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DISCUSSIONS

Lewis Carroll's Infinite Regress

WILLIAM A. WISDOM

In 'What the Tortoise Said to Achilles',¹ Lewis Carroll suggests that justification of any deductively valid reasoning is impossible, since it must involve an infinite regress. Examination of his article and of the critical literature it has provoked reveals that both Carroll and his commentators have been mistaken: he about where the regress lay, and they about what he said and might have meant.²

In Carroll's fable, the Tortoise asks Achilles to consider the argument from 'Things that are equal to the same are equal to each other' ('A') and 'The two sides of this triangle are things that are equal to the same' ('B') to the conclusion 'The two sides of this triangle are equal to each other' ('Z').³ He then notes that one kind of reader, while accepting the argument as valid, might not accept 'A' and 'B' as true; and another kind, while accepting 'A' and 'B' as true, might not accept the hypothetical statement 'If "A" and "B" are true, "Z" must be true' ('C'). 'Neither of these readers', says the Tortoise, 'is as yet under any logical necessity to accept "Z" as true . . . I want you to consider me as a reader of the second kind, and to force me, logically, to accept "Z" as true.'

Achilles' response is familiar: he invites the Tortoise to accept 'C'; the Tortoise agrees, on the condition that it be written down along with 'A', 'B', and 'Z'. Achilles then claims that, having accepted 'A', 'B', and 'C', the Tortoise must accept 'Z'. The Tortoise in turn says that unless he accepts 'D'—'If "A" and "B" and "C" are true, "Z" must be true'—he need not accept 'Z'. Achilles asks him to accept it; the Tortoise again agrees, once it is written down; Achilles claims to have required him to accept 'Z'; but the Tortoise will not accept 'E'—'If "A" and "B" and "C" and "D" are true, "Z" must be true'—until it is written down; and so on, ad infinitum.

Now what is the *point* of this story? There is no agreement in the literature, unless it be that you should not treat 'the principle of an inference' as a premiss. But this simply *cannot* be the point of the story, since 'C', for example, is *not* the 'principle' of the inference from 'A' and 'B' to

1 *Mind*, N.S., iv (1895), 278–280.

2 Many responses to Carroll were surveyed. The most important, in chronological order, are: Gilbert Ryle, 'Knowing How and Knowing That', *Proceedings of the Aristotelian Society*, 1945–46, pp. 1–16; 'If', "So", and "Because"; *Philosophical Analysis* (ed. Max Black), Englewood Cliffs: Prentice-Hall, 1950, pp. 302–318; W. J. Rees, 'What Achilles Said to the Tortoise', *Mind*, N.S., lx (1951), 241–246; D. G. Brown, 'What the Tortoise Taught Us', *Mind*, N.S., lxxiii (1954), pp. 170–179; J. F. Thomson, 'What Achilles Should Have Said to the Tortoise', *Ratio*, iii (1960), 95–105; W. W. Bartley III, 'Achilles, the Tortoise, and Explanation in Science and History', *The British Journal for the Philosophy of Science*, xiii (1962), 15–33.

3 We use 'A', 'B', and 'Z', respectively, to *abbreviate* these three statements. The Tortoise so *names* them. Exposition should be clearer and easier our way.

'Z', whatever else the 'principle' of that inference might be. For 'C' is simply the claim that the inference is valid, or, equivalently, that 'A' and 'B' together entail 'Z'. And Carroll himself correctly speaks of the validity of that inference and the truth of 'C' interchangeably. 'C' is a second-order statement, a meta-statement, a statement *about* the three first-order statements 'A', 'B', and 'Z'. Similarly, 'D' is a third-order statement, 'E' a fourth-order statement, and so on. The sequence of Carroll's arguments, then, is as follows:

1. A
 B
 —
∴ Z
 2. A
 B
 The above statements entail 'Z' (i.e. no. 1 is valid)
 —
∴ Z
 3. A
 B
 The above statements entail 'Z' (no. 1 is valid)
 The above statements entail 'Z' (no. 2 is valid)
 —
∴ Z
 4. A
 B
 The above statements entail 'Z' (no. 1 is valid)
 The above statements entail 'Z' (no. 2 is valid)
 The above statements entail 'Z' (no. 3 is valid)
 —
∴ Z
- and so on, ad infinitum.¹

