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Mixed Quotation

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1 Introduction

We use language to talk about nonlinguistic objects (like individuals, events, times, and possibilities), but we can also use it to talk about linguistic objects (like words,

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letters, sentences, and utterances). We can achieve such “metalinguistic” reference with standard referential expressions, as in *That word contains the ninth letter of the alphabet*, but in natural as well as formal languages we also find devices dedicated specifically to this task. For instance, in modern, written English we may enclose any word in inverted commas to form a metalinguistic expression referring to that same word.¹

- (1) ‘Anomalous’ has nine letters.

Philosophers call this *pure quotation*. Other (partly) metalinguistic constructions subsumed under the header of quotation include direct discourse (2a), mixed quotation (2b), and scare quotes.²

- (2) a. Quine said, “Quotation has a certain anomalous feature.”
 b. Quine said that quotation “has a certain anomalous feature.”
 (Davidson 1979)
 c. The “debate” resulted in three cracked heads and two broken noses.
 (Predelli 2003)

Direct discourse has received attention from all corners of linguistics, typically in the form of a direct comparison with indirect discourse (Partee 1973; Clark and Gerrig 1990; De Vries 2008; Evans 2012); pure quotation traditionally attracts mainly logicians and philosophers (Tarski 1933; Quine 1940; Geach 1957); mixed quotation is what has piqued the interest of formal semanticists (Potts 2007; Geurts and Maier 2005; Shan 2011); and scare quoting, finally, is typically viewed as a pragmatic phenomenon (Predelli 2003; Recanati 2008; Gutzmann and Stei 2011). In this case study I trace the development of a semantics for mixed quotation. To get a more general overview of quotation research I refer to Cappelen and Lepore’s (2012) and Saka’s (2013) surveys of philosophical theories of quotation; De Brabanter’s (2005) collection, and his 2010 survey article, on “hybrid quotation” (which includes mixed and scare quoting); my own narrowly focused survey on pure quotation (Maier 2014b); and, finally, the collection of Brendel et al. (2011) that brings together philosophical and linguistic approaches to different forms of quotation.

2 The Davidsonian analysis of mixed quotation

2.1 Mixed quotation as simultaneous use and mention

The starting point of our investigations is that mixed quotation, exemplified by (2b), is a genuinely semantic phenomenon, in the sense that the quotation marks in (2b) affect the truth conditions of the sentence in which they occur. The crucial judgment is that (2b), unlike its quotation-less counterpart *Quine said that quotation has a certain anomalous feature*, can only be true if Quine indeed produced the very sequence of words *has a certain anomalous feature*.³ As a first approximation then, the truth conditions of (2b) amount to a conjunction of (i) a regular indirect report according to which Quine said that quotation has a certain anomalous feature; and

(ii) a metalinguistic proposition, viz. that Quine uttered the phrase *has a certain anomalous feature*.

According to Davidson (1979), mixed quotation exhibits “simultaneous use and mention” of the phrase *has a certain anomalous feature* in (2b).

Are the quoted words used or mentioned? Obviously mentioned, since the words are Quine’s own, and I want to mark the fact. But equally obvious is the fact that the words are used; if they were not, what follows the word “quotation” would be a singular term, and this it cannot be if I have produced a grammatical sentence. (Davidson 1979)

In other words, mixed-quoted phrases are used metalinguistically, referring to words, just like pure quotations. But, while pure quotations function syntactically as referential expressions, mixed quotations are grammatically incorporated into the rest of the sentence: the quotation in (2b) functions as a VP, semantically contributing a property, as if the words were used (i.e., used in their regular semantic sense).

2.2 The demonstrative/paratactic analysis

Cappelen and Lepore (1997) turn Davidson’s brief remarks into a first explicit account of what they term mixed quotation. The crucial ingredients come from Davidson’s analyses of indirect discourse (Davidson 1968) and direct discourse (Davidson 1979). In both cases Davidson analyzes the reporting clause as a separate main clause that is referred to from the matrix clause by a demonstrative. Roughly, Cappelen and Lepore analyze the truth conditions of a mixed quotation as follows:

- (3) Quine said that quotation “has a certain anomalous feature.” [= (2b)]
 $\exists s[\text{Quine uttered } s \wedge s \text{ samesays this}_1 \wedge \exists s' < s.s' \text{ sametokens that}_2.]$
 [Quotation [has a certain anomalous feature] $_2$.] $_1$

Note first the parataxis: the report is analyzed as a two-sentence discourse. Note also that both demonstratives are metalinguistic: *this* refers to the second sentence as a whole, *that* refers to the VP only. The predicate *utter* is a primitive relation between an individual and an utterance, and *samesay* is a relation between utterances, expressing something like truth-conditional equivalence,⁴ *sametoken* is also a relation between sentences, expressing similarity of form.

One of the selling points of this account is that it manages to let the mixed-quoted constituent do “double duty,” rather than copying and pasting it into two independent meaning components. It thus improves on our preliminary truth conditions sketched in 2.1 where we analyzed this report as meaning only that Quine said that quotation has a certain anomalous feature *and* uttered the quoted phrase.

2.3 Challenges: language and indexical shift

Davidson’s paratactic decompositions are plagued by a variety of problems. For one, it is difficult to reconcile the Davidsonian paraphrase with a compositional

would be the semantic contribution of a mixed-quoted constituent? And how, if at all, does that depend on the meanings of the apparent constituents that make up the quoted expression?

As a first approximation, consider the following paraphrase of the meaning of our mixed quotation example (see Recanati 2001; Geurts and Maier 2005).

(6) Quine said that quotation has what he referred to as *a certain anomalous feature*.

In (6), a free relative clause (see “Free Relatives”) describes the semantic contribution of the mixed quote in terms of (i) the source *he* (= Quine) of the quoted words, (ii) the quoted phrase itself, and (iii) a predicate *refer* that relates a phrase and its source to the semantic object referred to by the source’s utterance of that phrase.

Before we delve into the formalization of (6), note that the free relative paraphrase indeed captures the “simultaneous use and mention” aspect of mixed quotation. From an utterance of (6) we can infer (i) that Quine uttered the phrase *has a certain anomalous feature*, and (ii) that Quine said that quotation has a certain anomalous feature (at least, on the assumption that Quine spoke English and hence used these words in their normal sense).

In addition, the free relative paraphrase promises to account for the indexical and language-shifting data from section 2.3 above. Consider (7), an example exemplifying both shifts:

(7) Bush said that the enemy “misunderestimated me.”
(Maier 2008)
 ↪ Bush said that the enemy did what he referred to as *misunderestimated me*.

The quoted phrase is mentioned in the paraphrase, so it doesn’t have to be semantically interpreted as part of the reporter’s language. This explains the admissibility of the strictly non-English blend *misunderestimate*. What (7) says is that this word was used by the reported speaker, Bush, and that *he* apparently used it to refer to something. The paraphrase does not presuppose that it is common ground what exactly Bush referred to – the relation of underestimating or misunderstanding, or some combination of both? – just that he referred to something. Similarly, the metalinguistic nature of the quoted phrase correctly predicts the indexical shift in (7): what Bush referred to when he uttered *misunderestimate me* has nothing to do with me, but relates to him.

