

Characterizing quotation

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Davidson (1979) distinguished *pure* quotation, as in (1), from *mixed* quotation, as in (2). Mixed quotation is so called and puzzling because it seems to mix mention and use: the truth conditions of (2) seem to involve both the string *eckullectic* and an adjectival meaning.

- (1) The word “eclectic” has eight letters.
- (2) Bush is proud of his “eckullectic” reading list.

It is popular to gloss the truth conditions of (2) as a conjunction:

- (3) a. Bush uses the string *eckullectic* (as an adjective) to denote a function f on properties; and
b. Bush is proud of his f (reading list).

The first conjunct, which links the string *eckullectic* to its adjectival meaning, was analyzed by Geurts and Maier (2003) as an anaphoric presupposition, and by Potts (2007) as a conventional implicature, the first dimension of a meaning pair.

Whereas these analyses locate the first conjunct in semantics and pragmatics, we propose that it is further enshrined in the *syntax* of the language of (2), a language that embeds but is distinct from Bush English. That is, if (3a) fails then (2) is ill-formed, not just false or infelicitous. Informed by the use of Gödel numbering and quotation to embed and interpret computer programs as data objects (Reynolds 1972; Nielson and Nielson 1992), we formalize this proposal in a fragment whose syntactic categories embed those of Bush English and whose semantic contents include the semantic characters of Bush English. This analysis of mixed quotation has several payoffs:

- It matches the intuition that mixed-quoting an adjective as a verb phrase (**Bush said his reading list “eckullectic”*) is bad syntax, not just a type mismatch or presupposition failure.
- It accounts for the baptism of lexical items such as nouns (Kripke 1980) as mixed-quoted speech: the speaker and hearer of (2) can use “*eckullectic*” meaningfully without knowing f .
- It accommodates *unquotation* (Bawden 1999), indicated by brackets in conventional English writing, whether de re (*Bush boasted of “an [eclectic] reading list”*) or de dicto (*Bush boasted of “an [expletive] reading list”*).
- It treats utterance contexts as *interpreters*, so pure quotation can be assimilated as a special case of mixed quotation where the interpreter is essentially an identity function.

In principle, these consequences let us view all of language except coinage as heavily nested mixed-quotes. Supporting this view, we suggest that it is because interpreters are similar and compositional that humans so easily process nested quotes and more generally nested depictions (Clark and Gerrig 1990) and nested theories of mind.

The fragment uses a category A' to represent each category A of Bush English. For example, the string *eckullectic* has the category $(N/N)'$. Its semantic content is the character of *eckullectic* and can be thought of as a function that maps each context to the content of uttering *eckullectic* in that context at the category N/N . (In general, a character can be thought of as a type-lifted meaning that takes a context as argument and is subject to type-lifted composition rules, as in continuation

semantics.) Mixed-quoting *eckullectic* shifts its syntactic category from $(N/N)'$ to N/N and its semantic content from a character to, say, the content of *eclectic*. But mixed quotation is not just code switching. For one thing, the latter shift may involve diagonalization (Stalnaker 1978): the content of the mixed-quote “*eckullectic*”, of category N/N , may be an intension that maps each world w to the extension of *eckullectic* at w as uttered by Bush in w (*To be “eckullectic” is to have never been seen by Bush; “Hesperus” is “Phosphorus”*). For another, we can quantify over the quoted language (*Danes and Norwegians eat “frokost” at different times*).

The fragment delivers the promised payoffs. In particular:

- Because the category $(N/N)'$ only combines with N' on the right, not DP' on the left, we cannot quote *eckullectic* as a verb phrase.
- A hearer who knows the intension of “*eckullectic*”, but not its actual extension, may nevertheless find (2) an informative assertion that rules out some worlds.
- As composed in the fragment, the content of the de-re unquotation [*eclectic*] is the indexical character (which can be thought of as a constant function from utterance contexts) that refers to our meaning of *eclectic* (Kaplan 1989). Also, the content of the de-dicto unquotation [*expletive*] quantifies over the characters of English expletives—hence the *dicto* in *de dicto*.
- An utterance context can be formalized as a tuple of semantic combinators, even one that interprets the string *eckullectic* as the same string, juxtaposition as juxtaposition, and so on.

The more similar the quoted and quoting interpreters are, the more the constituents of a mixed quote can be processed as if unquoted. This speedup can be gained gradually as the users of the quoting language come to know more about the quoted language. Similarly, an emulation of another operating system can be turned gradually into a virtualization.

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