

CLASSWORK: KNIGHTS AND KNAVES

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1. INTRODUCTION

Copyright notice: most of these problems come from books of Raymond Smullyan. If you liked them, get his books in the library and you will find there many more puzzles of the same sort. You can also find a number of such puzzles online at

<http://philosophy.hku.hk/think/logic/puzzles.php>

There is an island of Knights and Knaves. On this island, there are two kinds of people: Knights, who always tell the truth, and Knaves, who always lie. Unfortunately, there is no easy way of knowing whether a person you meet is a knight or a knave...

- (1) If Zoe is from that island can she say "I am a knave" ?

Statement of Zoe = $S(\text{Zoe})$ = "I am knave"

Zoe	$S(\text{Zoe})$
T	
F	

- (2) There are two native islanders, named Alice and Bob, standing next to each other. You do not know what type either of them is. Suddenly, Alice says "At least one of us is a Knave." What are Alice and Bob?

Alice	Bob	$S(\text{Alice})$
T	T	
F	T	
T	F	
F	F	

- (3) You meet two inhabitants: Sally and Zippy. Sally claims, 'I and Zippy are not the same.' Zippy says, 'Of I and Sally, exactly one is a knight.' Can you determine who is a knight and who is a knave?

Sally	Zippy	S(Sally)	S(Zippy)
T	T		
F	T		
T	F		
F	F		

- (4) You meet two inhabitants: Mel and Ted. Mel tells you, 'Either Ted is a knight or I am a knight.' Ted tells you that Mel is a knave. Can you determine who is a knight and who is a knave?

Mel	Ted	S(Mel)	S(Ted)
T	T		
F	T		
T	F		
F	F		