Interpreting quotations*

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Mixed quotes are quotes that appear to mix mention and use, or direct and indirect quotation, such as (1).

(1) Quine says that quotation 'has a certain anomalous feature.' (Davidson 1979)

This paper argues that mixed quotation is a general phenomenon that pervades the interpretation of language. In fact, most of our speech consists of mixed quotes of ourselves and each other. Of course, because the vast majority of utterances do not call for quotation marks in print, this point is only plausible if we broaden the notion of mixed quotation to include many of them. My first order of business is thus to explain a broader notion of mixed quotation. I then use this notion to analyze naming and quantification.

1. The essence of mixed quotation

Informally speaking, I take a mixed quote to mean what someone uses the quoted expression to mean (Geurts and Maier 2003). For example, (1) means that Quine says that quotation has the property that Quine uses 'has a certain anomalous feature' to mean. The quoted expression need not be grammatical, as (2) shows.

(2) The president said he has an 'ecelectic' reading list. (Maier 2007)

This sentence means that the president said he has a reading list with the property that he uses 'ecelectic' to mean.

In a sense, mixed quotation internalizes the semantic interpretation function—the familiar double square brackets $[\![\ ]\!]$ for denotation—and relativizes it to a speaker, be it Quine or the president. Of course, the use of a mixed quote often accomplishes far more than presupposing that someone uses the quoted expression to mean something and denoting that meaning. For example, the speakers of (2) and (3) can distance

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themselves from the speakers they quote, perhaps by triggering the implicature that they would not themselves use the quoted expressions in the same ways.

(3) I am sorry to have used an ‘epithet’.

Nevertheless, I focus here on the idea that a mixed quote means what someone uses the quoted expression to mean, and only promise to treat the other accomplishments of a mixed quote as different ways to use it (Cappelen and Lepore 2003).

My formal treatment of this idea is motivated by two empirical facts: first, mixed quotes can be nested; second, they can apply to constructions, not just expressions.

1.1. Nested mixed quotes

Mixed quotation can be nested (iterated), just as pure quotation can be.

(4) The politician said she is ‘sorry to have used an ‘epithet’’.

On one reading, (4) means that the politician said she has the property that she uses the phrase ‘sorry to have used an ‘epithet’’ to mean. Presumably—that is, assuming that the politician is a normal English speaker—this property is to be sorry to have used an element of the set that someone unspecified uses the word ‘epithet’ to mean. The outer quotation level in (4) distinguishes the speaker’s sense of ‘sorry’ from the politician’s; the inner level distinguishes the politician’s sense of ‘epithet’ from others’. The outer level may even contain only the inner level, as in (5).

(5) The politician said she is sorry to have used an ‘‘epithet’’.

The fact that one mixed quote can contain another already follows from the fact that a mixed quote can contain any form, not necessarily a grammatical expression in any language. Yet it is worth noting that the speaker of the outer quote presumably uses the inner quote to mean what someone uses the inner-quoted expression to mean, because this presumption lets us explain why the meaning of (4) involves what someone uses the word ‘epithet’ to mean.

1.2. Mixed quotes of constructions

A construction can be quoted, just as an ordinary expression can be.

(6) The politician admitted that she ‘lied [her] way into [her job]’.

(7) It is a long story how I lied my way into this despicable position of deception.

(8) lied my way into this despicable position of deception

Thanks to the square brackets in (6) or their spoken counterpart, the sentence is true if the politician said (7) as a normal English speaker. More precisely, the sentence

is true just in case the politician admitted that she the property gyz, where g is the ternary relation that she used the construction 'lied ... way into ...' to mean, y is her, and z is her job. Intuitively, what is quoted in (6) is not an expression such as (8), but a construction that combines the subexpressions 'my way' and 'this despicable position of deception' to form (8). The same construction also combines the meanings of the subexpressions to form the meaning of (8).

