

Implications exercises

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These puzzles are set on Smullyan's island, where there are two types of inhabitants: 'knights', who always tell the truth, and 'knaves', who always lie. Everyone on the island is either a knight or a knave. Form propositions and use these to make arguments to solve these puzzles.

1. You meet two inhabitants of the island, Alice and Bob. Alice says "We are the same kind," but Bob says "We are of different kinds." What are Alice and Bob?
2. You meet two inhabitants of the island, Alice and Bob. Alice says "At least one of us is a knave." What are Alice and Bob?
3. You meet two inhabitants of the island, Alice and Bob. Alice says "Either I am a knave or Bob is a knight." What are Alice and Bob?
4. You meet three inhabitants of the island, Alice, Bob, and Carol. Alice says "All of us are knaves." Bob says "Exactly one of us is a knight." What are Alice, Bob and Carol?