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Male In philosophy rationality is often thought to consist in acting for reasons, but following normative requirements is also a major part of rationality. John Broome White's Professor of Moral Philosophy at the University of Oxford gives an explanation of reason and rationality and then discusses his understanding of the normative question.

John Broome Well perhaps the thing to stress since I'm a professor of philosophy is that I do actually have a degree in philosophy, only a master's degree. But after I got my PhD in economics I was lucky enough to have a year when I could work part time and study philosophy and I took a masters degree in philosophy then. So that's my only qualification in the subject, a part time masters that I did after my PhD. But I've always been interested in philosophy in a way I sometimes regret that I did economics at all - it happened more or less by accident when I was an undergraduate.

Well what happened was that I went as an undergraduate to Cambridge to do mathematics and I think that the design of the maths course must have been not very good and at any rate I was pretty bored with it by the end of the first year. So I decided I'd change and do something else which you can do in Cambridge after a year. And I was pretty much open to any subject, so I went round asking people about the merits of their subject and should I do it, and I did go and talk to a philosopher there and I said, "Look I'm a mathematician, I'm thinking of changing to philosophy" they called it moral sciences in Cambridge in those days.

And he said, "If you're thinking of doing that this is what I recommend, I suggest you leave the university and you go and get a job building roads for a few years and that will knock any idea of philosophy out of your head." And I thought, "Well perhaps I won't do philosophy after all. And I discovered afterwards that what he was doing was just copying Wittgenstein, that's what Wittgenstein used to say to people who came to him and said, "I'm thinking of doing philosophy" because Wittgenstein wanted to stop people doing philosophy.

In his later life he reckoned that what should be achieved by philosophy is the ability to stop doing philosophy. So he was trying to stop people doing it and he told them exactly that. So this person was copying Wittgenstein. Anyhow I didn't but instead I went and I saw an economist and he said, "Oh yes you must do economics, you'll really enjoy economics" so I did economics and I was then an economist for just under 30 years. I worked an economist from the time I became one as an undergraduate to when I got my first proper job in philosophy which was 12 years ago now; 1996.

Interviewer How did you make that transition?

John Broome Well I told you I did get a degree in philosophy, actually it started when I was doing a PhD at MIT in economics and MIT had a deal with Harvard whereby MIT students could go to Harvard lectures. So I went to some Harvard lectures in philosophy because I thought it sounded like an interesting subject and I went to some lectures on Wittgenstein by the most charismatic lecturer; someone called Stanley Cavell, and I didn't understand the lectures at all but they were quite gripping, so I was fascinated and I read Wittgenstein's investigations again and again and again and I just loved that.

So I thought I'd move into philosophy as soon as I could and that took me to do the masters degree. But then I discovered that it's much harder to get work in philosophy than it is in economics.

Economics is a well financed discipline, you know there's money involved in it so there are more jobs, there are more research grants and that sort of thing, so I just found myself able to get jobs there and not really qualify to teach philosophy. But I did write philosophical stuff within economics and it was sufficiently philosophical that in the end it made it possible for me to get a job in philosophy.

Interviewer Well what is the relationship between philosophy and economics?

John Broome Oh well there are quite a number of connections; the one that interested me was in ethics, well I keep saying to people that economics is basically a branch of applied ethics. Now that isn't quite true because there is some of economics which is science, it's a social science and so it's trying to figure out what happens in economies as a scientific matter; what causes what? But even the economists who are doing that are generally doing it with an eye to making things better, to improving things or changing the way that the economy runs and that's the point of economics really, is to make things happen better in the economic domain.

So you've got to asses what's better and what's worse within that area, how ought things to be within the domain of economics. And when you're thinking about how ought things to be especially when you're dealing with conflicts of interest which is really the main - economics is all about conflicts of interest and it's about limited resources and how those are used, how those are best used which is to say how they're best divided up amongst the various people who've got claims on them. It's all about conflicting interests and it's about how things ought to be.

So when an economist says the interest rate ought to be kept high what that's doing is favouring the interest of some people against the interests of some people and so it's clearly an ethical claim, it's a claim within applied ethics. So economics is basically applied ethics and that means that if you work back to more fundamental questions in economics you find yourself doing the same things as applied moral philosophers. For instance you find yourself thinking about the value of equality and moral philosophers think about the value of equality. I find myself thinking a lot about the value of human life which again moral philosophers worry about.

