

A Puzzle about Knowledge

There are 50 people brought to an island. They are blindfolded at first. 20 have blue eyes; the rest have brown eyes. No one knows their own eye colour. By rule, if a person discovers they have blue eyes, they must leave the island at dawn the next day.

The blindfolds are removed by the Queen of the Island, who always tells the truth and has green eyes. She says: ‘I see a person with blue eyes’.

Now everyone knows every *other* persons' eye colour. But there are no reflective surfaces, and there is no discussion of eye colour allowed.

The problem: assuming all persons on the island are completely logical and that this too is common knowledge, what is the eventual outcome?