Wednesday, 30 April 2025 // filmosofia 9 at Rozz-Tox // *Pi* (1998 Aronofsky, dir.)
& "The Three Worlds" (Popper 1978)[1]

Agenda:

- pre-screening discussion (about 6:30pm)
- film starts 7:00pm
- 10 minute break
- post-screening discussion of Popper reading selection and film from 8:45pm to 9:45pm

Pre-screening discussion (6:30pm)

- general remarks about filmosofia series:
    - roughly every other month we screen a film and we pair it with a famous philosophical text that examines themes related to that film
    - the 2025 filmosofia schedule is up on instagram (@rozztox_qc & @casuallyinefficacious) and on the Rozz-Tox website; stay tuned for updates about the 2025 philosophy events
    - the third filmosofia 2025 screening will be Reggio's (1982) *Koyaanisqatsi*, and the reading will be Clark & Chalmers' (1998) "The Extended Mind": Wednesday 25 June
        - free print articles for filmosofia will be in the usual place, in the front of the cafe–the Clark & Chalmers article is there now

- More details on the four main branches of philosophy:

    - metaphysics: the theory of reality
        - notable sub-fields: ontology (the study of what exists), philosophy of mind (theory of the nature of consciousness)

    - epistemology: the theory of knowledge
        - notable sub-fields: analysis of 'knowledge' (challenges to the "Justified True Belief" model), debates over the a priori vs. a posteriori justification (whether there is justification independent of experience)

    - axiology: the theory of value
        - notable sub-fields: normative ethics (theory of right/wrong), aesthetics (theory of good/bad art)

[1] Popper, Karl. "The Three Worlds." *The Tanner Lectures on Human Values*. 1978. p143-167. URL= https://tannerlectures.org/lectures/three-worlds/

    - logic: the theory of right reasoning
        - notable sub-fields: classical logic (modern formal theory of entailment), non-classical logics (formal theories that reject assumptions in classical logic, such as the principle of explosion (*ex falso quodlibet*) in paraconsistent logics)

- tonight's topic: metaphysics and epistemology

    - metaphysical questions about the nature of reality:
        - are numbers real? if numbers exist and they are not concrete entities, does that mean that there are some things that are not concrete (i.e., there are abstract entities)? does the subject matter of mathematics relate to something outside of the mind? do the features of the physical world depend on the features of the mathematical world? what is the meaning of Galileo's claim that "the book of nature is written in the language of mathematics"?

    - epistemological questions about the nature of our mathematical knowledge:
        - if numbers are not concrete objects, and we can only ever causally interact with concrete objects, how can we ever know anything about them? if human existence is finite and finite experiences can never entail anything about necessity, how can we have mathematical knowledge of necessities?

    - historical proponents and opponents:
        - Proponent: Pythagoras and his cult followers the μαθηματικοι, ("mathematikoi"; incidentally, the origin of our word "mathematician") believed that the physical world is but a shadow of a higher mathematical realm of eternal, unchanging objects, and that music is a window for our minds into this other realm.
        - Proponent: Plato and his followers at the Ἀκαδημία ("hacademia", the origin of our word "academic") distinguished between two worlds: the physical world of material objects and a higher realm of "forms"
        - Opponent: William of Okham famously articulated an ontological maxim (later adopted as a popular device of scientific methodology): "don't postulate entities beyond necessity"--crucial figure of the "nominalist" movement (see Kneale and Kneale 1962, p265)
        - Opponent: David Hume advanced a very serious defense of empiricism which casted serious doubts on our knowledge of necessity, and which eschewed metaphysics of the platonist variety.