Finally, the free relative paraphrase, unlike the demonstrative/paratactic one, correctly generalizes beyond overt indirect report embeddings, to cases like (8):

(8) Felix created a group of “erotic kamikazes” whose goal was to “root out couples representing horrible conjugality.”

The challenge in the next sections is to formalize this paraphrase in such a way that we can verify these promises, and make some new, testable predictions along the way.

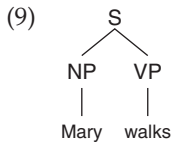
4 Quotation and grammar

4.1 Modeling the interfaces between phonology, syntax, and semantics

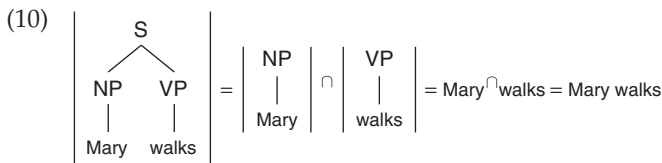
To discuss quotation in any formal detail it is important to carefully separate the different levels of linguistic analysis: phonological surface form, syntactic structure, logical form, and semantic interpretation. In this section I sketch a grammatical framework powerful enough to describe most current semantic theorizing about pure and mixed quotation.

Some recent work in the semantics of mixed quotation is couched in grammatical frameworks where expressions are complex *signs*, i.e., triples consisting of a phonological, a syntactic, and a semantic component (Potts 2007; Maier 2014a). In this chapter I will instead use the more familiar approach where semantics and phonology are defined as functions from syntactically well-formed trees to the phonetic and semantic domain, respectively.

Concretely, syntactic expressions are binary trees with category labels at non-terminal nodes, and basic phonological representations of lexical items as leaves. I take the phonological representations to be simply finite strings of letters in some alphabet (e.g. John, auisgd, is an idiot, ... $\in A^*$). The lexicon provides minimal, unary trees consisting of a category label dominating a string of letters. More complex trees can be formed by combining two subtrees into a larger one according to a finite number of syntactic composition rules.



The phonological interpretation function, $| \cdot |$, maps a syntactic tree to the linearized concatenation (\cap) of its leaves, from left to right. Compositionally, the phonological interpretation of a binary tree is the concatenation of the phonological interpretations of its daughters.



The semantic interpretation function $\llbracket \cdot \rrbracket$ takes a well-formed expression tree to a semantic entity of an appropriate functional type. For completeness: the interpretation of a binary tree amounts to the functional application (\circ) of the interpretation of the one daughter to that of the other (Heim and Kratzer 1998).

$$(11) \left[\begin{array}{c} S \\ / \quad \backslash \\ NP \quad VP \\ | \quad | \\ Mary \quad walks \end{array} \right] = \left[\begin{array}{c} NP \\ | \\ Mary \end{array} \right] \circ \left[\begin{array}{c} VP \\ | \\ walks \end{array} \right] = \llbracket Mary \rrbracket \circ \llbracket walks \rrbracket$$

Which daughter is the function and which the argument depends on the semantic types, which in turn are determined by the syntactic category. For future reference, let τ denote the function that maps a category to the corresponding type. E.g., $\tau(VP) = et$, so $\llbracket \llbracket_{VP} \text{ walks} \rrbracket \rrbracket \in D_{et}$ (= the set of objects of type et). Concretely, $\llbracket \llbracket_{VP} \text{ walks} \rrbracket \rrbracket$ should be the characteristic function of the set of walkers, i.e., the function that assigns truth value 1 to any walker and 0 to any other individual.⁷ In addition, let's say $\tau(NP) = e$ and $\llbracket \llbracket_{NP} \text{ Mary} \rrbracket \rrbracket = \text{Mary}$, then the result of functional application is a truth value, viz. 1 if Mary is in the set of walkers, and 0 otherwise.

4.2 Pure quotation

We can add new rules to capture more complicated constructions, like intensional operators, or different types of quotation. By way of warming up, consider first pure quotation.

(12) “anomalous” has nine letters.

The essence of pure quotation is that it allows us to turn any expression (e.g. the adjective *anomalous*) into an NP referring to that expression. We can capture this with a simple, unary composition rule, which, phonologically, just adds quotation marks around the phonological representation of the underlying tree.

$$(13) \left[\begin{array}{c} NP \\ | \\ ' \\ | \\ A \\ | \\ anomalous \end{array} \right] = \left[\begin{array}{c} A \\ | \\ anomalous \end{array} \right] \cap = \text{'anomalous'}$$

The corresponding semantic interpretation rule says that a pure-quoted expression refers to the phonological representation of that expression:

$$(14) \left[\left[\begin{array}{c} NP \\ | \\ ' \\ | \\ A \\ | \\ anomalous \end{array} \right] \right] = \left[\begin{array}{c} A \\ | \\ anomalous \end{array} \right] = \text{anomalous}$$

Let me make four remarks on this basic pure quotation rule, before moving on to mixed quotation.

First, in the semantic part of the rule we see a string of letters as the denotation of an NP. This implies that we have phonological strings in our domain of individuals D_e . To separate linguistic and nonlinguistic individuals, Potts (2007) introduces a new logical type u , with domain D_u containing linguistic entities. In the syntax we could then introduce a matching new category Q for pure quotations (i.e., $\tau(Q) = u$).

Second, we're assuming with (14) that quotations refer to phonological representations, $D_u \subseteq A^*$, but other options have been explored elsewhere. For instance, Maier (2014b) uses expression trees, and Potts (2007) complete signs (i.e., expressions plus denotations).

Third, our pure quotation rule (14), although formalized neatly in a compositionality-driven framework, is strictly speaking non-compositional. The interpretation of a quotation is, after all, not defined in terms of the interpretations of its underlying constituent(s). Rather, the semantic interpretation of the whole is defined as the phonological interpretation of the constituent. See Werning (2005), Pagin and Westerståhl (2011), and Maier (2014b) for in-depth discussions of the (non-)compositionality of pure quotation.

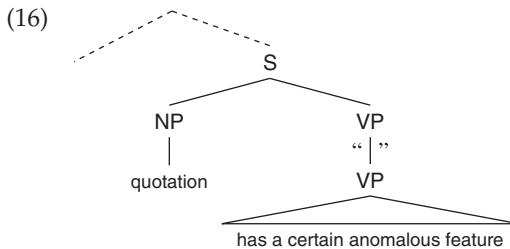
Fourth, as it stands, our quotation rule only allows us to quote well-formed expressions, but as a matter of fact, we can pure-quote any string of symbols:

(15) 'ask%ulbJHe' is not a word.

We could fix this by inventing a special nonsense category (*) and lexically adding every possible string of letters to this category. The semantic interpretation function of course will be undefined for nonsense items, but that doesn't affect the truth conditions of (15), precisely because the pure quotation rule is non-compositional: $\llbracket \llbracket_Q \text{ask\%ulbJHe} \rrbracket \rrbracket = \text{ask\%ulbJHe}$.

4.3 Mixed quotation

The syntax of mixed quotation is different from that of pure quotation: instead of turning an arbitrary constituent (including ungrammatical gibberish, of category *) into an NP, we turn a well-formed constituent of any category into one of the same category. That is, since *has a certain anomalous feature* is a VP, so is its mixed quotation "*has a certain anomalous feature*". This captures the grammatical incorporation that Davidson observed, see section 2.1.