So the questions are the same; you're actually doing the same thing. Really the only difference is the sort of methods you use, and economists are trained in mathematical methods, highly analytic methods, more than philosophers are. My view about those subjects, well particularly about equality actually is that economists are better qualified to talk about the ethics of equality than moral philosophers are because it's a complex matter of the relations amongst large numbers of people. If you're thinking about equality in a society that's involving huge numbers of people and you're interests in the interactions of those people, and it takes some mathematics to do that properly I think.

Interviewer Don't you economists and philosophers approach some of these issues like fairness of distribution from very different value premises?

John Broome Yeah they approach them from different directions but in the end their positions may converge. It's not universally true because there are philosophers whose way of thinking is quite inimical to the way of thinking of economists; economists tend to be in a broad sense utilitarian; what they're interested in is promoting the general good as you might say. And there are moral philosophers who think really are not very interested in doing that. So it's utilitarian moral philosophers or the philosophers who are in the same camp as utilitarianism.

Utilitarianism is a relatively narrow view within a much broader view which we haven't really got a very good name for. Some people call it consequentialist and the thinking of those people actually is really quite close to the thinking of economists. At any rate the thinking of economists in the days when I used to do economics or the days when I first did economics when there was a subject within economics known as welfare economics. Is that a term that you've heard of?

Interviewer No.

John Broome Well it used to be an important part of economics and it was really the part of economics that was explicitly ethical, the subject where you thought about what's the value of equality, how to measure the badness of the inequality in a society, that sort of thing. And welfare economists did that. I might give you some names that you know, Kenneth Arrow for instance did that, [[?? 0:08:19]] did that and those people were the leaders working in the heyday of welfare economics which was sort of 60's/70's. And then it pretty much packed up and economists really don't get taught it anymore, scarcely know that subject so I think economics has gone backwards in that respect

Present economists are not really in practice very good at talking about the value of equality. But the people who did it in the 1970's were really pretty good at it, in a sense you know the prime example.

Interviewer Has your own research attempted to remedy this then bringing in economic principles to your philosophy?

John Broome Yes, at first as an economist I was interested in bringing philosophical principles into economics, but I've never been really very interested in economics. I've always been more interested in philosophy but I do think that the method of economics actually can contribute quite a lot to quite a number of areas within moral philosophy and I've given you one; I've told you about the moral philosophy of equality, methods of economics can contribute huge amounts to that. And I think it's disappointing that most of the philosophers who write about it haven't done their work in learning the work that economists have already done years ago in the 1970's they were doing it.

Interviewer So what about your research as a philosopher, what areas has that concentrated on?

John Broome Well it's changed now, I told you that I was interested in the value of life and that's something that happened to me right from the beginning. My master's thesis when I was doing a masters in philosophy was on the value of life and I was always interested in that. But it involved quite a broad range of issues as sort of preliminaries to it, so I became interested in decision theory, treatment of uncertainty. As a preliminary to working on the value of life I wrote a book about that, about equality, uncertainty and time, temporal matters.

Having done that then I came back - that was a book called Weighing Goods, then I came back to write a book called Weighing Lives which was supposed to be what I thought about the value of life. So I did that and that was only a few years ago that got published, but it took much longer than I thought. And then I thought, "I've finished that, I'm not going to do that anymore" and I started doing other things since then. It hasn't been absolutely possible to concentrate just on the other things because the value of life is a practical issue.

It makes a difference in practice to medical practice, and it's also a crucial issue in the ethics of climate change, because what climate change - the principle bad thing that climate change is going to do is kill a lot of people. So if you're to decide, what's the right thing to do about climate change you need to think about how bad is it that it's going to kill a lot of people? And since I think climate change is an important issue when people ask me to do stuff about climate change I do. So I've still been doing some of that but it's not what I'm really interested in, and now I do the stuff about rationality and normativity and reasoning.

Interviewer Can we reach a very broad definition of what rationality means in philosophy?