Post-Screening Discussion (8:45pm)

- tonight's topic: metaphysics and epistemology
    - abstract objects vs. concrete objects–what's the distinction?
        - concrete objects are the sorts of things we are familiar with from our interactions with things in the physical world–tables, chairs, cups, etc.
            - spatio-temporally bounded, causally efficacious
            - Popper (1978, p145): "world 1" objects
        - abstract objects are the sorts of things that we can talk about, that we can debate the properties of, but are not causally efficacious, spatio-temporally located, etc. (cf. Lewis 1986, p81: "the way of negation")
            - you can't kick the number two, yet you can correctly describe the number two as an even number, etc.
            - examples of abstract objects: entities from mathematics, forms of government, properties such as greenness, works of music, books, film, operating systems
            - Popper (1978, p145): "world 3" objects
            - *nota bene*: Popper clearly does not accept the condition that abstract objects are causally inefficacious! (1978, p153: the "causal effect" criterion for what is real or what exists; see below)

- Overarching ontological question: are abstract objects, such as the entities described by mathematics, real? Popper's "The Three Worlds" offers some arguments…

    - The argument from evaluation
        1. We can all perceive an objective difference in the quality of performances of some works of music.
        2. If we can all perceive an objective difference in the quality of performances of some works of music, then there are some concrete objects (performances) that are better at realizing an abstract entity (the composition) than others.
        3. If there are some concrete objects that are better at realizing an abstract entity than others, then there exist abstract objects.
        4. Therefore, there exist abstract objects. (Popper 1978, p149)

    - The argument from causation
        1. Some abstract objects (theories, concepts, etc.) cause changes in people's minds and behavior.
        2. If something causes changes in people's minds and behavior, then it exists.
        3. Therefore, some abstract objects exist. (Popper 1978, p154)

    - The argument from content vs. thought process
        1. One and the same content can occur to Leonardo on different occasions when he's thinking about flying machines.
        2. If that is right, then the content of the thought is a thing that is distinct from the specific instances of thought processes about flying machines.
        3. If the content of thought is distinct from thought processes, then abstract objects exist.
        4. Therefore, abstract objects exist. (Popper 1978, p157; cf. Katz 1980)

- additional epistemological question: if abstract objects are not spatiotemporal, then how could we ever learn anything about them?
    - The "Benacerraf Argument"
        1. Human beings are physical beings contained in spacetime.
        2. If human beings are physical beings contained in spacetime, then if human beings can know about something, it must be something that is causally efficacious.
        3. Abstract entities are not causally efficacious.
        4. Therefore, human beings cannot know anything about abstract objects. (cf. Benacerraf 1973, Balaguer 1998)

Recommended Further Reading/References:

1. Aristotle. (350BCE/2016) *Metaphysics*. Reeve, trans. Hackett Publishing Company.
2. Benacerraf. (1973) "Mathematical Truth." *Journal of Philosophy.* vol. 70 iss. 19: 661-79.
3. Balaguer. (1998) *Platonism and Anti-Platonism in Mathematics*. Oxford University Press.
4. Cresswell. (2010) "Abstract Entities in the Causal Order." *Theoria* vol. 76: 249-65.
5. Dodd. (2007) *Works of Music*. Oxford University Press.
6. Falguera, Martinez-Vidal, and Rosen. (2022) "Abstract Objects." *The Stanford Encyclopedia of Philosophy*. Edward N Zalta, ed. URL=<https://plato.stanford.edu/archives/sum2022/entries/abstract-objects/>.
7. Frege. (1956) "The Thought: A Logical Inquiry." *Mind*. vol. 65 iss. 259: 289-311.
8. Hume. (1739/2000) *A Treatise of Human Nature*. Norton and Norton, eds. Oxford University Press.
9. Juvshik. (2018) "Abstract Objects, Causal Efficacy, and Causal Exclusion." *Erkenntnis.* vol. 83: 805-27.
10. Katz. (1980) *Language and Other Abstract Objects*. Rowman & Littlefield Publishers.
11. Kneale and Kneale. (1962) *The Development of Logic*. Oxford University Press.
12. Lewis. (1986) *On the Plurality of Worlds*. Blackwell Publishing.
13. Plato. (360BCE/1977) *Phaedo*. Grube, trans. Hackett Publishing Company.
14. Plato. (360BCE/1996) *Parmenides*. Gill and Ryan, trans. Hackett Publishing Company.
15. Popper. (1972) *Objective Knowledge: An Evolutionary Approach, Revised Edition*. Oxford University Press.