Gödel's Theorems, the Unreality of Time, and Gödel's GOD
A Modal Magical Mystery Tour

Math Club, Stony Brook University
Wednesday 3 October 2018
Gary Mar, Department of Philosophy

"Kurt Gödel's achievement in modern logic is singular and monumental—indeed it is more than a monument, it is a landmark which will remain visible far in space and time."

— John von Neumann

ABSTRACT: Gödel was the greatest logician of the 20th century[1] and dreamed of establishing philosophical theses and ontological results with the rigour and precision of mathematics. His dream was to a remarkable extent fulfilled. Despite their technical sophistication, Gödel's *logical* theorems such as the Completeness Theorem [1930] and his Incompleteness Theorems [1931] have perennially managed to escape mere mathematics and shed light on larger philosophical issues. A number of popular accounts of Gödel's Incompleteness Theorems (e.g., Douglas Hofstader's *Gödel, Escher, Bach* [1979], Nagel and Newman'a *Gödel's Proof* [1957, 2001] and Rebecca Goldstein's *Incompleteness: The Proof and Paradox of Kurt Gödel* [2005]) misrepresent Gödel's ideas and their mathematical and philosophical significance. This informal talk presents Gödel's Incompleteness theorems using modal provability logics. Modal principles characterize properties of *proof*, *time*, and *God* reveal logical interconnections among Gödel's theorems and philosophical conclusions about the unreality of time in the General Theory of Relativity [1949-1952] and in his *Ontologischer Beweis* [*1970] which he passed on to the logician Dana Scott at a time when Gödel feared he was going to die. Gödel's success has often been attributed to his *philosophy of mathematics*, but his success is as much a tribute to his "*mathematics of philosophy*", *i.e.,* his ability to formulate *philosophical* problems in a manner that made them amenable to *mathematical* methods.[2]

---

[1] Among the great logicians of the 20th century one must also include Alonzo Church and Alan Turing, Church's fifth dissertation student. Another great 20th century logician, Alfred Tarski, claimed only that he was the "greatest living *sane* logician" (Feferman and Feferman [2008], 5). According to the Mathematics Genealogy Project, Alonzo Church had 35 dissertation students (I was the last student to have Church as an advisor) and 4920 descendants.

[2] This felicitous turn of phrase is due to Odifreddi [2006].