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## COMPUTER-ASSISTED ANALYSIS OF THE ANDERSON-HÁJEK ONTOLOGICAL CONTROVERSY

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The axioms in Gödel's ontological proof (Scott, 2004) entail what is called *modal collapse* (Sobel, 1987, 2004): the formula  $\Box \phi$  holds for any formula  $\phi$  and not just for  $\phi$  as intended. This fact has led to strong criticism of the argument and stimulated attempts to remedy the problem. One of those attempts (Anderson, 1990) sparked a controversy between Hájek and Anderson regarding the redundancy of some axioms in Anderson's theory.

Although Hájek (1996, 2001) rightfully claimed the redundancy of two axioms in Anderson's (1990) theory, he still seems to have accepted Anderson's rebuttal (Anderson & Gettings, 1996) and proposed three new emendations (Hájek, 2002) which contain the axioms in question. Surprisingly, our analysis shows that the two axioms are still independent in one of the emendations, and superfluous in all of them.

The controversy over the superfluosness of the two axioms indicates a trend to reduce the ontological argument to its bare essentials. In this regard, Anderson (1990) introduces another variant of the argument in which many of the axioms become derivable. A high level of minimality is also achieved by Bjørdal (1998) by taking the property of being God-like as a primitive.

Many of the properties of those variants depend on the exact modal system being used and whether *constant* or *varying domain semantics* are employed. In our work, we took these conditions into account in order to provide a thorough computer assisted analysis of the mentioned arguments.

### REFERENCES

- ANDERSON, C.A. 1990. "Some Emendations of Gödel's Ontological Proof" In: *Faith and Philosophy*.
- HÁJEK, P. 1996. "Magari and others on Gödel's Ontological Proof" In: *Logic and Algebra*, Dekker, New York, pp. 125-135.
- ANDERSON, C.A.; GETTINGS, M. 1996. "Gödel Ontological Proof Revisited" In: *Gödel'96: Logical Foundations of Mathematics, Comp. Science and Physics*, Springer, pp.167-172.
- BJØRDAL, F. 1998. "Understanding Gödel's Ontological Argument" In: *The Logica Yearbook*.
- HÁJEK, P. 2001. "Der Mathematiker und die Frage der Existenz Gottes"
- HÁJEK, P. 2002. "A New Small Emendation of Gödel's Ontological Proof" In: *Studia Logica*, 71.2, pp. 149-164.
- SCOTT, D. 2004. "Appx. B: Notes in Dana Scott's Hand" In: Sobel, J. H., *Logic and Theism: Arguments for and against Beliefs in God*, Cambridge: Cambridge University Press.