Interpreting quotations

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There’s treasure everywhere:
a Calvin and Hobbes collection by Bill Watterson
Mixing mention and use

**Pure/direct quotation**
Quine says ‘quotation has a certain anomalous feature’ (which has 6 words).

**Indirect quotation**
Quine says quotation has a certain anomalous feature (which he asserted using a negative tag question in Japanese).

**Mixed quotation**
Quine says quotation ‘has a certain anomalous feature’ (but he referred to quotation only deictically).

(Davidson 1979)
Most speech is made of mixed quotes.

- **Empirical observations**
  - Nested mixed quotes
  - Mixed quotes of constructions

The essence of mixed quotation
  - An ‘abstract’ formalization
  - Formal languages

The prevalence of mixed quotation
  - Names, definitions, non-coinages
  - Quantification and polarity
A mixed quote means what someone uses the quoted expression to mean (Geurts and Maier 2003).

The journalist
The president said he has an ‘eclectic’ reading list.

The politician
I am sorry to have used an ‘epithet’.
The journalist
The politician said she is ‘sorry to have used an ‘epithet’ ’.

Just like mixed-quotating any other form.
The journalist
The politician said she is ‘sorry to have used an ‘epithet’ ’.
The politician said she is sorry to have used an ‘‘epithet’ ’.

Just like mixed-quoting any other form.
Mixed quotes of constructions

The journalist
The politician admitted that she ‘lied [her] way into [her job]’.

The politician
It is a long story how I lied my way into this despicable position of deception.
Mixed quotes of constructions

The journalist
The politician admitted that she ‘lied [her] way into [her job]’.

The politician
It is a long story how I lied my way into this despicable position of deception.

Mary
John doesn’t know much French, but he thinks he does and tries to show it off whenever possible. At dinner, he ordered not ‘[some dessert] à la mode’ but ‘à la mode [some dessert]’.

John
I would like some à la mode [apple pie] please.
Mixed quotes of constructions

Abbott 2003: Mixed quotes of non-constituents?
Mary allowed as how her dog ate ‘odd things, when left to his own devices’.

Mary
Fido devoured odd things, when left to his own devices.
Abbott 2003: Mixed quotes of non-constituents?
Mary allowed as how her dog ‘[ate] odd things, when left to his own devices’.

Mary
Fido devoured odd things, when left to his own devices.
Mixed quotes of constructions

Abbott 2003: Mixed quotes of non-constituents?
Mary allowed as how her dog ‘[ate] odd things, when left to his own devices’.

Mary
Fido devoured odd things, when left to his own devices.

Not Mary
Whereas under human supervision Fido ate odd things, when left to his own devices he would only eat Nutrapup.

Constructions are meaningful non-constituents?
Mixed quotes of constructions

The journalist: semantic interjection
The politician admitted that she ‘lied [her] way into [her job]’.

The politician
It is a long story how I lied my way into this despicable position of deception.
Mixed quotes of constructions

The journalist: semantic interjection
The politician admitted that she ‘lied [her] way into [her job]’.

The politician
It is a long story how I lied my way into this despicable position of deception.

The journalist: syntactic interjection
The secret guide suggested that interested eaters ‘kiss up to [name redacted], class of 2008, for a good meal’ at the Ivy.

The secret guide
You should kiss up to John Doe, class of 2008, for a good meal if you are interested.
Mixed quotes of constructions

The journalist: semantic interjection
The politician admitted that she !\text{lied} %[\text{her}] \text{way into} %[\text{her job}]^\dagger.

The politician
It is a long story how I \text{lied} my \text{way into} this despicable position of deception.

The journalist: syntactic interjection
The secret guide suggested that interested eaters !\text{kiss up to} ~[\text{name redacted}], \text{class of 2008}, \text{for a good meal}^\dagger at the Ivy.

The secret guide
You should \text{kiss up to} John Doe, \text{class of 2008}, \text{for a good meal if you are interested}.

