

CCCU Disciplinary Faculty Development Workshop: Mathematics Project Description

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I have started a paper entitled “Mathematics, Stranger Than it Used to Be: Mathematical Contributions to Postmodernity” in which I begin to explore the relationship between mathematics and culture. My focus is to determine to what extent the development of mathematics played a role in the cultural development of postmodernity. The first chapter “Mathematical Truth: Static or Changing?” in *Mathematics in a Postmodern Age: A Christian Perspective* deals with how postmodern ideas appear in the philosophy of mathematics. In a way my exploration is similar; I am interested in examining the role mathematics played in constructing a postmodern mindset in culture. And this may have taken place through formalism, logicism and constructivism in the philosophy of mathematics. The fact that developments in mathematics played a role in the maturing of postmodern philosophies of mathematics does not by itself imply that those developments played a role in wider culture. Nevertheless, by focusing mostly on the advent of non-Euclidean geometry, I think there is a role that mathematics played in the construction of postmodern thought.

My focal point is the fact that expressions of statements which are equivalent to the Euclidean parallel postulate have been most often quoted by philosophers throughout history to support notions of objective truth, and to demonstrate that humans can attain knowledge of absolute truth. My initial samples include Descartes, Galileo, Spinoza and Kant.

I also have explored a statement by St. Augustine in which he states the while it is not clear to him how wisdom and mathematics (number) are linked, it is “clear that both are true and immutably true”. In digging into his justification for this statement he quotes a scripture passage but from a translation that is arguably influenced by Greek and Platonic thought, especially as it translates the Hebrew word ‘heshbon’ as ‘number’.

While there is a very strong link from mathematics to culture in the development of modern thought, especially as it pertains to justifying our ability to grasp truth with certainty, the link from mathematics to culture to my knowledge is not as well laid out in the development of postmodern thought (although the links within mathematics proper have been demonstrated).

As one link, Joan Richards suggests the radical ideas of formalism played a role in the development of ethical relativism. She explains various factors that played a role - including the curriculum in the English school system and proponents of Darwin’s theory of evolution. For example she describes how the discovery of non-Euclidean geometry provided fertile ideas which fed the growth of scientific naturalism. And defenders of Darwin used the new

concepts about the nature of truth to defend their position, to the point of defending their lack of evidence/proof using the uncertain nature of proof in mathematics.

I would enjoy the opportunity to explore these connections with others. I am not an expert in this type of research. My exploration may require more explicit connections with some of the major thinkers in post-modern thought to flesh this out. The material I develop will aid me in the development of my teaching, in particular in my Modern Geometry course where I explore these issues with my students. The ideas being explored will also be beneficial for a History of Mathematics course I am developing.

If my particular focus described above is too narrow, or even been done before, then I would also enjoy spending workshop time to develop modules and themes for a History of Mathematics course taught at a Christian College.