An ordinary expression can be treated as a special case of a construction, namely a nullary one—a construction that takes no input. The binary construction quoted in the example above is a canonical non-nullary construction, but less canonical ones can be mixed-quoted as well, subject to the practical and pragmatic difficulty of punctuating and intoning the quotes so as to convey the speaker's intention.

(9) John doesn't know much French, but he thinks he does and tries to show it off whenever possible. At dinner the other day, he ordered not '[some dessert] à la mode' but 'à la mode [some dessert]'.

On one reading, (9) can be true if John ordered using the words 'à la mode apple pie' but not 'apple pie à la mode'. That is, the second mixed quote in (9) is of a unary construction. The form of the construction maps expressions to expressions: it puts 'à la mode' before a dessert name. The meaning of the construction maps desserts to desserts. What John actually ordered was of course not an expression but the result of applying to some dessert the meaning map that John used the construction to mean.

At least some mixed quotes of non-constituents can be better analyzed as mixed quotes of constructions.

(10) Mary allowed as how her dog ate 'odd things, when left to his own devices'. (Abbott 2003)

The mixed-quoted non-constituent in (10) includes not just the noun phrase 'odd things' and the adverbial phrase 'when left to his own devices' but also Mary's juxtaposing them, indicated in writing by quoting a comma. Maier's quote-breaking analysis (2007) decomposes the quoted non-constituent into two phrases and thus overlooks their juxtaposition. Instead, we can treat the mixed quote as one of a unary construction that builds a verb phrase from a transitive verb, say the verb phrase 'ate odd things, when left to his own devices' from the transitive verb 'ate', or the verb phrase 'devoured odd things, when left to his own devices' from the transitive verb 'devoured'. One attempt at notating such an analysis is (11).

(11) Mary allowed as how her dog '[ate] odd things, when left to his own devices'.

(12) Fido devoured odd things, when left to his own devices.

(13) Whereas under human supervision Fido ate odd things, when left to his own devices he would only eat Nutrapup.

On this analysis, (10) holds if Mary says (12), but not if Mary only says (13).

1.3. Distinguishing syntactic and semantic interjection

Conventional punctuation using square brackets fails to distinguish between two ways to interrupt a quote and interject words used from the perspective of the quoter. The first way, exemplified above, is for the meaning of the interjected words to combine *semantically* with the (rest of the) quote: in (6), the meaning of 'her' and 'her job', say the politician and her job, may serve as arguments to some functional meaning of the construction 'lied ... way into ...'. The second way, exemplified below, is for the meaning of the interjected words to combine *syntactically* with the (rest of the) quote.

(14) The secret guide suggested that interested eaters 'kiss up to [name redacted], class of 2008, for a good meal' at the Ivy.

(15) Randal L. Schwartz writes: 'Something like this, perhaps? [some typical R. Schwartz code, short, simple, clear, efficient, etc....]'

The secret guide in (14) did not suggest that interested eaters kiss up to a name; it used, not mentioned, a redacted name. Schwartz in (15) actually wrote some typical code, not (just) referred to it.

To avoid this ambiguity of square brackets, we notate semantic interjection %[like this] and syntactic interjection ∼[like this]. We further distinguish mixed quotes from pure and direct quotes by notating mixed quotes !⌈like this⌉ and pure and direct quotes ⌈like this⌉. For example, we notate (14) and (15) as follows.

(16) The secret guide suggested that interested eaters !⌈kiss up to ∼[name redacted], class of 2008, for a good meal⌉ at the Ivy.

(17) Randal L. Schwartz writes: ⌈Something like this, perhaps? ∼[some typical R. Schwartz code, short, simple, clear, efficient, etc....]⌉

This notation follows that of *multistage programming languages* (Taha 2004) and suggests that mixed quotation internalizes semantic interpretation. It becomes crucial when we discuss quantification in §2.2.

1.4. A formal model of grammatical constructions

Mixed quotes of mixed quotes and of constructions motivate the following model of grammatical constructions in which to discuss the form and meaning of mixed quotation.

