vow years ago, he sold his soul and must keep up to his end of the bargain."<sup>9</sup>  
c. And then they told me to "stick a lamp up my ass".<sup>10</sup>

Another clear violation of the strict verbatim requirement involves wh-movement out of a mixed quote:

- (21) Who did Mary say that she would "never underestimate ever again"?

In contrast with the superficial adjustments in (15)-(18), the ones in (20)-(21) actually affect the semantic interpretation. In the pronoun adjustment cases in (20) moreover the alternative versions with the verbatim indexicals in the quote would be more or less acceptable as well.

- (22) And then they told me to "stick a lamp up your ass".

I conclude that mixed-quoted pronouns seem to allow both transparent and opaque readings. Moreover, wh-movement from a mixed quotation is

<sup>8</sup> [www.guardian.co.uk/environment/2012/feb/20/canada-eu-tar-sands?intcmp=122](http://www.guardian.co.uk/environment/2012/feb/20/canada-eu-tar-sands?intcmp=122)

<sup>9</sup> <http://theulstermanreport.com/2012/05/30/white-house-insider-obama-in-serious-trouble-and-that-makes-him-very-dangerous/>

<sup>10</sup> Example taken from Maier 2006.

possible, although the example from 2.1 shows that quotation does impose some restrictions. These are some of the most challenging aspects for a uniform formal theory — and ones that have not been properly addressed before. I'll return to this matter at the end of the paper, in section 6.

To sum up, mixed quotation is transparent in the following senses: (i) it preserves syntactic structure, and (ii) it allows various adjustments to the quoted original to better integrate it into the new reporting construction. These adjustments come in two distinct varieties: (a) obligatory syntactico-phonological adjustments (word order, grammatical gender), and (b) (optional/restricted) syntactico-semantic adjustments (pronouns, wh-movement).

### **A note on pragmatic transparency**

In section 2.2 above I discussed the interaction between quote and surroundings at the phonology-syntax-semantics interfaces. There is also more pragmatic evidence that points to transparent language use rather than mere metalinguistic reference. For instance, it's commonly assumed that from a mixed quote we typically infer the indirect discourse counterpart (Davidson 1979, Cappelen & Lepore 1997). This, concretely, predicts the infelicity of (23), unless the context is specifically set up for us to expect that Perry's words may have different meanings than the reporter's.

(23) #?Perry said that climate change is a “contrived phony mess” but he didn't say that it's a contrived phony mess.

Furthermore, anaphoric pronouns and ellipsis can pick up antecedents introduced within a mixed quotation, indicating that the quoted material is not inertly presented as linguistic object in its own right, but is actually interpreted.

(24) a. Mary said that she is “bestest friends with the manager” at her work, so she's confident he'll give her a raise.  
 b. Our CEO likes to say that in her company “everybody loves their job”, but I really don't.

However, we should be careful in drawing conclusions from (23) and (24) because these data don't provide a clear contrast with direct discourse, or even pure quotation: (25a) suggests that even pure quotation may trigger a

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use inference; (25b) that it allows the establishment of anaphoric and elliptical dependencies.

- (25) a. #The opening statement of his speech included the sentence ‘Climate change is a contrived phony mess’, but he didn’t say that climate change is a contrived phony mess.  
b. The sign says, ‘George Washington slept here’, but I don’t believe he did. [(Partee 1973)]

In light of this pattern I would like to suggest that there is a more general mechanism at play, one that transcends the opacity of even pure quotation. Rather than encoding this type of transparency into the semantics of pure, direct and/or mixed quotes, I will conservatively maintain that the inference to indirect discourse and the penetration of anaphora and ellipsis into quotation is a truly pragmatic effect.

Compare the situation to the phenomenon of bridging:

- (26) John was killed yesterday. The gun lay nearby.

No gun has been mentioned before the second sentence, so the familiarity presupposition triggered by the definite description *the gun* is not satisfied. The reason we can still use that description is that we can *infer* a relevant gun based on the first sentence (and world-knowledge about killing, and guns). Crucially, this inference, or implicature according to Grice 1989, is not part of the truth conditions of the first sentence. It is a piece of defeasible information added to the semantic contribution of the whole two-sentence discourse to ensure its coherence.

I assume that something similar is going on with anaphora into quotation: on pains of incoherence, a pragmatic repair is executed or an implicature is drawn. Instead of lexical/world knowledge, it may be simply the phonological resemblance between a phrase and its pure-quoted counterpart that facilitates the use inference and consequent introduction of appropriate discourse referents.<sup>11</sup>

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<sup>11</sup> A reviewer points out it is far from clear if a story along these lines will work for the ellipsis observed in (24b), because it is well-known that ellipsis, unlike “deep” pronominal anaphora, cannot get an antecedent derived pragmatically from the context (Hankamer & Sag 1976). Since I intend to put the whole discussion of anaphora into quotations aside anyway, I will leave it at this for now.

As stated at the outset of this section I restrict attention to aspects of transparency that clearly distinguish mixed from pure and direct quotation, and therefore leave a detailed analysis of pragmatic transparency of direct, mixed and pure quotation for a future occasion.

## Summary

I close this section with a schematic summary of the data reviewed. I present two lists of the most salient opacity and transparency indicators and illustrate them by repeating some of the key examples. I add references to sections below where I formally analyze the empirical phenomenon in question.

Opacity: mixed quotation  $\approx$  direct discourse and pure quotation

- verbatim requirement
  - (5) \*Perry said climate change is a “contrived phony mess”, but he didn’t use those words.
- indexical shift [cf. section 4.2]
  - (7) Bill Watterson said that reality “continues to ruin my life”.
- language shift [cf. section 4.2]
  - (9) Palin tweeted that “peaceful Muslims” should “refudiate” the mosque being built at Ground Zero.

Transparency: mixed quotation  $\approx$  indirect discourse and regular *use*

- grammatical incorporation [cf. section 4.1]
- non-constituent quotation
  - (12) She allowed as how her dog ate “strange things, when left to its own devices”. [cf. section 6.2]
  - (14) The dean asked that a student “accompany every professor”. [cf. section 6.3]
- morphosyntactic adjustment [cf. section 6.3]
  - (16b) Jan zegt dat hij “die idioot een koekje van eigen deeg zal geven”.

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- indexical adjustment [cf. section 6.2]

(20c) And then they told me to “stick a lamp up my ass”.

- movement out of quotation [cf. section 6.3]

(21) Who did Mary say that she would “never underestimate ever again”?

### 3 A grammatical framework for metalinguistic reference

This paper is about the semantics of mixed quotation. As announced, the guiding idea is that this meaning can be captured by the free relative paraphrase:

(27) [“an anomalous feature”] = what x referred to with his utterance of the phrase ‘an anomalous feature’

In the definiens I refer to a piece of linguistic material via a pure quote. So to make (27) precise and evaluate it properly, we need first of all to understand how pure quotation works. In this section I propose a general grammatical framework for representing the phonology–syntax–semantics interfaces, in which we can formulate an account of pure quotation.

As a notational convention I will use single quotation marks for pure quotation, and double quotation marks for mixed quotation in examples and formal systems. In the running text I will often use italics for a variety of quotational and emphatic purposes.

#### 3.1 Remarks on pure quotation

Pure quotation is so-called because it involves only metalinguistic reference. A pure quotation refers to a series of words or letters, viz., the very same words or letters that are contained in the quotation.

In philosophical logic, there is a venerable tradition of studying the semantics of pure quotation.<sup>12</sup> Of particular interest to these philosophers is the observed opacity of this type of quotation, i.e., the fact that inside a quotation, even synonyms cannot be substituted for one another without changing the meaning.

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<sup>12</sup> Cf. classic discussions by Quine 1940 and Tarski 1933.

$$(28) \quad \frac{\begin{array}{l} \text{'Cicero' has six letters} \\ \text{Cicero} = \text{Tully} \end{array}}{\text{therefore: 'Tully' has six letters}}$$

My formalization of pure quotation is based on the so-called *Disquotational Schema*:

$$(29) \quad \text{if } \alpha \text{ is an arbitrary expression, then '}\alpha\text{' is a referring expression, and } \llbracket \text{'}\alpha\text{'} \rrbracket = \alpha$$

This principle presupposes (i) that linguistic expressions are part of our semantic domains ( $\alpha$  functions as a denotation and as an expression in the equation in (29)), and (ii) that quotation is not compositional in the classical sense (the denotation of '  $\alpha$  ' does not depend on the denotation of  $\alpha$  but on  $\alpha$  itself).<sup>13</sup>

There's one more thing we need to clear up before we can formalize. We have been talking about expressions being quoted, but what is an expression? Do we quote phonological representations, actual spoken or written tokens, or abstract expressions? Philosophers have long observed that we can quote not just grammatically wellformed English phrases, but also gibberish, sometimes with phonological properties (*'sklat' rhymes with 'mat'*), sometimes with graphemic properties (*'tsx' has 3 letters*), or even gestures, facial expressions, sounds or symbols. However, what I am after in this paper is a semantics of mixed quotation, and, as will become apparent along the way, the range of things that can be mixed-quoted is decidedly more restricted. In the formal system below I won't bother with gestures and the like. I'll assume, for simplicity, that what can be quoted can be represented as strings of letters in some finite alphabet.

### 3.2 From phonology to syntax

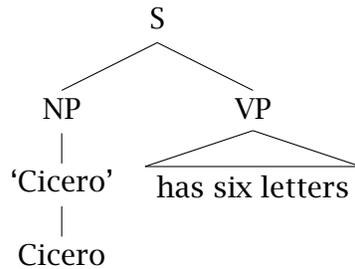
In the picture of grammar that we'll be considering in detail below, we have a syntactic quotation operator that is phonetically realized as a distinct quotation intonation, italics, or quotation marks, and semantically interpreted as an identity function on expressions. Let's first take a close look at the syntax-phonology interface.

<sup>13</sup> Cf. [Maier 2014](#) for a detailed discussion of the disquotational semantics of pure quotation assumed here.

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On the basis of the discussion above we assume a syntactic phrase structure tree like this:

(30) 'Cicero' has six letters



In this tree, *has six letters* is a VP, denoting a property, and *'Cicero'*, the quotation, is an NP, denoting the enclosed linguistic expression *Cicero*. But what is the syntactic status of the terminal node *Cicero*? In this example it too is an NP, the proper name of a certain orator. In general, any complex or atomic symbol can be quoted, meaningful or not.

I assume a fixed finite alphabet of symbols such that at least all well-formed phonologically spelled out expressions of the languages under consideration can be represented as finite strings of letters from this alphabet. Call this alphabet  $A$ , and the set of finite strings over  $A$ ,  $A^*$ . At a phonological level, English may be equated with a certain subset of  $A^*$ . Note that there are many ungrammatical, unpronounceable, and/or meaningless strings in  $A^*$  (*he sleeps him, underestimate, hrmpf, F+6Oo)5ay*).

We could add purely phonological constraints to capture English more accurately, but for simplicity we stick with written language that is, at a purely phonological level, closed under string concatenation. In other words, we have a composition principle that says that we can concatenate ( $\cap$ ) any two strings of letters into a larger one:

(31) If  $\sigma, \tau \in \mathcal{L}_{phon}(= A^*)$ , then  $\sigma \cap \tau \in \mathcal{L}_{phon}$

To capture the set of grammatically well-formed expressions, we are going to add a layer of syntactic structure. Following Potts 2007 and Shan 2011, I'll use a categorial grammar formalism. Let CAT be the set of categories generated by a simple categorial grammar with basic categories N, NP, S and

a left ( $\backslash$ ) and right slash ( $/$ ).<sup>14</sup> At a syntactic level, English may be equated with a subset of  $A^* \times \text{CAT}$ . Call this set  $\mathcal{L}_{syn}$ . A categorial grammar will generate  $\mathcal{L}_{syn}$  on the basis of a finite lexicon (32a) and some category-driven composition rules, abbreviated in parse tree notation in (32b).

- (32) a. lexicon:  $\langle \mathbf{John} ; \text{NP} \rangle, \langle \mathbf{the} ; \text{NP}/\text{N} \rangle, \langle \mathbf{walk} ; \text{NP}\backslash\text{S} \rangle, \dots$   
 b. rules:  $\langle \sigma^\wedge \tau ; B \rangle$                        $\langle \sigma^\wedge \tau ; B \rangle \dots$
- $$\begin{array}{c} \swarrow \quad \searrow \qquad \qquad \swarrow \quad \searrow \\ \langle \sigma ; A \rangle \quad \langle \tau ; A\backslash B \rangle \quad \langle \sigma ; B/A \rangle \quad \langle \tau ; A \rangle \end{array}$$

The syntax of pure quotation can be stated as a special composition principle in this formalism: If  $\sigma \in \mathcal{L}_{phon}$ , then  $\langle \sigma^\wedge ; \text{NP} \rangle \in \mathcal{L}_{syn}$ . In tree notation:

- (33)  $\langle \sigma^\wedge ; \text{NP} \rangle$   
 $\quad \quad \quad |$   
 $\quad \quad \quad \sigma$

Essentially, pure quotation thus becomes a way of incorporating merely phonological strings into syntax. Concretely, this allows us to derive structures like:

- (34)  $\langle \mathbf{'Cicero' has six letters} ; \text{S} \rangle$
- $$\begin{array}{c} \swarrow \quad \searrow \\ \langle \mathbf{'Cicero'} ; \text{NP} \rangle \quad \langle \mathbf{has six letters} ; \text{NP}\backslash\text{S} \rangle \\ | \\ \mathbf{Cicero} \end{array}$$

To recap, we have now two levels of description of language. At the phonological level, composition is concatenation. At the syntactic level, we add a category label to each phonological element, and let composition be determined by a categorial grammar.

A note on notation: in the following I will abbreviate  $\text{NP}\backslash\text{S}$  as  $\text{VP}$  in trees, and omit concatenation symbols in composition rules.

<sup>14</sup> The category “under” the slash represents what can be taken as input, the category “over” the slash indicates what the output would be. For example, an  $\text{NP}\backslash\text{S}$  takes a sentence to the right and, by concatenation in that order, forms an NP.

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### 3.3 Semantics as a third dimension

Semantics adds a third dimension to the grammar. The language from a semantic point of view ( $\mathcal{L}_{sem}$ ) consists of triples containing a phonological component, a category, and a semantic object. In a truly compositional model, we would take set-theoretic entities of the appropriate logical type as our semantic objects.

