Counting on numbers

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1. Here is a very simple game. You come up with a number and I come up with a number. If I come up with the higher number, I win; otherwise you win. You go first. Call this 'The Very Simple Game'. Few would play it if they had to go first and many if they are guaranteed to go second.

2. Here is another one. You come up with a number n and I come up with a number m. If m times $1/n > 1$, then I win; if not, then you win. You go first. Call this 'Still The Very Simple Game'. Since I win just in case m is greater than n, this game collapses into *The Very Simple Game*. Few people will play it if they have to go first.

3. Here is a third one. Let us call it 'Looks Like A Tricky Game'. Suppose you have a choice between exactly two actions:

(A) keep holding on to some thing t (with no further relevant changes);
(B) hand t over to me and accept my offer to give you, with some probability p ($1/n$), some thing with (positive) utility m (with no further relevant changes).

Suppose, you are a maximizer of expected utility with an unbounded, aggregative utility function (and with no risk aversion and no temporal discounting). You are perfectly rational. These assumptions are very unrealistic in the case of humans but let that go for the sake of the argument. Let us further assume that for you the expected utility of (A) is 1 (the probability of keeping it, given (A), equals 1, and the utility of having it equals 1). Apart from that, I claim that I can give you things of any value for you I like with no effort or loss on my side. And I want to make you choose (B) (cf. Bostrom 2009: 445).

Here is how this game is played. You start by fixing the value of 'p' (or '$1/n$'); I follow-up by determining the value of 'm'. I win just in case you choose (B). What do I have to do to win? The answer is easy: I let you give me your number n and respond with a number m such that m times $1/n > 1$. Or, more simply: such that $m > n$. My winning strategy in *Looks Like A Tricky Game* very much looks like my winning strategy in *The Very Simple Game*.

4. As it turns out, Bostrom (2009) argues that someone (Mugger) can rationally motivate someone else (Pascal) to play a version of *Looks Like A Tricky Game*. Bostrom's case meets the general conditions mentioned in the second to last paragraph above. Here are the details: Pascal is invited to hand over his wallet to Mugger in exchange for Mugger's promise to return the next day and give Pascal something with a very high utility (as it turns out: the

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utility of 'one thousand quadrillion happy days'). Here is the catch: Mugger only tells Pascal what he will get after Pascal determined the probability (>0) that Mugger will keep his promise (whatever its content). Mugger will then choose a value of '*m*' that makes his offer rationally preferable for Pascal. In other words, they are playing a version of *Looks Like A Tricky Game*. Bostrom argues that rational Pascal has a good reason to agree to play this game and hand over his wallet, that is, choose (B).

5. However, there is a problem. Pascal cannot determine the probability that Mugger will keep his promise *independently* from what Mugger promises to do. This probability depends on what exactly Pascal promises to do. If you promise to give me $10 tomorrow and in addition to treat me to a coffee later today if I help you out with $10 now, then I might be inclined to agree to help you out; the probability that you would do this is pretty high and I do like coffee a lot. However, if you promise to give me $1000 tomorrow and treat me to dinner tonight if I help you out with $10 now, then I will be less inclined to help you out; the probability that you would do such a thing is rather low.[1] There is, however, no one definite probability that you will stick with your promise, no matter what you promise. The assumption that there is such an 'independent' probability is extremely implausible.

We can assume, for the sake of simplicity, that the larger the sum of money (or the amount of 'utils') Mugger promises to deliver, the lower the probability Pascal should assign to the proposition that Mugger will stick with his promise. What if Pascal's probability assignments for 'Mugger will deliver something of value *m*' are a simple function of the value of '*m*'? Moreover, what if for all values of '*m*' and '*p*', the following is true: *m* times $p < 1$? This is perfectly possible and even realistic. Pascal's probabilities would go down faster than Mugger's offer's utilities go up – so to speak. Clearly, Pascal should not agree to this deal because he would face a clear expected loss. What if Pascal's probabilities go down slower than Mugger's offer's utilities go up? Well, then Pascal should make the deal. But as we know from ordinary experience (with stock brokers, used car dealers and many others): these situations are rather rare.

6. Finally, a very practical question: what can Pascal do to get rid of Mugger? Ask him to come back tomorrow when he, Pascal, will have won the lottery? Or, perhaps, rather make him a counter-offer he cannot refuse: 'Mugger, if you now nail a schnitzel against your left knee, then I will keep my

1 As Bostrom's Pascal says: 'If we made a deal for you to take the wallet and bring me 10 times the value of its contents tomorrow, then maybe there's a 1-in-a-1000 chance that I would see the 100 livres you owe. But I'd rate the chances that you will deliver on a deal to return me 20,000 livres much lower.' (443). Interestingly, Bostrom's Mugger does not object to this line of reasoning.

wallet for today but will be here tomorrow with much more money in my wallet!'[2]

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Reference

Bostrom, N. 2009. Pascal's mugging. *Analysis* 69: 443–445.

2 Thanks to Darrell Rowbottom for comments.

Perdurance, location and classical mereology

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In his (2001) Ted Sider takes care to define the notion of a temporal part and his doctrine of perdurantism using only the temporally indexed notion of parthood – 'x is part of y at t' – rather than the atemporal notion of classical mereology – 'x is a part of y' – in order to forestall accusations of unintelligibility from his opponents. However, as he notes, endurantists do not necessarily reject the classical mereological notion as unintelligible. They allow that it makes sense and applies to atemporal subject matters and to temporal subject matters when the entities under discussion are not continuants. Thus, they allow that it makes sense to say that metaphysics is a part of philosophy, or that football is a game of two halves. What (some) endurantists deny is only that the classical mereological notion is applicable to continuants: continuants (people, cats, statues, etc.), they say, have no proper parts *simpliciter* (if we adopt the classical mereological definition we must say that they are atoms), either because it is false to say that they have or because it is unintelligible.

Thus perdurantists do not have to embrace Sider's excessive caution in defining their position.[1] They can safely allow themselves classical

1 And a reason for not doing so is a well-known difficulty with Sider's own definitions. It is controversial whether any continuant has a Siderian temporal part other than itself (a proper Siderian temporal part) since by his definition (2001: 59) if x is a temporal part of y at t, x is a part of y at t and x overlaps at t any part of y at t – so if x is not y, x is a *proper* part of y at t yet x is as big as y at t (the whole is not greater than the proper part). If we replace the clause 'x is a part of y at t' with the clause 'y overlaps at t any part of x

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