DISCUSSION:

QUENTIN SMITH ON INFINITY AND THE PAST*

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In a recent commendable article, Quentin Smith (1987) exposes fatal flaws in several recent attempts to demonstrate that it is logically impossible for the past to be infinite. However, his analysis of one of these flawed arguments—involving an interesting version of Russell's "Tristram Shandy paradox"—is off the mark, as I show in this paper.

In a recent commendable article, Quentin Smith (1987) exposes fatal flaws in several recent attempts to demonstrate that it is logically impossible for the past to be infinite. One of these arguments (Craig 1979, pp. 98–99) is based on the story of Tristram Shandy, who writes his autobiography so slowly that he covers only one day of his life in a year of writing.[1] This argument assumes that *if* the past is infinite, *then* it would be logically possible for Tristram Shandy to have been writing his autobiography from eternity past, always writing about his past at the rate of one day per year. The argument attempts to show that the consequent of this conditional is absurd, by attempting to show that, since Shandy now has been writing for infinitely many years, and since there are only infinitely many days in all of time, he must have finished by now—though of course he cannot have finished by now since he cannot yet have written about today or tomorrow, days not now in his past.

Smith argues that this argument is invalid. He says that the Craig version of the Tristram Shandy story is "internally consistent", because one infinite set can be a proper subset of another infinite set, and "the infinite set of past days has the same number of members as its proper subset of days written about, yet has members that are not members of this proper subset (these members being the days unwritten about)" (p. 71). Smith is right that the argument is invalid, but in this case his diagnosis of the

[1]The "Tristram Shandy paradox" was discussed by Russell in reference to the future (1938, #340, pp. 358–359). It is based on Sterne's novel.

invalidity is off the mark. In this note I'll explain why; and I'll explain why, contrary to Smith's analysis, the set of days written about cannot in fact always be a subset of the set of days past, on the Craig version of the story. The story, which includes the line that Tristram Shandy writes only about his past, is *not* "internally consistent". However, as I shall explain in the end, the story, properly understood, is of course consistent with the idea that the past is infinite.

Suppose Tristram Shandy has been writing from eternity past: he has written about himself during every year in the past and in every year in the past he has covered exactly one day of his life. Assume also, of course, that the days of Tristram Shandy's life get written about in the order in which they occur in time (earlier days get written about earlier than later days). This implies, I claim, that he cannot always have been writing about his past: in some years past he must have been writing about his future, and only after infinitely many years of writing about his future could he have begun to write about his days past. This implies, of course, that the set of days written about cannot always be a subset of the set of past days spent writing, contrary to Smith's analysis.

Before demonstrating this formally, it is easy to describe the basic reason why it is so. Suppose today Tristram Shandy is writing about the past, just finishing the description of day n of his life (we can assume that days are dated by integers, . . ., -2, -1, 0, 1, 2, . . .). A year from now he will finish describing day $n + 1$; two years from now he will finish day $n + 2$, and so on. So, *as time goes on,* the days described and the days on which he finishes describing them become farther and farther removed in time (but of course there will always be only a finite number of days between any given day and the day on which he finishes describing the given day). Therefore, if we look *back in time,* the temporal distance between a day and the day he finishes describing it must become shorter and shorter. So (since this temporal distance is always finite measured in days), as we look farther and farther back in time, we must eventually find Tristram Shandy writing about the day on which he is currently writing—and earlier than *this* time, we will find him writing about his future.

Consider any day n. Suppose Tristram Shandy writes about day n *after* day n.[2] Say he finishes writing about day n on day $n + m$. Suppose further that every year is exactly 365 days long. Then for any day $n + i$, he finishes writing about $n + i$ on day $n + m + 365i$. To find the day d on which Tristram Shandy writes about day d, we must solve for i in $n +$

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[2]The other possible cases are his writing about day n *on* or *before* day n, which we will see below are indeed genuine possibilities for an arbitrary day n. The algebra below for the case in question, and its interpretation, is exactly parallel for these other cases.

$i = n + m + 365i$; if the solution is I, then $d = n + I = n + m + 365I$. The solution is $I = -m/364$. So $d = n - m/364 = n + m - 365m/364$—or their integral parts, $[n - m/364] = [n + m - 365m/364.]$.[3] On days l later than d, Tristram Shandy writes about his past (about days between days d and l); on day d, he writes about day d; and on days e earlier than d, he writes about his future (about days between days e and d).

This story *is* internally consistent. Although in early years Tristram Shandy writes only about his future days in which he has not yet written or even lived (contrary to Smith's analysis of the story), there is, of course, no logical contradiction in the story—nothing that contradicts the logical possibility of an infinite past. Of course, Tristram Shandy will never finish his autobiography; but no day of his life will escape it. As we have seen, for any i, day $n + i$ is covered by the end of day $n + m + 365i$—or, equivalently, any day x, past, present or future, is covered by the end of day $f(x) = n + m + 365(x - n)$, a monotonically increasing function of x.

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Craig, W. L. (1979), *The Kalam Cosmological Argument*. New York: Harper & Row.
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[3]If m is evenly divisible by 364, we are lucky. Otherwise, day d is integrally numbered by the highest integer less than the algebraic solution for d—the integral part of the solution S for d, which we can denote by $[S]$. This would be consistent with an infinite time keeping system on which all times are associated with real or rational numbers (where "before" corresponds to "less than", the length of a day is 1 on the scale, etc.). Days are labeled by the integral parts of these real or rational numbers. (This, of course, is irrelevant technicality.)

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