In my eventual analysis of mixed quotation, however, I will introduce pragmatic manipulations at an intermediate representational level between language and interpretation. For this reason, instead of building set-theoretic entities into our language, I opt for expressions in some interpreted formal language which represent such objects. This way, we reserve room for a fourth, non-compositional level of linguistic interpretation, that is, a pragmatic system that takes care of, say, presupposition resolution and implicature computation.

So, let  $\mathcal{L}$  be an interpreted, higher-order, typed logical language suitable for doing Montagovian compositional semantics. That is, we have two types  $e, t$ , corresponding to the basic domains of individuals ( $D_e = D$ ) and truth values ( $D_t = \{0, 1\}$ ). Complex types correspond to functional domains, e.g.,  $D_{et}$  contains the functions from  $D_e$  to  $D_t$  (i.e., characteristic functions of subsets of  $D$ ). The semantic interpretation function,  $\llbracket \cdot \rrbracket$ , first maps the basic expressions of type  $\tau$  in  $\mathcal{L}$  to elements in  $D_\tau$ , and is then extended to complex expressions. Furthermore, by a recursive definition each category can be mapped onto a corresponding type, e.g.,  $N/N \rightarrow (et)et$ , so every lexical item in  $\mathcal{L}_{syn}$  can be mapped to an expression in  $\mathcal{L}$  of the corresponding type, and from there to a functional semantic object. Again, we can recursively extend this mapping to all complex expressions in  $\mathcal{L}_{syn}$ . For uniformity, we will build this mapping directly into our three-dimensional  $\mathcal{L}_{sem}$  lexicon and construction rules:

- (35) a. lexicon:  $\langle \mathbf{John} ; NP ; j \rangle, \langle \mathbf{walk} ; NP \setminus S ; walk \rangle, \dots$   
 b. rules:  $\langle \sigma^\cap \tau ; B ; \beta(\alpha) \rangle \quad \langle \sigma^\cap \tau ; B ; \alpha(\beta) \rangle \quad \dots$
- $$\begin{array}{c} \swarrow \quad \searrow \qquad \qquad \swarrow \quad \searrow \\ \langle \sigma ; A ; \alpha \rangle \quad \langle \tau ; A \setminus B ; \beta \rangle \quad \langle \sigma ; B / A ; \alpha \rangle \quad \langle \tau ; A ; \beta \rangle \end{array}$$

To formulate a pure quotation rule, we need to enrich  $\mathcal{L}$  with a device for metalinguistic reference. First, phonetic strings should be objects in our model, so we add  $\mathcal{L}_{phon}$  to  $D_e$ . Then we define: If  $\alpha \in \mathcal{L}_{phon}$  then  $\ulcorner \alpha \urcorner$  is an expression of type  $e$ . Finally,  $\llbracket \ulcorner \alpha \urcorner \rrbracket = \alpha$ .

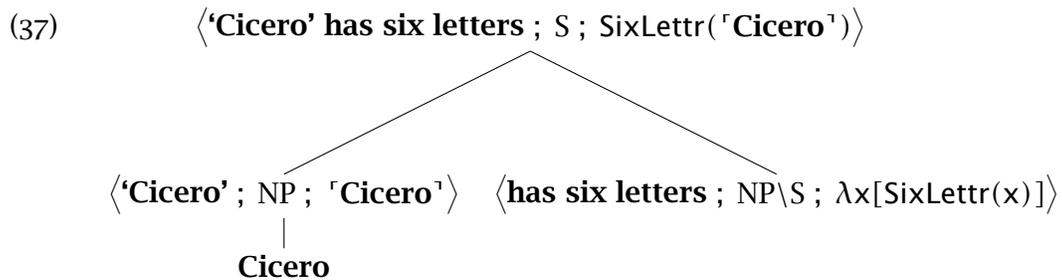
In  $\mathcal{L}_{syn}$ , the rule that transforms phonological strings into NPs is as follows:<sup>15</sup>

$$(36) \quad \langle 'σ'; NP; 'σ' \rangle$$

$$\quad \quad \quad |$$

$$\quad \quad \quad σ$$

This allows us to add the semantic dimension to the syntactic derivation in (34):



The top node gives us the logical form of the sentence, which we can interpret in a model:

- (38) 'Cicero' has six letters.
- a. logical form:  $\text{SixLettr}('Cicero')$
  - b. truth conditions:  $\llbracket (38a) \rrbracket = 1$  iff  
     iff  $\llbracket 'Cicero' \rrbracket \in \llbracket \text{SixLettr} \rrbracket$   
     iff **Cicero** is a member of the set of six-letter objects

#### 4 Mixed quotation at the syntax-semantics interface

The main goal of this section is to extend our three-dimensional formal grammar to deal with the syntax and semantics of mixed quotation as in:

$$(39) \quad \text{Perry said that climate change is a "contrived phony mess."} \quad [= (10)]$$

<sup>15</sup> Nothing prevents us from introducing composition rules for quoting the higher dimensional expressions of  $\mathcal{L}_{syn}$  or  $\mathcal{L}_{sem}$ . In fact, Potts's (2007) semantics of pure quotation does the latter:

One problem that I'll touch on in section 4 is that this restricts the application of pure quotation to grammatically well-formed and semantically interpretable expressions. I'll return to the intermediate option of applying pure quotation to  $\mathcal{L}_{syn}$  in section 6.3.

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Syntactically, our starting point is the grammatical incorporation of a mixed quote observed in section 2.2: when we have a grammatical common noun phrase like *contrived phony mess* (referring to a property, via a logical expression of type *et*), its mixed quotation “*contrived phony mess*” is also a common noun phrase. Semantically, the basic idea is the free relative paraphrase:

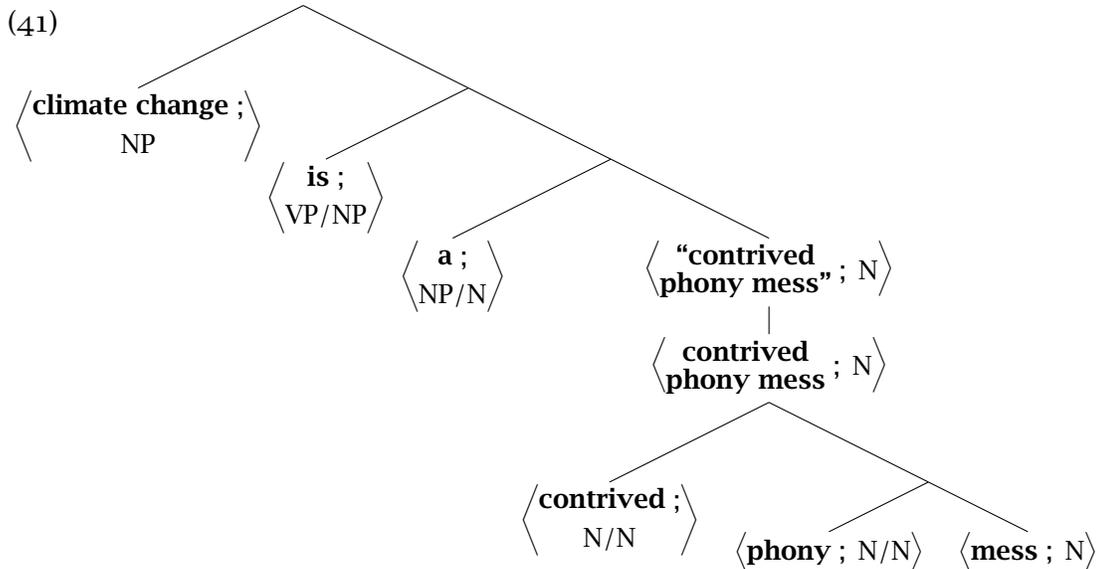
(40) Perry said that climate change is a what he referred to as ‘contrived phony mess’

Section 4.1 deals with the basic syntax of mixed quotation, section 4.2 presents a compositional semantics inspired by the free relative paraphrase.

#### 4.1 The syntax of mixed quotation

At the surface phonological level we indicate mixed quotation by enclosing a sequence of letters within double quotation mark symbols. At the syntactic level mixed quotations can be constituents of any category. In the climate change example above, the indefinite determiner, of category NP/N, indicates that the quotation that follows it must be of category N. Moreover, a quotation like “*contrived phony mess*” is clearly not a primitive lexical item, but consist of quotation marks applied to the underlying constituent, *contrived phony mess*. This constituent, taken on its own, is also of category N, being composed of two N/N adjectives (*contrived*, *phony*) and a noun (*mess*):

In short, the syntax of this report, in  $\mathcal{L}_{syn}$ , has to be something like this:



We capture the syntax of mixed quotation generally with the following  $\mathcal{L}_{syn}$  composition rule (where  $C$  stands for an arbitrary syntactic category):

$$(42) \quad \langle \text{“}\sigma\text{”}; C \rangle \\ \quad \quad \quad | \\ \quad \quad \quad \langle \sigma; C \rangle$$

This rule implies that, as far as syntax is concerned, there are two differences between pure and mixed quotes: (i) while pure quotation can apply to an arbitrary string in  $\mathcal{L}_{phon}$ , mixed quotation can only take a full syntactic expression in  $\mathcal{L}_{syn}$ ; and (ii), while pure quotes are always NPs, mixed quotations can be of any category, for they take on the category of the constituent expression.

These predictions are borne out: We cannot mixed quote gibberish (43a); and a mixed-quoted constituent like *refutation* of category N, doesn't fit into a position that wants a transitive verb (43b).

- (43) a. \*John said that Mary “bishdabcah” him  
 b. \*John said that Mary “refutation” him

Important exceptions are “near words” such as blends (*refudiate*) and spelling/pronunciation errors (*philtosopher*) which are strictly speaking not English words, yet can occur in mixed quotations:

- (44) Palin said that they should “refudiate” the mosque being built.

I submit that (44) is only acceptable when it is common ground that the reporter and her audience know, or can figure out from context and/or morphology, that *refudiate* here is syntactically a transitive verb.

This raises important questions. Is a blend like *refudiate* part of  $\mathcal{L}_{syn}$  or  $\mathcal{L}_{sem}$ ? And what concept of language are we modeling here? Cutting short a long philosophical debate, I take our formal grammars  $\mathcal{L}_{syn}$  and  $\mathcal{L}_{sem}$  as representing the language spoken by the speech participants, i.e., the common language between speaker and hearer. To recognize (44) as a grammatical sentence, the speech participants must be able to construe *refudiate* as a transitive verb. More specifically,  $\langle \text{refudiate}; VP/NP \rangle$  is part of  $\mathcal{L}_{syn}$ , our formal model of the syntax of their common language. However, (44) is perfectly acceptable if its speaker and hearer do not agree or even have a clue what that word means — in a sense that is precisely why the speaker of (44) uses mixed quotation in the first place. Formally, this means that there need

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not be a term  $\langle \text{refudiate} ; \text{VP/NP} ; \dots \rangle$  in  $\mathcal{L}_{sem}$ . This of course has important consequences for formulating the semantics of mixed quotation, and I will return to this discussion at the end of the next section.

Finally, I should point out that the proposed syntactic rule does not handle the non-constituent mixed quotations of section 2.2. There are a number of ways to overcome this restriction, such as adopting a grammar with a more flexible notion of constituency or allowing quotations to be broken into constituent pieces. I return to this matter in section 6.

## 4.2 A compositional semantics for mixed quotation

The core of my proposal is the idea that the semantic contribution of a mixed-quoted constituent  $\sigma$  is as follows:

(45)  $\llbracket \sigma \rrbracket \approx$  whatever some salient speaker  $x$  referred to when she uttered  $\sigma$

To model (45) we need a way to represent the free relative clause and a predicate that relates phonological expressions and meanings.

Let's say we analyze the free relative as a definite description, which we represent with an  $\iota$  operator. To relate forms and meanings assume a three-place predicate  $E$  that associates an individual and a phonological expression to a semantic entity of an appropriate type.

(46)  $\iota X[E(x, \ulcorner \sigma \urcorner, X)]$   
 $\approx$  the  $X$  that the source  $x$  expressed with her use of the phonological string  $\sigma$

We'll assume that  $x$ , the variable denoting the source of the quote, is of type  $e$ . In this section, we'll just leave it as a free variable to be filled in by the context. The second argument of  $E$  is the name of a linguistic entity  $\sigma$ , which in the language  $\mathcal{L}$  of section 3 is an expression of type  $e$  as well. The variable  $X$  in (46), and hence the definite description as a whole, does not have a fixed type. It is supposed to represent the semantic object that the source referred to when she uttered  $\sigma$ . The type of  $X$  thus depends on the syntactic category of  $\sigma$  in the original utterance.

