Title: A zigzag theorem for partially ordered monoids

Abstract

We prove a zigzag theorem for partially ordered monoids. The said theorem was first proved for semigroups in 1965 by J.R. Isbell [1] using the so called 'partitioned rectangles' ('dominating tableaux' to use his own terminology). Its more powerful formulation, that basically deals with monoids, was later put forward by B. Stenström [2]. Also, in the year 2002 J. Renshaw gave a new proof of the Isbell zigzag theorem [3] while adhering to its Stenström version. It is the Renshaw's approach upon which we have based our argument. Accordingly, we first describe the pushout $S_1 *_U S_2$ of a pomonoid amalgam $(S_1, S_2; U)$ as the colimit of a specific updirected system of right U-posets. We then manipulate, with the help of certain mappings, the results already obtained by Renshaw and Howie in the unordered context.

References

[1] Isbell J.R.: Epimorphisms and dominions. Proceedings of the conference on categorical algebra, La Jolla, California, Springer, New York (1965).

[2] Stenström B.: Flatness and localization over monoids. Math. Nachr. 48-Band, 315–334 (1971).

[3] Renshaw J.: On free products of semigroups and a new proof of Isbell's zigzag theorem. J. Algebra 251, 12–15 (2002).