Fix a set X of syntactic objects (forms) and a set Y of semantic objects (meanings). An n-ary *construction* is an ordered pair $\langle f, g\rangle$ where f is a partial function from X^n to X and g is a partial function from Y^n to Y. We can *apply* the construction $\langle f, g\rangle$ to the *constituents* $\langle x_1, y_1\rangle, \ldots, \langle x_n, y_n\rangle$, each a form-meaning pair, to build the form-meaning pair $\langle f\, x_1 \ldots x_n, g\, y_1 \ldots y_n\rangle$, as long as f is defined at $x_1 \ldots x_n$ and g is defined at $y_1 \ldots y_n$. For clarity, we sometimes write $x_{1\ldots n}$ instead of $x_1 \ldots x_n$.

These definitions leave it wide open what forms and meanings are. A fan of Heim and Kratzer (1998) might take each lexical entry to be a nullary construction pairing a phrase structure with a denotation, Merge and function application to be a binary construction, and Move and predicate abstraction to be a unary construction. A fan of Steedman (1996) might take each lexical entry to be a nullary construction pairing a categorized string with a denotation, concatenation and function application to be a binary construction, and each type-shifting operation to be a unary construction. A construction may be an inference rule in a logic or a step in the execution of a computer program. Even the odd linguist (see §2.2) who pines for 'meta-constructions'—constructions over constructions—can express them by treating constructions as expressions and meta-constructions (along with the closure conditions below) as constructions. These details do not concern us, in large part thanks to the conditions imposed by the following definition.

A *grammar* R is a set of constructions that satisfies two closure conditions.

Identity The pair of identity functions $\langle \lambda x.\, x, \lambda y.\, y \rangle$ is in R as a unary construction.

Composition If $\langle f, g \rangle$ is an $(n+1)$-ary construction in R, and if $\langle f', g' \rangle$ is an n'-ary construction in R, then the $(n+n')$-ary construction

$$\begin{aligned}\langle &\lambda x_{1\ldots i-1} x'_{1\ldots n'} x_{i+1\ldots n+1}.\, f\, x_{1\ldots i-1} (f' x'_{1\ldots n'}) x_{i+1\ldots n+1},\\ &\lambda y_{1\ldots i-1} y'_{1\ldots n'} y_{i+1\ldots n+1}.\, g\, y_{1\ldots i-1} (g' y'_{1\ldots n'}) y_{i+1\ldots n+1} \rangle\end{aligned}$$

is also in R, for $i = 1, \ldots, n+1$. If we identify expressions with nullary constructions, then application is a special case of composition.

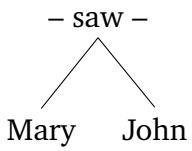
This definition is inspired by *operads without permutation* (May 1997).

The grammar *generated* by a set of constructions S is the smallest grammar containing S. The closure conditions let us treat mixed quotes of *primitive* constructions (those in S) and *derived* constructions (those in R but not S) alike. For example, any reasonable grammar of English in this model probably contains a nullary construction whose form component is 'Mary saw John'. Once one speaker uses this construction, another may then quote it—be it the composition of a binary construction '– saw –' with the nullary constructions 'Mary' and 'John' or of a whole bunch of Merge, Move, and lexical constructions.

We can now be a bit more specific about what it means for a speaker to use a form to mean something, or to use a construction. We assume that the use of language pairs forms with meanings, be it subjectively in an idiolect or objectively in a language game. For example, Alice in her use of language might pair the form 'Mary saw John' with the meaning that Mary saw John, and the president in his use of language might pair the form 'I have an ecelectic reading list' with the meaning that he (de se) has an eclectic reading list. When a speaker s pairs the form x with the meaning y, we say that s uses x to mean y, or that s uses the nullary construction $\langle x, y \rangle$.