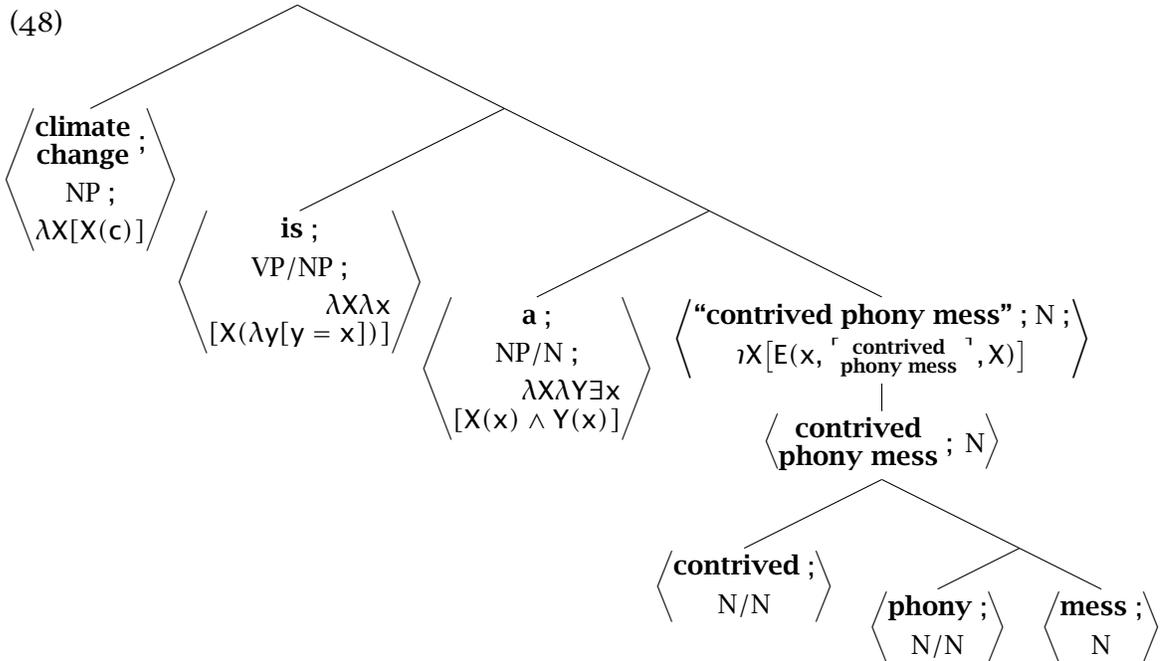
Adding (46) as a third dimension to the syntax of section 4.1 would give us the following complete  $\mathcal{L}_{sem}$  composition principle for mixed quotation:

$$(47) \quad \langle \text{“}\sigma\text{”} ; C ; \iota X[E(x, \text{“}\sigma\text{”}, X)] \rangle \quad [\text{to be revised}]$$

$$\quad \quad \quad \downarrow$$

$$\quad \quad \quad \langle \sigma ; C \rangle$$

Let me illustrate the new composition principle with our example. Assuming the somewhat baroque Montagovian analysis of *be an N*, we'd get the following derivation:



Composing these triples in accordance with our  $\mathcal{L}_{sem}$  composition rules and applying  $\lambda$ -conversions at each node to simplify the logical representations will eventually give the following semantic representation in the top node of this tree for the embedded clause:

$$(49) \quad \left[ \iota X[E(x, \text{“}\mathbf{contrived\ phony\ mess}\text{”}, X)] \right] (c)$$

$$\approx \quad \text{climate change has the property that } x \text{ expressed with } \mathbf{contrived\ phony\ mess}$$

In the remainder of this subsection I'll flesh out this proposal in more detail by being more precise about the interpretation of the definite description operator  $\iota$ , and about what happens when a clause like that analyzed above is embedded in an indirect speech reporting construction.

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### Definite descriptions as definedness conditions

If a mixed quotation is analyzed as a free relative, and that in turn as a definite description, how do we interpret definite descriptions? Answer: definite descriptions are presupposition triggers. Both *The King of France is bald* and *The King of France is not bald* presuppose that there is a King of France. On the traditional (Frege–Strawson) conception of presupposition this means that these sentences have no truth value unless there is a unique King of France. To model this compositionally we assume that *the King of France* is interpreted as referring to the unique individual that satisfies the predicate *King of France*, if there is such a unique satisfier, and is undefined otherwise. Equating definedness conditions and presupposition we can then say that indeed *the King of France* presupposes the existence of a unique King of France. Moreover, applying the predicate *is bald* preserves the definedness condition, so the sentence *the King of France is bald* presupposes that — is only defined if — there is a King of France. Finally, to model the fact that presupposition is preserved under negation and other sentential embeddings, we need to assume a logic where undefinedness is passed on at every composition.<sup>16</sup> On that assumption, any more complex sentence containing the trigger (e.g., *Perhaps not everyone agrees that the King of France is not bald*) likewise presupposes that there is a unique King of France — presuppositions *project* out of embeddings.

If we want to talk about presupposition and assertion as two dimensions of meaning we'd say that *the King of France is bald* presupposes that there is a King of France and asserts that *he* is bald. A crucial feature of presupposition is that generally the assertion dimension asymmetrically depends on the presupposition dimension.<sup>17</sup>

Before moving to a more sophisticated analysis of presupposition in section 5 let's see how far we can get with the traditional implementation of presupposition as projecting definedness conditions in a static compositional framework.

Above we had already reduced the meaning of a mixed quote to a  $\lambda$ -term in  $\mathcal{L}$ . The compositional presuppositional analysis of definite descriptions provides the following model-theoretic interpretation:

<sup>16</sup> A three-valued logic known as the Weak Kleene system.

<sup>17</sup> Hence, [von Stechow 2004a](#) uses the term 1.5-dimensional to distinguish a presuppositional account from a genuine two-dimensional account like [Potts 2007](#). To stress the same contrast, [Geurts & Maier 2005](#) even called their presuppositional account one-dimensional.

$$(50) \quad \llbracket \exists X.E(x, \ulcorner \sigma \urcorner, X) \rrbracket = \begin{cases} \text{the unique } P \text{ such that } \llbracket E(x, \ulcorner \sigma \urcorner, X) \rrbracket^{X \rightarrow P} = 1, \\ \text{if there is such a unique } P \\ \text{undefined otherwise} \end{cases}$$

Applied to the climate change example, this means that “*contrived phony mess*” triggers the existential presupposition that someone used the quoted words to refer to some property  $X$ , while contributing  $X$  to the assertion, or, to switch to more neutral modern terminology, to the *at-issue* content. So, following the derivation in (48)–(49), we interpret the logical form of the embedded clause as follows:

$$(51) \quad \llbracket \exists X \llbracket E(x, \ulcorner \text{contrived phony mess} \urcorner, X) \rrbracket (c) \rrbracket = \begin{cases} \text{undefined} & \text{if there is no unique } P \text{ with} \\ & \llbracket E(x, \ulcorner \text{contrived phony mess} \urcorner, X) \rrbracket^{X \rightarrow P} = 1, \\ 1 & \text{if } \llbracket c \rrbracket \in P_0, \text{ where } P_0 \text{ is the unique } P \text{ with} \\ & \llbracket E(x, \ulcorner \text{contrived phony mess} \urcorner, X) \rrbracket^{X \rightarrow P} = 1, \\ 0 & \text{otherwise} \end{cases}$$

In a readable two-dimensional paraphrase:

- (52) climate change is a “contrived phony mess”  
**presupposition:** there is an  $X$  such that  $x$  uttered the words ‘contrived phony mess’ to refer to  $X$   
**at-issue:** climate change is  $X$

We predict that the metalinguistic presupposition triggered by a mixed quotation always projects. So our climate change report as a whole will presuppose that — only have a truth value if — the quoted phrase was uttered, and moreover expressed something. To substantiate that I will give you a semantics of *saying that* below, but first, it’s worth pointing out that the proposed semantic contribution of mixed quotation does not depend on a reportive indirect discourse embedding at all.

### Non-reportive mixed quotation

A major benefit of the current approach is that it’s completely independent of the indirect speech construction. Out of the box it gives accurate predictions for those cases of mixed quotation that are not so embedded. Take the example above. We have analyzed the clause *climate change is a “contrived*

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*phony mess*” as a step toward deriving the truth conditions of the mixed quotational report *Perry said that climate change is a “contrived phony mess”*, but we can well imagine the clause as a standalone sentence, perhaps uttered in a context where it is clear what source of the quote is intended. Below are some more non-reportive variations on mixed quotes from section 2:

- (53) a. For Quine, quotation is interesting because it has “a certain anomalous feature”.  
b. John tends to “misunderestimate” his opponent.

Applying our analysis so far, we derive the right interpretations, viz. quotation is interesting for Quine because it has what he referred to as ‘an anomalous feature’.

In both examples in (53) the likely sources are named within the same sentence. This is certainly not always the case. Especially in non-reportive quotations the source may be entirely implicit, or even generic. Take (54):

- (54) “Extinct” pygmy elephants have been found living on Borneo

Who in the context used the term ‘extinct’ to talk about pygmy elephants? A particular misinformed source, or just anyone interested in pygmy elephants until recently? With cases like (54) we seem to be gradually moving from genuine quotation into scare quoting. I leave for future research the question of how far we can extend the mixed quotation analysis to cover scare quotes uniformly (cf. [Geurts & Maier 2005](#), [Recanati 2008](#)).

It may seem as if the possibility of choosing an implicit source from the context differentiates non-reportive from reportive mixed quotation, because in reportive mixed quotation we can identify the source with the overt grammatical matrix subject. Note however that even within reports, the source of a quotation and the subject of an embedding report construction may come apart:

- (55) Ellen: The Godfather II is a total snooze.  
Frank: Well, Pauline Kael said that this “total snooze” is a defining moment in American cinema. [Potts 2007]

In (55), Frank is quoting Ellen, while reporting what Pauline Kael said.

Before turning to indirect discourse let’s briefly consider some simpler embeddings of non-reportive quotations. Our presuppositional analysis predicts projection out of any such embedding. Take negation. Imagine someone

saying (56) in a debate about politics and climate change with the reporter who just uttered the original mixed report about Perry’s views:

(56) But climate change is not a “contrived phony mess.”

Intuitively, the speaker of (56) quotes Perry’s actual utterance, as did the speaker of the original mixed report. Despite the negation taking scope over the quoted phrase, the presupposition of (56) will be satisfied by the same contextually salient utterance of Perry as that of the original report. And this is precisely what we predict: (56) as a whole presupposes that this phrase was used, to refer to some property, and it asserts that climate change does not have that property. In other words, negation does not affect the metalinguistic contribution at all, but targets only at-issue content.

In section 5 we’ll look at some special cases where, under pragmatic pressure, quotational presuppositions appear not to project or project only partially. This necessitates a more sophisticated presupposition theory. For now, note that the current, compositional analysis at least does the right predictions with respect to (56) in the context of the original report.

### Interpreting indirect discourse

Now let’s return to the original report example. To extend the derivation of the embedded clause in (48) to the entire sentence we need a syntax and semantics for indirect discourse *say*. I will follow the traditional analysis of Kaplan 1989, which analyzes indirect discourse *say* as an intensional operator. To implement that, we need first of all to enrich our model theory by adding two dimensions of interpretation: possible world/time indices ( $w \in W$ ) and contexts of utterance ( $c \in C = D \times W$ ).

(57) If  $\alpha$  is of type  $\tau$ , then  $\llbracket \alpha \rrbracket_w^{c,f} \in D_\tau$  (= the interpretation of  $\alpha$  uttered in  $c$  and evaluated at  $w$ , relative to assignment  $f$ )

To quantify over possible worlds, we need intensional expressions in  $\mathcal{L}$ , and hence an intensional type  $s$  (i.e.,  $D_s = W$ ). I’ll use the  $\wedge$ -notation to create intensions:

(58) If  $\alpha$  is of type  $\tau$ , then  $\wedge \alpha$  is of type  $\langle s, \tau \rangle$ , and  $\llbracket \wedge \alpha \rrbracket_w^{c,f}$  is the function that maps every  $v \in W$  to  $\llbracket \alpha \rrbracket_v^{c,f}$

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I'll use a special *that*-introduction rule to introduce  $\wedge$  in reports and other intensional contexts:<sup>18</sup>

$$(59) \quad \langle \mathbf{that}^\cap \sigma ; S ; \wedge \varphi \rangle$$

$$\swarrow \quad \searrow$$

$$\langle \mathbf{that} ; S/S ; \emptyset \rangle \quad \langle \sigma ; S ; \varphi \rangle$$

- (60) a.  $\langle \mathbf{say} ; \text{VP}/S ; \mathbf{say}_{(\text{st})\text{et}} \rangle \in \mathcal{L}_{sem}$   
 b.  $\llbracket \mathbf{say}(\wedge \varphi)(\xi) \rrbracket_w^{c,f} = 1$   
 iff  $\xi$  uttered a sentence that expressed, in its utterance context, a proposition that entails the proposition currently expressed by the report complement  $\wedge \varphi$   
 iff there is a  $\langle \sigma ; S ; \psi \rangle \in \mathcal{L}_{sem}$  s.t.  $f(\xi)$  uttered  $\sigma$  in  $w$  and  $\llbracket \wedge \psi \rrbracket_w^{c',f} \subseteq \llbracket \wedge \varphi \rrbracket_w^{c,f}$ , where  $c' = \langle f(\xi), w \rangle$

Continuing the derivation of our example report now gives us the following logical form:

$$(61) \quad \mathbf{say}(p, \wedge [(\lambda X[E(x, \text{‘contrived phony mess’}, X)])(c)])$$

Using our compositional presupposition theory and the semantics of *say*, we can compute the interpretation of this logical form. The result, in words:  $\llbracket (61) \rrbracket_w^{c,f}$  is undefined, if  $f(x)$  did not utter ‘contrived phony mess’ to refer to some unique property. Otherwise, true if Perry uttered a  $\sigma$  that expressed, in its utterance context, a proposition that entails that climate change has the property that  $f(x)$  referred to as ‘contrived phony mess’. Assume, finally, that the context here allows us to infer that the source of the quote (represented by the free variable  $x$ ) is the reported speaker, i.e.,  $f(x) = \text{Perry}$ . We then get a good reconstruction of the free relative paraphrase, complete with the projected metalinguistic presupposition that Perry used these words verbatim. Moreover, we’ve managed to achieve this completely compositionally.

### 4.3 Opacity and mixed quotation

The proposal detailed above already predicts most of the quotational characteristics discussed in 2. In particular, the grammatical incorporation of mixed quotation (discussed in section 2.2, p. 9), for that was really our starting

<sup>18</sup> Alternatively, we could implement a version of Heim & Kratzer’s (1998) intensional functional application rule.

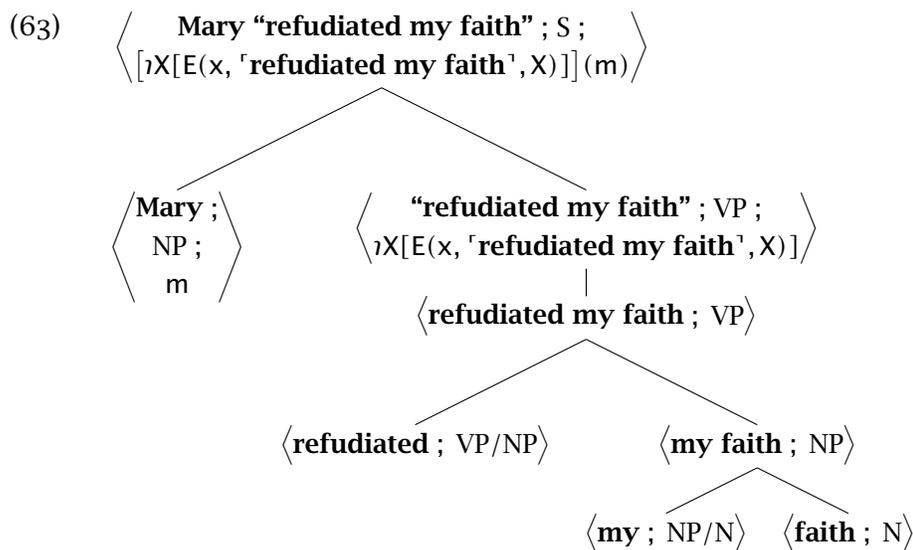
point for the syntax and semantics of mixed quotation proposed in this section. In addition, we capture the verbatim requirement. The reason is that a reference to the exact quoted phrase features in our  $E(xpress)$  relation. Part of the meaning of a mixed-quoted phrase is the presupposition that  $x$  used the quoted phrase (to refer to  $X$ ), i.e.,  $E(x, \ulcorner \sigma \urcorner, X)$ . If the quotation doesn't match the actual utterance, this statement will be false and hence the whole  $\iota$  expression will not refer. The verbatim requirement in turn implies the rest of the opacity features identified in section 2.1, such as the non-adjustment (semantic shifting) of language and indexicality.

