▸ TRIFON TRIFONOV, *Comparing methods for program extraction from classical proofs*. Mathematics Institute, Ludwig Maximilian University, Theresienstrasse 39, 80333 Munich, Germany.
E-mail: trifonov@math.lmu.de.
URL Address: http://www.math.lmu.de/~trifonov/.

The Curry-Howard correspondence displays a direct link between constructive proofs and functional programs. Proofs in classical logic are also known to contain implicit computational content, which, however, is not that straightforward to recover. Different extraction techniques for non-constructive proofs have been proposed and used, but the relations between them and between the programs they produce remain unclear. In our talk we will attempt to compare two such methods: a refined version of Friedman/Dragalin's A-translation [1] and Gödel's functional (Dialectica) interpretation [2]. We will present them in the same natural deduction system of classical arithmetic in order to outline their similarities and differences.

Extraction for classical logic is most necessary for claims, which can be proved easier with the use of non-constructive principles, or which do not have obvious constructive alternatives. The programs obtained from such proofs might be obscure and inefficient, yet are guaranteed to produce correct results. We argue that these situations exhibit the specifics of the extraction techniques better, especially with respect to the computational impact of classical logic. In the light of a case study [3] we will discuss how the two considered methods reflect the use of non-constructive arguments.

[1] Ulrich Berger, Wilfried Buchholz and Helmut Schwichtenberg, *Refined program extraction form classical proofs*, ***Annals of Pure and Applied Logic***, vol. 114 (2002), no. 1–3, pp. 3–25.

[2] Kurt Gödel, *Über eine bisher noch nicht benützte Erweiterung des finiten Standpunktes*, ***Dialectica***, vol. 12 (1958), pp. 280–287.

[3] Diana Ratiu and Trifon Trifonov, *Exploring the computational content of the infinite pigeonhole principle*, ***Proceedings of CiE 2008*** (Athens, Greece), (Arnold Beckman and Benedikt Löwe, editors), to appear in Journal of Logic and Computation.