Use notation for \textit{staging} in programming languages.
Interpreting quotes

If everyone spoke the same language—

► The form \( \square f \) means \( f \).

► If the form \( f \) means the form \( g \), and in turn \( g \) means \( h \),
then \( \lozenge f \) means \( h \).

– Hence reduce \( \lozenge f \) to \( f \).

► If the form \( f \) means the form \( g \),
then the form \( \Box \ldots \neg \neg [f] \ldots \) means \( \ldots g \ldots \).

– Hence reduce \( \neg \neg [f] \) to \( f \).

► If the form \( f \) means \( g \),
then the form \( \Box \ldots \%[f] \ldots \) means \( \ldots g' \ldots \),
where \( g' \) is something (possibly formless) that means \( g \).

– Kaplan’s vivid names?
Interpreting quotes

If everyone spoke the same language—

- The form \( \downarrow f \) means \( f \).
- If the form \( f \) means the form \( g \), and in turn \( g \) means \( h \), then \( !f \) means \( h \).
  - Hence reduce \( !\downarrow f \) to \( f \).
- If the form \( f \) means the form \( g \), then the form \( \cdots \downarrow [f] \cdots \) means \( \cdots g \cdots \).
  - Hence reduce \( \downarrow [f] \) to \( f \).
- If the form \( f \) means \( g \), then the form \( \cdots \% [f] \cdots \) means \( \cdots g' \cdots \), where \( g' \) is something (possibly formless) that means \( g \).
  - Kaplan’s vivd names?
Interpreting quotes

If everyone spoke the same language—

- The form $\llbracket f \rrbracket$ means $f$.
- If the form $f$ means the form $g$, and in turn $g$ means $h$, then $\neg f$ means $h$.
  - Hence reduce $\neg \llbracket f \rrbracket$ to $f$.
- If the form $f$ means the form $g$, then the form $\llbracket \ldots \neg \llbracket f \rrbracket \ldots \rrbracket$ means $\ldots g \ldots$.
  - Hence reduce $\llbracket \neg \llbracket f \rrbracket \rrbracket$ to $f$.
- If the form $f$ means $g$, then the form $\llbracket \ldots \% \llbracket f \rrbracket \ldots \rrbracket$ means $\ldots g' \ldots$, where $g'$ is something (possibly formless) that means $g$.
  - Kaplan’s *vivid names*?
Most speech is made of mixed quotes.

Empirical observations
  Nested mixed quotes
  Mixed quotes of constructions

► The essence of mixed quotation
  An ‘abstract’ formalization
  Formal languages

The prevalence of mixed quotation
  Names, definitions, non-coinages
  Quantification and polarity
An ‘abstract’ formalization of constructions

A construction has a form (function) and a meaning (function).

↑
John

↑
Mary

↑
saw

A grammar is a set of constructions closed under identity and composition.

No higher-order constructions for now.
An ‘abstract’ formalization of constructions

A construction has a form (function) and a meaning (function).

A grammar is a set of constructions closed under identity and composition.

No higher-order constructions for now.
An ‘abstract’ formalization of construction use

A speaker uses the closure conditions to generate derived constructions from primitive ones.

To use a construction is to use its form to mean its meaning.

If you use a construction derived from other constructions (in multiple equivalent ways), then you also use these other constructions.

In general, any connected subgraph of the derivation tree.
An ‘abstract’ formalization of mixed quotes

For a mixed quote:

▶ The form is

\[ Q_f \]

where \( f \) is a form.

For example,

\[ Q_f x_1 \ldots x_n = \hat{\imath} \ldots (f([\hat{x}_1]) \ldots ([\hat{x}_n])) \]

in written English.

▶ The meaning is

\( \nu g. \ x \) uses the form \( f \) to mean \( g \)

with unresolved anaphora and presupposition.

Desugar staging notation into mixed-quote constructions.
An ‘abstract’ formalization of mixed quotes

For a mixed quote:

- The form is

\[ Qf \]

where \( f \) is a form.

