Assignment #2
Due on Monday. 28 September.

Knights and Knaves

Unsurprisingly, the inhabitants of the Island of Knights and Knaves are all either Knights or Knaves. Knights always tell the truth and Knaves always lie. On a visit to the island, you meet nine inhabitants, A through I. These tell you the following:

A: C and F are Knights.
B: A would tell you that C is a Knight.
C: B could claim that G is a Knave.
D: G is a Knave or I is a Knave.
E: H could claim that F is a Knave.
F: C is a Knave.
G: E is a Knave or F is a Knave.
H: D is a Knave.
I: E is a Knave.

1. Determine, as best you can, which of A–I is a Knight and which is a Knave.[†] *[6]*

Humans and Zombies

On a certain island near Haiti, half the inhabitants have been bewitched by voodoo magic and turned into zombies. ... the zombies of this island always lie and the humans of this island always tell the truth.

So far this sounds like another knight-knave situation in a different dress, doesn't it? But it isn't! The situation is enormously complicated by the fact that although all the natives understand English perfectly, an ancient taboo of the island forbids them ever to use non-native words in their speech. Hence, whenever you ask them a yes-no question, they reply "Bal" or "Da"—one of which means *yes* and the other *no*. The trouble is that we do not know which of "Bal" or "Da" means *yes* and which means *no*.

2. If you meet a native on this island, is it possible in only one yes-no question to find out what "Bal" means? If so, give such a question.[*] *[4]*

NOTE: Do make sure to provide as complete and coherent reasoning as you can as part of your answers to both problems above!

[†] The set-up and problem are taken from a puzzle by Zachary Ernst, in the style of various puzzles by Raymond Smullyan.

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