

Hintikkan Desire

Andy **believes** that it's raining is true in @ iff

$$\left\{ w \mid \begin{array}{l} w \text{ is compatible} \\ \text{with Andy's beliefs in @} \end{array} \right\} \subseteq \{ w \mid \text{it's raining in } w \}$$
$$\text{Bel}_@(\text{Andy}) \subseteq \{ w \mid \text{it's raining in } w \}$$

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$$\text{Bel}_@(\text{Andy}) \subseteq \{ w \mid \text{it's raining in } w \}$$

Andy **wants** it to be raining is true in @ iff

$$\left\{ w \mid \begin{array}{l} \text{all of Andy's desires in @} \\ \text{are true in } w \end{array} \right\} \subseteq \{ w \mid \text{it's raining in } w \}$$
$$\text{Des}_@(\text{Andy}) \subseteq \{ w \mid \text{it's raining in } w \}$$

Upward Monotonicity: **believe**

$$\frac{p \text{ entails } q (p \subseteq q) \quad \text{Bel}_{@}(a) \subseteq p}{\text{Bel}_{@}(a) \subseteq q}$$

Upward Monotonicity: **believe**

$$\frac{p \text{ entails } q \ (p \subseteq q) \quad \text{Bel}_@ (a) \subseteq p}{\text{Bel}_@ (a) \subseteq q}$$

This is generally true (but the problem of logical omniscience)

I have a green sweater entails I have a sweater

Andy believes that I have a green sweater

Andy believes that I have a sweater

Upward Monotonicity: want

$$\frac{p \text{ entails } q \ (p \subseteq q) \quad \text{Des}_{@}(a) \subseteq p}{\text{Des}_{@}(a) \subseteq q}$$

Upward monotonicity should hold:

Andy buys a green sweater entails Andy buys a sweater

Andy wants to buy a green sweater

Andy wants to buy a sweater

Upward Monotonicity: want

$$\frac{p \text{ entails } q \ (p \subseteq q) \quad \text{Des}_{@}(a) \subseteq p}{\text{Des}_{@}(a) \subseteq q}$$

Upward monotonicity should hold:

Andy buys a green sweater entails Andy buys a sweater

Andy wants to buy a green sweater

Andy wants to buy a sweater

But:

Andy flies business class for free entails Andy flies business class

Andy wants to fly business class for free

!!! Andy wants to fly business class

Upward Monotonicity: more examples

Nathan teaches in the morning entails Nathan teaches
Nathan wants to teach in the morning

!!! Nathan wants to teach

Guillaume accepts the review request and submits his review on time
entails Guillaume accepts the review request
I want Guillaume to accept the review request and submit
his review on time

!!! I want Guillaume to accept the review request
(because he's often late)

I help homeless people entails there are homeless people
I want to help homeless people

!!! I want there to be homeless people

Conflicting Beliefs

p and q are incompatible with each other ($p \cap q = \emptyset$)

$\text{Bel}_@ (a) \subseteq p$ and $\text{Bel}_@ (a) \subseteq q$

$\text{Bel}_@ (a) = \emptyset$

Jacopo is vegan and Jacopo is eating a hamburger are incompatible

Patrick believes that Jacopo is vegan

Patrick believes that Jacopo is eating a hamburger

Patrick's beliefs are inconsistent

Andreea is smoking and Andreea has quit smoking are incompatible

Patrick believes that Andreea is smoking

Patrick believes that Andreea has quit smoking

Patrick's beliefs are inconsistent

Conflicting Desires

p and q are incompatible with each other ($p \cap q = \emptyset$)

$\text{Des}_@ (a) \subseteq p$ and $\text{Des}_@ (a) \subseteq q$

$\text{Des}_@ (a) = \emptyset$

Ruoying is vegan and Ruoying is eating a hamburger are incompatible

Ruoying wants to be vegan

Ruoying wants to eat a hamburger

!!! Ruoying's desires are inconsistent

James is smoking and James has quit smoking are incompatible

James wants to smoke

James wants to quit smoking

!!! James' desires are inconsistent

Order-Based Analysis

“ *wanting something is preferring it to certain relevant alternatives, the relevant alternatives being those possibilities that the agent believes will be realized if he does not get what he wants.* ”