But that is not all. A speaker often justifies the use of a construction by applying the closure conditions above to other constructions. For example, our model English speaker Alice justifies the nullary construction 'Mary saw John' (here we notate a construction by its form) by composing some binary construction '– saw –' with the nullary constructions 'Mary' and 'John'. In fact, one construction use may be justified in multiple *equivalent* ways: Alice justifies 'Mary saw John' by composing 'Mary' with '– saw John' as much as she does by composing 'Mary saw –' with 'John' (Barker 2007). If s uses a construction and justifies it by applying the closure conditions to other constructions, then s also uses those other constructions. That is, if we draw the justification of a used construction as a parse or proof tree whose nodes are primitive constructions, then any connected part of the tree depicts a used construction as well.

(18)



1.5. Mixed quotes, formally

I analyze mixed quotes as constructions of the form

(19) $$\langle\ Qf,\ \iota g.\ x \text{ uses the construction } \langle f, g\rangle\ \rangle.$$

Here f and Qf are two partial functions from X^n to X, related in some systematic way Q yet to be specified, so the set X of forms needs to express the intonation or punctuation of quotation. The meaning component of this construction is anaphoric to some discourse referent x and presupposes that the speaker x uses f to mean a partial function g from Y^n to Y. These anaphoric and presuppositional dependencies are part of the construction's meaning and remain to be resolved—either semantically as the meaning is composed with other meanings, or pragmatically as the resulting utterance is used in discourse. On this analysis, then, the set Y of meanings needs to express these dependencies, and mixed quotes are *not* constructions of the form

(20) $$\langle\ Qf,\ g\ \rangle$$

where some speaker x uses the construction $\langle f, g\rangle$.

There are multiple Q's, corresponding to different strategies of resolving these dependencies. To take a simple example from written English, suppose that the forms in X are strings. Sticking to single quotation marks, we can then define

(21) $$Qf\,x_{1\ldots n} = \text{`}\frown\left(f(\overline{[}\frown x_1 \frown \overline{]})\ldots(\overline{[}\frown x_n \frown \overline{]})\right)\frown\text{'}$$

where overlines cover literal strings and the operator $\frown$ denotes string concatenation. Given this Q, we can analyze the written form of (4) and (6) as follows.

(22) $(\lambda x.\,\overline{\text{The politician said she is }} \frown x)$
$\big(Q((\lambda x.\,\overline{\text{sorry to have used an }} \frown x)(Q\,\overline{\text{epithet}}))\big)$
$= \overline{\text{The politician said she is 'sorry to have used an 'epithet''}}$

(23) $(\lambda x.\,\overline{\text{The politician admitted that she }} \frown x)$
$\big(Q(\lambda x_1 x_2.\,\overline{\text{lied}} \frown x_1 \frown \overline{\text{ way into }} \frown x_2)\,\overline{\text{her}}\,\overline{\text{her job}}\big)$
$= \overline{\text{The politician admitted that she 'lied [her] way into [her job]'}}$

The corresponding meaning components match the paraphrases given above under (4) and (6), *if* we assume the most obvious ways to resolve the anaphoric and presuppositional dependencies: the politician and her utterances (3) and (7), respectively. Some contexts make it more natural to resolve these dependencies in other ways, for example if the politician was asked by a talk show host whether 'you are sorry to have used an 'epithet'' or whether 'you lied your way into your job'. Whatever their context and however their dependencies are resolved, these examples demonstrate that we can analyze nested mixed quotes and mixed quotes of constructions.

My central claim is that the grammar of human language is largely generated by mixed-quote constructions. To be more precise, every primitive construction is a mixed quote (of the form (19)), a pure quote (such as $\langle Qf, f\rangle$), or a coinage (where all bets are off).

1.6. Mixed quotes of formal languages

For intuition, it may help to draw a parallel between this treatment of mixed quotation and the practice of code switching between natural and formal languages, such as embedding formulas in English sentences. In the examples below, we omit the quotation marks that some typographic conventions call for.

(24) $P \Rightarrow Q$ and P together entail Q.