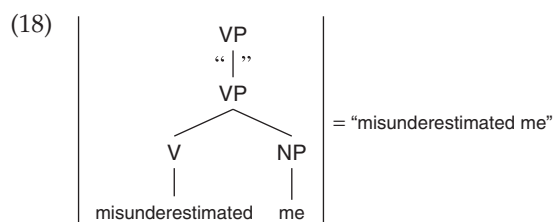


Moreover, it correctly predicts that not every string that can be pure-quoted can be mixed-quoted. Only syntactically well-formed expressions that are of a category that fits the surrounding sentence can occur in mixed quotation environments:

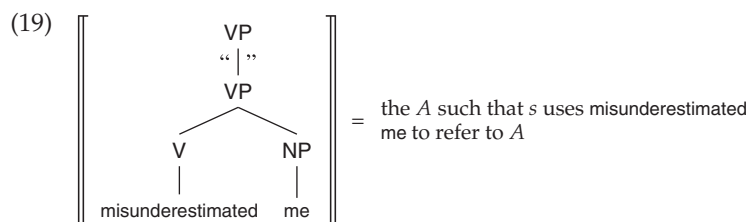
- (17) a. *Quine said that quotation “ask%uIbJHe.”
 b. *Quine said that quotation “anomalous feature.”

However, as we saw in section 2.3, mixed quotation is not restricted to grammatical expressions in the reporting language. An English speaker can mixed-quote expressions in a different language, dialect, or idiolect. To accommodate these we have to allow expressions like *misunderestimate* into our grammar. Note that we can only add those that we can plausibly assign to a particular grammatical category, in this case that of transitive verbs.

In sum, the syntax and phonology of mixed quotation is illustrated in (18).



Finally then the semantics. We’ve informally described the semantic contribution of a mixed quotation “ α ” as *what the source speaker referred to with the phrase α* . As with pure quotation we have to decide what kind of linguistic expression we take α in this definition to be: a phonological string, a syntactic tree, or an even more complete sign? For simplicity, let’s go again with the first option. Next, we analyze the free relative as a definite description, and assume a primitive relation *denote* that relates an individual, a phonological expression, and a semantic object. Still somewhat informally, then:



The individual s , the source of the quoted words, is to be supplied by the context. In this example, s = Bush. As for A , note that the mixed quotation as a whole has category VP, so its semantic contribution, i.e., the A such that etc., has to be of type *et*. Thus, $[[[_{VP} \text{“misunderestimated me”}]]$ is the unique property of type *et* that Bush refers to with the string *misunderestimated me*. We may or may not

know what this property is exactly, but assuming that Bush at least uses *me* as a first person pronoun we can infer that it is a property of relating in some way (misunderstanding or underestimating) to himself. That is, both indexical shift and language shift are correctly accounted for by the analysis exemplified in (19).

Comparing our syntax and semantics of mixed quotation with that of pure quotation above, we see that mixed quotation is equally non-compositional. The semantic interpretation of the quote is not computed in terms of the semantic interpretation of its constituent expression, but rather in terms of the *phonological* interpretation thereof. Hence, as with pure quotation, mixed quotations of uninterpretable expressions may well be interpretable. A crucial difference is that mixed-quoting is syntactically more restrictive: a syntactically ill-formed expression (of the pseudo-category $*$) will not give us a well-formed mixed quotation.

Up until this point, the actual formal semantic theories of mixed quotation in the literature agree. The proposals start to diverge in how they cash out the definite description in (19). In the next section I consider four such proposals, each presented as addressing an empirical shortcoming of the one before it.

5 Four proposals: from compositionality to projection

In order to properly compare the different proposals it will be useful to have a logical language mediate between natural language expressions and their denotations. Formally, this means that the semantics is given in two steps: first we translate (\mathbb{T}) the syntactic tree into a formula in, say, a typed lambda calculus (\mathfrak{Q}), and then we interpret ($\llbracket \cdot \rrbracket$) the lambda formula in a model. In the first few systems considered below we can in principle get rid of this intermediate translation step and define the semantic interpretation of a syntactic tree directly, as the interpretation of its logical translation, but in the final system the logical language is not so reducible.

We can take \mathfrak{Q} to be an extension of the familiar lambda calculus, adding only a type u and a way of forming type u names for phonological expressions:

(20) if $\alpha \in A^*$, then $\ulcorner \alpha \urcorner$ is an expression of type u in \mathfrak{Q} , and $\llbracket \ulcorner \alpha \urcorner \rrbracket = \alpha$.

In \mathfrak{Q} we represent the source speaker as a free variable x of type e , the *refer* relation as a constant R , and the definite description as ι . With this we reformulate (19) as:

$$(21) \quad \mathbb{T} \left(\begin{array}{c} \text{VP} \\ \text{"|"} \\ \text{VP} \\ \begin{array}{cc} \text{V} & \text{NP} \\ \text{misunderestimated} & \text{me} \end{array} \end{array} \right) = \iota X [R(x, \ulcorner \text{misunderestimated me} \urcorner, X)]$$

Two of the four proposals below, 5.1 and 5.3, are literally just different ways of interpreting the ι -operator in (21). The other two bring in some additional machinery (two-dimensional logical forms in 5.2 and dynamic semantics in 5.4).

5.1 The compositional approach

Werning (2012) has proposed to interpret ι as a choice function (Egli and Von Heusinger 1995). The formula in (21) then tells us to pick out an arbitrary X that x referred to in saying α . We could achieve a similar result more traditionally by interpreting ι as a narrow scope Russellian description operator:

$$(22) \quad \iota x[P(x)] = \lambda Q \exists x [P(x) \wedge \forall y [P(y) \rightarrow y = x] \wedge Q(x)]$$

Applying such a definition of ι to (21) seems to get the truth conditions right in simple, unembedded cases of mixed quotation, like (23), uttered by someone echoing Quine's anomalous feature remark.

(23) Quotation is "anomalous."

According to (21), the mixed quotation is interpreted as follows:

$$(24) \quad \mathbb{T} \left(\begin{array}{c} A \\ \text{" | "} \\ A \\ | \\ \text{anomalous} \end{array} \right) = \iota X [R(x, \ulcorner \text{anomalous} \urcorner, X)]$$

Further composition with the (semantically vacuous) copula and the subject NP, and then applying the narrow scope Russellian reduction of ι in (22) gives:

$$(25) \quad \exists X [R(x, \ulcorner \text{anomalous} \urcorner, X) \wedge X(\text{quotation}) \wedge \forall Y [R(x, \ulcorner \text{anomalous} \urcorner, Y) \rightarrow Y = X]]$$

That is, there's a unique property X that x , i.e., Quine, used *anomalous* to refer to, and quotation has that property X .

Note that the contribution of the mixed quotation is stated in isolation, independently of the rest of the sentence. Once we have this contribution, the rest of semantic computation is just functional application. So, unlike with Davidsonian paraphrases, our derivation is indeed compositional all the way down to the mixed quotation. Of course, looking deeper down the tree, we know from section 4.3 above that the meaning of the mixed quotation itself does not depend on the meaning of the constituents below it.

Unfortunately, this limited form of compositionality is already problematic. We can bring out the problem when we embed mixed quotations, for instance inside an indirect report, but also under a simple negation. Imagine, for instance, someone who disagrees with the speaker of (23) about the nature of quotation:

(26) Nonsense, quotation is not "anomalous" – it's a very natural and ubiquitous phenomenon.