John Broome What it should mean in philosophy is what it actually means, that's to say philosophers should mean by the word what people mean by the word and the difficult thing is to figure out

what people mean by it. So there are two approaches; you might start by thinking of what are rational people like? So that would be getting at the property of rationality that people have when they are rational. So you might think for instance rational people are people who have coherent beliefs, they don't believe contradictions if they believe a couple of things which entail a third one then they'll believe the third one.

They don't have contradictory intentions; they intend to do what's an appropriate means to an end that they intend, that sort of thing. So those are properties of people and you could think, what's a rational person? And I think that's actually a perfectly good way of approaching the subject but I don't - and it does give you one meaning for the word rationality. You could say that rationality is the name of the property that people have when they're rational in the same way as there are moral people and the property that they have that a moral person has, we could call the property of morality.

But I don't think that gets at all that rationality means and we also think of rationality as one of a class of things that I don't know the name of, and I just call them sources of requirements and I can only illustrate what they are and then you'll see what I'm getting at. So the law for instance is a source of requirements, what the law does is it issues a number of things that are required of you by the law, so it requires you to drive on the left if you're in Britain and that sort of thing. And each of those is a separate requirement; there's a requirement not to kill people, there's a requirement to drive on the left, there's a requirement to pay taxes and so on, a string of requirements.

And those requirements are as you might say issued by the law. So the law is a source of requirements and there are other sources of requirements. So morality is a source of requirement; morality requires you to be kind to strangers and it also requires you not to murder people, things of that sort. So morality is like the law in that it's a source of requirement and so is rationality. Rationality requires you not to have contradictory beliefs. To intend means to ends that you intend, things of that sort, so it issues requirements. I can't say that this is what people in general mean by rationality but that I think is the best way of where to approach rationality from.

To recognise that rationality like the law is a source of requirements and then you can say what a rational person is. What a rational person is is somebody who satisfied the requirements that are issued by rationality, similarly a law abiding person is somebody who satisfies the requirements that are issued by the law. So we've got the source of requirements; I call it rationality, it's often called reason. I can think of reason as one of these things that I don't know the name of. I sometimes think that you should call them a discipline or something like that. But at any rate what they do is they issue requirements.

Reason issues requirements, I think reason is another name for rationality in that sense, and rational people are the ones who conform to the requirements of reason.

Interviewer If one were to break any of these requirements would that make them always immoral and always a law breaker?

John Broome Yes you are a law breaker if you break a requirement of the law. You might not want to say that you're immoral if you infringe a minor requirement of morality. We think of immoral is a scale concept and there are people who are more immoral than others. So somebody who is just breaking one minor requirement of morality you might not want to attach the word immoral to. I don't have to talk much about immoral people so I haven't decided what to do, how to use that. But I have decided that I will talk about anybody who infringes a requirement of rationality as irrational, but irrational often only in a very minor way.

And everybody is irrational in this way, we all are infringing some of the requirements and I don't really mind being irrational in that respect. But some people are more irrational than others.

Interviewer It seems to me that the requirements are based on values while the sources could be neutral.

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John Broome Well I'm not sure that these requirements are necessarily based on values. I said that there are a number of sources of requirements, I didn't say you have to obey any of them, and with any sources of requirements there's an issue of whether you've any reason to satisfy its requirements. So take convention; convention is a source of requirements, it requires you if you shake hands to offer your right hand rather than your left hand to shake, that's a rule of convention. There's a real question, have you any reason to do that? And I think with any source of requirements there's a question, have you a reason to conform to them?

Now I think not a real live question in the case of morality, you have a reason to conform to the requirements of morality. It's very hard to explain why but I think you do. I think it's more of an open question in the case of the law; have you any reason to conform to the law? A lot of people think yes you have but it's not a very fundamental reason it's an instrumental reason that it's bad for you to break the law because you risk going to prison shall we say, and so you've got a reason to conform to the law but this is a reason that's confounded on something more fundamental namely prudence or self-interest.

It's not in your interest to break the law and so you've got a reason of prudence or self-interest which backs your reason to conform to the law. So prudence is another source of requirements and that's one that I think few people doubt. Most people think that if prudence requires you to do something you've a reason to do it. So prudence for instance requires you to look both ways before you cross the road and because of that you've got a pretty good reason to look both ways before you cross the road, I think most people believe that, again it's really hard to say why.

