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Erratum to "Frames for Weighted Shift-Invariant Spaces", Mediterr. J. Math., DOI:10.1007/s00009-011-0155-3

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Lemma 5.1 b), Theorem 5.2 and Theorem 5.4 b) as stated in [1] are not true. However, they hold only in some special cases included in the next theorem.

Theorem 0.1. a) *Let $\theta \in C_0^\infty(\mathbb{R})$ be a positive function such that $\theta(x) > 0$, $x \in A$, $A \subset [-\pi, \pi]$, and* $\operatorname{supp}\theta \subseteq [-\pi, \pi]$. *Moreover, let*

$$\widehat{\phi}_k(\xi) = \theta(\xi + k\pi), \quad k \in \mathbb{Z},$$

and $\Phi = (\phi_i, \phi_{i+1}, \dots, \phi_{i+r})^T$, $i \in \mathbb{Z}$, $r \in \mathbb{N}$.

Then the rank of the matrix $[\widehat{\Phi}(\xi + 2j\pi)]_{j\in\mathbb{Z}}$ is not a constant function on $\mathbb{R}$ and it depends on $\xi \in \mathbb{R}$.

b) *Let $\theta \in C_0^\infty(\mathbb{R})$ be a positive function such that*

$$\theta(x) > 0, \quad x \in (-\pi - \varepsilon, \pi + \varepsilon),$$

and supported by $[-\pi - \varepsilon, \pi + \varepsilon]$ where $0 < \varepsilon < 1/4$. Moreover, let

$$\widehat{\phi}_i(\xi) = \theta(\xi + k_i\pi), \quad k_i \in \mathbb{Z},\ i = 1, 2, ..., r,\ r \in \mathbb{N},$$

and $\Phi = (\phi_1, \phi_2, \dots, \phi_r)^T$.

1) *If $|k_2 - k_1| = 2$ and $|k_i - k_j| \geq 2$ for different $i, j \leq r$, then the rank of the matrix $[\widehat{\Phi}(\xi + 2j\pi)]_{j\in\mathbb{Z}}$ is a constant function on $\mathbb{R}$ and equals r.*
2) *If $|k_2 - k_1| = 2$ and, at least for k_{i_1} and k_{i_2}, it holds that $|k_{i_1} - k_{i_2}| = 1$, where $1 \leq i_1, i_2 \leq r$, then the rank of the matrix $[\widehat{\Phi}(\xi + 2j\pi)]_{j\in\mathbb{Z}}$ is a non-constant function on $\mathbb{R}$.*

The proof of the theorem, together with other additional results, will appear in a forthcoming paper, a preliminary version of which appears in ArXiv (2011) arXiv:1109.3285.

The online version of the original article can be found under doi:10.1007/s00009-011-0155-3.

Reference

[1] S. Pilipović and S. Simić, *Frames for weighted shift-invariant spaces*, to appear in Mediterr. J. Math., DOI:10.1007/s00009-011-0155-3.

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