

1 1. A certain convention numbered one hundred politicians.
2 Each politician was either crooked or honest. We are given
3 the following two facts:
4 (1) At least one of the politicians was honest.
5 (2) Given any two of the politicians, at least one of the two
6 was crooked.
7 Can it be determined from these two facts how many of
8 the politicians were honest and how many were crooked?
9

10 2. A group of people with assorted eye colors live on an island. They are all perfect
logicians -- if a conclusion can be logically deduced, they will do it instantly. No
one knows the color of their eyes. Every night at midnight, a ferry stops at the
island. Any islanders who have figured out the color of their own eyes then leave the
island, and the rest stay. Everyone can see everyone else at all times and keeps a
count of the number of people they see with each eye color (excluding themselves), but
they cannot otherwise communicate. Everyone on the island knows all the rules in this
paragraph.

11
12 On this island there are 100 blue-eyed people, 100 brown-eyed people, and the Guru (she
happens to have green eyes). So any given blue-eyed person can see 100 people with
brown eyes and 99 people with blue eyes (and one with green), but that does not tell
him his own eye color; as far as he knows the totals could be 101 brown and 99 blue. Or
100 brown, 99 blue, and he could have red eyes.

13
14 The Guru is allowed to speak once (let's say at noon), on one day in all their endless
years on the island. Standing before the islanders, she says the following:
15
16 "I can see someone who has blue eyes."
17
18 Who leaves the island, and on what night?
19

20 3. You are walking in a labyrinth and all of a sudden you find yourself in front
21 of three possible roads: the road on your left is paved with gold, the one in
22 front of you is paved with marble, while the one on your right is made of small
23 stones. Each street is protected by a guardian. You talk to the guardians and
24 this is what they tell you:
25 • The guardian of the gold street: "This road will bring you straight to
26 the center. Moreover, if the stones take you to the center, then also the
27 marble takes you to the center."
28 • The guardian of the marble street: "Neither the gold nor the stones will
29 take you to the center."
30 • The guardian of the stone street: "Follow the gold and you'll reach the
31 center, follow the marble and you will be lost."
32 Given that you know that all the guardians are liars, can you choose a road
33 being sure that it will lead you to the center of the labyrinth? If this is the case,
34 which road you choose?