### Language shift

Let me illustrate the potential of the current approach for dealing with opacity features by analyzing an example that involves both idiolectal and indexical shifting:

(62) Joe complained that Mary “refudiated my faith”.

As observed in 4.1, a creative or accidental blend like *refudiate* is not really a word, it has no (or need not have a) determinate lexical meaning in the language of the reporter and her audience. In (62), we can, however, recognize it as a transitive verb, syntactically. In our grammar this means we may form the VP *refudiated my faith* in  $\mathcal{L}_{syn}$ , if not in  $\mathcal{L}_{sem}$ . This syntactic VP can then be mixed-quoted and used as a meaningful expression in  $\mathcal{L}_{sem}$ , with the deferential interpretation *the property that  $x$  referred to as ‘refudiated my faith’* as its meaning coordinate. The crucial part of the derivation is this:



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Continuing the derivation with the indirect reporting construction yields the following eventual truth conditions for (62): John complained that Mary has the (presupposed) property that he referred to as *refudiated my faith*.

These truth conditions seem indeed quite plausible. It correctly predicts that John must have uttered, literally, *refudiated my faith*. Moreover, he must have used it to express something, viz. a property (*et*). The semantics of the report leaves it wide open what property that may have been, the property of refuting John's religious beliefs, perhaps? The reporter is not herself using the words in the quotation marks in her own  $\mathcal{L}_{sem}$ ; she is using them to defer to John by pure quoting what he said. Hence the possibility of quoting things in different languages, dialects or idiolects. The only restriction comes from the fact that mixed quotations are grammatically incorporated: in order to mixed quote an expression, we must recognize the syntax (and hence the semantic type). In other words, a mixed-quoted expression must be part of the quoter's  $\mathcal{L}_{syn}$ . Ultimately, it depends on the speech participants' shared assumptions about language what they count as belonging to  $\mathcal{L}_{syn}$ , and hence what they can mixed quote in their full, interpreted language  $\mathcal{L}_{sem}$ .

### **Indexical shift**

Now for the indexical shift. In most contexts it is not unreasonable to expect that John's idiolect is sufficiently similar to ours that he uses the pronoun *my* to refer to himself, John. VPs that contain such a *my*, like *refudiate my faith*, will then express a property that incorporates a relation to John, e.g., the property of repudiating John's faith. Hence the appearance of indexical shifting noted in section 2.1.

It is important to note that, unlike truly monstrous indexical shifting such as that claimed for Amharic (Schlenker 2003, Anand 2006), this shifting is not semantic in nature. What the mixed quotation semantics tells us is that these very words, containing a phonological string *my* of category NP/N, were used by the source, John. Only contextually-driven, pragmatic reasoning about John and his idiolect can tell us whether John uses *my* to refer to himself. In other words, the phrase enclosed within the mixed quotation marks is not part of  $\mathcal{L}_{sem}$  and hence, strictly speaking, it has no lexically determined meaning at all in the reporting context.

In sum, in this section I have presented a crude, compositional implementation of the free relative paraphrase, using a presuppositional definite description operator and an analysis of pure quotation. The analysis does

justice to the two central observations from Davidson: the verbatim requirement and grammatical incorporation. The proposed mix of use and mention thus correctly captures key linguistic characteristics of the phenomenon, such as indexical and language shifting.

In the next section I will identify a limitation of the current approach, showing that we need to go beyond compositional semantics and bring in pragmatics.

## 5 The pragmatics of mixed quotation

In the previous section we have analyzed mixed quotation by modeling the free relative paraphrase in terms of a description operator. A mixed-quoted  $\sigma$  refers to *the* X that the source referred to with her original utterance of  $\sigma$ . To ensure compositionality, I assumed a Fregean, presuppositional interpretation of the definite description: the description refers to the unique satisfier of the predicate if that exists, but is undefined otherwise.

However, presupposition in natural language is more than just a definedness condition that simply projects out of every embedding. Presuppositions are known to be *cancelable* in certain environments, and moreover, they can be *accommodated*. Below, I will show that mixed quotation exhibits all the symptoms of genuine presuppositionality, even the subtle cases involving local and intermediate accommodation. To account also for these rarer accommodation varieties, and for the frequent informative character of quotational presuppositions, I eventually adopt Van der Sandt's (1992) Presupposition-as-Anaphora implementation.

### 5.1 The presuppositionality of mixed quotation

Presupposition triggers are linguistic elements or constructions that impose restrictions on when they can be used felicitously. Rephrased in slightly more modern terminology than in section 4.2, they require a certain piece of information to be present in the context. Typically, this is the global context, the common ground between speaker and hearer at the time of utterance. A use of a definite description like *my sister* thus presupposes that the existence of my sister is already established in the common ground.

Typically, if the trigger occurs in an embedded position within a sentence, the utterance as a whole still presupposes the same information: presuppositions tend to project. We've discussed negation already in section 4.2 above,

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but the same holds for, say, embedding in the antecedent of a conditional. So, *If my sister were a spy, I'd know* presupposes that I have a sister.

We've already seen the metalinguistic description introduced by a mixed quote escape embedding under a reporting verb and a negation. Here's another example, with a conditional:

(64) If climate change is a “contrived phony mess”, then so is Wall Street.

Intuitively, (64) as a whole is only felicitous in a context where some utterance of the words *contrived phony mess* is common ground.

But presuppositions do not always project: the distinct projection behavior that separates presupposition from other “projective content” is characterized by two additional mechanisms: binding (or cancelation) and accommodation.

### **Binding**

An existential presupposition triggered by a definite can be satisfied or bound by a corresponding indefinite or other construction that explicitly introduces the existence of the presupposed entity. This may happen at discourse level, with the trigger and indefinite occurring in different sentences, but also within a single sentence. As an example of discourse binding, take (65):

(65) I have a sister. Mary thinks my sister is a spy

The discourse as a whole states, but does not presuppose, that I have a sister. I'll say that the presupposition triggered by *my sister* is globally bound by the indefinite in the first sentence.

We can construct parallel discourse binding scenarios with mixed quotation. Note that we need something like a coinage construction in order to explicitly introduce the information presupposed by a mixed quote — that someone used certain words to express something. Subsequent utterances can then indeed pick up the newly coined form-meaning connection with the help of a mixed quote:<sup>19</sup>

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<sup>19</sup> After a while, and in some cases immediately, we will drop the mixed quotation marking and just enrich the language with a new lexical item. This would be an instance of a (minor and presumably non-persistent) language change. By using mixed quotes as in (i) we don't have to change the language. Using (and pronouncing) the mixed quotes may be preferred over the minute language change if the newly coined term is already in use with a different meaning, or is remarkable in some other respect.

- (66) A: I'm using the word 'misunderestimate' as a new word to express a kind of underestimating based on a misunderstanding.  
 B: Well, then you "misunderestimate" the English language!

If we assume that utterances generally (or occasionally, when required) contribute, in addition to their content, also a metalinguistic proposition to the effect that that content was expressed with such-and-such words,<sup>20</sup> then we might analyze echoic discourses like (67) as binding (or bridging) as well.

- (67) A: Climate change is a contrived phony mess  
 B: Well, this "contrived phony mess" is going to be the death of us!

Local binding, traditionally referred to as cancelation, occurs when a presupposition triggered in one clause is bound by a corresponding introduction of the presupposed information somewhere else within the sentence. In such a case, the sentence as a whole does not presuppose anything, even though it contains a presupposition trigger.

- (68) If France has a king, the King of France must be wealthy

Again, we can construct direct analogues with explicit metalinguistic introductions through coinage:

- (69) a. Johnny thinks there's a monster under his bed named 'Growlser', and he fears that if he falls asleep and "Growlser" gets hungry, it will eat him.<sup>21</sup>  
 b. If you use 'leg' to refer to a horse's tail as well, how many "legs" does a horse have?

The reading I'm after with (69b) is the one where the correct answer is five. Note that in the version of the riddle (attributed to Abraham Lincoln) without the mixed quotation marks in the consequent, the answer would be four. Given the view of quotation and grammar defended here, the contrast between these two version of (69b) can be explained by assuming that it's

<sup>20</sup> This is independently needed for all kinds of metalinguistic reference and anaphora, such as the interpretation of *the former/the latter*, cf. Geurts & Maier 2003.

<sup>21</sup> In the proper name literature, "Bambi examples" like this are typically presented and analyzed without quotation marking (Geurts 1997). I hypothesize that since the coinage in the first conjunct introduces a new word, there is no chance of confusion and the reporter may as well drop the overt quotation marking, cf. footnote 19.

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impossible to propose a hypothetical language change to take effect mid-sentence.

### Accommodation

A presupposition that cannot be bound, locally or globally, need not lead to an uninterpretable sentence. Most presuppositions will in fact easily be *accommodated* (Lewis 1979). Noticing that there is no suitable antecedent to bind to, the hearer automatically adjusts the common ground by adding the presupposed information to it. This way, presuppositions can be used to convey new information, in addition to their primary function of binding to old information.

Take (70):

(70) I'm taking the day off because my daughter is ill.

This utterance may be perfectly felicitous in a situation where it is not yet common knowledge that I have a daughter. The hearer is then said to globally accommodate this presupposition.

Mixed quotational presuppositions are no exception. I can understand the Perry example without prior knowledge that Perry had uttered those words. In fact, mixed quotation reports are a very natural and efficient way to *inform* me of someone's word choice. In this respect, mixed quotational presuppositions pattern with so-called informative presuppositions, such as the complements of factives:

- (71) a. We regret to inform you that children cannot accompany their parents to commencement exercises. [Karttunen 1974]  
b. Have you noticed that your belly button lint color is related to the color of your clothing? [Beaver 2010]

These examples are entirely felicitous if it is not yet common ground that children cannot accompany their parents, or that belly button lint color is related to the color of clothing. Assuming that factives like *regret* and *notice* are presupposition triggers, it looks like accommodation is the preferred interpretation strategy for them.

Satisfaction-based analyses of presupposition that treat accommodation as a pragmatic repair strategy are arguably less suited for dealing with informative presupposition. This is one of the reasons for adopting here the

more uniform approach to binding and accommodation offered by Van der Sandt's framework.

Part of the reason why we accommodate so easily in the case of our Perry example is that the mixed quotation is part of an indirect speech report, i.e., it is explicitly asserted that Perry said something about climate change, so it's but a small step to accommodate that these very words were uttered by him as part of the indirectly reported utterance. Again, we find parallels to this phenomenon in the presupposition literature. It is often observed that presuppositions that are explicitly related to something already salient or present in the context accommodate better:

(72) {??The woman/my wife} is annoyed with me.

Indeed, mixed quotations occurring outside of an indirect speech environment are more easily rejected if it is not clear in advance that a contextually salient individual uttered these words. In other words, we can more easily apply von Stechow's (2004) hey-wait-a-minute test:

(73) A: We should just carry on "irregardless."  
B: Hey wait a minute! Who here ever said *irregardless*?

This prediction holds, even if it's relatively clear who the source is:

(74) A: Haha, looks like Palin herself "misunderestimated" this thing.  
B: Hey wait a minute, I didn't know Palin uses the verb 'misunderestimate' too. I thought that was a Bushism.

Finally, a more controversial aspect of presuppositionality is called local accommodation, where a presupposition is used to update some non-global context. Take the classic example in (75):

(75) A: I wonder why that guy is looking so glum.  
B: Maybe his girlfriend jilted him. [(Fauconnier 1994)]

B's utterance is felicitous if neither A nor B have any knowledge of whether the guy has a girlfriend or not. In such a case, global binding and accommodation are out. The intended reading is one where the presupposition is accommodated in the local context embedded under the modal operator: maybe he has a girlfriend and she jilted him.

Similar contexts allow local accommodation of the mixed quotational presupposition:

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- (76) A: Why are all the grammar nerds on the forum angry at her?  
B: I don't know, maybe she said she "could care less" about proper usage?

In the intended interpretation, the quotational presupposition ends up under the scope of the modal: maybe she uttered 'could care less' and said (using that phrase) that she doesn't care about proper usage.

The most contested variety within local accommodation is that where the presupposition ends up in an intermediate position. Here's a potential example of an intermediate mixed quote accommodation:

- (77) If a Tea Party member will win the next election, he'll probably promise not to "misunderrepresent" the middle class or something.

One prominent reading of (77) is through global accommodation or binding. The speaker then echoes a specific Tea Partier's previous use of the verb 'misunderrepresent'. However, another plausible interpretation is one where the speaker makes up the word 'misunderrepresent' to suggest the type of language use associated with Tea Party members in general: If a Tea Party member will win the next election, he'll probably use the word 'misunderrepresent' and promise not to do (whatever he means by) that to the middle class. This reading requires genuine intermediate accommodation.

In the previous section we have seen that the metalinguistic part of the meaning of a mixed quotation projects. But it doesn't simply always project, it can be both bound and accommodated, under exactly the same conditions as established presuppositions (factives, definite descriptions). Hence, our semantic framework needs to be enriched with a theory of presupposition resolution.

