

The B -completion for families of quasi-pseudometrics

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In [1] we introduced a conjugate invariant method for completing an arbitrary T_0 -quasi-metric space. Our so-called B -completion was built as an extension of the bicompletion of the original space and for balanced T_0 -quasi-metric spaces our B -completion yielded up to isometry the completion due to Doitchinov. The question of which uniformly continuous maps between T_0 -quasi-metric spaces can be extended to the constructed B -completions led us to introduce and investigate a new class of maps that we called balanced maps. In [2] we proved that the B -completion of a totally bounded T_0 -quasi-metric space is totally bounded. Furthermore we noted that even for totally bounded T_0 -quasi-metric spaces the B -completion can be strictly larger than the bicompletion.

In this talk we shall extend the theory of the B -completion to arbitrary non-empty T_0 -families \mathcal{D} of quasi-pseudometrics [3] on a given set X . In this way we obtain a completion theory that can be applied to the study of T_0 -quasi-uniform spaces. We point out however that even for singleton families \mathcal{D} the B -completion depends on the quasi-pseudometric that was chosen to generate the underlying quasi-uniformity. Different quasi-pseudometrics may lead to different B -completions.

REFERENCES

- [1] Hans-Peter A. Künzi and Charly Makitu Kivuvu, A double completion for an arbitrary T_0 -quasi-metric space, *J. Logic Algebr. Progr.* 76 (2008) 251–269.
- [2] Hans-Peter A. Künzi and Charly Makitu Kivuvu, The B -completion of a T_0 -quasi-metric space, *Topology and its Applications* 156 (2009) 2070–2081.
- [3] Hans-Peter A. Künzi and Charly Makitu Kivuvu, Notes related to the Doitchinov completion of a quasi-uniform space, *work in progress*.

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