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Practical Rationality: Critical Questions for Rational Decision Making

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Abstract: Critical thinking should be conceived as instruction in applied rationality providing guidance for deciding what to believe and do. The latter has not gotten the attention it deserves, but in expanding its ambit, critical thinking instruction must avoid using the dominant “rational choice” model inherited from economics. This paper argues for an alternative model of rational decision making that is appropriate for critical thinking courses.

Keywords: Applied rationality, critical questions, decision making, practical reasoning, rational choice theory, instrumental rationality, evaluative rationality, bounded rationality, biases,

1. Introduction

The rejection of evidence based, rational decision making by the American President and his cabinet and the popularity of concepts like “post truth” and “fake news” underline the great need for the promotion of critical thinking in our schools. To be maximally effective the approach to critical thinking must go beyond the focus of early critical thinking texts which focused on argument analysis (and small arguments at that) and avoidance of fallacies (the *Logical Self Defense Approach*). Such an approach leaves students without guidance in how to make positive judgments about what to believe and do.¹

The broader approach to critical thinking can be thought of as instruction in **applied rationality**. There are three aspects to applied rationality, epistemic rationality (**what to believe**) and **practical rationality** (what to do), **evaluative rationality** (what to value, what ends to pursue)² While epistemic rationality is addressed in virtually all critical thinking texts, rational decision making, including the choice of ends and means, gets little attention. This paper addresses that issue by developing a model of rational decision making appropriate (using the critical question approach) for critical thinking courses and texts.

2. Critical Thinking and Rational Decision Making

Despite the widening notion of critical thinking, few texts move beyond epistemic rationality to address rational decision making. Should critical thinking texts include a section on rational decision, a natural temptation would be to adopt “rational choice theory” and the related expected utility theory as the model of rational decision making. I did this myself in my text *Is that a Fact*. (Battersby, 2016b). Rational Choice Theory (RCT) defines a decision as rational if the action chosen from alternatives is the one that will maximize the satisfaction of relevant

¹ Despite Bob Ennis’ classical definition of critical thinking as “reasonable reflective *thinking* focused on deciding what to believe or **do**” (Ennis, 1987) “A recent text which avoids this limitation is *Reason in the Balance* ((Bailin & Battersby, 2016))

² I will argue below that this trichotomy is a bit misleading in that deciding what to do must also involve deciding what is true and what are appropriate ends or values.

preferences. In the case of decision making under uncertainty this involves choosing the action that has the highest “expected utility”³ In my text I discuss whether it makes sense to take ColdFx in order to avoid a cold given the probability that ColdFX will prevent a cold, the cost of ColdFx and the “cost” of having a cold.(Battersby, 2016b))

The use of rational choice theory would be understandable given the widespread acceptance of this model of rationality; however “rational choice theory” is not an appropriate general model for critical thinking instruction. “Rational choice theory” was developed as a model of human decision making that could serve as a tool for mathematical economic analysis. In economics rational choice theory plays both a normative and a descriptive role. It is now widely acknowledged that the norms embedded in rational choice theory are not adhered to by actual decision makers, they indeed could not be. In fact, the study of the extent to which humans do not make decisions in accord with the theory has spawned a whole new discipline—behavioural economics.

Many critical thinking texts now treat “debiasing” as part of the learning outcomes. The biases identified are usually those epistemic biases identified in cognitive psychology which involve the violation of well established epistemic norms (primarily the norms of statistical inference).⁴ But there is a risk that they may also include those “biases” identified in behavioural economics that are based on “rational choice theory.” In a previous paper (Battersby, 2016a)I critically examined many of these supposed biases. The norms of rational choice theory were used to identify some common decision making tendencies as “biases”. In many circumstances, these tendencies could be rational if one did not accept the norms of rational choice theory as definitive of rational decision making.⁵ I argued that while there are situations in which these tendencies could lead to bad decisions, they should not be taught as “biases” in a critical thinking course

In this paper I will argue that the theory (RCT) that provided the basis for these latter “biases “ is also inappropriate as a model for teaching rational decision making in critical thinking courses. After a brief review of the limitations of rational choice theory, I will propose a different model of rational decision making which avoids the moral, political and practical limitations of rational choice theory.

3. Rational choice theory: its limits and weaknesses as a normative theory of rational decision making

3.1 Impracticality

There are two basic approaches to practical rationality: substantive and procedural. Substantive approaches to practical rationality evaluate the rationality of the decision in terms of the outcome. Procedural approaches evaluate the rationality of the decision in terms of the process by which the decision was made,

Herbert Simon has famously pointed out two important limitations of rational choice theory. First it is a substantive approach to decision making and not a procedural approach.

