

Non-Classicality: Logic, Mathematics, Philosophy. Editors' Introduction

What is 'non-classicality'? Terminologically, it is defined only negatively, by what it is not. In the 20th century, classical logic was such a dominant paradigm—not only in logic, but in philosophy and mathematics—that to make room for anything else, a strong negative stance was needed. We recall how the book *Relevant logics and their rivals vol. 1* in 1982 opened with a call to arms, from Henry Lawson's "Freedom on the Wallaby" (1891)—quoted in all caps:

SO WE MUST FLY A REBEL FLAG
AS OTHERS DID BEFORE US,
AND WE MUST SING A REBEL SONG
AND JOIN IN REBEL CHORUS.
WE'LL MAKE THE TYRANTS FEEL THE STING
O' THOSE THAT THEY WOULD THROTTLE; . . .

The ending of the poem is omitted in the quotation, but the last line is:

THEY NEEDN'T SAY THE FAULT IS OURS IF BLOOD SHOULD STAIN THE WATTLE.

Tough talk for a logic book!

Today, we think that the need for this sort of rhetoric is past. The battle is largely over. Non-classical logics are now normalized and integrated into the standardly-accepted logical landscape, and their influence is coming to be felt more and more in mathematics and philosophy, too. Classical logic is no longer solely privileged over alternatives, which now go well beyond the two-party debate between classical and intuitionistic logic. And what was once an objection to non-classical logics, namely that they are themselves dependent on classical meta-theory, is fading, too. Non-classical mathematics are becoming mature enough to be used at all levels of enquiry.

In short, the efforts of early pioneers have won us the right to practice logic freely. No implied threats are needed any longer. Now the question is: what are we going to do with that freedom?

To seek an answer to this question, in January 2016 we held a conference, “Frontiers of non-classicality”, in Auckland, New Zealand. It was summer on the bay and very pleasant. We called for members from across the non-classical research community to gather together and share ideas about the future. The call for papers said:

In the 21st century, there are many logics. Many of them have already or are becoming independently viable frameworks, with mathematical and philosophical ideas that go beyond the ambit of classicality. The aim of this conference is to bring together the state-of-the-art in non-classical programs, to clarify their conceptual and technical base, and to look to the future – to set the agenda for the next phases of research. At a time when work is ever more interdisciplinary, collaborative, and open minded, we hope this meeting helps the next century in logic be even more fruitful than the last.

Participants included people who work on all sorts of logic, mathematics, and philosophy—including fuzzy, relevant, constructive, paraconsistent, and, yes, classical. But foremost they were there, not to represent tribal affiliations, but to communicate, collaborate, learn, and eat some very tasty lunches.

The collection of papers presented here is a cross-section of the modern state of research in non-classicality. Though our choice of title for the collection is framed in terms of “classicality”, we believe that the classical/non-classical distinction will eventually disappear, seen as a historical curiosity, and that a follow-up collection would simply be called “Logic, Philosophy, Mathematics”. Going forward, we call on a different Australian poet, Banjo Patterson, to sing us “A Song of the Future” (1889)—still in all caps, of course:

SO MAY IT BE, AND HE WHO SINGS
 IN ACCENTS HOPEFUL, CLEAR, AND STRONG,
 THE GLORIES WHICH THE FUTURE BRINGS
 SHALL SING, INDEED, A WOND’ROUS SONG.

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