ON A SUPPOSED ANTINOMY

I WISH to offer a very simple solution of the logical puzzle concerning the man who was sentenced to be executed in the course of a given week, on condition that he did not know, when the day set for his execution arrived, that it was the fatal day. Arguing that he could not be executed on the seventh day, since if he survived till then he would know that this was the fatal day, and that he could not be executed on the sixth day, since, the seventh day being excluded, this became the last possible day and the same reasoning applied, and that by the same token he could not be executed on the fifth day, and so back through the week, he concluded that the sentence could not be carried out. Where, if at all, did he go wrong?

Professor Quine, in a paper which he first published in MIND (vol. 62. January 1953) and has recently reprinted in his book *The Ways of Paradox*, maintains that the man's reasoning was faulty, on the ground that the conclusion, which he finally reached, that he would not be executed was a possibility that he should have taken into account from the start. But then he would not be entitled to claim, if he survived to the seventh day, that he knew he would be executed on that day. He could claim only to know that either he would be executed on that day or not at all, and in that case it would be consistent with the data that he should be executed even on the seventh day, let alone on any of the others.

I think that Quine's argument is valid *ad hominem*, but I do not think that it gets to the root of the puzzle. Suppose that the condition were that the man should not know, on the day set for his execution, that he was to be executed on that day if he was to be executed at all, it would still appear paradoxical that he could be sure of getting off.

A slight elaboration of the story will, I think, show clearly that Quine's answer is insufficient, and also lead to the solution of the puzzle. Let us suppose that a set of seven cards, known to include the Ace of Spades, is put in the man's cell, in a place where it cannot be tampered with, and every morning the prison chaplain comes in and draws a card. On the day when the chaplain draws the Ace of Spades, the man is to die, provided that he does not know that the Ace of Spades will be drawn on that day. The man argues that the Ace of Spades cannot be the last card in the sequence, for then he would know that it was coming up, that it cannot be the sixth card either, since the elimination of the seventh card reduces the members of the sequence to six, and so on as before. Here it is irrelevant whether the drawing of the Ace of Spades is actually followed by the man's execution, or even whether the chaplain in fact remembers to come and draw the card. What the man's argument, and indeed the original puzzle, purports to show is that there cannot be an event of which it is true both that it is known to be a member of a given sequence, and that its position in the sequence is uncertain, in the sense that when one runs through the sequence one does not know at what stage in it the event will occur.

This last claim is ambiguous, and I have deliberately made it so, because it is on an ambiguity at this point that I believe the whole puzzle turns. The ambiguity is between being unable to predict *before the sequence is run through* when the event in question will occur and being unable to make this prediction *in the course of the run, however long it continues*. In the first case, there is uncertainty, but in the second there may not be. Thus if one is presented with an ordinary well-shuffled pack of cards and asked to bet once for all on the position of the Ace of Spades, the odds, unless one is gifted with extra-sensory perception, are fifty-one to one against one's being right. On the other hand, if one is allowed to continue betting as the cards are exposed, there may come a time when one is betting on a certainty, if the Ace of Spades is the last card to appear. We may concede to Quine that it is not an absolute certainty, since the pack may after all prove faulty and not contain the Ace of Spades, but this does not affect the argument. The distinction which I have made remains.

To see how this solves the puzzle, let us simplify the story by supposing that the date of the execution has been set for one of the two succeeding days. If the condition of the prisoner's escaping it is that he knows which day has been selected, he does not escape, since he does not know, though he has an even chance of correctly guessing, which day it is. But if the condition is that there could be a time at which he would know which day had been selected, he does escape, since this time would come if the execution were set for the second day. A fallacy occurs if the second case is projected on to the first and it is argued that because there could be circumstances in which all uncertainty had been removed, there is no uncertainty at the start. It is only because the two cases are not distinguished in the formulation of the puzzle that the appearance of an antinomy arises.

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