

## THINKING ABOUT THE MU PUZZLE

MATH 105-6: FRESHMAN SEMINAR: THEORIES OF MIND AND MATHEMATICS  
PROF. THEO JOHNSON-FREYD, NORTHWESTERN UNIVERSITY, SPRING 2014

### CONTENT

Write a first-person expository essay about your thought processes when trying to solve the MU puzzle. What steps did you take and why? Use your experience to draw conclusions about the nature of solving mathematics problems. If useful, also draw on your experience with mathematical thinking from other contexts (other classes, for example).

Here are some possible questions you might address:

- Do your mathematical experiences reflect Hofstadter’s M/I/U paradigm?
- Is mathematics substantially similar to or different from other avenues of knowledge (science, art, writing, etc. — you may want to focus on some particular area in which you have some expertise)? For example, the paper by Lockhart in the Recommended Readings list takes the position that mathematics and art are very similar.
- If you wanted to teach an alien or a robot or a kitten the mental techniques you used when thinking about the MU puzzle, what would you need to do? And what minimal mental capacities would the alien/robot/kitten need in order to learn such techniques?

Note: The above list is not meant to be complete — there are many other questions you could address, and many other conclusions you could draw. And of course you should pick one somewhat narrow conclusion, rather than trying to address all of these.

Write for an “educated lay audience” — don’t assume your reader has any specific expertise or knowledge beyond, say, what a random Northwestern undergraduate would have. In particular, don’t assume your reader knows what the MU puzzle is or has read any of the readings for this class. This means that you should describe enough of the MU puzzle for the reader to follow your argument (but, unless you need to, don’t necessarily give the entire puzzle). If you want to reference any other material, cite it, and be sure to include a sentence or two explaining the material that you’re citing, so that your reader can follow your discussion.

### FORM

Your essay should be two to three pages, double spaced, written in a normal typeface (like this one, which is called “Computer Modern,” or the ever-popular Times and Times New), in a normal size (11pt or 12pt), with normal margins (between 1in and 1.5in).

Your essay is due by 9am on Tuesday, April 8. It should be submitted in PDF form by email to [theo.jf@math.northwestern.edu](mailto:theo.jf@math.northwestern.edu).

Your essay can be casual in tone if you like, but it should be proofread and follow standard conventions for punctuation and citations, as detailed in any writing manual.