With things laid out this way, it is difficult to imagine why Achilles and the Tortoise went past step 2. At step 1 the Tortoise accepted 'A' and 'B' as true. At step 2 he granted that if 'A' and 'B' are true, 'Z' must be true (i.e. that the initial argument is valid). He has already acknowledged—or at any rate he never doubts—that the argument might fail to establish its conclusion in one of only two ways: by its invalidity, or by the falsehood of its premisses. If he honestly grants that 'A' and 'B' are true, and entail 'Z', but fails to grant 'Z', it must be because he seriously misunderstands something he claims to have accepted.

The Tortoise, then, is wrong when he claims that before accepting 'C' he is under no logical obligation to accept 'Z'. He *is* under such an obligation, whether he recognizes it or not. And to grant 'C' is just to acknowledge that obligation. In other words, having won assent to 'C' at step 2, Achilles should return and *apply* that achievement to the initial argument, rather than concern himself with the new and different

1 Gilbert Ryle, in 'Knowing How and Knowing That', pp. 6–7, is the only commentator surveyed who has this perfectly straight. Thomson, on pp. 100 ff., insists on the difference between offering an argument and claiming that it is valid. But still he treats 'C', 'D', 'E', etc. as first-order statements rather than as comments on earlier arguments.

argument no. 2. (It is interesting to note that the second argument must be valid, whether or not the first is, and that the second must have a false premiss if the first either has a false premiss or is invalid.)

The point of the fable may simply be to express Carroll's perplexity about—and thus focus attention on—the significance of the logical "must" in 'C', 'D', 'E', etc., and the relation between 'must be true' and 'must be accepted'. How, the Tortoise wonders, can you *make me accept 'Z'*? What will happen to me if I do not? Achilles says (wishes) that 'Logic would take you by the throat, and *force you to do it!*' But Logic will not oblige. It is rather Achilles who must require the Tortoise to accept 'Z', and that not physically but logically. The Tortoise can stupidly or perversely refuse to grant 'Z' indefinitely. But *there is no way for 'Z' to be false while 'A' and 'B' are true*—that is what Achilles must show him; *any world in which 'A' and 'B' are both true is one in which 'Z' is true as well*. Of course these italicized remarks are simply reformulations or elaborations or defences of 'C'. They are offered in the hope that the Tortoise is honest but confused—it seeming more likely that he misunderstands the second-order comment 'C' than 'A', 'B' or 'Z'.

Carroll was right in thinking that an infinite regress through 'orders' of language threatens anyone who seeks to justify an inference; but he was wrong about where it lies. In a corrected version of the story, the Tortoise would accept 'A' and 'B' but not 'Z', and Achilles would try to show him where he was wrong—would try, in effect, to persuade him to accept 'C' (and hence 'Z'). He might have to talk about the transitivity of 'equals', or about the truth-relation between universal statements like 'A' and their instances, or about the truth-conditions for conditional statements, or so on. This talk would be second-order to the first-order statements 'A', 'B', and 'Z'. And it would be *reasoned*; that is, it would involve arguments, like: 'If a conditional statement and its antecedent are both true, then its consequent is true. This conditional statement (say, the appropriate instance of "A") and its antecedent ("B") are both true. Therefore its consequent ("Z") is true.' Now such talk might satisfy the Tortoise that, having accepted 'A' and 'B', he is under a logical obligation to accept 'Z'. But it might not, for any number of reasons, one of which could be that he doubted the soundness of the second-order reasoning. Then a third-order argument justifying the second-order reasoning would be called for, which might satisfy the Tortoise. But it might not, if he doubted the soundness of the third-order argument. And so on. Reasoning cannot be justified at all these orders simultaneously, since all the orders of discourse cannot be collapsed into one. (This means, for example, that there is one Modus Ponens for first-order conditionals, another for second-order conditionals, and so on. And they can only be justified one at a time, from the next higher order.)

This infinite regress is only potential: it is blocked as soon as the doubter is satisfied at some order that the reasoning of the preceding order was sound. The point remains, however, that an intelligent and honest Tortoise *could* find himself in this regress, but not in Carroll's, for the reasons already given.