What the speaker of (26) intends to convey is that quotation is not anomalous, while simultaneously echoing the previous speaker's (and thereby Quine's) choice of words. But given that, syntactically, *not* lives above the mixed quotation, the

negation in \mathfrak{L} will take wide scope over the definite description. Concretely, we predict:

$$(27) \quad \neg \exists X [R(x, \ulcorner \text{anomalous} \urcorner, X) \wedge X(\text{quotation}) \wedge \forall Y [R(x, \ulcorner \text{anomalous} \urcorner, Y) \rightarrow Y = X]]$$

In words, (27) means that there is no property X such that (i) Quine uses *anomalous* to refer to X , (ii) quotation is X , and (iii) X is unique (with respect to (i)). This is too weak. Imagine that neither Quine nor the speaker of (23) ever actually wrote or uttered the word *anomalous*. Then (ii) would be false for every property X , which would make (27) as a whole come out true. But intuitively the sentence is false or at best undefined in such a case.

The problem is that the metalinguistic meaning component, that X is uniquely picked out by x 's use of the word *anomalous*, is scoped under the negation, while really the negation should apply only to the regular semantic meaning component, the statement that quotation has property X . The three proposals below implement such a semantic movement or "projection" of the metalinguistic meaning component, but in very different ways.

5.2 The two-dimensional approach

Recognizing the wide scope behavior of the metalinguistic contribution of a mixed quotation, Potts (2007) proposes a projection mechanism using the tools he developed for a different kind of projective, secondary meaning component: conventional implicature (Potts 2005). The general idea is to store semantic content on two distinct dimensions: one for at-issue content, and one for secondary content, like that of a parenthetical or an expressive element (see "Expressives"). The contribution of a mixed quotation is split up over these dimensions in precisely the way in which we originally characterized mixed quotation in section 2:

- (28) **at issue:** Quine said that quotation has a certain anomalous feature.
secondary: Quine uttered the words *has a certain anomalous feature*.

Compositionally, it's the interpretation of the mixed quotation rule in the syntax that introduces the secondary dimension. The syntactic mixed quotation rule itself remains the same, but instead of a definite description, see (21) and (24), the semantic translation gives us a pair of formulas. In (29) I give the semantic contribution of the mixed quotation from example (23). U represents the utterance relation, relating a source speaker to a phonological representation.

$$(29) \quad \mathbb{T} \left(\begin{array}{c} \text{N/N} \\ \text{" |"} \\ \text{N/N} \\ | \\ \text{anomalous} \end{array} \right) = \left\langle \begin{array}{c} \text{anomalous} \\ U(x, \ulcorner \text{anomalous} \urcorner) \end{array} \right\rangle$$

All other compositional translation rules are adjusted in such a way that material in the secondary dimension is not affected by functional application, i.e., it is just

passed along to the top of the tree. In other words, negation and other operators “do not see” the secondary content. For example, consider the result of embedding under a negation and indirect discourse operator in (30):

- (30) Mary doesn't agree that quotation is “anomalous”

$$\left\langle \begin{array}{c} \neg(\text{agree}(\text{mary}, (\text{anomalous}(\text{quotation})))) \\ U(x, \ulcorner \text{anomalous} \urcorner) \end{array} \right\rangle$$

We then define the total semantic contribution of an utterance as the conjunction of the two levels. Thus, Potts predicts precisely the desired wide scope reading: Quine uttered *anomalous* and Mary doesn't agree that quotation is anomalous.

Potts' account implements projection by first splitting the contribution of quotation into independent components. In this respect it constitutes a departure from the free relative paraphrase, and a return to the original conjunctive paraphrase from section 2. Although this solves the projection problem, it leads us back into the problems previously identified for the Davidsonian analysis in 2.3.

In (31) I sketch the interpretation predicted for our shift example. Consider in particular the at-issue component, which is compositionally generated by applying \mathbb{T} to the mixed-quoted constituent, $[_{VP} [_V \text{misunderestimated}] [_{NP} \text{me}]]$.

- (31) Bush said the enemy “misunderestimated me”

$$\left\langle \begin{array}{c} \text{say}(\text{bush}, (\text{misunderestimate}(\text{enemy}, i))) \\ U(x, \ulcorner \text{misunderestimated me} \urcorner) \end{array} \right\rangle$$

Neither the language shift, nor the indexical shift is adequately accounted for in this representation.

Consider first the indexical. According to the reporter's English lexicon I translated the NP *me* as *i*, a first person indexical, referring to the actual speaker. So we predict an unshifted reading where I am the one who is said to be underestimated. An additional context-shifting operator, or monster, would be required to fix this faulty prediction (see “Indexicality: I, Here, Now”).

Next, the idiolect shift. Although recognizable as a transitive verb, *misunderestimate* is not really a meaningful, interpretable expression in the reporting language, so it has no place in the interpreted language \mathfrak{L} . To fix this we'd be forced to choose between *underestimate* or *misunderstand* (both interpreted \mathfrak{L} -expressions of type *eet*). But intuitively I can utter and/or interpret (31) regardless of whether or not I, in my reporting language, have any idea of what Bush really meant when he uttered this deviant expression. Following the monstrous operator solution for the first problem, we could try invoking a “supermonstrous” language-shifting operator. In section 7.1 I discuss some of the fundamental problems that such an operator brings with it.

Another, more general problem that two-dimensional approaches are known to be vulnerable to is the so-called “binding problem” familiar from the presupposition and implicature literature (Geurts 1999, 28, see “Matrix and Embedded Presuppositions”). The recipe is as follows: embed a supposed implicature trigger under an existential quantifier, and compute the two allegedly independent meaning components. Applied to mixed quotation:⁸

- (32) Some students wrote that the class was “extremely boring.”
at issue: Some students wrote that the class was extremely boring.
secondary: Some students wrote the words *extremely boring*.

What the two-dimensional analysis fails to capture is that some of those students that said that the class was extremely boring did so by using the phrase *extremely boring*. By contrast, the given two-dimensional representation would be counterintuitively true if two students wrote *Some classes are extremely boring, but we love this one* and two others wrote, *All classes, including this one, bored me to death*.

In sum, the two-dimensional approach takes care of projection, but at the cost of severing the required link between the two components.

5.3 The 1½-dimensional approach

A natural way to fix the binding problem and do justice to the projection behavior would be to analyze mixed quotation as a presupposition trigger. In a sense, this also means splitting up the contribution of a mixed quote into two levels, one of which is projective, but presupposition crucially involves a connection between the two content types, hence “1½-dimensional” (Von Fintel 2004a). Concretely, “*has an anomalous feature*” triggers the existential presupposition that someone used the quoted words to refer to some property *X*, while adding that very *X* to the at-issue content.

- (33) **presupposition:** there is an *X* such that Quine uttered the words *has a certain anomalous feature* to refer to *X*.
at issue: Quine said that quotation is *X*.

Von Fintel (2004a) suggests a simple implementation: take the description-based translation rule (21), but give *t* a Frege/Strawson-style partial semantics – roughly the way Heim and Kratzer (1998) interpret definite descriptions:

- (34) $\llbracket \iota x[P(x)] \rrbracket =$ the unique *a* such that $a \in \llbracket P \rrbracket$, if such a unique *a* exists; otherwise undefined.

