

## Interconnections between logic and algebra: Some glimpses into history

Hanamantagouda P. Sankappanavar

Department of Mathematics  
State University of New York  
New Paltz, NY 12561  
U.S.A.

**Abstract:** In this lecture I shall present some of the highlights of the incredibly fascinating story of:

- How the numerical algebra of the first half of the 19th century influenced Boole to the discovery of his algebra of classes, which was later improved to what we now call as Boolean algebras, by Jevons, De Morgan, Peirce and Schröder,
- How Boole's algebra of classes, in turn, was partly responsible to the very creation of universal algebra.

I shall, then, try to illustrate how systems of propositional logic (classical, many-valued, intuitionistic, etc.) provide stimulus to universal algebra by providing a rich variety of examples of algebras and thereby inspiring new ideas and results in universal algebra, and how universal algebra, for its part, provides powerful methods for the investigation of algebras arising from the propositional logics, thus contributing to further understanding of those logics.

My presentation will be, for the most part, non-technical and will include, time permitting, the historical timeline of major breakthroughs in both universal algebra and propositional logic.

**About the speaker:** Prof. H. P. Sankappanavar is a Professor Emeritus at Department of Mathematics, State University of New York, New Paltz. He works in Universal Algebra and Mathematical Logic. He is well known for his book "A Course in Universal algebra" co-authored with Stanley Burris in Graduate Texts in Mathematics series by Springer.