# Towards a unification of paraconsistent logics

大森仁　Hitoshi Omori
京都大学

Paraconsistent logics are characterized by the failure of *ex contradictione quodlibet* (ECQ hereafter). Since the modern birth of paraconsistency, infinitely many systems of paraconsistent logic have been devised and studied based on various motivations (see [6, 7] for brief overviews, and [4] for a detailed survey). After all, it seems that paraconsistent logics are only loosely connected to each other by a rather general requirement that ECQ should be invalid. But is it really impossible to unify paraconsistent logics? The purpose of the paper is to explore that possibility.

The paper aims at the following claim: paraconsistent negations of the four-valued logic of Nuel Belnap and Michael Dunn and the three-valued logic known as the Logic of Paradox, developed by Graham Priest, are at the core of paraconsistency (see [5, Chap. 8] for a brief overview of these basic logics). Different systems of paraconsistent logic can then be classified by the additional connectives and their semantics. The first half of the paper discusses the classification. In the second half of the paper, we address the question as to whether we can include Jaśkowski's discussive logic (cf. [2, 3]) in this picture. We show that there is an affirmative answer to this question.

## References

[1] Stanisław Jaśkowski. Propositional Calculus for Contradictory Deductive Systems. *Studia Logica*, 24:143–157, 1969.

[2] Stanisław Jaśkowski. A Propositional Calculus for Inconsistent Deductive Systems. *Logic and Logical Philosophy*, 7:35–56, 1999. A new translation based on [1].

[3] Stanisław Jaśkowski. On the Discussive Conjunction in the Propositional Calculus for Inconsistent Deductive Systems. *Logic and Logical Philosophy*, 7:57–59, 1999.

[4] Graham Priest. Paraconsistent Logic. In D. Gabbay and F. Guenthner, editors, *Handbook of Philosphical Logic*, volume 6, pages 287–393. Kluwer Academic Publishers, 2 edition, 2002.

[5] Graham Priest. *An Introduction to Non-Classical Logic: From If to Is*. Cambridge University Press, 2 edition, 2008.

[6] Graham Priest, Koji Tanaka, and Zach Weber. Paraconsistent logic. In Edward N. Zalta, editor, *The Stanford Encyclopedia of Philosophy*. 2015.

[7] Zach Weber. Paraconsistent logic. In J. Fieser and B. Dowden, editors, *Internet Encyclopedia of Philosophy*. 2010.