Negation

Jonathan Ginzburg
Université Paris-Diderot, Sorbonne Paris-Cité
Robin Cooper
University of Gothenburg

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Lecture 3, part 2

Outline

Negative questions and answers

Negation, types and alternatives

Positive and negative questions, negative answers

References

Cooper and Ginzburg (2011); **?**)

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Negative questions

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  Hoepelmann (1983)
- Epstein is investigating whether Strauss-Kahn should be exonerated
  Epstein is investigating whether Strauss-Kahn shouldn't be exonerated
  (There is evidence that Strauss-Kahn should be exonerated.)

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Desideratum 2 $\neg p$ implies that there is evidence that p

Responses to (‘Did..?’)/ (‘Didn’t..?’)

BNC

Question type	Positive answer	Negative answer	No answer	Total
`Positive polar`	53%	31%	16%	n = 106
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almost mirror image distribution

Negation in dialogue

- [child B approaches socket with nail]
  A: No. Do(#n't) you want to be electrocuted?
  B: (3) No.
  A: (4) No.

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- A: Did Merkel threaten Papandreou?
  B: No.
  A: That can't be true.
  B/C: No.

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  A: (4) No.
- A: Did Merkel threaten Papandreou?
  B: No.
  A: That can't be true.
  B/C: No.
- A: Marie est une bonne étudiante B: Oui / #Si.
  A: Marie n'est pas une bonne étudiante B: #Oui / Si.

Another desideratum

Desideratum 3 negative propositions are recognizably distinct from positive propositions.

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- $cl_{\neg}(map_{\neg}(RecType))$ – type of negated record types

Austinian propositions

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- $\begin{bmatrix} \text{sit} & : & \mathit{Rec} \\ \text{sit-type} & : & \mathit{RecType} \end{bmatrix}$ – type of positive Austinian propositions, *PosProp*
- What is the relationship between sit and sit-type?

Austinian witness

- If T is a record type, then s is an Austinian witness for T iff $s : T$
- If T is a record type, then s is an Austinian witness for $\neg T$ iff $s : T'$ for some T' incompatible with T
- If T is a type $\neg\neg T'$ then s is an Austinian witness for T iff s is an Austinian witness for T'
- The intuitions behind clauses 2–3 are based on an intuitive account of witnessing intuitionistic negation.

Negation of Austinian propositions

- $\begin{bmatrix} \text{sit} & = & s \\ \text{sit-type} & = & T \end{bmatrix}$
- $\begin{bmatrix} \text{sit} & = & s \\ \text{sit-type} & = & \neg T \end{bmatrix}$

Perception complements and infonic negation

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Perception complements and infonic negation

- Ralph saw Mary serve Bill
- Saw(R,s) $\wedge$ s : Serve(m,b)
- Ralph saw Mary not serve Bill
- Ralph saw Mary not pay her bill
- Saw(R,s) $\wedge$ s : $\neg$ Serve(m,b)
- Saw(R,s) $\wedge$ $s :\!\!\not\; Serve(m, b)$

Alternative positives for infonic negation

Cooper (1998)

- $\forall s, \sigma[s : \overline{\sigma} \text{ implies } \exists(\mathit{Pos})\psi[s : \psi \text{ and } \psi \Rightarrow \overline{\sigma}]]$
- $\forall s, \sigma[s : \overline{\sigma} \text{ implies } \exists(\mathit{Pos})\psi[s : \psi \text{ and } \psi > \sigma]]$

Alternative positives in terms of Austinian witnesses

Revise definition of Austinian witness:

If T is a record type, then s is an Austinian witness for $\neg T$ iff $s : T'$ for some T' incompatible with T *and there is some* T'' *such that* $s : T''$ *and* $T'' > T$

Defeasible inferencing in terms of enthymemes (Breitholtz, 2010; Breitholtz and Cooper, 2011)

- $\lambda r : T_1(T_2)$
- enthymemes as part of (local) resources

Fillmore's frames and resources

- Her father doesn't have any teeth

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- Her father doesn't have any teeth
- # Her husband doesn't have any walnut shells

Fillmore's frames and resources

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- Your drawing of the teacher has no nose/#noses

Fillmore's frames and resources

- Her father doesn't have any teeth
- # Her husband doesn't have any walnut shells
- Your drawing of the teacher has no nose/#noses
- The statue's left foot has no #toe/toes

Fillmore (1985)

Resources local to a dialogue

A: My husband keeps walnut shells in the bedroom.
B: Millie's lucky in that respect. Her husband doesn't have any walnut shells.

