Kantian Decision Making Under Uncertainty
Dignity, Price, and Consistency

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Normative decision theory

- Individual and collective decisions
- Pragmatic and epistemic contexts
Price of dignity

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Outline

Kantian ethical theories

Formalizing Kant
   Dead ends
   Our proposals

Book and Money Pumps
   Threshold rules
   Variable threshold rules
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Kant on two domains

_in the kingdom of ends everything has either a price or a dignity. What has a price can be replaced by something else as its equivalent; what on the other hand is raised above all price and therefore admits of no equivalent has a dignity_

..., _rational beings are called persons because their nature already marks them out as an end in itself, that is, as something that may not be used merely as a means, and hence so far limits all choice (and is an object of respect)_

_[Dignity and price] cannot be brought into comparison or competition at all without, as it were, assaulting [dignity’s] holiness_
Kant on two domains

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Sen’s mango

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Sen’s decision theory

- There is a menu of acts, $\mathcal{M}$.
- Step 1: A function $K$ which edits out those actions that violate Kantian injunctions.
- Step 2: Maximize expected utility with respect to $K(\mathcal{M})$. 
Limitaitons

- Moral dilemmas, i.e. $K(\mathcal{M}) = \emptyset$
- Uncertainty about the moral norm
Limitations

- Moral dilemmas, i.e. $K(\mathcal{M}) = \emptyset$
- Uncertainty about the moral norm
Three stories

- Uncertain mango
- Graduate advice
- Uncertain proposition
Sources of uncertainty

- An agent may not know her own motivations
- An agent may not know another’s motivations, but may need to act to help or hinder another’s actions
Generalizing

- **Action $A^g$:**
  - A certain material gain with utility $g$
  - A probability $p$ that dignity is violated

- **Action $B$:**
  - No material gain
  - No chance dignity is violated
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Dead end: “Middle” utility

\[ u(\text{dignity}) = x \]
\[ u(\text{some material good}) = y > x \]

- Dignity is not “raised above all price”
- Dignity is “brought into comparison” with material goods (under any interpretation of this phrase)
Dead end: Largest utility

\[ u(\text{dignity}) > \sup \{ u(x) | x \text{ is a material good} \} \]

- Existence
- While dignity doesn’t have a price, a probability of dignity does
- Again, it’s hard to see how this fails to compare dignity and material goods
Dead end: Incommensurability

Dignity $\not\preceq$ Material good
Dignity $\not\preceq$ Material good

- Dignity is not given special status above material goods
Making Kant’s injunction precise

Weak price resistance
There is no value \( \nu \in \mathbb{R} \) such that all the decision maker’s choices are consistent with an expected utility maximizer who assigns utility \( \nu \) to dignity.
Dead end: Lexicography or infinite utility

\[ u(\text{dignity}) = \infty \]

- Just barely, consistent with *Weak Price Resistance*
- Renders uncertainty moot
- Is paralyzing
Our first proposal: Thresholds

- Adopt a threshold $s$ where risks less than $s$ are ignored
  - $A^p_g \succ B$ if and only if $p \leq s$ and $g > 0$
- This cannot be reconstructed as assigning a price to dignity
Our first proposal: Thresholds
Our second proposal: Variable thresholds

- Adopt a function $\Phi : \mathbb{R} \rightarrow [0, 1]$ that defines a threshold given a material payoff $g$
- $\Phi(x) = x/v$ violates *Weak Price Resistance*
- But any other function does not
A variable thresholds

B Preferred

A preferred

\[ g \]

\[ 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \]

\[ p \]

\[ 0 \quad 0.5 \quad 1 \]
Bergstrom's proposal

B always preferred

B Preferred

A preferred
One can approximate $\Phi(x) = x/\nu$ arbitrarily closely and satisfy *Weak Price Resistance*

So, one might like a stronger principle
A stronger principle

Strong Price Resistance
If $q$ is considered an unacceptable risk to dignity in exchange for some material payoff $g > 0$, then $q$ is considered an unacceptable risk to dignity in exchange for any material payoff $g' > 0$. 
Strong price resistance

A preferred

B preferred
Generalization

- This is just for comparing two special acts
- One might generalize Sen’s approach, edit out any act that is above threshold and then maximize material payoff after that
- Moral dilemmas remain a problem
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Package principle

\[ A_g \succ B \text{ and } A_{g'} \succ B \text{ but } B \succ A_{g+g'} \]
Consequences

- Under the standard description of the process, this agent is bookable
- Evaluation of gambles are history dependent
Independence axiom

\[ a' = \frac{1}{2} a + \frac{1}{2} a'' \]

\[ a' \succ B \succ a \]

\[ a' \succ B \succ a'' \]
Dynamic inconsistency

\[ a' = \frac{1}{2}a + \frac{1}{2}a'' \]

\[ a' \succ B \succ a \]

\[ a' \succ B \succ a'' \]
Summary of books

- **Weak Price Resistance** ⇒ violating the package principle and (potentially) dynamic inconsistency
- **Strong Price Resistance** ⇒ violating the package principle
Conclusion

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