## 5.2 Discourse representation and presupposition

In Van der Sandt's framework, interpretation is a two-stage process. In the first stage, we compositionally generate Preliminary Discourse Representation Structures (PDRS). PDRSs are formulas in the formal language  $\mathcal{L}^{\text{PDRS}}$ , a syntactically minor variant of our intensional type theory  $\mathcal{L}$ .<sup>22</sup> The defining characteristic of PDRSs is that they represent all the presuppositions triggered by definites and other lexical items or constructions.  $\mathcal{L}^{\text{PDRS}}$  will re-

<sup>22</sup> The semantics of  $\mathcal{L}^{\text{PDRS}}$  is decidedly more complex, because of the underspecification inherent in a PDRS, but to understand what follows we can safely skip it.

place  $\mathcal{L}$  to play the role of logical forms in our formal grammar, that is, they represent semantic content. But content in this dynamic setting is different from the classical propositional model of truth conditions. In semi-classical terms, a PDRS constitutes a compositionally generated but highly underspecified representation of the sentence's truth conditions. In more dynamic terms, a PDRS represent a sentence's context change potential. This dynamic metaphor points to DRT's second stage of interpretation.

In the second stage of interpretation we use the sentence's PDRS to *update* a given representation of the discourse context, i.e., the common ground at the point in the discourse when the sentence at hand is uttered. This common ground will be represented as a DRS, a well-formed structure in the language  $\mathcal{L}^{\text{DRS}}$  ( $\approx \mathcal{L}^{\text{PDRS}}$  without unresolved presuppositions).  $\mathcal{L}^{\text{DRS}}$  has a classical model-theoretic interpretation. In fact, expressions of this language can be mapped onto corresponding formulas in  $\mathcal{L}$ .

The contextual update consists in merging the DRS (context representation) and PDRS (sentence representation) and then trying to bind or accommodate the presuppositions in this augmented context. The result of binding or accommodating all the presuppositions will again be a DRS, which can serve as input context for interpreting the next utterance. Instead of spelling out the presupposition resolution algorithm in detail, I'll go through some examples below.

But first, let's get acquainted with the DRS language and the first stage of interpretation. In contrast with  $\mathcal{L}$ ,  $\mathcal{L}^{\text{PDRS}}$  has two syntactically distinct types of formulas that are semantically of type  $t$ : DRS conditions (type  $t_c$ ), and DRSS (type  $t_d$ ).<sup>23</sup> Variables are called discourse referents, and they come in various types, as do constants:

- (78) primitive expressions in  $\mathcal{L}^{\text{DRS}}$ :
- a. discourse referents:  $x_e, p_{t_d}, X_{et_c}, \dots$
  - b. constants:  $i_e, \text{own}_{ee_{t_c}}, \text{donkey}_{et_c}, \text{say}_{(st_d)et_c}, \dots$

We can combine these primitive expressions into complex ones according to their types in the usual way (e.g., function application and lambda conversion). An expression of type  $t_c$  is called a DRS condition, one of type  $t_d$  a DRS. Other ways of constructing DRSS and DRS conditions are as follows:

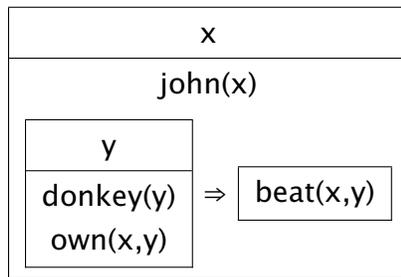
<sup>23</sup> As far as model-theoretic interpretation is involved they are the same ( $D_{t_d} = D_{t_c} = \{0, 1\}$ ), so whenever possible I'll just use the underspecified  $t$ .

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- (79) a. if  $U$  (the universe) is a set of discourse referents and  $C$  a set of DRS conditions, then  $\langle U, C \rangle$  is a DRS  
 b. if  $\varphi$  and  $\psi$  are DRSs, then  $\neg\varphi$  and  $\varphi \Rightarrow \psi$  are DRS conditions.

The idea is that the universe of a DRS asserts the existence of a set of individuals, and the conditions specify relations between those individuals. The DRS conditional is special in that it functions more as a universal quantifier. Here is an example DRS in box notation, separating universe and conditions vertically:

- (80) If John owns a donkey, he beats it.



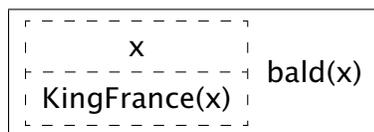
I will not go into the semantics of  $\mathcal{L}^{\text{DRS}}$ , except to note that there is a simple algorithm for translating DRSs into our the static theory of types  $\mathcal{L}$ . For example, (80) translates as:

- (81)  $\exists x[\text{john}(x) \wedge \forall y[\text{donkey}(y) \wedge \text{own}(x, y) \rightarrow \text{beat}(x, y)]]$

We can use this translation to define the notion of a free or bound discourse referent, and hence of open and closed DRSs. Furthermore, in a given DRS, we say that a subDRS is accessible to another subDRS if a free discourse referent in a condition in the latter would be bound by a corresponding discourse referent in the universe of the former. That is, if a DRS is embedded in another DRS, the higher DRS is accessible to the deeper one (where we count the consequent of a conditional as embedded in the antecedent).

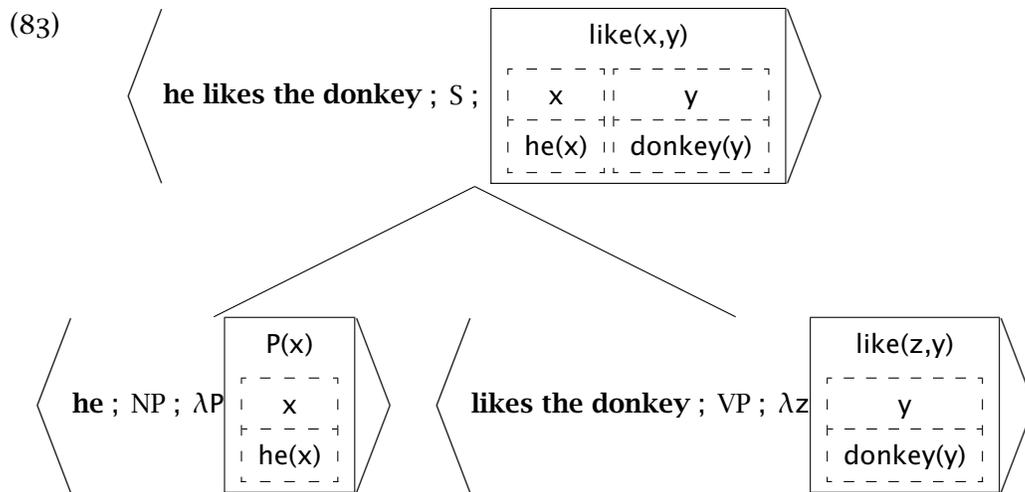
$\mathcal{L}^{\text{PDRS}}$  adds to  $\mathcal{L}^{\text{DRS}}$  a way to represent existential presuppositions as DRS conditions. Graphically, I use the dashed box for this purpose.

- (82) The King of France is bald.

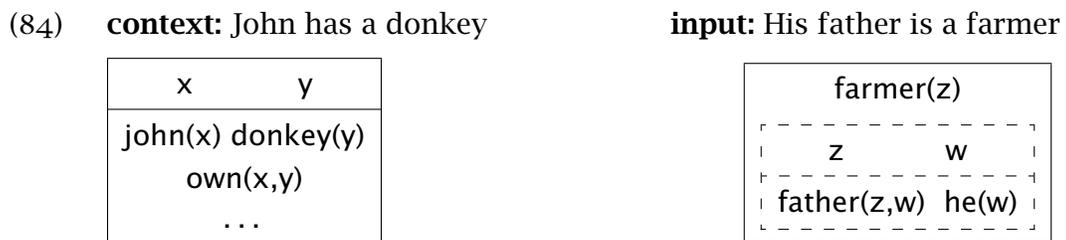


The interpretation of the PDRS in (82) *presupposes* that there exists an individual that is King of France, and *asserts* that that individual is bald.

The compositional construction of PDRs in  $\mathcal{L}_{sem}$  typically involves many presuppositional conditions. All definite descriptions, pronouns and proper names trigger presuppositions. (83) shows an example of a typical derivation step in  $\mathcal{L}_{sem}$ . Note that *he* is treated as a presupposition, the content of which is given by its phi-features (conveniently abbreviated as  $he(x)$ ). Furthermore, as a notational shorthand, I use a box with a single compartment to represent either a DRS with an empty universe, or a conjunction of DRS conditions (constituting a complex DRS condition) — whichever fits best.



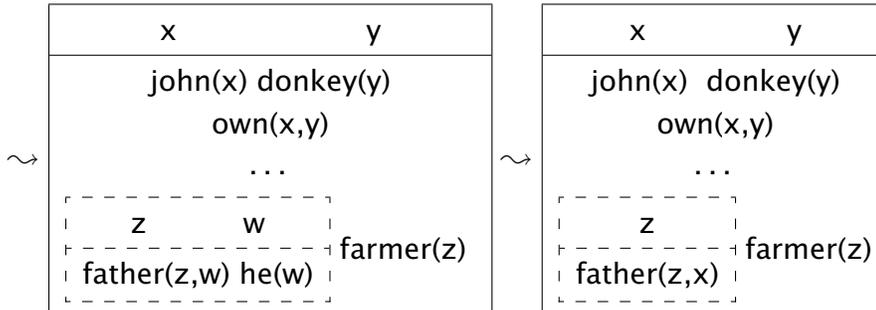
Now on to stage two. Once we have derived a preliminary representation in  $\mathcal{L}_{sem}$ , we add it to the context DRS and execute the presupposition resolution algorithm. Let me demonstrate how the algorithm works by going through an example computation. Say we're in a context where we've been discussing a certain John and a donkey that he owns. We represent this as in (84), on the left. Now, I say *His father is a farmer*. Our grammar will parse this sentence (analyzing *his father* as *the father of he*, a combination of two presupposition triggers in one) and yield the preliminary  $\mathcal{L}^{PDRS}$  representation below:



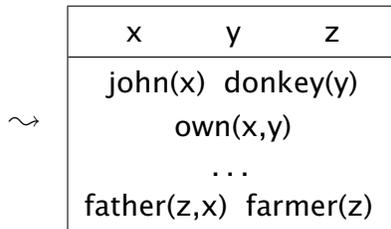
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We merge these two structures and start the resolution process by binding the presuppositions  $z$  and  $w$ . The presupposition resolution algorithm states that a proper antecedent to bind a presupposed referent to should fulfill at least the following semantic criteria: (i) it has to be a discourse referent of the same type as the presupposed one; (ii) it has to be accessible to the presupposition; and (iii) the semantic content associated with it (through the conditions in which it occurs) should be compatible with the presupposed content.

To see what that means, let's start with  $w$ .<sup>24</sup> The context provides two accessible discourse referents of the right type,  $x$  and  $y$ , but only the former is compatible with the semantic content associated with  $w$  (viz.  $he(w)$ ). So we can bind  $w$  to  $x$ , which means that we unify the two (and, for readability, throw out redundant conditions):



This leaves the  $z$  presupposition, representing, now, *the father of John*. This time, neither  $x$  nor  $y$  are suitable antecedents, because world knowledge tells us that John is not the son of himself, nor of his donkey. The presupposition resolution algorithm tells us that, if binding fails, we have to *accommodate* the presupposition. In this framework, that simply means that we add it as a new contribution to the global context, like so:

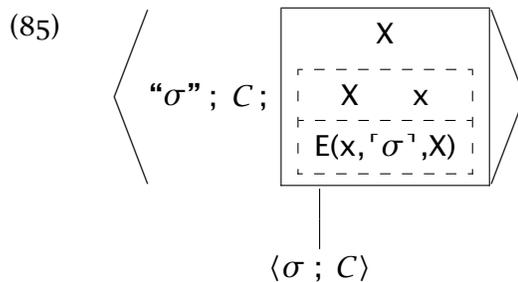


<sup>24</sup> This is really just for ease of presentation. An actual implementation would resolve both presuppositions simultaneously, or would involve a richer representation of double presuppositions in which each presupposed referent has its own conditions attached.

This concludes our walkthrough of the presupposition construction and resolution mechanisms. In the next section I formulate a mixed quotation rule in this framework and show how it works.

### 5.3 Mixed quotation as a presupposition trigger

The revised, definitive, mixed quotation introduction rule is as follows:



Note that I’m extending here the notational shorthand introduced with (83) above: typically, the box in (85) does not represent an actual PDRS (of type  $t$ ), but rather an expression of the type  $\tau$  of  $X$  (i.e., the type corresponding to category  $C$ ). Composing with another expression of a suitable type (e.g.,  $\tau t$ ), means functional composition with the non-presuppositional part.<sup>25</sup>

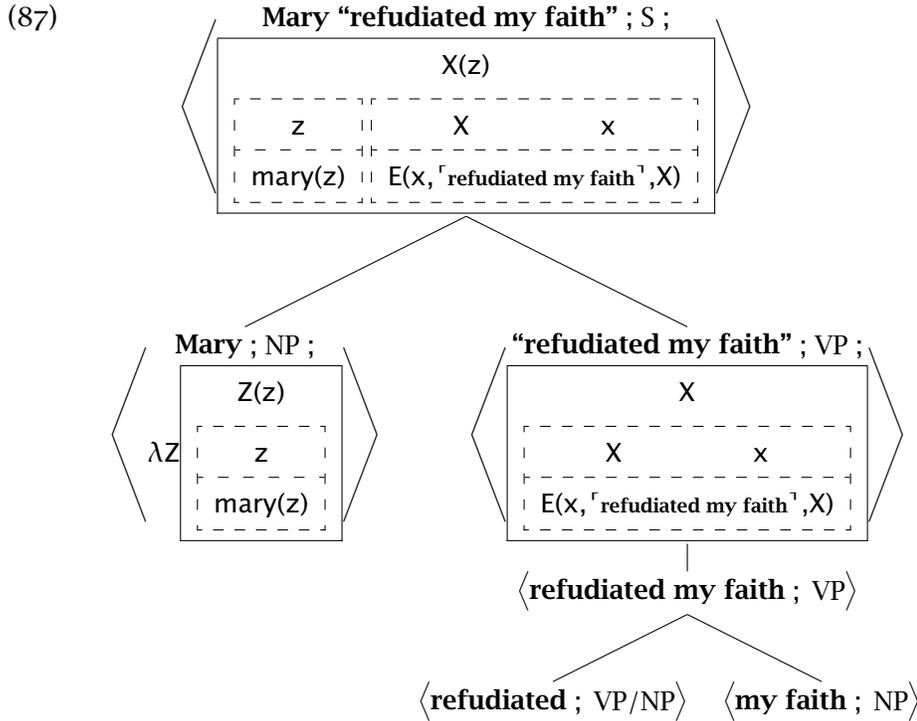
Let me illustrate the new rule with the test case for our compositional system from section 4.3.

