SUMMARY AND REVIEW

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

OPENING CHORUS

Look up the review of Roger Penrose's book *The Emperor's New Mind: Concerning Computers, Minds and The Laws of Physics* (1989) on MathSciNet (`http://www.ams.org/mathscinet/`; it's a subscription service, so if you are not using Northwestern's internet, go to `http://www.library.northwestern.edu/`, click "All Databases," and search for it from there, so that you can authenticate). Also search for "The Emperor's New Mind" on JSTOR (`http://www.jstor.org/`; ditto), and read one or two of the many book reviews that turn up. Think about the differences in style used by the different reviewers.

RECITATIVE

There are many types of "reviews" in academic discourse. Some are primarily "critical," engaging with and arguing against the author. Some are primarily "evaluative," focusing on the quality of the piece. The reviews most common in mathematics focus largely on summary. The primary goal of such a review is to aid the reader. Thus a good mathematical review should help the reader decide whether to read the article (or book or . . .) at all, and, in case the reader does decide to read the article, provide a roadmap to guide them through it. The best mathematical reviews present the content of the article in such a way that almost no readers need ever read the article itself: they can just read the review instead. Some amount of evaluation and critical engagement are also appropriate. In particular, if the reviewer disagrees with something form the article, the reviewer should say so. But any criticism must be well-supported with specific evidence. Shorter reviews are preferable over longer ones, provided the basic goals are met.

Write a review, focusing mainly on summary but also providing evaluation and criticism as appropriate, of one of the following six articles:

- William P. Thurston, On proof and progress in mathematics, *Bulletin of the American Mathematical Society*, vol. 30, no. 2 (April 1994), pp. 161–177.

- Roger Penrose, *The Road to Reality: A complete guide to the laws of the universe*, Chapter 1: The roots of science, pp. 7–24, Knopf, 2006.

- Eugene Wigner, The unreasonable effectiveness of mathematics in the natural sciences, *Communications in Pure and Applied Mathematics*, vol. 13, no. 1 (Feb. 1960), pp. 1–14.

- Thomas Nagel, What is it like to be a bat?, *The Philosophical Review*, vol. 83, no. 4 (Oct. 1974), pp. 435–450.

- Kathleen Akins, What is it like to be boring and myopic?, *Dennet and His Critics: Demystifying Mind*, pp. 124–160, Blackwell, 1993.

- Roger Penrose, Mathematical intelligence, *What is Intelligence*, pp. 107–136, Press Syndicate of the University of Cambridge, 1994.

Aria

Find at least one partner from the class. By 9am on Tuesday, May 13, email them a "final draft" quality version of your review, and cc `theojf@math.northwestern.edu`. They will review your review, and you will review their review. By 9am on Wednesday, May 14, respond to their email (cc'ing `theojf@math.northwestern.edu`) with the following content:

(1) Do you agree with their summary and criticism? Why or why not?

(2) Is the review structured in a way that aids the reader? What evidence is well-presented, and what improvements should be made?

(3) List all suggested edits to improve mechanics, style, and diction.

I recommend that you negotiate earlier "due dates" with your partner(s) than what are listed above, to provide more time for reviewing the reviews.

Chorale

By 9am on Thursday, May 15, send a revised copy of your paper to `theojf@math.northwestern.edu`, cc'ing your reviewer. List all revisions that you decided to make. Justify each choice not to make a suggested revision with a sentence or two.

This version will be made available to the entire class, so that they may use it when putting together their final papers. (I will password-protect the papers, so that they are available only to your classmates.) Thus this version should be of very high quality. I am, as always, happy to provide feedback during office hours.