With rationality, I'm pretty convinced you've a reason to be rational but I can't explain why, that's something I'm stuck on. So that's something I believe but I can't really justify. I think you've a reason to be rational, but the main point is that for any source of requirements there's a real life question, have you a reason to do what that source requires?

Interviewer So many of these alternative sources of requirements could be put under an umbrella of rationality?

John Broome No I think they're all separate; I think morality, prudence, the law, convention, rationality; they're all separate sources of requirements.

Interviewer But could they have the same requirement in some?

John Broome Oh yeah so the law requires you not to murder and morality requires you not to murder so it's the same, and also I guess that prudence often requires you to satisfy the requirements of rationality. If you have contradictory intentions you'll not get very far in life; rationality requires you not to have contradictory intentions and I expect prudence does as well.

Interviewer What about normative rationality?

John Broome What I've just been talking about is what I call in a rather grand way the normative question, a term that I stole from Christian [[?? 0:19:32]]. The normative question about a source of requirements is the question; have you a reason to do what that source requires of you? What I mean by normativity and I think what most moral philosophers mean by normativity is to do with ought and reasons, that's the definition of normativity as we mean it in moral philosophy. Other people and that includes a lot of other philosophers attach a quite different meaning to the word normative and it's quite a good idea to get this clear at the beginning.

What they mean by normativity is anything that has to do with norms and what they mean by norms are rules of some sort and even requirements. So they would think that anything that issues requirements is normative. So they would think convention is normative; convention issues rules, you can conform to those rules or not. It issues a standard of correctness they sometimes say. You

can behave correctly according to convention or incorrectly according to convention. And that's enough to make, according to this notion of normativity, convention normative.

So any source of requirements is going to be normative under that meaning; that's not my meaning, it's not ethic the meaning for most moral philosophers but it is a source of confusion because you find even within philosophy different philosophers using this word with different meanings, and I do think that has caused some confusion. Anyhow so you talking about normative rationality, what I said was I think it's a real question whether rationality is normative; do you have a reason to obey the requirements? Do you have a reason just because it's a requirement of rationality not to have contradictory intentions?

Well I think you do but I can't prove it, I can't give an argument for why you do.

Interviewer Is that necessarily negative or positive?

John Broome It bothers me less now than it did because other people have pointed out to me that this is a problem that's actually well recognised within moral philosophy and that perhaps we shouldn't be so worried about it. Moral philosophers have spent a lot of time asking the question, why should you be moral? What reason do you have to conform to the requirements of morality if you like?

Interviewer Most of us think we've got a reason but to explain what that reason is, is really quite difficult and when moral philosophers have tried to do it they've generally failed. A lot of them try to do is explaining on grounds of self-interest. They think that it's obvious you've got a reason to do what's in your own interest given that that's obvious they want to say, "You've got a reason to be moral because it promotes your interest." Lots of them have tried to do that and they all fail and it's sort of pretty apparent that they're never going to succeed.

And one of my predecessors in my job H A Pritchard wrote a famous paper early in the 20th Century called Does Moral Philosophy Rest on a Mistake? And his point was you can try until you're blue in your face to do this and you're never going to succeed, you're never going to be able to explain why you've a reason to be moral. Because if you try and get a reason that comes from outside morality it's patently not going to work. If you're going to try and get a reason to be moral that comes from self-interest it's obviously not going to work because often it's against your interest to be moral.

That's the whole problem with morality; morality requires you to do stuff that is against your interest to do so that's not going to work. And on the other hand if you try and get a justification for being moral or a reason for being moral that comes from within morality well that's going to be circular because any reason you find for being moral depends on your already having a reason to be moral if your reason comes from within morality, so it's not going to work that way. So Pritchard said, "Stop worrying about it."

Now I don't think you can quite stop worrying about it but I started worrying about it less since I've realised that it seems to be rationality is in the same boat as morality in this respect, you can't or I can't find a good explanation of why you've a reason to be moral and maybe we should just relax and not worry too much about that.

Interviewer Are there going to be occasions when being moral could be irrational?

