Quasi-matrix deontic logic. The logic of norms

© Yu.V. Ivlev

Lomonosov Moscow State University, Moscow, 119991, Russia

The paper proposes the logic based on the principle of quasi-functionality. In line with it, not only the relation of unambiguous conditioning takes place in nature, society, cognition between phenomena, but also the relation of ambiguous conditioning. In particular, a certain reason can cause both a certain consequence, and under the same conditions in the first case — one certain consequence from several possible cases, and in the secondanother consequence from the same several possible cases. Functionality, i.e. unambiguous conditioning, and total uncertainty, i.e. randomness, are particular cases of quasifunctionality. The paper considers the method of proving the completeness of the calculus of three-valued logic constructed earlier by the author. This method provides the possibility of developing technical applications of deontic logic.

Keywords: deontic logic, the principle of quasi-functionality, calculus, completeness of the calculus, three-valued deontic logic, five-figure deontic logic, six-figure deontic logic

REFERENCES

- [1] Ivlev Yu.V. *Logika norm*. Diss. ... kand. filos. nauk [The logic of norms. Cand. philos. sc. diss.]. Moscow, 1972.
- [2] Ivlev Yu.V. *Soderzhatelnaya semantika modalnoy logiki* [Containing semantics of modal logic]. Moscow, MSU Publ., 1985, 170 p.
- [3] Ivlev Yu.V. Modalnaya logika [Modal logic]. Moscow, MSU Publ., 1991, 221 p.
- [4] Ivlev Yu.V. Logic and Logical Philosophy, 2000, vol. 8, pp. 91–97.
- [5] Ivlev Yu.V. Theory of Logical Modalities. *Multiple-Valued Logic: an International Journal*, 2000, vol. 5, pp. 91–102.
- [6] IvlevYu.V. Quasi-matrix logic. *Journal of Multiple-Valued Logic and Soft Computing. Old City Publishing, Inc. (United States)*, 2005, vol. 11, no. 3–4, pp. 239–252.
- [7] Ivlev Yu.V. Generalization of Kalmar's method for quasi-matrix logic. *Logical Investigations*. *Centre of Humanitarian Initiatives*, 2013, vol. 19, pp. 281–307.
- [8] Kuznetsov A.M. *Kvazimatrichnaya logika norm*. Diss. ... kand. filos. nauk [Quasi-matrix logic of norms. Cand. philos. sc. diss.]. Moscow, 1998, 131 p.
- [9] Arkadskova P.E. Logiko-filosofskie issledovaniya Logical investigations, 2016, no. 7, pp. 145–152.
- [10] Ivlev Yu.V. Mirovozzrencheskaya sostavlyayuschaya metodologii sotsial'nogo poznaniya (na primere kvazifunktsional'noy logiki) [World outlook component of the methodology of social cognition (on the example of quasi-functional logic)]. *Chelovek i obschestvo v kontekste sovremennosti. Filosofskie chteniya pamyati professora P.K. Grechko* [Man and society in the context of modernity. Philosophical readings in memory of Professor P.K. Grechko]. 2017, vol. 1, pp. 275–279.
- [11] Ivlev Yu.V. Metodologicheskaya funktsiya kvazimatrichnoy (kvazifunktsionalnoy) logiki [Methodological function of quasi-matrix (quasifunctional) logic]. V sb.: *Metodologiya v nauke i obrazovanii. Materialy Vserossiyskoy konferentsii universitetov i akademicheskikh institutov RAN* [In: Methodology in Science and Education. Materials of the All-Russian Conference of Universities and Academic Institutes of the Russian Academy of Sciences]. 2017, pp. 61–65.

Ivlev Yu.V., Dr. Sc. (Philos.), Professor, Department of Logic, Faculty of Philosophy, Lomonosov Moscow State University. e-mail: ivlev.logic@yandex.ru