³ While expected utility theory is in principle applicable to any outcome most of the discussion focuses on financial gambles. A good gamble is one which if played in the long run will result in your being ahead of the game, i.e. winning more than losing. The best gamble is the option that will yield the most financial return in the long run. In more mathematical terms: the expected utility of a gamble is equal to the probability of the outcome multiplied by amount of the outcome minus any cost of the gamble

⁴ E.g. confirmation bias, availability, representativeness, base rate neglect

That is, it provides no guidance as to how to make rational decisions, only criteria for judging whether a decision is rational (Simon, 1978). Secondly, in another paper (e.g., Simon, 1990) Simon pointed out that the requirements built into rational choice theory are unrealistic and that the most a normative theory can require is what he describes as “bounded rationality” and “satisficing.” Satisficing is a decision procedure which recognizes the limitations of knowledge, time, and the cognitive ability of the actor. Under these real world limitations it is not possible for the actor to make the optimal decision. The best the actor can do is chose a “satisfactory” solution.

Having made that critique, though, he did not produce an appropriate model of procedural rationality consistent with his “bounded rationality” version of rational choice theory.

3.2 Ideological Bias of rational choice theory

According to rational choice theory a decision is rational when it maximizes the likelihood of the satisfaction of one’s preferences. While in principle these preferences do not have to be self interested, in most illustrations of rational choice theory the model is the satisfaction of personal financial interests. The theory is deeply entwined with the model of humans as *homo economicus*—the view that humans are solely self interested individuals.(Amadae, 2003; Sen, 2004) For example, the behavioural economist Dan Ariely states in the introduction to his book *The Upside of Irrationality*: “From a rational perspective, we should make only decisions that are in our best interest (“should” is the operative word here)” (Ariely, 2010, p. 5) An equally morally problematic concern with rational choice theory is its connection with the model of the common good as the maximization of aggregate satisfaction of individual (selfish) preferences. It is an essential part of the myth of the free market that “rational” pursuit of private interests will result in the best possible outcome for all.

But as we are all aware, the pursuit of individual preferences (rational or not) can lead to collective defeat. Examples range from traffic jams to the collapse of the east coast fisheries to most troublingly, global climate change. Thinking that the only consideration in rational decision making is your preferences excludes decision making and deliberation about the common good and implies that environmentalists, for example, just have different “preferences” than those whose preferences are self interested.

Not only is this view of rationality a misleading model of motivation, there is credible evidence that promoting the self-interested ethic of economics can have self-fulfilling effects on students—can actually encourage them to be more selfish. (Frank et al., 1993) -- hardly something we would want a critical thinking course to do.

3.3 Rational choice theory and the limits of instrumental rationality

Rational choice theory is solely a model of instrumental reasoning. For many, especially economists, but also Humean sympathizers in philosophy, restricting rationality to the efficient satisfaction of existing preferences is seen as a distinct virtue. Instrumental rationality avoids discussion of the more controversial areas of the evaluation of goals and desires, and the moral evaluation of means and ends.

Nonetheless, it is clear that people do reflect on, argue about and judge the appropriateness of desires and goals and that this can be done both poorly and well (Richardson, 2018; Sen, 2004). Note that it is not the case that rational choice theory avoids stipulating norms. RCT sets the standard for the rational choice of means that it should be the choice that will maximize satisfaction of one’s preferences. In addition, rational choice theory also imposes criteria on the

choice of preferences. The theory requires, for example, that there be transitivity between preferences, i.e. if you prefer A to B and B to C you should also prefer A to C

The debate concerning the extent to which one can reason about the choice of ends is long standing. I will not review that literature here (but see Sen, 2004 and Richardson, 2018 for excellent reviews). A great deal of everyday discourse concerns the rightness of goals and desires, the obligations to one's community, and the moral constraints on the choice of means. The choice of ends or goals can often be the most important part of a rational decision--the failure to properly consider ends in light of moral considerations explains some of the most disastrous decisions we know of, (Ford Pinto⁶, Boeing Max) it is important that a rational decision process have some way of appropriately addressing the evaluation of ends.

