

# HAHN SPACES IN FRÉCHET SPACES

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For real sequence spaces  $E$  Bennett, Boos and Leiger introduced in [3] the notion of a Hahn space:  $E$  is called a *Hahn space* if

$$\chi \cap E \subset F \implies E \subset F \quad \text{for any FK-space } F,$$

where  $\chi$  denotes the set of all sequences of 0's and 1's. In that case we say that  $E$  has the *Hahn property*. One of the main results tells us, that an FK-space  $E$  is a Hahn space if and only if the linear hull  $\langle \chi \cap E \rangle$  of  $\chi \cap E$  is dense and barrelled in  $E$ . Therefore we can use the Hahn property of FK-spaces to state barrelledness of certain sequence spaces which in general is a non-trivial problem.

The aim of this talk is to present a new concept for the introduction and investigation of the notion of a Hahn space in the case of subspaces of Fréchet spaces. The talk is mainly based on the 'Diplomarbeit' (master thesis) of Lothar Komp and on a joint paper with him (cf. [2, 1]).

## REFERENCES

- [1] L. Komp and J. Boos. Hahn spaces in Fréchet spaces and applications to real sequence spaces. *Functiones et Approximatio* (accepted 2013, to appear 2014).
- [2] L. Komp. Hahn-Eigenschaften von Folgenräumen. Diplomarbeit (Master Thesis), FernUniversität in Hagen, 2009.
- [3] G. Bennett, J. Boos, and T. Leiger. Sequences of 0's and 1's. *Studia Math.* **149**, 75–99 (2002).
- [4] H. Hahn. Über Folgen linearer Operationen. *Monatshefte f. Math.* **32**, 3–88 (1922).
- [5] G. Bennett and N. J. Kalton. Inclusion theorems for K-spaces. *Canad. J. Math.* **25**, 511–524 (1973).
- ★ A series of other papers coauthored by M. Parameswaran or Toivo Leiger and/or Maria Zeltser.

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