Applied to the proposed representation of a mixed quotation: $\llbracket \text{“has a certain anomalous feature”} \rrbracket =$ the unique *P* such that Quine uses *has a certain anomalous feature* to refer to *P*, if there is such a unique *P*; undefined otherwise.

With an otherwise classical analysis that merely passes on undefinedness with every composition rule, we derive universal projection of undefinedness: if one constituent of a sentence is undefined, then the whole sentence is too. So our test example as a whole has a truth value iff the quoted phrase was uttered and thereby uniquely expressed something. If we call a sentence’s definedness conditions its *presupposed content* we can say that a sentence with a mixed quotation presupposes that the quoted words were used to express something.

In this way we indeed derive the $1\frac{1}{2}$ -dimensional paraphrase in (33). As with the two-dimensional account we predict projection out of all embeddings. So, for instance, (30) as a whole presupposes that *anomalous* was used to refer to some property, and it says that Mary didn't agree that quotation has that property.

However, presuppositions do not always simply project. In the next section we'll see that the metalinguistic component of mixed quotation exhibits a more complicated projection behavior, not captured by the simple projection mechanism proposed here.

5.4 The presuppositional approach

Real presuppositions do not always project, they can be systematically *canceled* (or *bound*) and *accommodated* in certain contexts (see Beaver and Geurts 2011, "Matrix and Embedded Presuppositions," "Pragmatic Accommodation"). Maier (2014a) provides examples of mixed quotations exhibiting all the hallmarks of presupposition projection. Here's a putative example of the relatively rare cancelation case:

- (35) Marie: I heard you broke new ground today?
 Hank: Yeah, if you decide to change the meaning of the entire English language then I guess I "broke new ground" today.⁹

An analysis of (35) in terms of presupposition cancelation would run as follows: the conditional's antecedent sets up a hypothetical local context where Marie's use of the phrase *break new ground* refers to some property *P* (\neq the property of breaking new ground), which in turn satisfies the metalinguistic presupposition triggered by the mixed quotation in the consequent.

Here is an application of the *Hey wait a minute test* (Von Stechow 2004b):

- (36) 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.

(Maier 2014a)

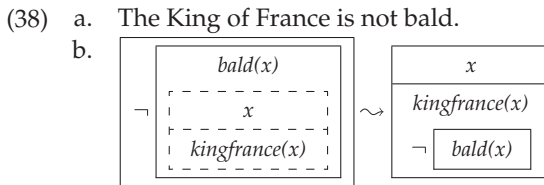
In addition, Geurts and Maier (2005) argue that some classic cases of "metalinguistic negation" (Horn 1989) can be modeled straightforwardly in terms of mixed quotation where the metalinguistic presupposition is accommodated locally. For instance, local accommodation of the presupposition that Tony used *POlice* (to refer to something) in (37) would give us the reading where the speaker denies that Tony said it that way:

- (37) Tony didn't call the "POlice" (he called the "poLICE").
 (Geurts and Maier 2005)

To implement the full presuppositional projection behavior, Geurts and Maier apply Van der Sandt's (1992) Presupposition-as-Anaphora theory. This adds an

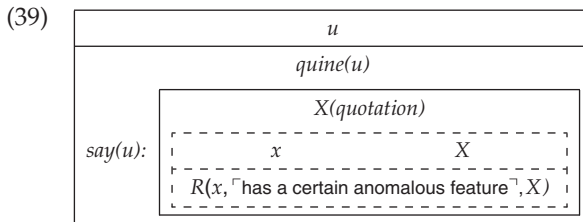
extra step to the semantic interpretation process. The first stage is still the familiar, compositional translation (\mathbb{T}) from syntactic trees into (underspecified) logical forms, in this case, preliminary Discourse Representation Structures (DRSs). In a second stage, these logical forms are used to update a given DRS representing the common ground. This update is described by a resolution algorithm which moves presupposition representations around and binds or accommodates them according to pragmatic and semantic constraints. Note that, on account of this movement, the second stage is not compositional.

Adopting the familiar boxy DRS notation, with dashed boxes for unresolved presuppositions, we can translate (a syntactic parse of) (38) as illustrated below. If the context DRS is empty, we can't bind the presupposition so we'll have to accommodate. Global accommodation gives the box on the right:

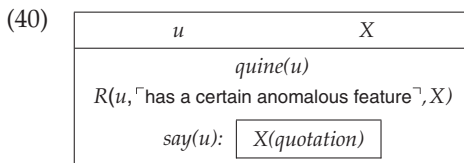


The final DRS represents the reading where the presupposition is projected out of the negation: there is a king of France and he is not bald.

Geurts and Maier analyze both the definite description *what x referred to with a* and the context-dependent source *x* itself as presuppositions. Applied to a simple example this gives the following preliminary sentence representation:



On to stage two: starting again from an empty common ground we bind the source presupposition to the only available animate antecedent, Quine, and then accommodate the presupposition that he used these words to refer to a property X:



This DRS says that there exist Quine and a property X that is the thing that Quine referred to as *has a certain anomalous feature*, and that Quine said that quotation has X.

In the current proposal, the projection behavior of the presupposed metalinguistic component is captured by the resolution algorithm, which indeed tends to move presuppositions out of embeddings. But unlike the projection mechanisms we saw in 5.2 and 5.3 this implementation also correctly predicts various forms of cancelation and accommodation of the metalinguistic meaning component.

6 Non-constituent quotation

We've seen that the accounts discussed in the previous section are sufficiently well formalized to make some testable predictions. One such prediction, shared by all four proposals, and briefly touched on in 4.3, is that according to the syntactic composition rule we can only mixed-quote grammatical constituents. The reason we set up the syntax in this way is ultimately semantic: the at-issue semantic value of a mixed quotation is an entity of a certain type, and this type is to be determined by its syntactic category, which in turn is determined by the category of the quoted phrase. Hence, the quoted expression must be a grammatical constituent.

As discussed in 4.3, this prediction explains the ungrammaticality of **John said that he "iuashd" Mary*, because *iuashd* is not a constituent of the right category. However, Abbott (2005) and Cumming (2005) present a variety of counterexamples:

- (41) Mary allowed as how her dog ate "odd things, when left to his own devices."
(Abbott 2005)

On any independently plausible syntactic parse of (41), the quoted fragment is not a single constituent.¹⁰ Semantically speaking, there is no traditional semantic object of any type that we can plausibly call the semantic contribution of *odd things, when left to its own devices*.

Below I sketch two proposals for addressing the problem of non-constituent quotation. The first is based on breaking the quote into smaller parts; the second on "unquotation," an independently interesting semantic phenomenon.

6.1 Quote breaking

A simple solution for (41) would be to analyze it as involving two mixed-quoted constituents at the syntax–semantics interface (Maier 2008).

- (42) Mary allowed as how her dog [_{VP} ate [_{NP} "odd things"]] [_{VP\VP} "when left to his own devices"].

