

# Rationality

## Lecture 1

Eric Pacuit

Center for Logic and Philosophy of Science

Tilburg University

[ai.stanford.edu/~epacuit](http://ai.stanford.edu/~epacuit)

[e.j.pacuit@uvt.nl](mailto:e.j.pacuit@uvt.nl)

September 3, 2010

# Practicalities

- ▶ Course website: <http://ai.stanford.edu/~epacuit/classes/rationality.html>
  - Weekly readings will be posted
  - Slides will be posted
  - Pay attention to the schedule (midterm, canceled classes, etc.)
- ▶ Weekly lecture + discussion
- ▶ Grading
  1. Weekly writing: short (at most 1 page!) observations (comments, questions) about the current week's readings
  2. Midterm (essay)
  3. Final paper (presentation?)

# Practicalities

- ▶ Office: D250 (will move to the first floor November 1st)
- ▶ In Tilburg on Tuesdays and Thursdays (feel free to stop by, though send an email to make sure I am in Tilburg)
- ▶ Office Hours: by appointment ([e.j.pacuit@uvt.nl](mailto:e.j.pacuit@uvt.nl))

---

What does it mean to be *rational* or *reasonable* as opposed to *irrational* or unreasonable?

---

G. Harman. *Rationality*. In Reasoning, Meaning and Mind (1999).

## Some Examples: Giving in to Temptation

Jane very much wants to do well in history. There is a crucial test tomorrow and she needs to study tonight if she is to do well in the test....Jane knows that if she goes to the party, she will really regret it. But she goes to the party anyway.

## Some Examples: Refusing to take a Remedial Course

Bob, a college freshman, takes a test designed to indicate whether students should take a useful remedial writing course. Students do not write their names on their exam books but write an identification number instead, so graders cannot identify the students. Bob does poorly on the test and is required to take a remedial course. He objects to this advice, attributing a low test score to bias on the part of the grader, and does not take a remedial writing course.

## Some Examples: Refusing a Reasonable Proposal

Three students, Sally, Ellie and Louise have been assigned to a set of rooms consisting of a study room, small room with a single bed, and a room with two bunk-beds. Sally arrives first and moves into the single room. The other two room-mates propose that they take turns living in the single room, each getting the single for one-third of the year. Sally refuses to consider this proposal and insists on keeping the single for the whole year.



## Some Examples: Making a Mistake

### *Confusing two Philosophers:*

Frieda is having trouble in her introductory philosophy course. Because of a similarity in their names, she confuses the medieval philosopher Thomas Aquinas with the 20th century philosopher W. V. Quine.

### *Confusing Twins:*

Harry has trouble distinguishing the twins Connie and Laura. Sometimes he mistakes one for the other.

### *Calculating Mistakes:*

Sam makes an adding mistake when he prepares his budget for next year.

## Practical Rationality vs. Theoretical Rationality

- ▶ Jane's irrationality is manifested in *a decision to do something*
- ▶ Bob's irrationality is manifested in *his belief*

## “Direction of Fit”

“Let us consider a man going round a town with a shopping list in his hand. Now it is clear that the relation of this list to the things he actually buys is one and the same whether his wife gave him the list or it is his own list; and that there is a different relation where a list is made by a detective following him about. (...) What then is the identical relation to what happens, in the order and the intention, which is not shared by the record? It is precisely this: if the list and the things that the man actually buys do not agree, and if this and this alone constitutes a mistake, then the mistake is not in the list but in the man’s performance (...); whereas if the detective’s record and what the man actually buys do not agree, then the mistake is in the record.” [Anscombe, pg. 56]

G. E. M. Anscombe. *Intention*. Harvard University Press, 1957.

---

**Theoretical Reasoning:** most directly affects beliefs: *theoretical reasoning typically results in a change in beliefs*

**Practical Reasoning:** most directly affects plans or intentions: *practical reasoning typically results in a change in plans or intentions*

## Theoretical vs. Practical Reasoning

### *Arbitrary Belief*

Jane is trying to decide which route Albert took to work this morning. She knows that in the past Albert has taken Route A about half the time and Route B about half the time. Her other evidence does not support one of these conclusions over the other. So, Jane arbitrarily decides that Albert took Route A.

### *Arbitrary Intention*

Albert is trying to decide how to get to work this morning. He could take either Route A or Route B. Taking either of the routes will get him to work at about the same time and the balance of reasons does not favor going one way over going the other way. So, Albert arbitrarily forms the intention of taking Route A.

## Theoretical vs. Practical Reasoning

### *Wishful Practical Thinking*

Jane's desire to get a good grade on the final exam leads her to study for the exam in order to try to make it true that she will get a good grade on the final exam.

### *Wishful Theoretical Thinking*

After Jane has taken the exam and before she has learned what her grade is, her desire to get a good grade on the exam leads her to conclude that she did get a good grade.

**Theoretical Reasoning:** most directly affects beliefs

**Practical Reasoning:** most directly affects plans or intentions

*But*

- ▶ Your desires can rationally affect your theoretical conclusions by affecting what questions you use theoretical reasoning to answer. (examples: pg. 15 of Harman)
- ▶ It is possible to have good practical reasons to believe something: *Pascal's Wager*  
<http://plato.stanford.edu/entries/pascal-wager/index.html>

## Feasibility vs. Desirability

**Aesop's Fox:** One hot summer's day a Fox was strolling through the forest and spotted a bunch of grapes hanging from a high branch. "Just the thing to quench my thirst," said he. Taking a few steps back, the fox jumped and just missed the hanging graphs. Again the fox took a few paces back, jumped, and tried to reach them but still failed. Again and again he tried after the tempting morsel. Finally, giving up, the fox turned up his nose and said, "They're probably sour anyway", and walked away.

**Groucho Marx's Club:** "I don't care to belong to a club that accepts people like me as members"



## Feasibility vs. Desirability

An option is *feasible* if it can be chosen, if it is possible for the decision maker.

The *desirability* of an option is the degree to which the decision maker wants it.

“It appears irrational to mix the two...there is a sharp distinction between desirability and feasibility. By sharp distinction we mean not only that the two can be told apart but also that they are causally independent; one does not affect the other.”

I. Gilboa. *Rational Choice*. The MIT Press, 2010.

## “Man is a rational animal”

- ▶ What is the precise relationship between *reasons*, *reasoning* and *rationality*? (come back to this later)
- ▶ *Internal Consistency*: “A ‘rational agent’ is one that must have a means-end competence to fit its actions or decisions, according to its beliefs or knowledge representations, to its desires or goal-structures.” (The MIT Encyclopedia of Cognitive Science)
- ▶ *Conforming to Rules*: Reasoning can be judge to be *rational* if certain reasoning *rules* from a fixed, given set are followed.
- ▶ “A mode of behavior is *rational* for a given person if this person feels comfortable with it, and is not embarrassed by it, even when it is analyzed for him.” (Chp. 1 of Gilboa, pg. 5)

---

Various logics, scientific methodology, heuristics, probability, decision theory all have claims to *normative status* here, where normativity means that everybody should obey the rules of these systems in all circumstances:

1. What the rational agent *should* believe
2. What the rational agent *should* do

---

Next week: logic, reasoning and reasons