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Positivity

ERRATUM

Erratum to: A generalized Jentzsch theorem

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There is an error in the proof of Lemma 10 in the above-mentioned paper. The implication that operator T leaves invariant the principal band generated by the element z because it leaves invariant the principal ideal generated by z cannot be justified because we do not assume T to be σ-order continuous. I am grateful to Anton Schep who indicated to me the said error. The following changes have to be made.

(1) In part (a) of Theorem 6 the operator R should be assumed order continuous instead of just σ-order continuous. (I do not know if the result remains true under the milder condition of σ-order continuity of R)

(2) The proof of Lemma 10 then goes as follows:

Let us prove first that T is σ-order continuous. Let $x_n \downarrow 0$ then $Rx_n \downarrow 0$ and $Rx_n \xrightarrow{w} 0$ whence $Sx_n \downarrow 0$ and $Sx_n \xrightarrow{w} 0$. Assume contrary to what we claim that $Tx_n \geq y \geq 0$ and $y \neq 0$. Then $STx_n \geq Sy$ and $STx_n \leq TSx_n \xrightarrow{w} 0$. Therefore $Sy = 0$. Let Z be the maximal by inclusion ideal in X such that $S|Z = 0$. Z obviously exists by Zorn's lemma. Then Z is a band because S is order-continuous. We claim that $TZ \subseteq Z$. Indeed, otherwise there is a positive $u \in Z$ such that $Tu \notin Z$. But $STu \leq TSu = 0$ and we come to a contradiction with the maximality of Z. The remaining part of the proof does not have to be changed.

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