*On Pascal’s Wager and The St. Petersburg Paradox*

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In *New Perspectives on Old-Time Religion,* George Schlesinger defends Pascal’s Wager, an argument for theism against those objections held to provide evidence that the Wager is “intellectually unreputable...logically unsound...[and]...morally reprehensible,” (Schlesinger 149). In this paper, I will attempt to strengthen Schlesinger’s defense against the St. Petersburg paradox, an area in which I feel the text is somewhat lacking.

I. The Wager

For those readers unfamiliar with the argument, Pascal’s Wager is the argument that all things considered, one should be religious person because “when there is the finite to stake in a game where there are equal risks of gain and of loss, and the infinite to gain,”1 it is the most rational course of action to wager on u1 if f(a)=(u1p1-x1)-a is >0 for a={u2p2-x2, u3p3-x3...unpn-xn} where x is the cost of wagering on U, p is the probability that u will obtain, and a is the set of all alternative wagers and costs. Put simply, one should always bet upon the horse which delivers the highest cost/benefit for the stake. Pascal argues that since a wager on being religious [((∞)(1>p>0)-(x<∞))], will *always* be greater than a wager on being an atheist [((0))(1>p>0)-(x<∞))], religion is far and away a better bet than atheism (as in every possible case involving a reward of 0, (u1p1-x1)-a will be greater than zero because u1p1-x1cannot be lower than zero and a cannot be greater than zero).

II. The St. Petersburg Paradox2

The objection from the St. Petersburg Paradox endeavors to show that even in cases with a nonzero probability of an infinite reward, it is not always rational to pay *any* nonzero cost to wager on that outcome. The game in the St. Petersburg Paradox is one where the gambler tosses a coin n times until a head appears, then receives $2n. The potential payout is limitless, yet the chance of actually receiving the unlimited payout is miniscule. Schlesinger counters this by saying that even though one stands to win an unlimited amount of money by playing the St. Petersburg game, that does not mean that one stands to win unlimited utility, because money carries with it a diminishing utility i.e. while a million dollars represents a life-changing sum for a poor person, it is not one for a trillionaire. In the case of eternal bliss, the reward is one of truly infinite utility, and as such is worth risking everything for.

This seems a bit dodgy, for it is not altogether clear whether

Schlesinger’s example shows a demonstrable difference between an unlimited reward and unlimited utility. It is obviously true that a million dollars makes a greater difference for a poor person than a rich one, but it is not true that the purchasing power of a million dollars is higher for a rich person than a poor person; a million dollars will always be worth a million dollars, regardless of what overall utility df= u/w where w is the part of a person’s all things considered worth they represent. What is necessary here is to show that u1/w > u2/w where u1 is “heaven” or “eternal bliss” and u2 is the unlimited financial reward of the St. Petersburg game. Several attack vectors for showing this exist, and I will explicate what I feel are two of the strongest of these below.

III. Dealing with “Infinite Utility”

First, it can be pointed out that u is really , where {u} is a set of values including mental utility (M), social utility (S), bodily utility (B), spiritual utility (R), &c. {E}. and that w is really , where {w} is a set of values including mental well-being (m), social well-being (s), bodily well-being (b), spiritual utility (r), &c. {e}. Under this expanded definition, I do not think that it would be out of place to say that a unlimited reward that maximized all of the values in {u} would be preferable to an unlimited reward that maximized fewer than all the values in {u}. Given the choice, a rational person would probably prefer unlimited happiness **and** sex appeal (u3) over unlimited happiness(u4) **or** unlimited sex appeal (u5). Even though /, /, and / all represent “infinite utility,” (an infinite improvement over my current w-state) it seems like u3 is a better reward. This is because it maximizes the highest number of {u}/{w} pairs (M/m, S/s, B/b, {E}/{e}).

While in cases involving non-maximal utility it is possible to rank the utility of a given option as the one which provides the highest U value, but in cases of maximal utility, where all rewards have infinite U value, it seems that the only way to rank U values is in terms of the number of areas in which those values are maximized. Under these conditions, it seems acceptable to me to say that u1 is a better reward than u2, simply because u1 by definition maximizes all possible values in {w}, whereas u2 only maximizes a finite number of all the possible values in {w} (since at the very least no amount of money could ever possibly maximize (R/r)).

IV: St. Peter’s Bucks, a Critical Flaw

A second method for attacking the St. Petersburg paradox is to show that the argument is critically flawed because the series in the game is not actually infinite (and therefore the potential reward from the St. Petersburg game is also not infinite in scope), whereas the reward in Pascal’s Wager is actually infinite. Assuming that the gambling age is 18, that we spend ~60% of our lives sleeping, that a typical coin flip takes ~5 seconds, and that the average life-expectancy of a male (call him St. Peter) in the U.S. is 75 years, the maximum number of coin flips that St. Peter could make in the St. Petersburg game is (((75-18)\*.4)\*31557600)/5, or 143902656. This caps the maximum payout of the game for the average male at $287,805,312, which is nowhere even close to infinite. The chances of attaining the maximum payout are .5143902656, which is a number many orders of magnitude smaller than the Planck constant, the point at which distance becomes theoretically impossible to measure. This probability is so slight that advanced mathematical modeling software capable of returning extremely long decimals is unable to calculate it3 and instead rounds it to zero.

Practically speaking, even if St. Peter was able to reach the maximum payout, he would have to truly *waste* his entire life doing so, as he would not ever be able to spend the money that he made, or do anything but flip a coin and sleep for years on end. Even if he was willing to accept this in the hopes that he would technically be the wealthiest person in the world (attaining that amount of wealth greater than which no amount of wealth exists), there would still be some 107,565 people in the world wealthier4 than St. Peter. Based on these considerations alone, Pascal’s Wager is a much better bet for St. Peter than playing the St. Petersburg game; being a religious adherent allows for participation in other activities besides religious exercise, promises an entire eternity to enjoy the rewards of the game, and assurance that the prize at stake is that prize which no greater prize can possibly exist. Couple this with the at the very least *plausible* concept that there is a chance greater than .5143902656 that there is a god and a heaven (evidenced by the fact that there exist large numbers of people who are at the same time perfectly rational *and* religious), and that ∞/w > 287,805,312/w, it is clear that the St. Petersburg Paradox is far from a damning objection to Pascal’s Wager.

1Pascal, Blaise. "Pascal, Blaise - Pensees - Section 3." *Classical Library - Home*. N.p., n.d. Web. 19 Nov. 2012. <http://www.classicallibrary.org/pascal/pensees/pensees03.htm>.

2Schlesinger 151

3A mathematically inclined friend of mine ran it through Matlab and wasn’t able to come up with anything after half an hour of work.

4"Global Rich List." *Global Rich List*. N.p., n.d. Web. 19 Nov. 2012. <http://www.globalrichlist.com/>.