The first quotation is an NP which combines with the transitive verb to form a VP, which in turn combines with the second quotation, a VP modifier. Semantically, this seems to give the right truth conditions. After projection (by two-dimensional or presuppositional means) the logical translation will be roughly equivalent to (43):

- (43) $\exists x_e \exists X_{(et)et} [R(m, \ulcorner \text{odd thing} \urcorner, x) \wedge R(m, \ulcorner \text{when left to its own devices} \urcorner, X) \wedge \text{say}(m, (X(\text{eat}(x)))(\text{dog}))]$

To allow such an analysis of the example all we really need to add to our existing account(s) is a phonological rule that lets us spell out adjacent quotations as a single quotation.

Zimmermann (2007) proposes a radical implementation of the quote breaking idea: the mixed quotation rule, by definition, only applies to lexical items. Rather than applying quote breaking as an occasional fix, *any* apparently larger mixed quotation is a phonologically reduced combination of quoted words.

- (44) Mary allowed as how her dog ate “odd” “things” “when” “left” “to” “his” “own” “devices.”

One possible advantage of the radical version is that Zimmermann can maintain that his analysis is more compositional, viz. compositional all the way down to the word-quotation level.¹¹

Quote breaking, radical or not, solves the problem of non-constituent quotation.¹² But Shan (2011) raises the following 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, imagine that Mary’s utterance was (45).

- (45) Whereas under human supervision Fido already ate odd things, when left to his own devices he would even eat soap.

(Shan 2011)

Intuitively, (41) doesn’t count as an adequate report of (45). But since all subconstituents of the quotation when taken on their own do occur verbatim in Mary’s utterance, a quote-breaking analysis like (42) or (44) would come out true.

6.2 Unquotation

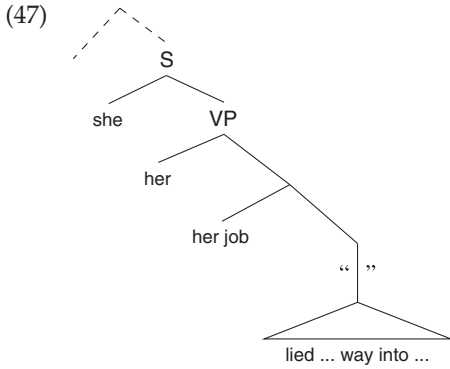
Before addressing the problem of non-constituent quotation, Shan directs our attention to a phenomenon which he calls semantic unquotation:

- (46) The politician admitted that she had “lied [her] way into [her job].”

(Shan 2007)

The bracketed terms *her* and *her job* are to be interpreted as if they are not part of the mixed quotation, but rather just part of the surrounding indirect discourse. Thus, unquoting allows the reporter to paraphrase and adjust parts within an otherwise verbatim larger quotation, i.e., contra Quine (1953), to quantify into a quotation.¹³

To formalize the semantics of unquotation, Shan (2007) proposes that the unquoted expressions are really outside the scope of the mixed quotation.¹⁴



Note that what's mixed-quoted in (47) is not a traditional constituent: *lied ... way into ...* is a linguistic entity that requires a DET(erminer) and an NP to form a VP constituent. We call such constituents with extra argument slots *constructions*. Like constituents, constructions correspond to syntactic categories. Adopting a categorial grammar notation we could denote the category of this construction as $NP \setminus (DET \setminus VP)$.¹⁵ Hence, we can sensibly say things like x uses construction α to refer to X , where X is a semantic entity of a traditional type. In this case, $\tau(NP \setminus (DET \setminus VP)) = e((et)e)et$. This means that our mixed quotation rules from section 5 apply to constructions as they do to constituents. The resulting interpretation of (46) according to the syntactic parse in (47) would be that the politician used the construction *lied ... way into ...* to refer to some X of type $e((et)e)et$ and said that X (she,her,her job).

In sum, if we somehow accommodate constructions alongside traditional constituents into our grammar we can analyze unquotation brackets simply as a way of indicating the exact scope of a mixed quotation.

In the real world, unquotation marked overtly by square brackets is used mainly in newspaper writing, and then mainly to adjust pronouns and other indexicals (Maier 2015). But according to Shan (2011), it also occurs covertly in other genres and constructions. Apparent counterexamples to the predicted indexical shift, for instance, could be explained as instances of covert unquotation, as could putative examples of *wh*-movements out of quotation:¹⁶

- (48) a. And then they told me to “stick a lamp up my ass.”
 ~ ... to “stick a lamp up [my] ass”
 b. Who did Mary say that she would “never underestimate ever again”?
 ~ Who_i did Mary say that she would “never underestimate [_i] ever again”?

Back to the topic of non-constituent quotation. Applying covert unquotation, Shan proposes the following alternative analysis for (41):¹⁷

- (49) Mary allowed as how her dog “[ate] odd things when left to its own devices.”
 (Shan 2011)

What is quoted in (49) is not the uninterpretable non-constituent *odd things when left to his own devices* but the well-formed construction ... *odd things when left to his own devices* of category $V \setminus VP$. Consequently, (49) means that Mary used this construction to refer to a semantic entity X (of type $(\text{et})\text{et}$) and said that her dog $X(\text{ate})$.

The advantage of the unquotation analysis (49) over the quote-breaking alternatives in (42) or (44) is that the quoted material stays together as a unit. Hence we correctly predict that (49) is false if Mary uttered those words in a different syntactic configuration, as in (45).

7 Alternative approaches

The semantic accounts surveyed above rely on a primitive semantic relation *refer* (represented as R in \mathfrak{L}), that relates an individual and a phrase to a semantic object (of a type corresponding to the syntactic category of the phrase). Together with the pure quotation device (represented as $\ulcorner \urcorner$), this allowed us to model the reported speaker's intended interpretation of a certain expression within the reporter's language. In this way, we effectively *defer* the interpretation of the quoted phrase to the reported speaker, which in turn gives us the observed language and indexical shifting phenomena.

In this section I want to point out that there are some alternative approaches to quotation that forgo this metalinguistic deferring in favor of context shifting (section 7.1) or demonstration (section 7.2). I'll briefly discuss the prospects of these alternative approaches as applied to the mixed quotation phenomena discussed in this chapter.

7.1 Mixed quotation as context shift?

A number of approaches to direct as well as mixed quotation take as their starting point the general idea that quotation marks induce a shift from the reporter's context of utterance to the reported speaker's. To make this more concrete, let's borrow the notation and terminology of Zimmermann (2007) and define: $c + \text{"has a certain anomalous feature"}$ = the Kaplanian (1989) utterance context that the reporter *alludes* to with his or her use of the mixed quotation "*has a certain anomalous feature*", that is, the context centered on Quine's writing of that phrase. We can then define the semantic contribution of mixed quotation generally as a monstrous operator:

$$(50) \quad \llbracket \text{"}\alpha\text{"} \rrbracket^c = \llbracket \alpha \rrbracket^{c + \text{"}\alpha\text{"}}$$

Since Schlenker's (2003) "Plea for Monsters," such a definition should not deter us: despite Kaplan's warnings, monsters are everywhere, and have turned out to be both useful and harmless for semantic theory.

The idea that quotation shifts the context parameter immediately accounts for the observed indexical shifting in mixed quotation. But (50) does not help us out with the language-shifting data: if *philosopher* or *misunderestimate* are uninterpretable

in the reporter's language, then merely shifting the Kaplanian context of utterance won't help.

The obvious fix would be to add a language coordinate to the shiftable contexts of (50). Such a move however is not to be taken lightly, as language dependence is arguably something fundamentally different from classic Kaplanian (or Schlenkerian) context dependence. We can bring out the distinction between the two phenomena in different ways.

