*chains.*

(ii) *Superintuitionistic logic IPC, KC are Kripke complete by admissibility with respect to certain classes of rooted countable posets without infinite ascending chains.*

THEOREM 3.

(i) *Any modal logic above $K4$ of finite depth and of width at least* 3 *is Kripke incomplete by admissibility with respect to any class of rooted frames.*

(ii) *Any superintuitionistic logic with finite depth with width at least e is Kripke incomplete by admissibility with respect to any class of rooted posets.*

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We axiomatize two important intermediate logics, classifying end-extension Kripke models and cofinal-extension Kripke models. As applications, we show that Heyting Arithmetic, HA, is complete with respect to the class of its end-extension Kripke models and every cofinal-extension Kripke model of HA is PA-normal.

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The logic treated here is the intuitionistic modal logic obtained from the smallest intuitionistic modal logic **IntK** by adding the axioms $T_c$: $a \supset \Box a$ and $4_c$: $\Box\Box a \supset \Box a$. This logic was considered in Benton, Bierman and de Paiva [1], Fairtlough and Mendler [3] and Goldblatt [4]. [1] described that the logic corresponds to the computational typed lambda calculus introduced in Moggi [6] by the Curry-Howard isomorphism. They gave a natural deduction system for the logic and proved the strong normalization theorem. [3] treated it as the logic with applications to the formal verification of hardware. In [4], the logic was introduced as the logic having the interpretation "*locality*".

Here we discuss the set of formulas constructed from the propositional variables $p_1, \dots, p_n$ and the constant $\bot$ using $\supset$, $\wedge$ and $\Box$ in the intuitionistic modal logic. The set of these non-modal formulas was already considered in Diego [2]. He showed that the set of such non-modal formulas contains only finitely many pairwise non-equivalent in intuitionistic propositional logic. Urquhart [7] and Hendriks [5] gave more precise descriptions about