John Broome I hope not, no I withdraw that, yes I can think of sort of extreme examples, I mean they're concocted, I don't know whether any examples like this actually occur in the world but this is fairly typical of a philosophers sort of example. Suppose in some way or other things were rigged so that you could save the world from a nuclear war by having one pair of contradictory beliefs, it's hard to know how you could get yourself to do it but suppose you could. Now so the rule is this, this has been set up by the devil say. So the devil has arranged things and informed

you of this such that if you believe a particular proposition P and you also believe the negation of that proposition then there will be no nuclear war.

But if you don't achieve that then there will be a nuclear war. Now I think that in those circumstances morality requires you to have those contradictory beliefs but that nevertheless if you did you would be irrational. Now I think I'm unusual amongst moral philosophers. More of them think that what morality requires of you is not that you have those contradictory beliefs but you should bring yourself to have those contradictory beliefs. It doesn't require you to have them, I can't see that really.

If my mind is rigged so that what causes the nuclear war is my not having those beliefs and what would prevent the nuclear war is my having the beliefs it seems to me that morality requires me to have those contradictory beliefs even if actually there's nothing I can do about bringing them about. So I think they're wrong about that so there's the answer to your question. It is possible for morality to require you to do something when rationality requires you to do the opposite of that. Morality in this case requires you to have contradictory beliefs where rationality requires you not to have contradictory beliefs.

Interviewer So there's no hierarchy?

John Broome But it's all cooked. (Laughter) There's no hierarchy; surely there's a hierarchy yes because all of these requirements if they're normative feed into determining what you ought to do. You know if morality requires you to do something and prudence requires you to do something and both of those are normative, that's to say both of them give you reasons to do what they require. This is a common case where morality requires you to do something, prudence requires you to do the opposite, both of those are normative so you have a reason to do this and you have a reason to do the opposite.

Both of those things feed into determining what actually you ought to do, because what you ought to do is determined by the reasons you've got in the case. Here you've got conflicting reasons; what you ought to do is determined by the conflict. Now some people think morality always wins so there's hierarchy; morality trumps and prudence maybe comes next and rationality, I mean I don't know what they think lower down the hierarchy. I haven't got very firm views about that but it doesn't seem to me totally plausible that morality always trumps.

If it's a very minor moral infringement but on the other hand tremendously important to your life I'm not sure that you ought to do the minor moral infringement. I'm not sure that we should attach such importance to morality that even the least infringement of morality is more important than sacrificing your career or something like that.

Interviewer How do we decide on what the requirements are going to be in each of these sources?

John Broome Very difficult, I don't know, well I'm interested in rationality; I don't know how you decide what the requirements of rationality are. There are some people who have some theories about it and I think I mentioned earlier that you can see some sorts of things that are going to have something to do with it. So logic is going to have something to do with it; I do think rationality requires you not to have contradictory beliefs, so it must be something to do with the fact that contradictory beliefs can't both be true. If you believe P and you believe not P, it can't both be true that P and true that not P.

So logic is going to underlie rationality but the connection is not absolutely tight so I haven't got a firm view about this but I wouldn't insist that rationality requires all your beliefs to be consistent with each other. Of course if you have beliefs that are not consistent with each other one of them is going to be forced. But you've got an awful lot of beliefs; it's really unlikely that all your beliefs are consistent with each other. There's a difference with being inconsistent and being

contradictory; being contradictory you've got two contradictory beliefs. If you believe something like it's raining and you also believe it's not raining, that I think is irrational.

But you might have a whole bunch of beliefs from which you might be able to derive P, let it be Fermat's Last Theorem shall we say, if you believe the axioms of arithmetic as a matter of fact from those axioms you can derive Fermat's Last Theorem, but it's really hard to derive it. Now suppose that you believe the axioms of arithmetic but you believe the negation of Fermat's Last Theorem, I'm not sure you're irrational. You've got inconsistent beliefs but it's really hard to know that they're inconsistent. So you've got beliefs that cannot all be true, it can't be that Peano's axioms are true and Fermat's Last Theorem is false because Fermat's Last Theorem follows from Peano's.

So you've got beliefs that can't all be true but I'm not sure that you're irrational. So all that's saying is that although logic must in some way underlie requirements of rationality, it must be one of the things that underlies the requirements of rationality the connection between logic and requirements of rationality is not that tight. So I think it's really hard to figure out what the requirements are and really about the only instrument I've got for it I'm sorry to say is intuition.