(86) Joe complained that Mary “refudiated my faith”. [=(62)]

In the first stage of interpretation we need to construct a PDRS. The syntax guiding this construction hasn’t changed. The only difference is the replacement of the Montagovian  $\mathcal{L}$  expressions with  $\mathcal{L}^{\text{PDRS}}$  expressions, and using the revised mixed quotation rule (85) instead of (47).

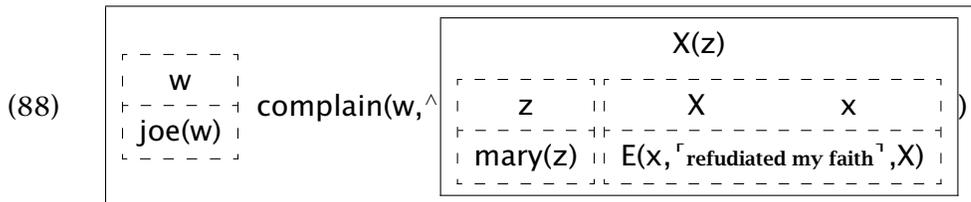
<sup>25</sup> In the example derivation in (88) the top and leftmost box are actually PDRSs, the rightmost box is an expression of type  $et$ .

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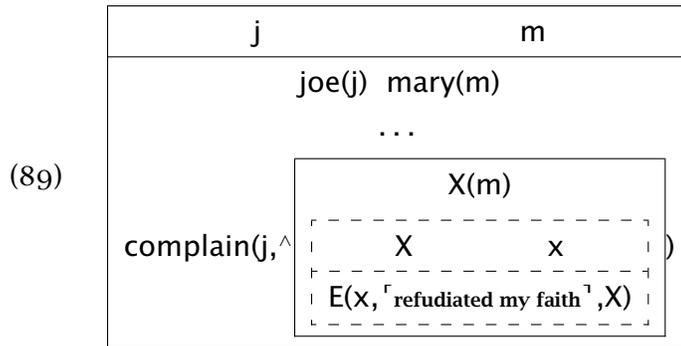


The PDRS generated in this way at the top node means that we presuppose the existence of a person named Mary (y), a quotation source (x), and some property (X) that x referred to when he or she uttered the quoted VP. The at issue content contributed by this sentence is merely that this (presupposed) y has that (presupposed) property X.

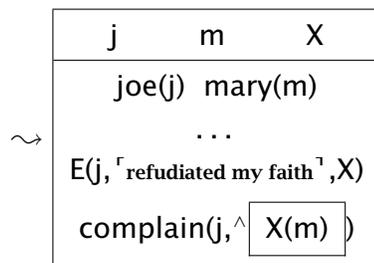
Continuing with the rest of the sentence will lead us to the following PDRS representation of (62):



The second stage begins by adding the context representation. Say, Joe and Mary have been the topic of discussion, so we have the right global discourse referents set up for the name presuppositions w and z to bind to:



We have two presuppositions left: the source (x), and what the source meant with the quoted words (X). We don't really have enough context to be certain who the source is, but since Joe is said to complain, which involves a speech act, it seems natural to view him as the source here, so we bind x to j. Following the presupposition resolution algorithm, we're then looking for a discourse referent to bind X to, i.e., we're looking for some salient property that has been established as the intended referent of Joe's use of the phrase *refudiated my faith*. We can imagine a discourse about Joe's idiosyncratic use of certain phrases, and in such a case we could maybe bind X. We will see such a case shortly, but for now, let's assume, X can't bind and we have to accommodate it. In presupposition theory it is generally assumed that global accommodation is preferred over local accommodation, so we predict the following output of stage two:



The truth conditions of this final output context are as follows: there is someone named Joe and someone named Mary, Joe used the phrase *refudiated my faith* to refer to some property, and moreover Joe complained that Mary has that property.

To evaluate this output, the first thing to note is that, as expected of an implementation of the free relative paraphrase, the quoted first person *my* does not refer to the actual speaker. Rather it's part of the verbatim

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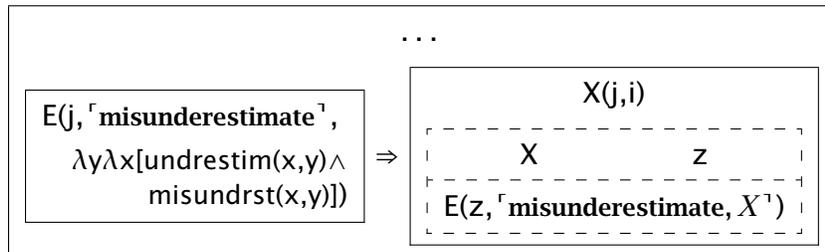
representation of what John, the reported speaker/source, said, and hence, may be said to indirectly refer to him, as discussed already in 4.3.

Moreover, also as before, we do not presuppose that *refudiate* is a genuine, meaningful lexical item in English, or in the common language of speaker and hearer. Both the preliminary sentence representation and the eventual output leave it completely open what *refudiated my faith* means.

However, it is very well possible that we later learn certain facts about John’s idiolect that would allow us to determine what X was. Or perhaps we may already infer, defeasibly, that he meant X to be either the property of refuting John’s faith, or of repudiating John’s faith. I will not here offer a theory of this type of pragmatic, meta-linguistic reasoning, but content myself with analyzing the semantics (in the sense of deriving truth conditions, which also incorporates the effects of presupposition resolution) of mixed quotation. This means that, unless we have explicit coinage in the context (local or global), the truth conditions of a mixed quotation leave it open what was actually meant with the quoted words, even if the quoted words strongly resemble words in the speaker and hearer’s own shared language.

So let’s turn to the mentioned coinage scenarios. In section (64), I argued that these may involve binding of quotational presuppositions. Here is the preliminary representation of a simplified example:

- (90) If John uses ‘misunderestimate’ to refer to a combination of underestimating and misunderstanding, then he “misunderestimates” me

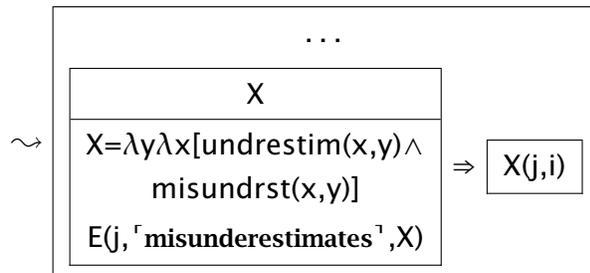


Intuitively, we’d want to bind *what John referred to as ‘misunderestimates’* (the presupposed relation X) to the *combination of underestimating and misunderstanding* ( $\lambda y \lambda x [\text{undrestim}(x, y) \wedge \text{misundrst}(x, y)]$ ). But there’s a technical difficulty to overcome: we don’t usually introduce higher-order discourse referents into our DRS universes very often, so the standard binding mechanism for individual type *e* presupposition doesn’t work.

The problem is not specific to quotational presuppositions though. Take (91):

(91) John is walking. He likes it.

We can bind *he* to the discourse referent for John, but to bind *it* we don't have a property-type discourse referent accessible for the walking. We'd have to somehow *create* a property type discourse referent first.<sup>26</sup> The construction of and binding to such "abstract objects" is a rather delicate issue that I cannot go into here (cf. Asher 1993), so let's proceed as if we have a sound implementation of it. Here is then the way to proceed in our local binding case:



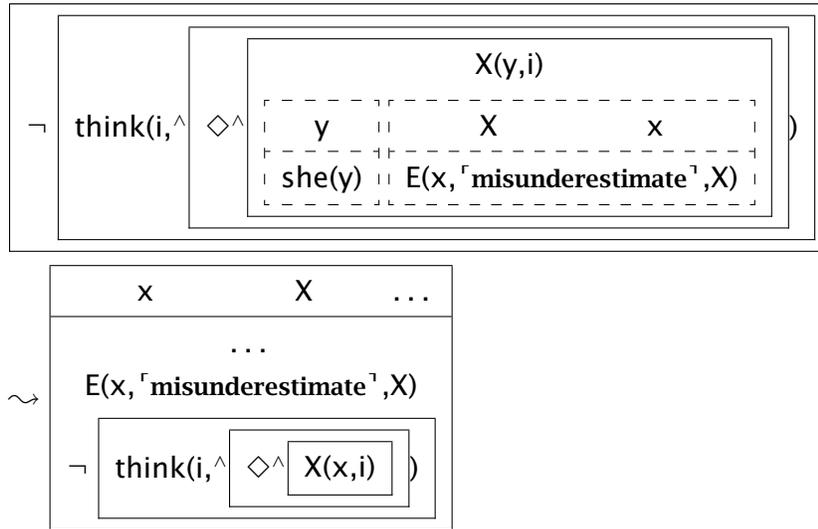
We've now seen how quotational presuppositions can bind and accommodate. The presupposition resolution algorithm generally prefers binding, but note that in the case of quotational presuppositions, binding requires some kind of local or global coinage or other metalinguistic statement about a form-meaning relation to be given in the context, which is somewhat rare. We've illustrated global accommodation with a simple mixed report, showing language and indexical shifting. The general tendency of presuppositions to accommodate globally predicts precisely the wide scope readings already observed in section 4.2.

Let's see the global accommodation preference in action in a more deeply embedded, non-reportive mixed quotation:

(92) I didn't think it was possible that she would "misunderestimate" me

<sup>26</sup> Alternatively, we can explore a more precise event semantics. Or rely on something like Higher-Order Unification to do binding without explicit discourse referents in an accessible universe (Dalrymple, Shieber & Pereira 1991).

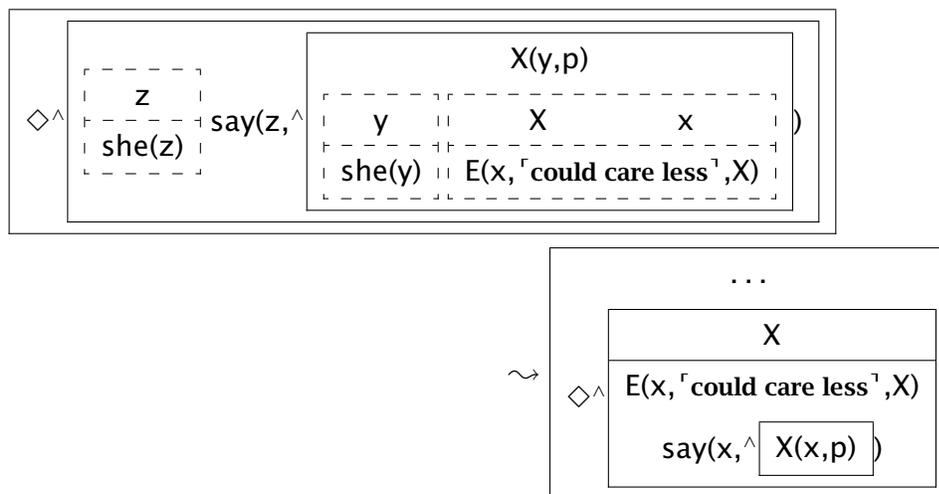
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We thus predict an “echoic” reading: an utterance of (92) presupposes an earlier utterance of the word *misunderestimate*. More specifically, an utterance of that verb by *x* to express some relation *X*. What the speaker of (92) then asserts is that he didn’t think it possible that *x* would do *X* to him again.

In exceptional cases, global accommodation may be ruled out (e.g., because it would lead to an incoherent final output). We expect to get local accommodation then. Here’s the example from section 5.1 (note: *p* = *proper usage*):

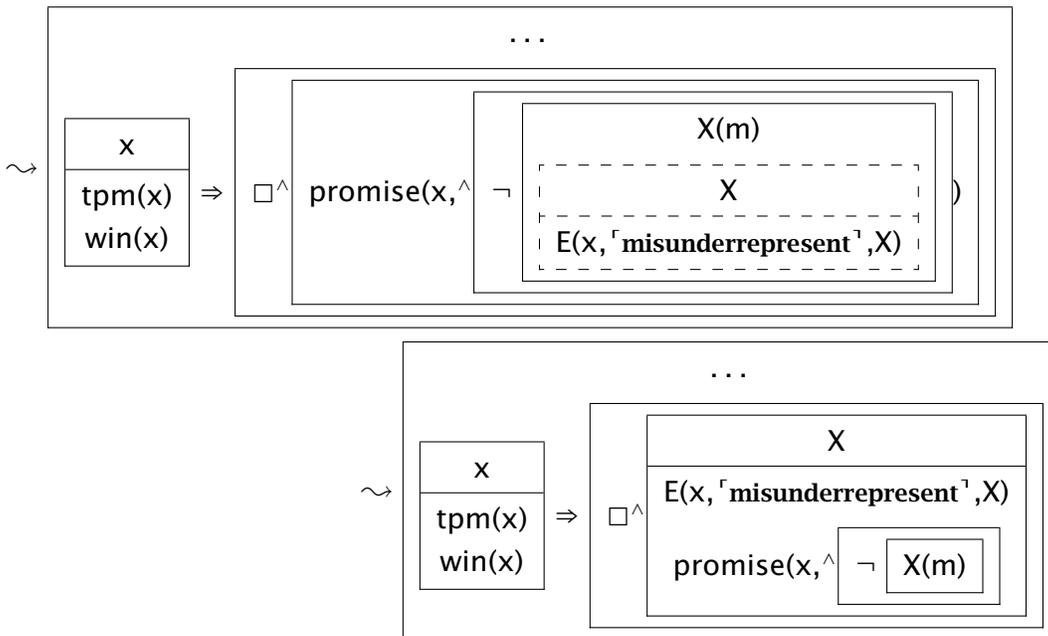
- (93) A: Why are all the grammar nerds on the forum angry at her?  
 B: Maybe she said she “could care less” about proper usage. [= (76)]



That is, maybe she uttered *could care less* and used that to say in what relation she stands to proper usage.

The local accommodation in (93) enriched the local context where it was triggered. Presupposition-as-Anaphora also allows accommodation at intermediate stages. Arguably, this is exactly what is needed in the next example, as discussed in section 5.1 (note: *m* = *the middle class*):

- (94) If a Tea Party member will win the next election, he'll probably promise not to “misunderrepresent” the middle class. [= (77)]



In sum, adding a more sophisticated, dynamic presupposition theory to our mixed quotation framework extends the empirical coverage by modeling the various forms of binding and accommodation identified in section 5.1.