There are also reasonable questions about the relationship of one's choice of proximate ends and actions to one's more general goals and values. Critical Thinking courses should contribute to the student's ability to think about such issues. There is also useful psychological research on how the choice of ends can contribute or fail to contribute to such global goals as satisfaction and happiness.⁷

4. Practical Rationality: A Model for Critical Thinking

The challenge for developing a model of rational choice appropriate to critical thinking is to formulate an approach to the evaluation of goals that avoids political or moral bias and that accommodates the lack of consensus on the standards for the evaluation of goals and desires. The model must be sufficiently pluralistic to allow for the fact that there can be reasonable disagreement about the evaluation of means and ends.

My solution is to develop an approach to rational decision making that accords with the intuition that the reasonable person is someone who takes into account relevant considerations when making a decision or arriving at a judgment.⁸ This approach involves a series of critical questions that should lead one to take into account the relevant considerations --an approach that is analogous to the critical questions approach to epistemic judgment described above.

But first a clarification. The epistemic critical questions used in critical thinking courses are best seen as heuristics, a process for guiding students in evaluating claims and arguments. These procedures are not determinative of the truth or credibility of the judgments that result from following them. The relevant epistemic and inferential norms are what determine the credibility or truth of the claims. The use of the critical questions is what makes the process "critical thinking."⁹

⁶ Court records suggest that Ford's top decision makers were aware that the Pinto was unsafe and concluded it would be cheaper to incur the losses from lawsuits than to fix the cars. Ford's production staff also knew of the risk, but was never given the opportunity to tell top management about it. (Nutt, 2003)

⁷ There is extensive research on the difficulty of identifying are long term interests reviewed in Chapter 38 of (Kahneman, 2011)

⁸ Cf. Amartya Sen: "Rationality is interpreted...broadly, as the discipline of subjecting one's choice--of actions as well as of objectives, values and priorities to reasoned scrutiny. Rather than define rationality in terms of a formulaic conditions that have been proposed in the literature (such as satisfying some ...axioms...or being in conformity with "intelligent pursuit of self-interest"... rationality is seen here in much more general terms as the need to subject one's choices to the demands of reason" (Sen, 2004,p.4)

⁹ It may be that these procedures could also be seen as normative of credibility when you consider that what makes a scientific paper credible is that it is based on well established principles of scientific investigation, appropriate precision, review of the relevant literature credible response to opposing views, appropriate controls, etc, but this is an issue for another paper

The situation in rational decision making is different since there is no consensus on the criteria for evaluating goals. But similar to epistemic rationality, in the model I am proposing, what makes a decision rational **is the following of an appropriate process**. This process requires the consideration of relevant factors, although it does not require a commitment to a particular weighting of these factors.

My proposal is a procedural and pluralist approach to rationality analogous to that found in the common law approach to sentencing. The law requires the judge to consider certain relevant factors without specifying how much weight should be given to such factors—leaving the weighting of factors to the judgment of the court. Each category also has a variety of sub categories and considerations.

The factors include: denunciation, deterrence, public safety, rehabilitation, acknowledgement of harm done, and reparation, proportionality (retributive justice) and [the weight of] precedents. (Branch, 2018)

There is usually no specification of how much weight is to be given to each factor but failure to consider each factor would be an error in law and grounds for appeal. There are of course precedents which provide guidance as to how much weight should be given to various factors, but the primary criteria for the “justness” of the decision is that all relevant factors have been considered. The law recognizes the complexity of individual cases and the need for particular weighting and judgment by the court: one use of precedent is to ensure that there is a reasonable uniformity to the decisions.

The analogous approach that I recommend requires the agent to consider relevant factors both factual and normative when assessing both goals and means.¹⁰ To the extent that this process involves a moral assessment of the goals and means, the relevant factors to be considered are those that have been historically identified in traditional moral theories:

1. Intrinsic moral values or intuitions (e.g., Ross)
2. Consequences (e.g., Mill)
3. Duties and obligations (e.g., Kant),
4. Justice and fairness (e.g. Rawls)

While these theories have long standing support in philosophy, all these theories have been shown to have troubling limitations and/or counterexamples. Rather than choose one consideration, I treat these theories as having identified relevant moral considerations, without claiming that any one of them provide definitive criteria for morally informed rational decision making.¹¹ What rationality requires is that the relevant moral factors be considered, while acknowledging that different factors can legitimately be given different weight in differing circumstances and by different people. But these differences do not undermine the claim that a decision is rational provided that the agent has given due consideration to the relevant factors. Such an approach avoids committing to a particular moral theory.

