
Problem of the Week

Solution Seven

While out for a walk, you meet Zed, Adler and Banacek. Zed says, “Adler is a knight.” Adler says, “Banacek is a knave.” Banacek says, “Zed is a neutral.” What can you deduce about the types of the three people?

SOLUTION: Zed and Adler are knights, while Banacek is a knave.

We should begin with Banacek’s statement. The assertion, “Zed is a neutral,” is not the kind of statement that can have truth value N. There is no ambiguity surrounding one’s status as a neutral. We conclude that the statement is either true or it is false, and therefore that Zed is either a knight or a knave.

Could Banacek be a knight? If he were, then his statement would be true, which implies that Zed really is a neutral. That would imply that Zed’s statement has truth value N. That is possible only if Adler is also a neutral, which would imply that her statement has truth value N. But this is impossible, since in this scenario the statement, “C is a knave,” is false.

We conclude that Banacek is a knave. Since that is precisely what Adler said, we see that she is a knight. And since that is what Zed said, we see that he is a knight as well. That completes the solution.