Stalnaker (1984: 89)

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Stalnaker (1984: 89)

Heim (1992):

Andy wants it to be raining is true in @

iff for each $w \in \text{Bel}_@(\text{Andy})$,

Andy prefers in @ every possible world maximally similar to w where it is raining to any possible world maximally similar to w where it is not raining

iff for each $w \in \text{Bel}_@(\text{Andy})$,

$\text{SIM}(w, \text{it is raining}) >_{\text{Andy}, @} \text{SIM}(w, \text{it is not raining})$

Non-Monotonicity

Nathan teaches in the morning entails Nathan teaches
Nathan wants to teach in the morning

!!! Nathan wants to teach

Suppose Nathan knows that he needs to teach.

Non-Monotonicity

Nathan teaches in the morning entails Nathan teaches
Nathan wants to teach in the morning

!!! Nathan wants to teach

Suppose Nathan knows that he needs to teach.

Nathan wants to teach in the morning is true in @ iff for each

$w \in \text{Bel}_@(\text{Nathan}),$

$\text{SIM}(w, \text{Nathan teaches in the morning}) >_{\text{Nathan},@}$

$\text{SIM}(w, \text{Nathan doesn't teach in the morning})$

Nathan wants to teach is true in @ iff for each $w \in \text{Bel}_@(\text{Nathan}),$

$\text{SIM}(w, \text{Nathan teaches}) >_{\text{Nathan},@} \text{SIM}(w, \text{Nathan doesn't teach})$

Conflicting Desires

I live in London and I live in Tokyo are incompatible
I want to live in London and I want to live in Tokyo

!!! My desires are inconsistent

I want to live in X is true in @ iff for each $w \in \text{Bel}_@(\text{Yasu})$,
 $\text{SIM}(w, \text{Yasu lives in X}) >_{\text{Yasu},@} \text{SIM}(w, \text{Yasu doesn't live in X})$

Crnič (2011): If I believe that I have to live in London or Tokyo, my desires are predicted to be inconsistent. But if there's a third possibility, they will be consistent.

Conflicting Desires: Example Context

For each $w_L \in \{ w_L \in \text{Bel}_{@}(\text{Yasu}) \mid \text{Yasu lives in London in } w_L \}$:

- ▶ $\text{SIM}(w_L, \text{Yasu lives in London}) = \{ w_L \}$
- ▶ $\text{SIM}(w_L, \text{Yasu doesn't live in London}) \subseteq \{ w_P \mid \text{Yasu lives in Paris in } w_P \}$
- ▶ Yasu prefers London to Paris.
- ▶ $\text{SIM}(w_L, \text{Yasu lives in Tokyo}) >_{\text{Yasu},@} \{ w_L \}$

For each $w_T \in \{ w_T \in \text{Bel}_{@}(\text{Yasu}) \mid \text{Yasu lives in Tokyo in } w_T \}$:

- ▶ $\text{SIM}(w_T, \text{Yasu lives in London}) = \{ w_T \}$
- ▶ $\text{SIM}(w_T, \text{Yasu doesn't live in London}) \subseteq \{ w_P \mid \text{Yasu lives in Paris in } w_P \}$
- ▶ Yasu prefers Tokyo to Paris.
- ▶ $\text{SIM}(w_T, \text{Yasu lives in London}) >_{\text{Yasu},@} \{ w_T \}$

Upward Monotonicity

But what about apparent upward monotonicity?

Andy buys a green sweater entails Andy buys a sweater

Andy wants to buy a green sweater

Andy wants to buy a sweater

Recall: Zimmermann (2006) suggests that upward monotonicity of *seek* is pragmatically derived. Can we do something similar?