As with epistemic rationality, a rational agent should also take into account the tendencies identified by behavioural economists (for reasons above I do not call them biases) that can lead on some occasions to erroneous decisions (e.g., “sunk costs”—most of us have the tendency to overweigh the significance of time and money that has already been spent on an activity or

¹⁰ A similar approach was taken in “Guidelines for Reaching a Reasoned Judgment” in (Blair & Johnson, 2011)

¹¹ This view places my position somewhere on the particularist/pluralist side of moral theory—closest perhaps to H.D Ross. (Ridge, 2016)

product (e.g. a car) when deciding whether to spend more time or money. Whereas, since the money is already spent, the only question is what would be the most beneficial use of future money.(Kahneman, 2011)

The approach to rational decision making that I am advocating might be called “procedural-evaluative rationality” A somewhat clumsy concatenation, for which I will use an acronym: “**PER**”.

5. Procedural-Evaluative Rationality: PER

Despite the focus on numerous questions or considerations that should inform a decision I am not suggesting an algorithmic use of these. The inspiration for my model comes from my efforts to formulate an effective rubric for essay assessment in my class. When I retired I still had not created an entirely satisfactory rubric mostly because I could not settle on the proper weighting to be given to various factors. The criteria for a satisfactory rubric would be that it articulated the considerations that were the basis for my holistic judgment of the essay’s grade. In those cases where my aggregating of the rubric factors conflicted with my holistic judgment I usually went back and changed the weightings, not my holistic judgment. But the rubric served to inform my holistic judgment by ensuring that in making my judgment I had considered all the factors listed in my rubric. I often found that in fact I had not given sufficient consideration to some relevant factor: such as clarity of the thesis, or consideration of appropriate counter arguments. What the rubric did was provide me with a grading **checklist**.

The importance of checklists has recently been brilliantly demonstrated and argued by Antul Gawande in his book *The Checklist Manifesto*. (Gawande, 2010) Gawande, a surgeon, was inspired by the effectiveness of checklist use in aeronautics, and decided to apply them to surgery. The results he reports were dramatic and impressive despite push back from senior surgeons. My view of the critical questions is that they act as a checklist does to make sure that relevant considerations have not been ignored. Even non-rationalist Hume, when describing how to make a moral judgment, points out that the first step is to make sure you know the relevant details of the action you are evaluating. The procedure I am advocating is “informed holistic judgment”. Complex decision making is too complicated to be reduced to an algorithm but it is also too fraught with potential biases and oversights to be left to simple “gut” decisions. The solution is an informed holistic judgment which includes checking not only for the facts but one’s own or the group’s biases and oversights.

While there is not much philosophical literature on truly practical, every day decision making there is considerable research on such decision making in business journals (Nutt, 2003) There is also research on holistic decision making vs. analytic, and gut decisions vs. intuitive decision making. There is general support in this literature for the role of intuition in decision making by experts, though there are problems with non-experts using checklists for diagnosis (e.g. too many possibilities for the novice medical students). But experts do benefit from checklists even when they do make intuitive (holistic) decisions rather than attempting to spell out all the considerations involved.(Khatri and Ng, 2000)

5.1 Procedural Evaluative Rationality (PER): The Critical Questions.

Much of philosophical decision making has focused on individual decision making, whereas, it is probably more often in group decision making that an explicit deliberative process takes place. The proposed critical questions might well find their greatest value in group decision making. Recent research suggests that decisions made by small, appropriately diverse groups are more

likely to be rational than those made by individuals because others are better at detecting biases. (Mercier et al., 2016; Mercier & Sperber, 2017) But a review of the proposed critical questions should enhance any group decision making process.

The critical questions suggested below are initial proposals of plausible candidates and the beginning of research into what would be both morally and practically appropriate for a model of applied rationality.

There is also a PER meta-criterion about effort (effort/research/reflection) that should apply to answering these questions--the care/effort should be proportional to the significance of the decision. While snap decisions about deeply significant matters with long term consequences is easily seen as irrational, so too is obsessively researching and thinking about trivial decisions and indeed at its worst can be seen as a sign of brain damage. (c.f. Damasio, 2005). The amount of care given to a decision should be proportional to the importance of the decision. Special care is required for decisions with profound long term implications.

Keeping this meta-criterion in mind, not all the questions below deserve attention in most decision making circumstances. Life changing decisions such as the choice of job or career deserve this level of reflection, but choosing a new TV or what's for dinner tonight do not. But institutional decisions of any import almost certainly do require such reflection.