For example,

\[ Qf x_1 \ldots x_n = \hat{i}(f(\lfloor \text{x}_1 \rfloor) \ldots (\lfloor \text{x}_n \rfloor)) \hat{\jmath} \]

in written English.

- The meaning is

\( i.g. \) \( x \) uses the form \( f \) to mean \( g \)

with unresolved anaphora and presupposition.

Desugar staging notation into mixed-quote constructions.
An ‘abstract’ formalization of mixed quotes

For a mixed quote:

- The form is
  \[ Qf \]
  where \( f \) is a form.
  For example,
  \[
  Qf x_1 \ldots x_n = \iota^\prime \cap (f([\land x_1 \land]) \ldots ([\land x_n \land]))^\prime
  \]
  in written English.

- The meaning is
  \[ \iota g. x \text{ uses the form } f \text{ to mean } g \]
  with unresolved anaphora and presupposition.

Desugar staging notation into mixed-quote constructions.
Formal languages

Code switching
Alice said $\Gamma(2)$ is negative.

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

A mixed quote is an *interpreted* Gödel number.
Most speech is made of mixed quotes.

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► The prevalence of mixed quotation
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  Quantification and polarity
Names, definitions, non-coinages

A causal chain of naming (Kripke)

Aristotle
Names, definitions, non-coinages

A causal chain of naming (Kripke)

Perhaps with generic events and institutional speakers.
Names, definitions, non-coinages

A causal chain of naming (Kripke)

\[ \forall \forall \forall \forall \ldots \text{Aristotle} \ldots \forall \forall \forall \forall \]

Perhaps with generic events and institutional speakers.

Definitions

Let \( e = \lim_{n \to \infty} (1 + \frac{1}{n})^n \). The number \( e^{i\pi} \) is equal to \( \text{−1} \).
Names, definitions, non-coinages

A causal chain of naming (Kripke)

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Definitions

Let $e = \lim_{n \to \infty} (1 + \frac{1}{n})^n$. The number $e^i \pi$ is equal to $-1$. 
Names, definitions, non-coinages

A causal chain of naming (Kripke)

\[ !\mathcal{G}!\mathcal{F}!\mathcal{M} \ldots \ \text{Aristotle} \ldots \mathcal{M} \]

Perhaps with generic events and institutional speakers.

Definitions

Let \( e = \lim_{n \to \infty} \left( 1 + \frac{1}{n} \right)^n \). \[ \text{The number } e^{i\pi} \text{ is equal to } -1. \]

Non-coinages; deference

Aristotle saw his sister
Names, definitions, non-coinages

A causal chain of naming (Kripke)

Aristotle

Perhaps with generic events and institutional speakers.

Definitions

Let \( e = \lim_{n \to \infty} (1 + \frac{1}{n})^n \).  

The number \( e^{2\pi} \) is equal to \(-1\).

Non-coinages; deference

Aristotle saw his sister.

Do they have children? Yes, they have one child. (de Swart)
Names, definitions, non-coinages

A causal chain of naming (Kripke)

\[ \text{Aristotle} \ldots \]

Perhaps with generic events and institutional speakers.

Definitions

Let \( e = \lim_{n \to \infty} (1 + \frac{1}{n})^n \). \( e^\pi \) is equal to \(-1\).

Non-coinages; deference

\( \text{Aristotle saw his sister} \)

Do they have children? Yes, they have one child. (de Swart)
Names, definitions, non-coinages

A causal chain of naming (Kripke)

\[ \neg \neg \neg \neg \ldots \text{Aristotle} \ldots \neg \neg \neg \neg \]

Perhaps with generic events and institutional speakers.

