zbMATH review of "D.S. Bridges, M. McKubre-Hordens: *Solving the Dirichlet problem constructively.* Journal of Logic and Analysis 5:3 (2013) 1–22"

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The paper considers the existence of constructive solutions for Dirichlet's boundary value problem for open, bounded integrable sets $\Omega \subseteq \mathbb{R}^n$ and uniformly continuous boundary conditions $f : \partial\Omega \to \mathbb{R}$.

It is shown that: in presence of Markov's Principle, the existence of a weak solution for the Dirichlet problem is equivalent to the Limited Principle of Omniscience (Theorem 4); in the absence of Markov's Principle, the existence of a strong solution for the Dirichlet problem implies the Weak Limited Principle of Omniscience (Proposition 9). It is in this sense that a proof of existence of solutions to the Dirichlet problem, and also of Navier-Stokes equations of which the Dirichlet problem is a special case, cannot be constructive.

It is left open whether the converse of Proposition 9, as well as the variant of Proposition 9 for weak existence hold.

Finally, in Section 5, conditions that ensure the constructive existence of a weak solution for the Dirichlet problem are isolated.