A new interpretation of ID_1 in $\mathsf{ID}_1(\mathsf{W})$

João Enes
Universidade de Lisboa

Abstract

We consider the theories of (non-iterated) monotone inductive definitions ID_1 and $\mathsf{ID}_1(\mathsf{W})$. The first includes inductive definitions for every positive arithmetical operator, whereas the second is restricted to the inductive definition of the codes of well-founded recursive trees. We present a novel interpretation of the theory ID_1 in $\mathsf{ID}_1(\mathsf{W})$.

It is known from the work of Kreisel that these theories are proof-theoretic equivalent. However, unlike the interpretation of Kreisel, which is done via the intuitionistic conterparts ID_1^i and $\mathsf{ID}_1^i(\mathsf{W})$, our interpretation is direct from ID_1 to $\mathsf{ID}_1(\mathsf{W})$.

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References

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