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Gretchen W Whipple* (whippleg@hartwick.edu), Gretchen W. Whipple, Department of Mathematics, Hartwick College, Oneonta, NY 13820. *A property of totally ordered monoids of rank 2*. Preliminary report.

In this paper, we continue to explore the properties of totally ordered commutative monoids - which we call *tomonoids*. We will show that every positive tomonoid of rank 2, which satisfies a weak cancellation property, is a convex Rees quotient of a submonoid of a totally ordered abelian group. We began this work with the goal of contributing to the structure theory of totally ordered commutative rings with nilpotents. Inspired by an example of a totally ordered monoid algebra employed as an example of a non-formally real ring by Henrikson and Isbell, we explored monoids with unusual orders. In *Totally ordered commutative monoids* we built on the work of Hion to demonstrate the relationship between the order of the tomonoid and the totally ordered monoid algebra. The theorem we prove in this paper gives significant information about the conditions under which we can construct non-formally real totally ordered monoid algebras. (Received July 17, 2000)