First, there are lexically context-dependent expressions, viz. indexicals, but no lexically language-dependent expressions. The reference of indexicals depends on their context of utterance, but we can encode this context dependence in the lexicon, in the form of characters, i.e., functions from contexts to denotations. By contrast, there is no lexically encoded language dependence. A semantics is given for a given language – we can't assign *misunderestimate* a "language-dependent meaning" in the form of a "metalinguistic character," which would be a function that maps a Bush-English context to the relation of underestimating, and a Schwarzenegger-English context to misunderstanding, and so on.¹⁸ As Kaplan put it, language dependence is not semantic but "presemantic": "Semantics can associate meanings with expressions ... but given an utterance, semantics cannot tell us what expression was uttered or what language it was uttered in. This is a presemantic task" (Kaplan 1989).

Second, we can also bring out the fundamental distinction between language and context dependence somewhat more concretely by considering how equating the two would affect traditional semantic notions like a priori truth. A sentence is said to be a priori true if its truth can be verified without any investigation of the external world. Kaplan models this semantically by defining a priori truth as truth in every context of utterance. *I am here now* is a priori true under that definition because it's true in an arbitrary utterance context simply by virtue of being uttered in that context, regardless of what the world surrounding it is like. But, if we treat language as just another context parameter, the notion of a priority becomes vacuous: no sentence is true in every language of utterance. Even *I am here now* can express a falsehood, for instance in a context where *I* means (what we refer to as) *pigs* and *am here now* means *can fly*.

Despite such worries about the conflation of language and context dependence, Recanati (2001) maintains that mixed quotation involves a context shift, where the context encompasses not just the traditional Kaplanian coordinates (speaker, time, world), but also a language parameter. The quotation marks in "*misunderestimated me*" signal a shift to a context where the speaker is Bush and the language is Bush-English. Crucially though, for Recanati, the context dependence involved in this shift is not semantic but "presemantic." Hence the mixed quotational shift is not modeled in terms of a monstrous semantic operator as in (50) – it's a "pragmatic shift." Basically, we start the report speaking in our reporting language and then at some point switch to a different language, using quotation marks to signal this to the hearer. Note that this pragmatic/presemantic shift may well affect the reference of mixed-quoted indexicals and hence the eventual truth conditions of the report as a whole.

Shan (2011), finally, provides a detailed formal account where language dependence is fully semanticized and treated on a par with Kaplanian context dependence. For reasons of space I cannot go into details of his account, but the key ingredient is that mixed quotation involves two distinct languages, each with their own syntax and semantics. Syntactically, quotation is a way to embed expressions of the one language into the other. Semantically, the character of a mixed quotation is something like what I called a metalinguistic character above, a function from language contexts to regular characters.

In sum, treating mixed quotation as a context-shifting operator is appealing because it promises a way of analyzing mixed quotation that does not presuppose a notion of pure quotation. But the seemingly required step of treating language dependence on a par with indexical context dependence requires great care.

7.2 Mixed quotation as demonstration?

One of the major analyses of quotation that we haven't discussed yet is the demonstration approach, originating with Clark and Gerrig (1990). The idea is that when we quote someone's words we're demonstrating – as opposed to describing – what that utterance event was like, just like we can demonstrate someone's emotional state by mimicking their facial expression, gestures, or posture.

This demonstration account of quotation has been particularly influential in cognitive linguistics, but has recently been picked up in formal semantics as well. Davidson (2015) shows how we can harness the power of event semantics to formalize the notion of a demonstration. The crucial innovation is allowing demonstration events into the logical form. Thus, the utterance of the quotative construction in (51a) contains a performance of a demonstration event d by the actual speaker (viz. saying *what the hell?* while frowning), which is said to “be like” (i.e., resemble in some contextually relevant way) some event e involving Mary as agent.

- (51) a. So Mary was like, what the hell? <frowns>
 b. $\exists e[\text{agent}(e, \text{mary}) \wedge \text{like}(d, e)]$

Davidson (2015) extends this idea to canonical direct discourse constructions in spoken English and to role shift in sign languages.¹⁹ To extend it to mixed quotation we'd have to add a compatible account of indirect discourse as event modification (Brasoveanu and Farkas 2007; Kratzer 2016; Maier 2018). On these accounts, an indirect discourse report asserts the existence of a speech event with a certain propositional content, provided by the complement clause. A mixed quotation may then be modeled as describing a speech event by specifying the content of one part and then demonstrating another part.

- (52) a. Quine said that quotation “has a certain anomalous feature.”
 b. $\exists e, e' \sqsubset e[\text{agent}(e, \text{quine}) \wedge \text{say}(e) \wedge \text{like}(d, e') \wedge \text{content}(e) = (\text{content}(e'))(\text{quotation})]$

According to this analysis, the reporter basically says that there was a speech event of Quine's, e , a proper part of which, e' , resembles the verbal demonstration d (=

the reporter uttering *has a certain anomalous feature*). We don't know exactly what content was expressed by this subclausal speech event *e'* but we do know that it *has* such a content and that moreover that content is of the appropriate type to combine with the content of the non-quoted constituent (i.e., the NP *quotation*) to yield the content of the entire reported utterance.

A demonstration-based approach along these lines promises to account for language and indexical shift, as well as shifts involving gesture and other iconic and paralinguistic features. But it remains to be seen whether we can really replace reference to linguistic forms with demonstration events, especially in written language, and whether we can extend this approach to cover the projection and unquotation phenomena discussed in the previous sections.

8 Conclusion

Interest in the semantics of mixed quotation started with Davidson's discussion of (53).

(53) Quine said that quotation "has a certain anomalous feature." [= (2b)]

Davidson observed that the quoted words are both mentioned, the reporter refers to the actual words, and used, they function as a VP contributing a property to the derivation of the truth conditions of the sentence. Cappelen and Lepore (1997) attempt to capture this double nature by extending the demonstrative analysis of quotation and indirect discourse. Their proposal has difficulty dealing with the apparent indexical and language shifting that characterize mixed quotation:

(54) Bush said that the enemy "misunderestimated me." [cf. (7)]

Looking for an alternative, compositional analysis, we considered the following paraphrase:

(55) Bush said that the enemy did what he referred to as *misunderestimated me*. [cf. (7)]

Formalizing this in a compositional semantic framework requires some new machinery, most importantly a logic of pure quotation that allows us to directly talk about phonological representations, and a primitive semantic relation linking expressions to the meanings someone attaches to them (in his or her own idiolect).

We saw how a straightforward compositional implementation based on (55) fails to account for the apparent projection of the metalinguistic inference that someone uttered the quoted phrase:

(56) Mary doesn't agree that quotation is "anomalous."
 ~ someone salient in the context uttered the word *anomalous*. [= (30)]

We then considered three ways to incorporate this projection behavior into the grammar. First, we saw Potts put a metalinguistic meaning component at a separate dimension of the logical form:

- (57) **at issue:** Mary doesn't agree that quotation is anomalous.
secondary: someone uttered the word *anomalous*.

However, specifying the at-issue contribution in isolation from the metalinguistic component leads to so-called binding problems, as well as, again, difficulties with language and indexical shifting.

