



PROBLEM OF THE WEEK #7
(Fall 2016)

Some of the citizens of Transylvania are human; the others are vampires. The humans always try to tell the truth, and the vampires always try to lie. Unfortunately, some of the inhabitants are insane: when a claim is true, the insane citizens believe it to be false, and *vice versa*. The sane Transylvanians, on the other hand, are completely accurate: they always know which claims are true and which are false. This means that sane humans make only true statements, and so do insane vampires, while insane humans and sane vampires make only false statements.

The Transylvanian police arrested two suspects, A and B . At their trial, A said that B was sane, and B said that A was insane. Angered, A called B a vampire, to which B replied that A was only human.

What can you deduce about the suspects?

[Please fully explain your answer.]

Solutions should be submitted to Cinda Furry, in Gardner Hall 435, by 4:00 P.M. on Wednesday, November 2, 2016.

Every week, the best solution submitted earns a \$10 Platteville gift certificate; the top scorer each semester also wins a cash award. Good luck!

You can always see the Problem of the Week (and complete rules) online at:

<http://www.uwplatt.edu/mathematics/problem-week>