## 6 Beyond constituents

In this paper we have encountered many examples of mixed quotation. We have arrived at a formal system that deals well with the basic cases like our worn out Perry report, or Davidson's *“anomalous feature”*. The system, based on the free relative paraphrase, combines grammatical incorporation with the verbatim requirement. Moreover, we have seen how to handle more original cases involving (i) local and global presupposition binding and accommoda-

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tion, (ii) mixed quotations outside the context of indirect speech reports, and (iii) mixed quotations with shifted indexicals and idiolects or errors.

In this section I consider a group of examples discussed in section 2.2 that cannot yet be dealt with. The root of the problem lies in the syntax-semantics interface: our mixed quotation rule applies only to constituents. We've encountered this restriction in the syntax: there is no way to parse (95) because there is no node that dominates precisely *breakfast at any time* and hence no place to insert the mixed quotation rule.

(95) The menu says that this restaurant [<sub>VP</sub>[<sub>VP</sub> serves “breakfast] [<sub>PP</sub> at any time”]] [= (13)]

From a semantic point of view, we cannot apply our mixed quotation rule because to even formulate the mixed quote presupposition we need to know its semantic type, which in turn depends on the syntactic category of the phrase being quoted. But the quoted “phrase” here has no category, for it is not a constituent.

There are various ways to solve this problem of non-constituent quotation, first raised by [Cumming 2005](#) against [Geurts & Maier 2005](#). In 6.1 I critically evaluate an earlier proposal of my own, by which we break the quote up into constituent pieces ([Maier 2008](#)). In 6.2 I develop an empirically superior alternative based on the mechanism of unquotation ([Shan 2011](#)). In 6.3 I extend this to cover also the remaining aspects of transparency from 2.2 (e.g., word order adjustment and unshifted indexicals).

A third solution might be to adopt a grammatical framework with a more relaxed notion of constituency. A reviewer suggests the use of [Zettlemoyer & Collins's \(2007\)](#) Combinatory Categorical Grammar with nonstandard combinators. This very flexible grammar is designed to parse and interpret very fragmentary sentences with deviant word order and missing words, so it may even help with analyzing the transparency of mixed quotation beyond non-constituent quotations. I leave this option for future research and stick with the more traditional, rigid notion of constituency.

## 6.1 Quote breaking

A straightforward solution would be to break the quote in two and say that (95) contains two mixed-quoted constituents ([Maier 2008](#)). That is, the underlying syntax of (95) is really (96):

- (96) The menu says that this restaurant [<sub>VP</sub> serves “[<sub>NP</sub>breakfast]” “[<sub>PP</sub>at any time]”].

That the two adjacent sets of quotation marks are spelled out as a single quotation is then merely a matter of phonological spellout.

Zimmermann 2007 suggests taking this idea to its logical conclusion:<sup>27</sup> mixed quotation applies, syntactically and semantically, only to lexical items.

- (97) The menu says that this restaurant serves “breakfast” “at” “any” “time”.

Via our mixed quotation rule, every quoted lexical item could refer to *what the quoted speaker used that word to refer to*, and the quoted words would all be of the same category and type as the underlying words. In this way compositionality would even be restored.

However, Zimmermann and Shan 2011 raise an important objection: if we break the quote up into smaller constituents we fail to capture the fact that the quoted words were originally used in precisely the same syntactic configuration that they are presented in in the mixed quote. As a concrete counterexample, consider a situation in which the original utterance to be reported is (98).

- (98) The restaurant serves breakfast 24/7, so come in at any time.

The individual constituents quoted in (96) or (97) occur verbatim, moreover, the semantic content of the report complement (assuming reporter and reportee speak the same variety of English) is entailed by the semantic content of (99). Still, intuitively, the original non-constituent mixed quote in (95) is not an adequate report of this utterance.

Inspired by Shan’s work, in section 6.2 I’ll bring the notion of unquotation to our framework and show how it can be used to account for some apparent transparency effects noted in section 2.

## 6.2 Unquotation

In newspaper and technical writing square brackets are sometimes used to indicate that a quotation is temporarily suspended. A quotation — mixed,

<sup>27</sup> Zimmermann’s approach differs from mine in that he models mixed quotation in terms of a language shifting operator à la Recanati.

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direct or pure — has to be verbatim, but for reasons of style and clarity, a reporter might want to make a few editorial adjustments. In such cases, handbooks like the *Chicago Manual of Style* allow square brackets to indicate “occasional adjustments to the original”. They cite cases like (99) where a verbatim quote would have a first person pronoun referring to the person that the article is about (cf. the phenomenon of opacity-induced indexical shift, discussed in 2.1).

(99) John complained that the teacher “misunderestimated [him] entirely”.

Other typical examples involve the bracketed adjustment of some inflection, or the use of a full name or description in place of an otherwise potentially ambiguous or vague pronoun:

(100) McCain likes to say he’ll “follow [Bin Laden] to the gates of hell”.

These are cases of what Shan calls semantic unquotation, and it is this mechanism that I now want to capture within the current framework.<sup>28</sup> My implementation differs from Shan’s in a number of respects,<sup>29</sup> but at the end of this subsection I do follow him in applying the unquotation mechanism as an alternative analysis of non-constituent quotation, and some other transparency characteristics that we encountered in 2.2.

Pronoun adjustments like in (99) show that unquoted expressions have to be evaluated from the perspective of the reporting speaker. But on the current analysis everything in the scope of a mixed quote gets evaluated as if uttered by the reported speaker. The situation is reminiscent of a very central phenomenon in the history of semantics, viz., *de re* interpretation: a term surfaces within the scope of an intensional operator, but is semantically evaluated outside it. The most straightforward analysis of such a situation is to assume some kind of movement. In this case, since the fact that we have to move is overtly spelled out (by the brackets), the movement has to be syntactic rather than pragmatic. In the generative picture of language, a series of covert and overt movements get us from an underlying syntactic base form to the logical form. Applied to (99), this means that, on the way to

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<sup>28</sup> Shan also discusses syntactic unquotation, where the material in brackets is the reporter’s metalinguistic description of an elided phrase.

<sup>29</sup> My proposal is closer to Shan’s original proposal (2007) than to his more recent proposal (2011).

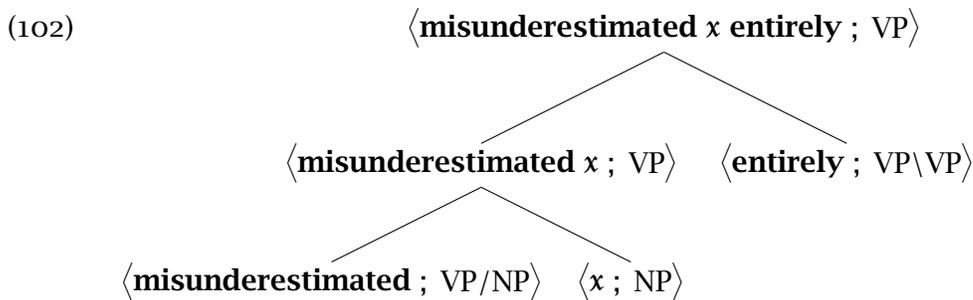
the logical form, the syntactically embedded direct object *him* is moved to a position just above the quote.

(101) ... that the teacher “misunderestimated [him] entirely”.



So after the direct object moves out, what’s left within the quotation is something like *misunderestimated ... entirely*. In other words, what the report presupposes is that John used the construction *misunderestimated ... entirely* to express some semantic object. Now, this so-called construction is not a genuine syntactic constituent. It’s a VP with a hole in it, an extra argument slot, that makes it semantically similar to a transitive verb. So, like a transitive verb, this construction should be suitable for applying mixed quotation.

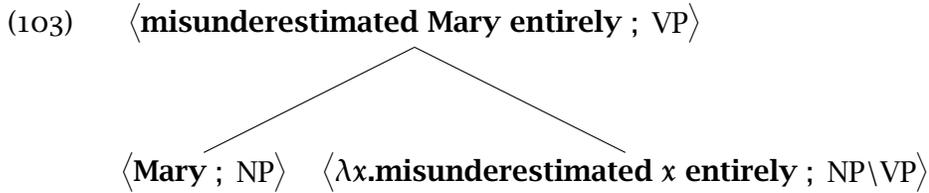
To properly represent constructions like this in our grammar, the first thing we need to add are phonetic variables. Say, *x* stands in for an unspecified string of letters. In  $\mathcal{L}_{syn}$  we specify the category of the  $\mathcal{L}_{phon}$  expressions that *x* stands for. So we have  $\langle x ; NP \rangle$ , a syntactically well-formed expression that functions as an NP. We can concatenate such an NP-variable with a transitive verb to get a VP, and so on:



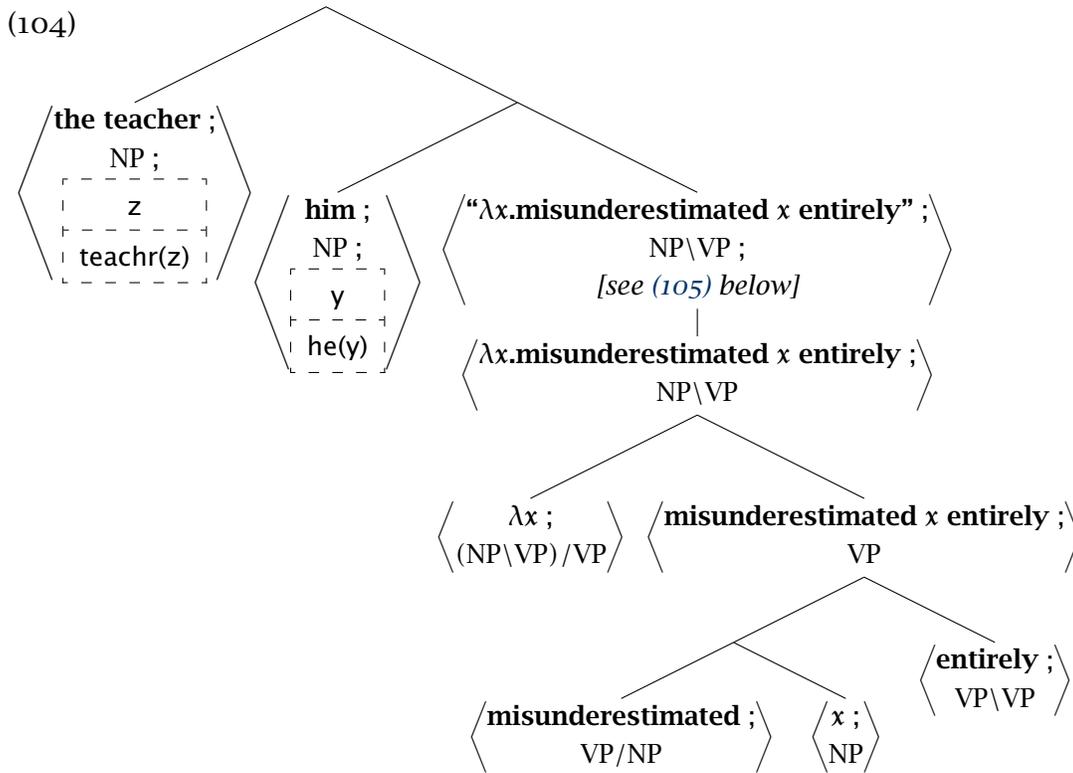
The VP in (102) is not yet a proper representation of the construction *misunderestimated ... entirely*. To get there we apply lambda abstraction to the free variable. Think of the construction as a function, viz. one that takes an NP, say **Mary**, as input and gives a VP, **misunderestimated Mary entirely**, as output. Just as we have semantic lambda conversion to get you from *walk(j)* to  $(\lambda x[\text{walk}(x)])(j)$  and back, I assume phonetic lambda conversion to get analogous deductions between **misunderestimated Mary entirely** and  $(\lambda x. \text{misunderestimated } x \text{ entirely})(\text{Mary})$ .

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For  $\mathcal{L}_{syn}$ , this means we can get parse trees like the following:<sup>30</sup>



Now we are in a position to formulate precisely the result of our hypothesized unquote movement:



We see the bracketed *him* moved out, leaving behind a phonosyntactic NP-variable, bound by a lambda. The lambda expression as a whole represents a construction, and it is this construction that is quoted. The resulting mixed quotation inherits its category from the quoted term, in this case not a construction of category NP\VP. This category corresponds to the semantic type *eet*, same as a transitive verb. In the rest of the tree above we see

<sup>30</sup> We could extend this to  $\mathcal{L}_{sem}$ , pairing phonetic variables and lambdas with corresponding semantic variables and lambdas, but we don't need that for our current purposes.

the quotation being integrated into a sentence by combining it with two NP arguments, the moved out *him* and then the subject *teacher*.

I've left out the semantic component of the mixed quotation node in (104). That is, the presupposition that someone (*u*)<sup>31</sup> used the quoted construction to refer to something (*X*). The question is always, what is the semantic type of that presupposed *X*? In other words, what kind of semantic object did the source use the construction to refer to? In this case, although the quoted expression is not a constituent but a construction, it has a category, and hence it determines a type, *eet*, for the quote presupposition. Here is the omitted  $\mathcal{L}^{\text{PDRS}}$  expression in full:

$$(105) \quad \lambda Y \left[ \begin{array}{c} \boxed{\begin{array}{cc} u & X \\ E(u, \ulcorner \lambda x. \text{misunderestimated } x \text{ entirely} \urcorner, X) \end{array}} \end{array} \right] Y(X)$$

As I announced above, the unquotation mechanism can help us analyze non-constituent quotation without breaking the quote. For instance, the underlying form of (96) could be:

(106) The menu says that this restaurant “[serves] breakfast at any time”.

According to (106), the mixed quotation applies not to the non-constituent *breakfast at any time*, but to the construction ... *breakfast at any time*. The latter is a construction of category (VP/NP)\VP. We then presuppose that that construction was used verbatim, that is, the words *breakfast at any time* were used literally, in conjunction with a transitive verb to the left. The verb *serves* is not really part of the quote and hence could just be the reporter’s paraphrase of that original transitive verb.