I start with some intuitions about what's irrational so I think it's intuitively that it's irrational to have contradictory intentions and then I work on that intuition and I refine it. Actually that one I don't have to refine much I just think straightforwardly it is - rationality does require you not to have contradictory intentions. But take another one which seems intuitively very attractive; rationality requires you to intend means to an end that you intend, so if you intend some end or other and something is a means to that end, rationality requires you to intend that means, I mean.

Now that's not a requirement as it stands, you can think of lots of reasons why it's not a requirement, for one thing suppose that this is a means to the end but you don't know that or you don't believe that, you've no idea that this is a means to the end then you're obviously not irrational if you don't intend the means. So the formula has got to be more like rationality requires you to intend what you believe is a necessary means to an end that you intend. But that isn't true either because suppose you think that although this is a necessary means to the end that you intend suppose it's going to happen anyway, you don't have to do anything about it, then you don't have to intend it either.

You know suppose that you intend to go to France and you believe a necessary means is that there is some method of transport that will take you to France, you can't get to France without there being a method of transport that will take you there. You don't have to intend that there's a method of transport that will take you there because you believe there are trains running all the time so you don't have to intend that and so on. And so you refine those things and you end up, well in my experience you end up with what you think - you think you've got it.

You've actually formulated what the requirement is and then somebody points out another counterexample and you have to do it all again, but it's intuition and refining your intuition until you've got something that looks reasonably watertight and you hope that it is.

Interviewer So what's the method that philosophers use to examine this kind of thing?

John Broome Counterexamples is a pretty important one, so I told you, you start with intuition then you notice that your intuition is wrong because there's a counterexample. I just gave you two, you think that rationality requires you intend a means to an end that you intend, well here's one counterexample, you might not believe it is a means so you refine it. Then there's another counterexample, you might think that the trains are running anyway so you don't have to intend that the trains are running and so on.

Interviewer Is it easy for laymen, people non-trained in philosophy to use this kind of method to figure out rationality?

John Broome Yeah if they've got the right temperament so you've just got to be patient. Can I tell you what my present formulation of what I call the instrumental principle is and it involves some what I call schematic letters, so I'm talking about people but I'm going to - and I have to do this to get it correct, so I'll read it out to you. Rationality requires of N, and N is a letter standing for a person alright, so it's just standing in for a person. Rationality requires of N that if one, N intends a T, T standing in for a time, that E, E standing in for a proposition that is an end, the end that N intends.

And N believes at T that if N were not so because of that E would not be so and N believes at T that if she herself were not then to intend N because of that N would not be so. Then N intends at T that N. Now that's quite sort of complicated to get your head around. I mean I explain it and if you read and you spent some time working on it you would get your head around it, alright, anybody can do that, it's not complicated mathematics or anything like that but it does require some patients to work your way through all that formulation and there are things in there that you would miss unless they were sort of advertised.

Like there's what's called a reflexive pronoun in there, the reflexive pronoun she herself which is playing an important and crucial role, what that means, perhaps I can give you an example of that. It often makes a difference when you believe something about yourself whether you directly can refer it to yourself or whether the way that you believe it is not so direct. So if I say something using the first person pronoun, I, then that means I am making a self-reference, I'm referring to myself.

So if I say, "I mustn't drink tonight" that's a self referential belief and you in reporting it would say, "John believes that he mustn't drink tonight" and if you wanted to emphasise it, "John believes that he himself mustn't drink tonight." But now imagine this rather unusual situation, typical of the way that philosophers think, suppose I believe that the occupant nearest the window in a room in the corner of the Fellows Building in Corpus Christie College mustn't drink tonight, but for some - because I've had a memory lapse I don't realise that I am in fact the person nearest the window in the corner office of Corpus Christie College.

So I couldn't say, "I mustn't drink tonight" what I could say is that the person who's in this position mustn't drink tonight, that person happens to be me but I'm not in a position to say that I mustn't drink tonight. So you might say of me, "John believes" - you might say, "John believes that he mustn't drink tonight" but you couldn't say, "John believes that he himself mustn't drink tonight" because the he himself is the pronoun that you use in indirect speech to stand in for I when I use it in direct speech. Well that's all in there, I mean that's got one of those, it's called a reflexive pronoun and it's in there and it's in there for a purpose.

