Name: Date: Monday, October 31, 2016

MATH 181 F1 Worksheet: Total-Conflict Games

Sherlock Holmes versus Professor Moriarty

"Sherlock Holmes desires to proceed from London to Dover and hence to the Continent in order to escape from Professor Moriarty who pursues him. Having boarded the train he observes, as the train pulls out, the appearance of Professor Moriarty on the platform. Sherlock Holmes takes it for granted–and in this he is assumed to be fully justified–that his adversary, who has seen him, might secure a special train and overtake him. Sherlock Holmes is faced with the alternative of going to Dover or of leaving the train at Canterbury, the only intermediate station. His adversary–whose intelligence is assumed to be fully adequate to visualize these possibilities–has the same choice. Both opponents must choose the place of their detrainment in ignorance of the other's corresponding decision. If, as a result of these measures, they should find themselves, in fine, on the same platform, Sherlock Holmes may with certainty expect to be killed by Moriarty. If Sherlock Holmes reaches Dover unharmed he can make good his escape."
–(from von Neumann and Morgenstern, Theory of Games and Economic Behavior p. 177)

Moriarty

		Canterbury	Dover	Min
Holmes	Canterbury	-10	0	
	Dover	5	-10	
	Max			—

Using Maximin/Minimax Strategy can we tell what will Moriarty do?

Using Maximin/Minimax Strategy can we tell what will Sherlock do?

In the book, Moriarty goes to Dover and Sherlock gets off at Canterbury, avoiding death but also failing to escape England. Is this consistent with the results above?