

# Revisiting topological descent theory

Maria Manuel Clementino

Topological descent theory has been investigated systematically for about 20 years. The seminal paper by Reiterman and Tholen [5] could have been a cease for this investigation, for two reasons: as it solves the problem of finding a characterization of continuous maps of effective descent, and it foresees that any search for a reasonable characterization of these maps in terms of topologies is out of question. This in fact gave a prominent role to Plewe's result [4] that Michael's triquotient maps are of effective descent, since one could easily believe that triquotient maps could be "easier" to handle with.

However, some years later Janelidze and Sobral [2] gave a new insight to the problem, while studying it at the level of finite spaces, where effective descent maps turned out to be identified by a nice lifting property. A further study of this, by Clementino and Hofmann [1], showed that Reiterman-Tholen characterization can be viewed as the infinite version of Janelidze-Sobral result, and, moreover, that triquotient maps are not "easier" than the effective descent ones.

In this talk we will show that, at the level of finite spaces, there is a counterpart of this result. Indeed, as triquotient maps can be captured very much like effective descent maps, also effective descent maps can be described using a conveniently modified  $t$ -assignment à la Michael [3].

## REFERENCES

- [1] M.M. Clementino and D. Hofmann, *Triquotient maps via ultrafilter convergence*, Proc. Amer. Math. Soc. 130 (2002) 3423-3431.
- [2] G. Janelidze and M. Sobral, *Finite preorders and topological descent I*, J. Pure Appl. Algebra 175 (2002) 187-205.
- [3] E. Michael, *Complete spaces and tri-quotient maps*, Illinois J. of Math. 21 (1977) 716-733.
- [4] T. Plewe, *Localic triquotient maps are effective descent maps*, Math. Proc. Camb. Phil. Soc. 122 (1997) 17-43.
- [5] J. Reiterman and W. Tholen, *Effective descent maps of topological spaces*, Top. Appl. 57 (1994) 53-69.