(25) $\Gamma(2)$ contains 2.

(26) Alice said $\forall x \in \mathbb{R}.\, x^2 = -x^2$.

(27) Alice said what mathematicians use $\forall x \in \mathbb{R}.\, x^2 = -x^2$ to mean.

(28) Alice said $\Gamma(2)$ is negative.

(29) Alice said what mathematicians use $\Gamma(2)$ to mean is negative.

The embedding of formulas in the English sentences (24) and (25) are arguably cases of pure quotation: these sentences mention some formulas but do not use them. Our analysis of mixed quotation amounts to paraphrasing the mixed quotes in (26) and

(28) in terms of the pure quotes in (27) and (29), respectively. These paraphrases preserve a de-re/de-dicto ambiguity: Alice's errors may be due to her ignorance about numbers or her ignorance about mathematical notation; the latter possibility requires interpreting the descriptions 'what mathematicians use $\forall x \in \mathbb{R}. x^2 = -x^2$ to mean' and 'what mathematicians use $\Gamma(2)$ to mean' de dicto.

Formulas can be quoted in a formal language as well as a natural language, for instance using *Gödel numbering*, a systematic mapping between formulas and integers. Given a Gödel numbering, the truth and provability of a formula in a logic can then be defined as arithmetic predicates. These predicates are the formal analogues of the meaning component of (19) and the paraphrases in (27) and (29). The ability to interpret one language in another enables linguistic creativity and reflection, so that first-order predicate logic may draw from not just the semantics but also the syntax of modal logic, so that Kolmogorov complexity is defined up to a constant, and so that the same low-level computer chip may run programs written in various high-level languages.

2. The prevalence of mixed quotation

In a mixed quote as in a pure quote, the quoted speaker may be generic, hypothetical, or institutional, and the quoted use may be generic, hypothetical, or habitual (Geurts and Maier 2003). Mixed quotation is thus a versatile source of constructions: in principle, the analysis in (19) gives rise to mixed quotes that draw their meanings from any construction use by any speaker, be it real or imagined, in the past, present, or future. It is thus perhaps unsurprising that mixed quotation can serve many purposes in the use and transmission of language.

2.1. Naming and other causes

A mild instance of prevalent mixed quotation is names according to a causal theory of reference (Kripke 1980). When Alice uses 'Aristotle' to mean Aristotle, unless she is baptizing Aristotle by coining the name, she relies on a previous use of the name to mean Aristotle. In other words, the nullary construction that pairs the name with the person is a mixed quote. This mixed quote is slightly unusual in two regards, but neither invalidates this analysis of names as mixed quotes.

i. The quoted form (say $Q\,\overline{\text{Aristotle}}$) and unquoted form (say $\overline{\text{Aristotle}}$) sound and look exactly the same, so one may be concerned as to how the hearer of Alice's utterance can know to parse 'Aristotle' as a quote. But there are preciously few ways for 'Aristotle' to appear in a English sentence, among which this parse is likely to be the top candidate.

ii. Alice and the other participants in the conversation may not recall a specific

occasion on which a specific speaker used the name to mean Aristotle, so the referent of x in (19) may be indeterminate. But like any other discourse referent, x can have its dependencies resolved as long as it is known that there exists a speaker (even an institutional one such as the English language) and a use (even a generic one such as usually). Such mixed quotes are common: the quote in (3) could be one, for example.

The use of 'Aristotle' that Alice mixed-quotes is either specifically the initial baptism of Aristotle or another mixed-quote of a use of 'Aristotle', and so on. The chain of naming occasions formed by mixed quotation is like a causal chain of naming, except a generic event does not usually appear on a causal chain. Research on reflection in programming languages (Smith 1982) shows how to compactly represent a long chain of mixed quotation

(30) !⌈!⌈!⌈...Aristotle...⌉⌉⌉

with a stable meaning and a stable form. None of this discussion hinges on the actual existence of Aristotle; Sherlock Holmes would have done just as well.

