ERRATA TO 'APPROXIMATION CLASSES FOR ADAPTIVE HIGHER ORDER FINITE ELEMENT APPROXIMATION'

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The following small mistakes where found in [GM] and the corresponding corrections should be introduced:

- Statement of Proposition 2.1 (page 2129); statement of Theorem 2.2 (page 2130): replace $s + \alpha \leq r + \frac{1}{\tau_*}$ by $s + \alpha < r + 1$.
- Second line of Section 4.2 (page 2142), replace $s < r + \max\{1, \frac{1}{p}\} = r + \frac{1}{p_*}$ by $s < r + 1$.
- Remark 4.8 (page 2143): Replace $s < r' + \max\{1, \frac{1}{p}\}$ by $s < r' + 1$.
- Remark 4.9 (page 2144): Replace $r > s - \max\{1, \frac{1}{p}\}$ by $r > s - 1$.
- Lemma 4.15 (page 2147): Replace $s < r + \frac{1}{\tau_*}$ by $s < r + 1$
- Lemma 4.17 (page 2148): Replace $\alpha + s < r + \frac{1}{\tau_*}$ by $\alpha + s < r + 1$.

These mistakes come from definition of Besov space at the beginning of Section 4.2 (page 1242). It is incorrect. It should be defined for $s < r + 1$ instead of $s < r + \max\{1, 1/p\} = r + 1/p_*$. The wrong definition of Besov spaces comes from Remark 4.8, where we say

> "The definition of $B^s_{p,q}(\Omega)$ is independent of r in the sense that if r is replaced by $r' \in \mathbb{N}$ with $s < r' + \max\{1, 1/p\}$, then the resulting space is the same with equivalent (quasi)norms."

This statement is incorrect. The correct one is with $s < r' + 1$ instead of $s < r' + \max\{1, 1/p\}$. The correct statement is proved in Theorem 10.1, page 55 of [DL], making use of Marchaud's inequality. It does not hold under the weaker assumption $s < r' + 1/p$ (when $p < 1$). The Marchaud's inequality stated at the bottom of page 2143 is correct, and comes from Theorems 8.1–8.2, pages 47–48 of [DL].

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References

DL. R. A. DeVore, G. G. Lorentz, *Constructive Approximation*, Springer-Verlag, 1993.

GM. F. D. Gaspoz, P. Morin *Approximation classes for adaptive higher order finite element approximation*, Math. Comp. 83 (2014), no. 289, pp. 2127–2160.

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