Definitions

Let \( e = \lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^n \). \( \neg \neg \neg \neg \neg \text{The number} \ e^{i \pi} \text{is equal to} \ -1. \neg \neg \neg \neg \neg \]

Non-coinages; deference

\( \neg \neg \neg \neg \neg \text{Aristotle's sister} \neg \neg \neg \neg \neg \]

Do they have children? Yes, they \( \neg \neg \neg \neg \neg \text{have children} \neg \neg \neg \neg \neg \). (de Swart)
Scope freedom in mixed quotes?

Names take scope differently from ordinary mixed quotes (Michael Johnson, p.c.).

1. It might have been the case that Quine said quotation ‘sucks’.

2. It might have been the case that Aristotle was not named ‘Aristotle’.
Scope freedom in mixed quotes?

Names take scope differently from ordinary mixed quotes (Michael Johnson, p.c.).

1. It might have been the case that Quine said quotation ‘sucks’.
2. It might have been the case that Aristotle was not named ‘Aristotle’.

Ordinary constructions allow wh-extraction and quantifying-in.

1. Who did ![%![「Aristotle」]] see %[ ]?
2. ![%![「Aristotle」]] saw %[nobody]
Think of a quantifier as a higher-order construction, as usual. Suppose construction abstraction is not freely available.

everyone : \((e \to t) \to t\)  

Everyone saw Mary.

someone : \((e \to t) \to t\)  

Mary saw someone.
Quantification

Think of a quantifier as a higher-order construction, as usual. Suppose construction abstraction is not freely available.

\[
\text{everyone : } (e \rightarrow t) \rightarrow t \quad \text{Everyone saw Mary.}
\]
\[
\text{someone : } (e \rightarrow t) \rightarrow t \quad \text{Mary saw someone.}
\]
\[
\text{Everyone saw someone.}
\]
Think of a quantifier as a higher-order construction, as usual. Suppose construction abstraction is not freely available.

- everyone : \((e \rightarrow t) \rightarrow t\)  
  Everyone saw Mary.
- someone : \((e \rightarrow t) \rightarrow t\)  
  Mary saw someone.
- someone : \((e \rightarrow e' \rightarrow t) \rightarrow (e' \rightarrow t)\)  
  Everyone saw someone.
- someone : \((e' \rightarrow e \rightarrow t) \rightarrow (e' \rightarrow t)\)  
  Everyone saw someone.
Think of a quantifier as a higher-order construction, as usual. Suppose construction abstraction is not freely available.

everyone : \( (e \rightarrow t) \rightarrow t \)  
Everyone saw Mary.

someone : \( (e \rightarrow t) \rightarrow t \)  
Mary saw someone.

someone : \( (e \rightarrow e' \rightarrow t) \rightarrow (e' \rightarrow t) \)  
Everyone saw someone.

someone : \( (e' \rightarrow e \rightarrow t) \rightarrow (e' \rightarrow t) \)  
Everyone saw someone.

Want to maintain uniform left-to-right evaluation. (Barker)
Inverse scope

Mixed-quote the scope of the later quantifier

!"Someone saw %[everyone]". For everyone $y$, the sentence "Someone saw %[$y$]" is true.
Inverse scope

Mixed-quote the scope of the later quantifier

\(![\text{Someone saw } \%[\text{everyone}]!].\)

For everyone \(y\), the sentence \(\text{Someone saw } \%[y]\) is true.

Polarity licensing

Alice introduced nobody to anybody.
Inverse scope

Mixed-quote the scope of the later quantifier

\[ !\text{Someone saw }\%[\text{everyone}] \]

For every \( y \), the sentence \( !\text{Someone saw }\%[y] \) is true.

Polarity licensing

Alice introduced nobody to anybody.

No inverse polarity licensing

\[ *!\text{Alice introduced anybody to }\%[\text{nobody}] \]

For nobody \( y \), the sentence \( *!\text{Alice introduced anybody to }\%[y] \) is true.
Conclusion

Most speech is made of mixed quotes.

- Names
- Definitions
- Non-coinages; deference
- Quantifier scope

Quotation is modality.

What does ‘use to mean’ mean?