If names are mixed quotes, they seem to take scope differently from ordinary mixed quotes (Michael Johnson, p.c.).

(31) Quine might have said that quotation 'has a certain anomalous feature'.

(32) It might have been the case that Aristotle was not named 'Aristotle'.

One reading of (31) does not entail that anyone used the words 'has a certain anomalous feature', so it seems possible to resolve the presupposition of the ordinary mixed-quote there within the scope of 'might'. In contrast, it does not seem that (32) has a false reading, so it seems necessary to resolve the presupposition that the name 'Aristotle' is used to mean someone outside the scope of 'might'.

When a linguist writes 'We assume the following notion of c-command ...' followed by the rest of a paper, that rest of the paper is a mixed quote of a speaker who uses 'c-command' to mean that notion, much as the sentence (2) could appear in a fairy tale that begins, 'Once upon a time, there was a president who likes to insert vowels when he pronounces words ...'.

Why stop at names and definitions? This 'copy-and-paste' syntax and semantics works across the board, so the sentence (33) can be cobbled together solely by composing mixed quotes as in (34). Ordinary language, then, is full of mixed quotes.

(33) Aristotle saw his sister.

(34) !⌈%[!⌈Aristotle⌉] saw %[!⌈%[!⌈him⌉]'s sister⌉]⌉

The punctuation in (34) notates walking up and down a tree of causation to curate forms and meanings from various speakers.

The analysis (34) assumes that the mixed-quoted expression 'him' is used to mean an anaphoric dependency. Similarly, in order for us to analyze Alice's use of 'I' to mean herself as a mixed quote of Bob's use of 'I' to mean himself, we must assume that the mixed-quoted use of 'I' means a context dependency on the first person, even though Bob also use the same form to mean himself.

If ordinary constructions such as '– saw –' are mixed quotes, they seem to allow wh-extraction and quantifying-in as in (35), which quotation is famed to not allow as in (36) (Quine 1953).

(35) a. Who did !⌈%[!⌈Aristotle⌉] see %[_]⌉?
b. !⌈%[!⌈Aristotle⌉] saw %[nobody]⌉

(36) a. Who said 'what' contains six letters?
b. $\exists x$. 'x' contains six letters.

Perhaps it is not impossible, merely difficult, for extraction and quantification to take place across a quote, especially a mixed quote. After all, examples such as (15) above are prima facie instances of quantifying into a quote, and the examples below suggest that wh-extraction is possible out of a mixed-quoted construction (Ernie Lepore, p.c.).

(37) What did Bush say Rove would !⌈protect us from ∼[_] in these turbulent times⌉?

(38) Who said Rove would !⌈protect us from ∼[what] in these turbulent times⌉?

2.2. Quantification and polarity

A quantifier can be thought of as a meta-construction, along the lines of abstract categorial grammars (de Groote 2002) and its noble line of intellectual ancestors: 'everybody' maps a unary construction to a nullary construction.

(39) $$\langle\ \lambda f.f\ \overline{\text{everybody}},\ \ \lambda g.\forall y.g\,y\ \rangle$$

This idea let us analyze 'everybody saw Mary' and 'Mary saw everybody', by applying (39) to the composition of '– saw –' and 'Mary'. However, (39) alone does not generate 'everybody saw everybody' because it only applies to unary constructions. To resolve this issue, it may seem natural to allow 'quantifying in' any argument position of an n-ary construction, mapping it to an $(n-1)$-ary construction (Hendriks 1993).

(40) $$\begin{array}{l}\langle\ \lambda f\,x_{1\ldots k-1}x_{k+1\ldots n}.f\,x_{1\ldots k-1}\,\overline{\text{everybody}}\,x_{k+1\ldots n},\\ \quad \lambda g\,y_{1\ldots k-1}y_{k+1\ldots n}.\forall y.g\,y_{1\ldots k-1}y\,y_{k+1\ldots n}\ \rangle\end{array}$$

However, an analogy between surface scope in quantification and left-to-right evaluation in other linguistic side effects such as anaphora and questions (Shan and Barker 2006) suggests only 'quantifying in' the last argument, that is, setting k above to n.

