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| | The 47th IEEE International Symposium on Multiple-Valued Logic (ISMVL 2017) |
| | Extending ideal paraconsistent four-valued logic |
| | Norihiro Kamide |
| | <p>We introduce a Gentzen-type sequent calculus PL for a modified extension of Arieli, Avron and Zamansky's ideal paraconsistent four-valued logic 4CC. The calculus PL, which is also regarded as a parafinite four-valued logic, is formalized based on the idea of connexive logic. Theorems for syntactically and semantically embedding PL into a Gentzen-type sequent calculus LK for classical logic and vice versa are proved. The cut-elimination and completeness theorems for PL are obtained via these embedding theorems. Moreover, we introduce an extension EPL of both PL and a Gentzen-type sequent calculus for 4CC, and show the cut-elimination theorem for EPL. The calculus EPL has a novel characteristic property of negative symmetry.</p> |