This talk concerns the many parallels between two seemingly disparate debates:

“Stalnaker’s Hypothesis”, “the Equation”:

\[ P(A \rightarrow B) = P(B | A) \quad [P(B | A) = P(A \& B)/P(A), \text{ provided } P(A) > 0] \]

“Desire as Belief”

\[ V(A) = P(A^*) \quad [V(A) = \Sigma_i V(A \& A_i)P(A_i | A)] \]

- Aerial view:
  - both hypotheses are ill-named
  - Lewis’ role in each
  - reductionist ambitions
  - mathematical form
  - quantifiers
  - triviality results
  - fighting back
  - more triviality results
  - but there are still loopholes
  - so we can forecast how the debates will continue …

Now, a view from the trenches…
Probabilities of Conditionals as Conditional Probabilities

- Why care about the Equation?
  - Illuminate the semantics of the conditional:
    - Stalnaker vs Lewis on conditional excluded middle
    - Adams on ‘probabilistic soundness’
  - de Finetti: read the equation from right to left
  - Dynamics of credences: Bas’s ‘Judy Benjamin problem’

- Why believe the Equation?
  - It sounds right
  - Adams’ Thesis: the assertability of the indicative conditional ‘if \( p \) then \( q \)’ is \( P(q|p) \). But:
    - Assertabilities bring in extraneous things (utilities, etc.); \( P(q|p) \) doesn’t

- Why disbelieve the Equation? Sources of suspicion
  - Material conditional.
    - But “paradoxes” (?!?) of material implication; contra ‘pragmatic’ accounts
  - (Probabilistic) conditional excluded middle
    - indeterminism
    - indeterminacy
  - Causal decision theory
    - But I have doubts about the lore regarding decision theory

- Four quantified versions
- Lewis’ triviality results, in two installments (roughly 10 years apart), refute the Fixed \( \rightarrow \) version, and plausibly refute the Fixed \( \rightarrow \) for rational agents version, but leave the Indexical \( \rightarrow \) versions unscathed.

- Fighting back: fallback positions
  - Shrinking the domain of propositions
  - Approximate equality
  - Indexical \( \rightarrow \)

- Perturbation argument (Bas’s ‘muddy Venn diagram’); more trouble for Fixed \( \rightarrow \) for rational agents, and for these fallbacks

- More fighting back
  - Radical indexicality (Bas)
    - Lewis’ ‘disagreement’ argument

- Wallflower argument: an example, and overview; trouble for Indexical \( \rightarrow \) hypotheses

- A new argument against Adams’ Thesis

- Ned showed that if \( \rightarrow \) obeys modus ponens, then \( P \) needs to be ‘full’ (uncountable in a particular way) to sustain PCCP

- But Bas showed that if \( P \) is full, then it can sustain PCCP for a \( \rightarrow \) with a conditional-like logic (CE). And restricting the compounding of sentences with \( \rightarrow \) allows still more logical strength (C2).
Desire as Belief

• Why care about Desire as Belief?
  o Illuminate the nature of mental states
  o Humeans vs anti-Humeanism on motivating rational action
  o Read the equation from right to left (metaethics)
  o Dynamics of desires

• Why believe Desire as Belief?
  o Start with binary desire and binary belief, then generalize

• Why disbelieve Desire as Belief? Sources of suspicion
  o direction of fit
  o ‘old lady’ example
    - Lewis: Fine-grained DAB: \( V(A) = \sum_i g_i P(A_i) \) doesn’t fare any better

• Four quantified versions

• Lewis’ triviality results, in two installments (roughly ten years apart), refute the Fixed° version, and plausibly refute the Fixed° for rational agents version, but leave the Indexical° versions unscathed.

• Fighting back: fallback positions
  o Shrinking the domain of propositions
  o Approximate equality
  o Indexical°

• Perturbation argument; more trouble for Fixed° for rational agents, and for these fallbacks

• More fighting back
  o Radical indexicality
  o Huw Price: Desire as Conditional Belief: (DACB): \( V(A) = P(A° | A) \)

• The future of the debates?
  o The DAB debate guiding the PCCP debate:
    - Conditional Probabilities of Conditionals as Conditional Probabilities (CPCCP)
      \( P(A \Rightarrow B | A) = P(B | A) \), if \( P(A) > 0 \).
  o The PCCP debate guiding the DAB debate:
    - Philosophical reply to Indexical° versions: disagreement
    - A wallflower argument against indexical° hypotheses?
    - Analogues of Ned’s negative and Bas’s positive results?
  o Here’s one positive result:
    Fine-grained DACB: \( V(A) = \sum_i g_i P(A_i | A) \). Remind you of anything?!
Probabilities of conditionals as conditional probabilities

A ‘→’ function assigns to each pair of propositions <A, B> a proposition A → B. We may interpret it as the ‘conditional’ operator.

\[ P(A\rightarrow B) = P(B|A) \]  

(PCCP) \hspace{1cm} P(A\rightarrow B) = P(B|A) \hspace{1cm} \text{for all A, B in the domain of P, with } P(A) > 0.  

Varying the order of quantifiers:

*Fixed* → :

There is some → such that for all P, (PCCP) holds.

*Indexical* →:

For each P there is some → such that (PCCP) holds.

Varying the domains:

*Fixed* → for rational agents:

There is some → such that for all P that could represent a rational agent’s credences, (PCCP) holds.

*Indexical* → for rational agents:

For each P that could represent a rational agent’s credences, there is some → such that (PCCP) holds.

Lewis’s triviality results and a perturbation argument refute *Fixed* → and *Fixed* → for rational agents.

A cardinality argument shows that *Indexical* → and *Indexical* → for rational agents are false.

Desire as Belief

A ‘o’ function assigns to each proposition A a proposition A°. We may interpret it as the ‘is good’ operator.

\[ V(A) = P(A°) \]  

(DAB) \hspace{1cm} V(A) = P(A°) \hspace{1cm} \text{for all A in the domain of P and of V, with } P(A) > 0.  

Varying the order of quantifiers:

*Fixed* °:

There is some ° such that for all <V, P>, (DAB) holds.

*Indexical* °:

For each <V, P> there is some ° such that (DAB) holds.

Varying the domains:

*Fixed* ° for rational agents:

There is some ° such that for all <V, P> that could represent a rational agent’s desires/credences, (DAB) holds.

*Indexical* ° for rational agents:

For each <V, P> that could represent a rational agent’s desires/credences, there is some ° such that (DAB) holds.

Lewis’s triviality results and a perturbation argument refute *Fixed* ° and *Fixed* ° for rational agents. I’m not aware of any results against *Indexical* ° or *Indexical* ° for rational agents.