So you know it took a while for me to realise that it had to be in there but the formula comes out really complicated when you've got to it and all you need is patience but I think most laypeople are not sufficiently patient to do that.

Interviewer So without the patients you'd be relying on intuition?

John Broome I think that people are naturally rational; it's just part of our nature to a fair degree that we're rational. This is actually one of the things that I'm interested in and find the hardest. I think I understand what rationality is, I understand the idea of rational requirements, I can even say what some rational requirements are. How we come to be rational I can say a few things about but I think it's actually really quite interesting and I'm stuck in some aspects of it. One part of how we come to be rational is what I just said that we're naturally rational.

It's just in your nature that you don't have many contradictory beliefs, I bet you've got some - which I mean as soon as you realise you've got them they will go but your mind sort of comes in departments. So if you're thinking about something you might believe one thing and if you're thinking about a quite different range of things you might actually think exactly the opposite. I did find myself in a position like this when I used to have a garden and I was dealing with weeds.

Now I had a weed killer which didn't kill grass but it would kill broad leaf plants. It was one of these selective weed killers.

So you could get rid of weeds in grass by pouring the weed killer about and if it landed on a weed it would kill it but it wouldn't kill the grass. Now I found while I was doing that I was reasonably confident that just getting one drop of weed killer onto a weed would kill it. So I thought that one drop of weed killer on a plant that isn't grass would kill it. On the other hand when I was going near the flowerbeds there would sometimes be splashes and a splash would go onto one of the plants in the flowerbed and me being an optimistic sort of person I would generally believe it would survive, it wouldn't kill it.

So in that case I believed that one drop of weed killer on a plant that wasn't grass wouldn't kill it. So there were two contradictory beliefs that I had. Now I think we've all got those but on the whole we've got a mechanism that stops that from happening often. So for instance suppose you're sitting and working and it was raining when you started working, you might still continue believing it's raining, so you believe it's raining when you're working. And then you look up and you look out of the window and you see it's not raining so now you believe it's not raining.

Now there's an automatic mechanism within you that switches off your belief that it's raining; as soon as you believe it's not raining you don't believe it's raining anymore. So you don't have the contradictory beliefs that it's raining and that it's not raining at the same time; some innate mechanism just switches off the contradictory beliefs, so that's a lot of how you come to be rational. But that doesn't work perfectly, if you were an angel or something I think it would work perfectly in you would never have contradictory beliefs or you would never be irrational in other respects, you would never have contradictory intentions.

But you do sometimes because you're not ideal. And then I think we have a self-help mechanism which allows us to overcome those irrationalities by concentrating on them and sorting them out and that's a process called reasoning. And I'm interested in how that process works. So I think of reasoning as a self-help process that we undertake. It's something that we can do to improve our rationality and how reasoning works is the thing that I'm just happening to do at the moment and I find it appallingly difficult.

Philosophers have for a long time made a distinction between what they call theoretical reasoning and what they call practical reasoning; theoretical reasoning involves beliefs and beliefs only, so theoretical reasoning is reasoning that concludes in a belief. Actually that's an oversimplification, sometimes it concludes in a non-belief. You might think that the most straightforward sort of practical reasoning is believing a proposition. Let me give an example; you believe that it's raining, you believe that if it's raining the road will get wet and you reason your way to believing the road will get wet.

That's reasoning by a process of application of Modus Ponens, it's the logical principle that takes you from P, and if P then Q to Q. And I think we have a process of reasoning that goes that way. But there might be something that stops you believing the road will get wet, maybe you know perfectly well that the road won't get wet somehow or other, maybe you think there's an awning over it so that it won't get wet. Now in that case your reasoning can't go through, you believe it's raining, you believe that if it's raining the road will get wet but if you don't believe the road will get wet something else has got to happen.