(41) $$\langle\ \lambda f\,x_{1\ldots n-1}.f\,x_{1\ldots n-1}\,\overline{\text{everybody}},\ \ \lambda g\,y_{1\ldots n-1}.\forall y.g\,y_{1\ldots n-1}y\ \rangle$$

If we analyze ‘everybody’ as (41) and ‘somebody’ analogously, then we generate only the surface-scope readings of (42) and (43).

(42) Somebody saw everybody.

(43) Everybody saw somebody.

Where does inverse scope come from, then? Mixed quotation offers one answer: we can generate inverse scope if we can quote the (wider) scope of the later quantifier as a construction, excluding that quantifier itself. For example, we can analyze (42) as (44) if we can mixed quote the unary construction ‘somebody saw –’, *hereby* used to mean the property of having been seen by somebody. The resulting interpretation can be glossed as (45) (which is coherent, unlike (46)—pace Quine (1960, 1953)).

(44) !⌜Somebody saw %[everybody]⌝

(45) For everybody y, the sentence ⌜Somebody saw %[y]⌝ is true.

(46) For everybody y, the sentence ⌜Somebody saw %[y]⌝ has eight letters.

To analyze a sentence with three quantifiers that take inverse scope with respect to each other, we would need nested mixed quotation. Perhaps some scope parallelism between quantifiers in discourse can be explained by the ease of quoting a construction recently used.

Because the more-quoted quantifier takes narrower scope in the example above, one might worry about cases where a mixed-quoted quantifier takes inverse scope over an unquoted quantifier, such as (47).

(47) The dean asked that a student ‘accompany every professor’. (Cumming 2003)

In fact, because written quotation marks may not indicate every level of actual quotation, we can treat such examples as long as we allow syntactic interjection, discussed in §1.3. Using the notation introduced there, the inverse-scope reading desired in (47) is analyzed in (48). Only the outermost pair of brackets in (48) manifests itself as a pair of quotation marks in (47).

(48) The dean asked that !⌜!⌜∼[%[⌜a student⌝]] accompany %[every professor]⌝⌝

A quick and dirty way to ‘evaluate’ quotation constructions such as (48) is to remove !⌜interpreted brackets enclosing no interjection⌝ and cancel out ∼[⌜syntactically interjected pure-quotes⌝] inside quotes.

This account of inverse scope lets us explain why polarity licensing requires not just that the licensor take scope over the licensee, but also that the licensor precede the licensee if they are clausemates (Ladusaw 1979). For example, whereas (49) has a surface-scope reading, (50) does not have an inverse-scope reading.

(49) Alice introduced nobody to anybody.

(50) *Alice introduced anybody to nobody.

Our explanation assumes that a clause like 'Alice introduced anybody to Bob' and a construction like 'Alice introduced anybody to %[...]' are not quotable, even though they can appear as part of a larger quotable item (for example when preceded by 'nobody thinks'). Intuitively, they are not quotable because they are incomplete: they are unacceptable as utterances by themselves. This intuition can be enforced in one of two ways: either assign a different syntactic category or semantic type to a constituent that contains an unlicensed polarity item (Fry 1997), or always insert a licensor and a licensee in one fell meta-construction such as the following.

(51) $\langle\ \lambda f.f\ \overline{\text{nobody}}\,\overline{\text{anybody}},\ \lambda g.\neg\exists yz.gyz\ \rangle$

If there is no construction 'Alice introduced anybody to %[...]' to quote, then the strategy for generating inverse scope in (44) fails. This failure can be observed from the fact that the paraphrase (53) of (52), analogous to (45), is unacceptable.

(52) *![Alice introduced anybody to %[nobody]]

(53) *For nobody y, the sentence [Alice introduced anybody to %[y]] is true.

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