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Representing any-time and program-iteration by infinitary conjunction. (English)

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Summary: Two new infinitary modal logics are simply obtained from a Gentzen-type sequent calculus for infinitary logic by adding a next-time operator, and a program operator, respectively. It is shown that an any-time operator and a program-iteration operator can respectively be expressed using infinitary conjunction in these logics. The cut-elimination and completeness theorems for these logics are proved using some theorems for embedding these logics into (classical) infinitary logic.

MSC:

03B45 Modal logic (including the logic of norms)

03C75 Other infinitary logic

03F05 Cut-elimination and normal-form theorems

Keywords:

any-time operator; program-iteration operator; infinitary conjunction; completeness theorem; cut-elimination theorem; prior's tense logic

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