And what might happen is that you stop believing that if it's raining the road will get wet. If you think there's an awning over the road you shouldn't believe that if it's raining the road will get wet because the awning will prevent the rain getting on the road. And your reasoning may take you to stop believing that conditional proposition that if it's raining the road will get wet, just as well as it might bring you to start believing a new proposition namely that the road will get wet. But that's all theoretical reasoning so theoretical reasoning is reasoning that concludes either in believing something or in not believing something. That's my definition of it.

Practical reasoning on the other hand is reasoning that concludes in intending something or possibly in stopping intending something; not intending something. Now I think it's relatively easy to understand how theoretical reasoning works, it's really difficult to understand how practical reasoning works I think. So on the face of it there is intuitively quite straightforward examples of practical reasoning, so here's one, suppose you intend to go to Venice and you believe that you won't get to Venice if you don't buy a ticket but at the moment you don't intend to buy a ticket, you know this could quite easily happen.

You intend to go to Venice, this has been at the back of your mind for quite a long time and you suddenly realise that if you don't get a ticket now you won't get to Venice. But at the moment you don't intend to get a ticket but here is how you can get yourself to intend to get a ticket. You can say to yourself, "I'm going to Venice, if I don't buy a ticket I won't get to Venice so I'll buy a ticket." And now you've got an intent of buying a ticket. Now that seems intuitively to me quite a straightforward piece of practical reasoning; you start off with an intention of going to Venice and a belief that you won't get there unless you buy a ticket.

And now you've given yourself an intention to buy a ticket which you didn't previously have and you'll go off and buy it. Does it seem okay to you? I mean that seems intuitively quite a decent example of practical reasoning. You find examples of that sort in Aristotle but it's hard to explain how that works because for one thing what you say to yourself is just a sequence of assertions, you say, "I'm going to Venice" asserting that you'll go to Venice. If I don't buy a ticket I won't go to Venice; that's an asserting a conditional proposition that if I don't buy a ticket I won't go to Venice.

And then you end up asserting you'll buy a ticket; you say, "So I'll buy a ticket" so you're asserting that you'll buy a ticket. And normally what an assertion is, is an expression of a belief; it's not an expression of an intention. If you assert something you express a belief in it. You don't assert something sincerely unless you believe the thing that your asserting, so what's going on? This appeared to be practical reasoning because it was bringing you to a new intention but in fact the things you say are asserting beliefs all the time.

Well I think that's because when you say, "I'll go to Venice" you're doing two things, you're both expressing a belief that you'll go to Venice, which you can do by asserting that you'll go to Venice. You're also expressing your intention of going to Venice and in fact that's the canonical way. The way we normally express intentions is just by saying that we'll do the thing that we intend. If you were thinking of having dinner at home you will say, "I'm having dinner at home" or "I'll have dinner at home tonight." That's your expressing your intention of having dinner at home tonight.

It's also expressing a belief that you'll have dinner at home tonight so you're expressing - generally when you're expressing an intention you're expressing two things at once. And that means that that bit of practical reasoning that I went through is not just a bit of practical reasoning taking you from intending to go to Venice to intending to buy a ticket, it's also a bit of theoretical reasoning taking you from believing you'll go to Venice to believing you'll buy a ticket. So the theoretical and the practical are intimately entwined in that process of reasoning.

That's I think perhaps the main difficulty in understanding how practical reasoning works because well what happened to me when I started trying to figure out how that bit of practical reasoning worked is that actually in a way the practical bit of it came out as a by-product of the theoretical reasoning. Because there is very decent really pretty incontrovertible theoretical reasoning that goes from, "I'm going to Venice, if I don't buy a ticket I shan't go to Venice" to the belief that you'll buy a ticket, that is straightforward Modus Ponens reasoning, nobody really can deny that that's a decent piece of theoretical reasoning.

The practical reasoning turns out to be a by-product of that perfectly decent piece of theoretical reasoning and that feels wrong; it feels wrong to say that when you are reasoning practically with intentions that's just something that falls out of theoretical reasoning. In particular a philosopher

of action Michael Bratman keeps going on at me about that, he says it's just too cognitive as he put it, my account of the practical reasoning is just too cognitive, and I think he's right, it doesn't feel right. On the other hand it's the best I can do and sometimes I think it is right however wrong it feels.

One of the problems in practical philosophy, moral philosophy that you end up with conclusions that are really hard to believe.