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Questions as functions returning Austinian propositions I

- *Do (Don't) you want to be electrocuted?*
- $\lambda r{:}Rec\ (\begin{bmatrix} \text{sit} = \text{s} \\ \text{sit-type} = \begin{bmatrix} \text{c} : \text{want}(\text{B}(\text{electrocute}(\text{B}))) \end{bmatrix} \end{bmatrix})$
- $\lambda r{:}Rec\ (\begin{bmatrix} \text{sit} = \text{s} \\ \text{sit-type} = \begin{bmatrix} \text{c} : \neg\text{want}(\text{B}(\text{electrocute}(\text{B}))) \end{bmatrix} \end{bmatrix})$
- $PosPolQ = \begin{bmatrix} \text{p} : \text{PosProp} \\ \text{q} : (\text{Rec})\text{Prop}_p \end{bmatrix}$
- $NegPolQ = \begin{bmatrix} \text{p} : \text{NegProp} \\ \text{q} : (\text{Rec})\text{Prop}_p \end{bmatrix}$

Questions as functions returning Austinian propositions II

Relating to negative questions

- Wondering about $\lambda r{:}Rec\,(\begin{bmatrix}\text{sit} = s \\ \text{sit-type} = \neg T\end{bmatrix})$ – wondering about whether (or presupposing that) s has characteristics that typically involve T being the case
  - I wonder whether two isn't even
  - I wonder whether you don't want to electrocute yourself

Relating to negative questions

- Wondering about $\lambda r{:}Rec\,(\begin{bmatrix}\text{sit} = s \\ \text{sit-type} = \neg T\end{bmatrix})$ – wondering about whether (or presupposing that) *s* has characteristics that typically involve *T* being the case
  - I wonder whether two isn't even
  - I wonder whether you don't want to electrocute yourself
- The *simple answerhood* relation of Ginzburg and Sag (2000) which we saw yesterday ensures that the exhaustive answer to p? are $\{p, \neg p\}$, whereas to $\neg p$? they are $\{\neg p, \neg\neg p\}$, so the exhaustive answers are equivalent.

Content for *no* in different dialogue contexts

- (context: child about to put nail in socket) Parent: No!
- *no* in response to a predicted outcome of an observed event:
- cf reasoning about the game of Fetch

$$\left[\begin{array}{l}
\text{phon} : \texttt{no} \\
\text{cat.head} = \textit{interj} : \text{syncat} \\
\text{ARG-ST} = \langle\,\rangle : \text{elist(synsem)} \\
\text{dgb-params} : \left[\begin{array}{l}
\text{spkr} : \text{Ind} \\
\text{addr} : \text{Ind} \\
\text{o} = \left[\begin{array}{l}
\text{sit} = \text{s} \\
\text{irr-sit-type} = \\
(\text{r} : [\text{t} : \text{Time}])\ \text{T}
\end{array}\right] : \text{Outcome}
\end{array}\right] \\
\text{cont} = \text{Want(spkr,}\neg\ \text{Fulfill(o))}
\end{array}\right]$$

Or is the content: $\neg$ Want(spkr, Fulfill(o)) ?

Content for *no* in different dialogue contexts I

- content of *no* is $\neg T$ if MaxQUD : PosQ and T is an atomic answer for MaxQUD
- content of *no* is T if MaxQUD : NegQ and T is an atomic answer for MaxQUD
- EnsureNeg(p,maxqud) $\leftrightarrow$ p = q([]) : NegProp; otherwise q([]) : PosProp and p = $\neg q([])$

$$\begin{bmatrix} \text{phon} : \texttt{no} \\ \text{cat.head} = \text{adv[+ic]} : \text{syncat} \\ \text{ARG-ST} = \langle\,\rangle : \text{elist(synsem)} \\ \text{dgb-params.max-qud} : \text{PolQuestion} \\ \text{cont} : \text{NegProp} \\ \text{c1: EnsureNeg(cont, maxqud)} \end{bmatrix}$$

Content for *no* in different dialogue contexts II

Conclusions

- Positive and negative questions are distinct
- There is a type of negative propositions
- Negations require alternative positives
- Exhaustive answers to positive and negative questions are equivalent
- Distinguishing positive and negative propositions allows a straightforward characterization of the content of *no*-answers

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