Other recalcitrant signs of transparency in quotations identified in 2.2 could be the result of covert unquotation, i.e., of an invisible unquote movement. Take the occasional adjustment of indexicals, and the binding/adjustment of pronouns within mixed quotations. I propose that these readings are the result of unquotation. Their underlying syntax is really as follows:

(107) a. And then they told me to “stick a lamp up [my] ass”. [cf. (20c)]

<sup>31</sup> I use *u* instead of *x* so we don’t have to rely on typography to distinguish *x* (the semantic variable) from *x* (the phonological variable).

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- b. The row over the EU's plan to label tar sands oil as highly polluting escalates as Canada says it "will not hesitate to defend [its] interests". [cf. (20)]

To recap: given the verbatim requirement, mixed quotation is predicted to be very opaque, and given the free relative inspired account of grammatical incorporation, it is predicted to apply only at constituent boundaries. In actual language use these restrictions lead to conflicts with other, not yet fully understood, pragmatic/stylistic principles, such as a tendency to avoid indexical shifts (explicitly formulated in prescriptive handbooks like the *Chicago Manual of Style*). One solution to such conflicts would be the insertion of unquotation brackets, but this appears to be restricted to certain genres of written text. I propose that in some other cases of apparent transparency (discussed above) we have the same unquotation in the syntax, but it does not get expressed phonologically.

### 6.3 Transparency and movement

When discussing the transparency of mixed quotation in section 2.2 we encountered various transformations or movements: wh-movements, Dutch word order adjustment (a movement at the level of *Phonological Form* (PF)), and inverse scope readings (a movement at *Logical Form* (LF)).

The first two types involve adjustments to the original surface form, and thus contradict the verbatim requirement. The LF movement cases are unexpected in that they seem to require that the quotation is broken up. I will argue that these unexpected forms of transparency are really a mixed bag, so I'll confront them in turn below.

But first, a few words on the generative "inverted Y" model of grammar that I'm assuming when I talk about different types of movement. The idea is that we generate first an underlying syntactic structure (SS) which, via movements, can be developed in two directions: one branch goes to LF, which gives us a logical form (and from there a model-theoretic interpretation); the other goes to PF, where a syntactic tree is linearized and articulated phonetically (in writing, signing, or speaking). In our categorial picture of grammar, this means that the various intermediate stages of derivation from SS to LF and to PF may all be viewed as trees in  $\mathcal{L}_{syn}$ . In the final stage in the LF branch we switch from  $\mathcal{L}_{syn}$  to  $\mathcal{L}_{sem}$ , adding logical forms. In the PF

branch we eventually switch from  $\mathcal{L}_{syn}$  to  $\mathcal{L}_{phon}$ , linearizing the tree and cutting the category labels.

Below I discuss first the movements that affect LF and hence truth conditions. Since these seem to break the strong verbatim constituent requirement, I will posit an underlying unquotation. The PF adjustments, finally, can be handled without unquotation if we lift the notion of verbatimness from  $\mathcal{L}_{phon}$  to  $\mathcal{L}_{syn}$ .

### Wh-movement

In our section on transparency (2.2) I presented the following counterexample to the block on wh-movement briefly suggested in the section on opacity (2.1):

(108) Who did Mary say she would “never underestimate ever again”?  
[=(21)]

In keeping with the proposed analysis of indexical adjustments from section 6.2, I propose that the underlying syntax must have been as in (109):

(109) Mary said that she would “never underestimate [who] ever again”?

Unquote movement first places the wh-object out of the quote, from where a subsequent wh-movement can take it to the front. As a result, (109) presupposes that Mary used the construction *never underestimate ... ever again* to refer to a two-place relation  $R$ , and asks who Mary said she bears  $R$  to.

### Quantifier Raising

On to pure LF movements. At first sight a similar unquotation seems enough to allow the inverse scope readings of mixed quotations. If the syntax of (14) is as in (110) we can apply unquote movement followed by Quantifier Raising (QR, Heim & Kratzer 1998) to get the inverse scope reading.

(110) The dean asked that a student “accompany [every professor]”. [cf. refdean]

Unfortunately, the reading predicted by (110) may be too weak, as it allows non-verbatim paraphrases of the quantifier *every professor*. In particular, (110) would be true already if the dean literally said (111):

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- (111) We should make sure that at least one student accompany each and every professor.

One way to solve this is to combine the strategies of quote breaking and unquotation:

- (112) The dean asked that a student “accompany [“every professor”]”.

This preserves both the form of the two expressions (*accompany* and *every professor*), and their syntactic structure.

But there’s a less *ad hoc* solution: treat it like a non-constituent quotation. More specifically, assume a larger quotation, all the way to clause level, but with unquotation on the parts that surface outside of the quotation marks.

- (113) The dean asked that “[a student] accompany every professor”.

The immediate advantage over the previous proposal is that we employ the same general technique as already posited for other forms of non-constituent quotation. In terms of truth conditions, we correctly predict that the dean used the exact string *accompany every professor*. However, it’s supposed to have been used as part of the construction, . . . *accompany every professor*, which in the original took as input some quantifier paraphrased by the reporter as *a student*. What the dean originally meant to *express* with her use of this construction is not communicated by the report. She may or may not have intended a reading where *every professor* QRs above the unknown NP subject (i.e., inverse scope).

If, hypothetically, the reporter were to suggest, in the larger context of the report, that the construction was meant without QR, while the dean clearly meant the inverse scope reading, the report would at the very least be misleading. This would however not be on account of the quotational presupposition not finding a suitable antecedent, but, I propose, on account of the semantic content, i.e., in the at-issue dimension. Zimmermann provides the following example that neatly illustrates this point.<sup>32</sup>

Say, some minister says (114):

- (114) Wir werden einen Kitaplatz für jedes Kleinkind einrichten.  
*We will a daycare spot for every child provide*  
‘We’ll provide a daycare spot for every child.’

<sup>32</sup> The example and reports are from Zimmermann’s handout, but my argument and conclusions do not follow his.

Clearly, the intended reading is the one with inverse scope: at least one daycare spot per child. A possible mixed report would be:

- (115) Die Ministerin versprach “einen Kitaplatz für jedes Kleinkind”  
*the minister promised a daycare spot for every child*  
 einzurichten  
*to provide*  
 ‘The minister promised to provide a daycare spot for every child.’

If (115) corresponded to the logical form, it would presuppose that this minister used the expression *einen Kitaplatz für jedes Kleinkind* to refer to something. But that would mean that she used it as a constituent. In the actual original (114), however, she indeed used it as a phonologically verbatim unit, but *not* as a single, contiguous constituent. I propose that in the underlying syntactic structure, the whole embedded clause is quoted, with the verb unquoted:

- (116) Die Ministerin versprach “[PRO] einen Kitaplatz für jedes Kleinkind [einzurichten]”.

What is quoted then is a construction, a clause with two holes in it. What is presupposed is that she used this clause-with-holes. Now, unlike the smaller unit *einen Kitaplatz für jedes Kleinkind*, this larger construction *is* in fact used verbatim as such in the original. The minister used that same construction. Moreover, she used it to refer to something via an LF derived by QR’ing the second quantifier over the first.

Now consider a disingenuous reporter:

- (117) Ein einfaches Kardinalitätsargument zeigt, dass es unmöglich ist  
 “einen Kitaplatz für jedes Kleinkind” einzurichten.  
 A simple cardinality argument shows that it’s impossible to provide  
 “a daycare spot for every child”.

This reporter does use *einen Kitaplatz für jedes Kleinkind* as a single constituent. If we say that in this case (117) models exactly the form to be interpreted, then we would predict, correctly I think, that the report is false, following the reasoning above. To preempt a charge of *ad hoc* LF assumption, and as an illustration of the full power of the unquotation-plus-presuppositional-mixed-quotation framework, let’s see what happens on the more generous construal in (118):

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(118) ... dass est unmöglich ist “[PRO] einen Kitaplatz für jedes Kleinkind [einzurichten]”.

On this analysis, interestingly, the report is still infelicitous, but for a different reason. The presupposition triggered by (118) is that the quoted construction was used by the source to express a complex semantic object  $X$ . We know, from the context, that the minister did indeed say something that we can construe as containing that construction. She used the construction to refer to some complex semantic object, say  $Y$ . Now,  $Y$  represents the minister’s meaning, with the inverse scope of the quantifiers. The presupposition that  $x$  used the quoted construction to refer to  $X$  is only satisfied in the actual context if  $x =$  the minister, and  $X = Y$ . But then, after resolving the presupposition like this, consider what (118) *says*: a simple cardinality argument shows it’s impossible to provide  $X$ . But, since in the context  $X = Y$  and  $Y$  is the minister’s intended interpretation, it is not impossible to provide  $X$ , or at least not on the basis of a “simple cardinality argument.”

### Movement and adjustment in the phonological branch

The last remaining examples to consider are (16b) and (18), where a mixed quote is judged felicitous even though there is a clear mismatch between some surface characteristics (word order, grammatical gender) in the quotation and in the original.

In (16b) we saw a mixed quotation that has undergone word order adjustment to fit into the grammatical slot provided for it in the report as a whole.

(119) Jan zegt dat hij “die idioot een koekje van eigen deeg zal  
*John says that he that idiot a cookie of own dough will*  
geven”  
*give*  
‘John says he’ll give that idiot a taste of his own medicine’ [= (16b)]

The quoted fragment here has adopted the SOV word order of indirect discourse, despite the fact that the original utterance had a main clause, SVO word order.

In Dutch, SOV is assumed to be the underlying syntactic base structure, from which the main clause word order may be derived via a movement of the verb (Koster 1975). Given the analyses of movement above, we might start

thinking about quote breaking and/or unquotation again. However, since this movement only affects the PF surface realization, not the semantics, a simpler analysis presents itself. I propose to capture PF adjustments in mixed quotation generally by weakening the verbatim requirement: two phonological forms are verbatim-equivalent if they can be derived from the same underlying syntactic structure. In other words, a quotation counts as verbatim if the differences can be reduced to movements at PF, without affecting LF.

To flesh this out further, I propose a modification of our mixed quotation rule to the effect that what's quoted, at SS, is not a phonological string, but a full-fledged syntactic expression. This necessitates some minor tweaks to our semantics. We broaden the domain of entities by including syntactic expressions, and we redefine  $\ulcorner \urcorner$  to denote the identity function on  $\mathcal{L}_{syn}$  rather than  $\mathcal{L}_{phon}$ . The metalinguistic presupposition  $(E(x, \ulcorner \sigma \urcorner, X))$  now involves a relation between a source, a syntactic expression, and a semantic object. Crucially, this syntactic object need not be the eventual output of the PF branch. To allow word order changes and the like, I'll assume that it's a deeper syntactic structure, i.e., representing a derivation stage right before the split between LF and PF. A different phonological realization that shares this structure will then count as a verbatim match.<sup>33</sup>

In addition, we can now assume that in the PF branch of the derivation, quotation marks do not hinder PF movements within or across the mixed quotation boundaries. In other words, mixed quotation is phonetically fully transparent. This would predict the observed obligatory nature of PF adjustments: embedded in indirect discourse, it is actually *impossible* to use a main clause word order within a mixed quotation, as observed in section 2.2.

The above can be extended to cover grammatical gender adjustment, (18), as well. We just assume, quite uncontroversially, that the transmission and/or spellout of uninterpreted features (like Romance grammatical gender) happens in the PF branch of the derivation.<sup>34</sup> Evidently, a lot remains to be

<sup>33</sup> As before, applying pure LF movements like QR to a syntactic expression also doesn't affect verbatimness: a quoted syntactic object at this particular derivation stage (before the LF/PF split) does not determine quantifier scope any more than a quoted phonological string did.

<sup>34</sup> Perhaps further tweaking of the verbatim relation in this manner could help describe certain permissible "editorial cleanup adjustments" involving translation, and adjustments of false starts, hedges etc. Importantly, as shown in section 2, these cleanups are not obligatory in mixed quotation. Moreover they are allowed in direct discourse and in some cases even pure quotation, so a more general analysis, built into the semantics of pure quotation, may be called for.

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explored about the effects of the above suggestions on various phenomena in the phonology–syntax–semantics interfaces, but I will leave it at this.

To sum up, various types of movement interact in very different ways with the semantics of mixed quotation: (i) wh-movement out of mixed quotations requires that the wh-word is syntactically unquoted; (ii) the cases involving apparent QR out of mixed quotes are simply special cases of non-constituent mixed quotations, and hence amenable to a uniform treatment in terms of unquotation; and (iii) superficial PF adjustments can be accounted for by tweaking the notion of verbatimness in mixed and pure quotation.

## 7 Conclusion

Mixed quotation presupposes that the quoted phrase was used verbatim in an earlier utterance. It follows that mixed quotation is opaque: indexicals are not adjusted to integrate into the reporting context, and even speech errors or idiolectal variation is preserved:

(120) Joe complained that Mary “refudiated my faith”.

In these respects mixed quotation behaves like more purely metalinguistic forms of quotation such as direct discourse and pure quotation.

On the other hand, a mixed quotation is fully grammatically incorporated into the reporting sentence. A mixed-quoted VP behaves like a VP, a mixed-quoted PP like a PP. In terms of syntactic composition, it’s as if the grammar doesn’t see the quotation marks. In this sense, mixed quotation is syntactically transparent, patterning more with compositional language use than with pure and direct quotation.

I have provided an analysis of mixed quotation that deals with these central characteristics. The leading idea was that “*refudiated my faith*” means *what x refers to with his utterance of ‘refudiated my faith’*. A compositional implementation fails on account of a clear projection preference of the metalinguistic component of this proposed interpretation. Since the projection behavior matches precisely that commonly associated with presupposition, I proposed the following analysis of (120):

- (121) **presupposition:** Joe used the phrase ‘refudiated my faith’ to refer to some property *X*.  
**at-issue:** Joe complained that Mary has property *X*.

The resulting theory combines grammatical transparency with opacity and verbatimness, and furthermore relies on an independently motivated analysis of presupposition resolution to account for a variety of observable projection properties.

Unfortunately, there is a lot of data that purports to show that mixed quotation is much more transparent than this basic theory predicts. Various movements and adjustments to the presupposed original are in fact allowed in mixed quotations. These observations appear to be in direct contradiction with the assumed opacity of mixed quotation that is part and parcel of my proposed semantics.

To resolve this paradox, I have argued that these various appearances of transparency are the result of a mechanism that is, in a sense, the dual of mixed quotation: unquotation. If I'm right, the relatively unknown phenomenon of unquotation should thus play a vital part in an empirically adequate semantics of mixed quotation.

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