

- ALEXEY. G. VLADIMIROV, *Effectivity properties of intuitionistic set theory with scheme collection.*

Moscow State University of Tourism and Service, Korolenko street, 6a, Moscow, Russia, 107014.

E-mail: a.g.vladimirov@mail.ru.

Let $\mathbb{ZFI}2C$ is a intuitionistic two-sorted set theory with variables of sort 0 are variables on natural numbers, and variables of sort 1 are set variables.

Axioms of $\mathbb{ZFI}2C$ consist of usual axioms and schemata of Heyting predicate calculus (HPC), all usual axioms of Heyting Arithmetic (HA), and all usual Zermelo-Fraenkel axioms for set theory including Extensionality, Collection as Substitution axiom, and transfinite induction as Foundation axiom.

We consider also the additional principle *DSC* (Double Complement of Sets).

We use some modifications of formalized realizabilities from [1] and proved the following (for T is either $\mathbb{ZFI}2C$ or $\mathbb{ZFI}2C + DCS$):

1. For T : Disjunction Property (*DP*); Numerical Existential Property (EP_ω); Curch Rule (*CR*); Markov Rule (*MR*); Uniformization Rule (*UR*).

All these properties are proved with set parameters.

Each combination of the following extra axioms can be added to T with preserving of results (i)-(iii) and (v): Church Thesis *CT* , Markov Principle *M*, Uniformization Principle *UP*, and Independence of Permisses *IP*.

2. For $T + ECT$ (where *ECT* is a Extended Church Thesis): Disjunction Property (*DP*) and EP_ω ; the conservativity of $T + ECT$ over T w.r.t. class of all negative formulas; $T + ECT = T + \{R\varphi \equiv \varphi \mid \varphi \text{ is a formula of } T\}$ for a variant of Kleene realizability *R*.

3. For $T + ECT + M$: the conservativity of $T + ECT + M \vdash \varphi$ over T w.r.t. class of all negative formulas; relative consistency of T w.r.t. $T + ECT + M$; *DP* and EP_ω for $T + ECT + M$.

4. For $T + nCT + P$: the conservativity of $T + nCT + P \vdash \varphi$ over T w.r.t. class of all negative formulas; relative consistency of $T + nCT + P$ over T ; *DP* and EP_ω for $T + nCT + P$.

[1] M.BEESON, *Continuity in intuitionistic set theories*, **Logic Colloquium 78**. North-Holland Publishing Company, 1979, pp. 1–52.