Causal reference and inverse scope as mixed quotation

Chung-chieh Shan, Rutgers University

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.’

Indirect quotation

Quine says quotation has a certain anomalous feature.

Mixed quotation

Quine says quotation ‘has a certain anomalous feature.’

(Davidson 1979)

Most speech is made of mixed quotes.

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

The essence of mixed quotation
  - A sketch of a formalization
  - Formal languages

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

Internalizing interpretation

A mixed quote means what someone uses the quoted expression to mean (Geurts and Maier 2003).

The journalist

The president said he has an ‘ecelectic’ reading list.

The politician

I am sorry to have used an ‘epithet’.

Nested mixed quotes

The journalist

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

Just like mixed-quoting any other form.

Nested mixed quotes

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.

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.

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 !⌜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.

Use notation from multistage programming languages.

Most speech is made of mixed quotes.

Empirical observations
- Nested mixed quotes
- Mixed quotes of constructions

▶ **The essence of mixed quotation**
- A sketch of a formalization
- Formal languages

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

A sketch of a formalization

A construction has a form (function) and a meaning (function).
For a mixed quote:

- The form is

$$Qf$$

  where f is a form.
  For example,

$$Qfx_1 \ldots x_n = \bar{`} \frown (f([\frown x_1 \frown \bar{]}) \ldots ([\frown x_n \frown \bar{]})) \frown \bar{'}$$

  in written English.

- The meaning is

$$\iota g.\ x \text{ uses the form } f \text{ to mean } g$$

  with unresolved anaphora and presupposition.

A sketch of a formalization

A construction has a form (function) and a meaning (function).
For a mixed quote:

- The form is

$$\mathcal{Q}f$$

  where f is a form.
  For example,

$$\mathcal{Q}fx_1 \ldots x_n = \bar{\text{`}}\frown(f(\bar{[}\frown x_1 \frown \bar{]}) \ldots (\bar{[}\frown x_n \frown \bar{]}))\frown \bar{\text{'}}$$

  in written English.

- The meaning is

$$\iota g.\ x \text{ uses the form } f \text{ to mean } g$$

  with unresolved anaphora and presupposition.

A sketch of a formalization

A construction has a form (function) and a meaning (function).
For a mixed quote:

- The form is

$$Qf$$

  where f is a form.
  For example,

$$Qfx_1 \ldots x_n = \bar{\text{`}} \frown (f(\bar{[} \frown x_1 \frown \bar{]}) \ldots (\bar{[} \frown x_n \frown \bar{]})) \frown \bar{\text{'}}$$

  in written English.

- The meaning is

$$\iota g.\ x \text{ uses the form } f \text{ to mean } g$$

  with unresolved anaphora and presupposition.

A sketch of a formalization

A construction has a form (function) and a meaning (function).
For a mixed quote:

- The form is

$$Qf$$

  where f is a form.
  For example,

$$Qfx_1 \ldots x_n = \bar{\text{`}}\frown(f(\bar{[}\frown x_1 \frown \bar{]}) \ldots (\bar{[}\frown x_n \frown \bar{]}))\frown \bar{\text{'}}$$

  in written English.

- The meaning is

$$\iota g.\ x \text{ uses the form } f \text{ to mean } g$$

  with unresolved anaphora and presupposition.

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.

- Empirical observations
  - Nested mixed quotes
  - Mixed quotes of constructions
- The essence of mixed quotation
  - A sketch of a formalization
  - Formal languages
- ▶ **The prevalence of mixed quotation**
  - Names, definitions, non-coinages
  - Quantification and polarity

Names, definitions, non-coinages

A causal chain of naming

¡⌜¡⌜¡⌜… Aristotle …⌝⌝⌝

Perhaps with generic events and institutional speakers.

Names, definitions, non-coinages

A causal chain of naming

⸘⸘⸘… Aristotle …⸣⸣⸣

Perhaps with generic events and institutional speakers.

Definitions

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

Names, definitions, non-coinages

A causal chain of naming

!⌜!⌜!⌜… Aristotle …⌝⌝⌝

Perhaps with generic events and institutional speakers.

Definitions

Let $e = \lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^n$. !⌜The number $e^{i\pi}$ is equal to -1.⌝

Names, definitions, non-coinages

A causal chain of naming

!⌜!⌜!⌜… Aristotle …⌝⌝⌝

Perhaps with generic events and institutional speakers.

Definitions

Let $e = \lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^n$. !⌜The number $e^{i\pi}$ is equal to -1.⌝

Non-coinages

!⌜%[!⌜Aristotle⌝] saw %[!⌜%[!⌜him⌝]'s sister⌝]⌝

Scope freedom in mixed quotes?

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

1. Quine might have said that quotation ‘has a certain anomalous feature’.
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. Quine might have said that quotation ‘has a certain anomalous feature’.
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]⌝

Quantification

Think of a quantifier as a meta-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 meta-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.
	Everyone saw someone.

Quantification

Think of a quantifier as a meta-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.
someone : $(e \to e' \to t) \to (e' \to t)$	Everyone saw someone.
someone : $(e' \to e \to t) \to (e' \to t)$	Everyone saw someone.

Quantification

Think of a quantifier as a meta-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.
someone : $(e \to e' \to t) \to (e' \to t)$	Everyone saw someone.
~~someone : $(e' \to e \to t) \to (e' \to t)$~~	~~Everyone saw someone.~~

Want to maintain uniform left-to-right evaluation.

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

!⌜Someone saw %[everyone]⌝.

For everyone y, the sentence ⌜Someone saw %[y]⌝ is true.

Polarity licensing

Alice introduced nobody to anybody.

Inverse scope

Mixed-quote the scope of the later quantifier

!⌜Someone saw %[everyone]⌝.
For everyone y, the sentence ⌜Someone saw %[y]⌝ is true.

Polarity licensing

Alice introduced nobody to anybody.

No inverse polarity licensing

*!⌜Alice introduced anybody to %[nobody]⌝.
For nobody y, the sentence ⌜Alice introduced anybody to %[y]⌝ is true.

Conclusion

Most speech is made of mixed quotes.

- Names
- Definitions
- Non-coinages
- Quantifier scope

Quotation is modality.

What does ‘use to mean’ mean?