On a presuppositional approach, the link between the two dimensions is restored:

- (58) **at issue:** Mary doesn't agree that quotation is *X*.
presupposition: someone used the word *anomalous* to express *X*.

We compared a simple implementation of (58) in terms of definedness conditions in an otherwise classical logic, and a truly dynamic implementation in DRT.

As far as syntax is concerned, all these approaches share the same construction rule: a constituent α of category *X* can be turned into a mixed quotation " α " of that same category *X*. Hence, meaningless expressions can be mixed-quoted only insofar as they can be viewed as constituents of a particular syntactic category in the reporting language. This syntactic prediction is not quite borne out.

- (59) Mary allowed as how her dog ate "odd things, when left to his own devices." [= (41)]

We considered two solutions: analyzing the apparent non-constituent as two quotations of constituents, (60a), or relying on covert unquotation, (60b).

- (60) a. ... her dog ate "odd things" "when left to his own devices" [= (42)]
 b. ... her dog "[ate] odd things when left to his own devices" [= (49)]

Summing up, there are different ways to formalize and extend the idea that $\llbracket \alpha \rrbracket = \text{what } x \text{ referred to as } \alpha$, each giving rise to concrete, testable predictions. Comparing these predictions has certainly advanced our understanding of the phenomenon of mixed quotation, but there are still many challenges left, both empirical and theoretical. As an example of the former, consider the behavior of indexicals in mixed quotation: why do some indexicals shift, (61a), but not others, (61b)?

- (61) a. Mary said that going to fancy restaurants is "not my cup of tea." [= (5)]
 b. And then they told me to "stick a lamp up my ass." [= (48a)]

As for a theoretical challenge, there are some alternative approaches to investigate, most notably those that analyze mixed quotation literally as a context shifter, rather than as a (partially) metalinguistic operator.

Finally, I would like to point out that our increasing understanding of mixed quotation is already carrying over to a number of other phenomena that are currently investigated by semanticists. We saw one example already, the application of mixed quotation semantics to a now classic debate about so-called metalinguistic negation (see section 5.4). A more recent example is the ongoing discussion about monsters in natural language. Since Schlenker's seminal "Plea for Monsters" (2003) we keep seeing new examples of reported speech constructions that affect the interpretation of indexicals in various ways. Typically, the first step in the argumentation accompanying such discoveries is to show that the construction with the apparently shifted indexical in question is not simply a form of direct discourse. Strictly speaking, however, this does not yet show that the shifting arises from a monstrous operator – it might still be explained away in terms of mixed quotation. Defusing this possibility is thus becoming an integral part of the diagnostic tests used to uncover new monsters (Anand 2006; Schlenker 2011).

Finally, looking ahead, note the growing interest in the semantics of noncanonical forms of reported speech, such as free indirect discourse in literary narrative (Schlenker 2004; Eckardt 2014; Maier 2015; "The Parameters of Indirect Speech"), and role shift in sign languages (Quer 2005; Schlenker 2017a; 2017b; Davidson 2015). These phenomena evidently incorporate aspects of both direct and indirect discourse, and hence the development of a proper semantic account might stand to benefit considerably from a semantic analysis of mixed quotation.

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Notes

1. When it matters, in examples and formulas, I use single quotes for pure quotation, and double quotes for mixed quotation and direct discourse. In running text and informal paraphrases I prefer italics for (pure) quotations and emphasis.
2. Closely related phenomena not typically called 'quotation' include (free) indirect discourse (see "The Parameters of Indirect Speech") and role shift in sign languages (Quer, 2005), to which we briefly return in section 8.
3. Those unconvinced by the truth-conditional impact of mixed quotation should compare the intuitive truth conditions of examples with indexicals (e.g. (5)) to those of their quotation-less indirect discourse counterparts.
4. Taking samesaying as a semantic primitive is a fundamental characteristic of Davidson's philosophy of language. In modern formal semantics one could explicate samesaying in terms of propositions expressed, for instance, along the lines of Kaplan (1989, ch. 17, section XX "Adding 'Says'").

5. A version of this objection is presented by Rieber (1997). Cappelen and Lepore respond:

Anyone who has this concern has not understood how the extension of the same-say relation is determined. It's the actual practice of making indirect reports of others that fixes that extension. There are no a priori constraints on what can same-say what. (Cappelen and Lepore 1997)

Note that this appeal really depends on the Davidsonian analysis of samesaying as a primitive notion. It does not apply to a Kaplanian reduction of samesaying in terms of possible worlds semantics (see n. 4).

6. Schlenker (2003) challenges this long-held assumption empirically.
7. To properly deal with indirect discourse we'd have to add intensionality to the system, for instance by interpreting type t as a propositional type (i.e., $D_t = \mathcal{P}(W)$), or by introducing a type s for possible worlds and adding operators \wedge and \vee , or explicit quantification over possible worlds. In the following I will ignore the complications posed by intensionality to focus exclusively on the effect of quotation.
8. Geurts and Maier (2005) present a weaker version of the argument, using universal quantification.
9. *Breaking Bad*, season 4, episode 1, "Box Cutter" (AMC, 2011).
10. As Cumming points out, this does not mean that we can't dream up a more flexible grammar system with a more relaxed notion of constituency. See Maier (2014a) for some pointers.
11. Note that on our current analysis, the denotation of such a word-quotation is still not a function of the denotation of its (only) constituent, the quoted word, see 4.3. Moreover, we still need to add a projection mechanism, which, arguably, introduces another kind of non-compositionality. Zimmermann's actual proposal seeks to circumvent these complications by treating quotation as a monstrous rather than a metalinguistic operator. I discuss a major drawback of such approaches in section 7.1 below.
12. Moreover, it seems to help with some related problems for our earlier proposals, including apparent quantifier raising out of mixed quotations, see Maier (2008).
13. Another tool for quantifying into quotation that has recently received some attention is that of quotational indefinites:
- i. "But professor so-and-so did it too!", he whined.

On one reading, this sentence says, roughly: there is a name X such that substituting it for the *so-and-so* in the quote gives us the literal form of the subject's speech act. In other words, *so-and-so* seems to function like an indefinite quantifier over expressions inside a quotation.

I will focus here on the somewhat abstract notion of unquotation, see Sudo (2013) and Koev (2017) for more on quotational indefinites.

14. See also Maier (2014a) for a detailed analysis of unquotation along these lines. For alternative approaches, see Shan (2011), Maier (2018), and the recent literature on the related phenomena of quotational indefinites (Sudo 2013; Koev 2017).
15. See Gamut (1991) for an introduction to the (Montague-style) use of categorial grammar in semantics.
16. Examples in (48) taken from Maier (2014a). See Maier (2018) for a more extreme position on the proliferation of unmarked unquotation in natural language.
17. An anonymous reviewer points out that an actual utterance of (49), as opposed to (41), would give rise to the implicature that the reported speaker did not use the exact word

- ate*. Note however that (49) is intended here as a paraphrase of the underlying logical form of (41), not as a pragmatically equivalent assertion in its own right.
18. Cf. Shan (2011, discussed briefly further on in section 7.1) for a dissenting view. See Haas-Spohn (1994) for a thorough discussion about language and context dependence in Kaplanian semantics.
 19. Maier (2018) proposes a hybrid account, combining Davidson's event modification with a more traditional account where direct discourse literally provides the linguistic form of a speech event, optionally strengthened by a demonstration.

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