The role of emotion is not given explicit reference in the model, but by suggesting a holistic approach to judgment, the role of emotion is inevitable. In a rational holistic judgment, the decision must "feel right" along with being rationally justifiable.¹²

A crucial aspect of these questions is to include moral assessment of both the goals and the means. Even if one takes the view that rationality is limited to instrumentality that does not avoid the need for moral evaluation of the means. Merely asking what would maximize satisfaction of an individual's preferences is simply inadequate for assessing decisions about actions.

¹² Jonas Salk: "I think that if we combine our intuition and our reason, we can respond in an evolutionary sound way to our problems."

Critical questions concerning the choice of goals or ends of an action¹³

1. Is the favoured goal consistent with my/our long and short term interests and values? (**Interests and Values**)
 - a. What are my/our long term interests and values?
2. Is the goal appropriate given moral considerations?¹⁴ (**Moral Considerations**)
 - a. Would achieving my/our goal violate moral intuitions?(e.g. lying is wrong)
 - b. Would achieving the goal violate my/our moral commitments and duties (e.g. concern for the environment, fidelity, obligations to children, professional integrity, existing promises or contracts)?
 - c. Would achieving the goal be consistent with respecting the legitimate interests of others (e.g. community, environment, future generations, stakeholders) (**Fairness**)
 - i. Is it fair to relevant stakeholders to pursue this goal?()
3. Is the goal a practical one given my/our abilities and situation? (**Feasibility**)

Critical Questions concerning the choice of action/means

1. What are alternative actions for realizing my/our goal? (**Options**)
 - a. Have I/we fully canvassed possible alternatives?
2. Which actions are morally acceptable? (**Moral acceptability**)
 - a. Are the considered actions consistent with intrinsic moral values (e.g. truth telling, fairness, integrity)(**Moral Intuition**)
 - b. Are the considered actions appropriate given my/our obligations and duties (general and particular to my/our role as e.g. community member, parent, teacher) (**Duties**)
 - i. What are the likely consequences, harms and benefits to each stakeholder? In particular is there a risk of harm to others from possible actions(**Consequences**)
 - c. What are the possible unintended consequences of possible actions? (**Unintended consequences**)
 - d. Would I/we be comfortable with others knowing my/our decision? (**Public acceptability**)
 - e. Would I/we approve of others acting in the same manner? (**Consistency**)
 - f. How would I feel if I/we were the object of this action? (**Empathy**)
3. Given my/our abilities and situation, which actions are the most likely to realize my/our goal?(**Optimality, Feasibility**)
4. Have I/we properly estimated the risks and uncertainly involved in the possible actions?
 - a. Do I/we have a plan for minimizing negative outcomes if the action does not achieve the goal? (**Risk**)
 - b. What will I/we do if the goal turns out to be less desirable than anticipated?
5. Which actions are the most effective method for achieving my/our goal (**Efficiency**)
 - a. Which actions minimize costs and efforts and maximize benefits?
6. Have I/we avoided common biases (e.g. anchoring, sunk costs) in the decision making process? (**Biases**)?¹⁵

¹³ For a similar list of questions addressed to decision making see (Battersby & Bailin, Sharon, 2017) and (Walton et al., 2019)

¹⁴ It is claimed by some that the Boeing Max debacle was the result of a change in the corporate culture to make its main focus profit rather than engineering excellence (Travis, 2019)

7. Conclusion

This paper proposes an initial formulation of critical questions that could be used in a critical thinking course to enhance students' decision making capabilities. While considerations of how factors should be weighted needs development, the model presented provides a model of rational evaluative decision making that does not suffer from the biases and limitations of rational choice theory (or any purely instrumental theory of rational decision making) and provides a procedure for rational decision making.

¹⁵ This question should of course be expanded to reference the most common biases that can lead to poor decisions. See (Battersby, 2016a) for a review of the most common of these "biases" Here is a list of both "cold biases:" *representativeness, availability, vividness, confirmation bias, anchoring, base rate neglect*, and "hot biases:" *my side bias, certainty bias, loss aversion, endowment effect, framing, sunk costs, social identification*.

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APPENDIX

Cold or Cognitive Biases

These can lead to epistemic errors resulting in inadequate, incorrect or misleading information that forms the bases of one's decision

Representativeness

Availability

Vividness

Confirmation bias

Anchoring

Base rate neglect

Hot Biases (motivated biases)

These can lead to decision making errors leading one to inappropriately weigh considerations that arguably deserve less weight e.g. sunk costs, or the endowment effect

My side bias

Certainty Bias

Loss Aversion

Endowment Effect

Framing

Sunk Costs

Social Identification