Corrigendum to “Geometric conditions for $\square$-irreducibility of certain representations of the general linear group over a non-archimedean local field” ([1])

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The main results of [1] are correct. However, there is an error in the statement and the proof of [1, Corollary 9.6]. As a result, there is an additional basic case which needs to be considered by the same techniques as [1, §8].

More precisely, the formula for $\mathfrak{m}^\#$ on the fourth line of [1, p. 179] (the case $r+1 < k < 2r$) is incorrect. The correct formula is

$$\mathfrak{m}^\# = [k, k+r-1]^{(k-r-1)} + [r, 2r]^{(2r+1-k)} + [r+1, k-1] + [k-r-1, k-2]^{(k-r-1)}.$$

This means that in [1, Corollary 9.6] we also have to allow the case $k = r+2$, i.e., the family

$$\mathfrak{m} = [k, 2k-3] + [k-2, 2k-4]^{(k-3)} + [k-1] + [1, k-2], \quad k \geq 4.$$

Correspondingly, we need to consider this family in the analysis of the basic cases in [1, §8]. This is very similar to the other cases considered there. First, as in [1, Remark 6.12], $\mathfrak{m}$ does not satisfy the condition (GLS) of [1, §4]. Moreover, if $\pi = Z(\mathfrak{m})$, then in the language of [1, §8], the pair $(Z([k, 2k-3]+[k-2, 2k-4]^{(k-3)}), Z([k-1]+[1, k-2]))$ is a splitting for π with double socle $\Pi = Z([k, 2k-3]^{(k)} + [k-2, 2k-3]^{(k-2)})$. This is proved as in [1, Lemma 8.5] except that now $\pi_3 = \operatorname{soc}(Z([k-1]+[1, k-2]) \times \pi) = Z([k-1, 2k-3]^{(k-3)}+[1, k]+[2, k-1]^{(2)})$. Finally, replacing σ_1 by $i \mapsto k+1-\sigma_1(k+1-i)$ we can apply [1, Lemma 8.6] to conclude, as in the proof of [1, Proposition 8.3], that

$$\Pi \hookrightarrow \pi \times \pi.$$

Thus, π is not $\square$-irreducible. The rest of the argument in [1, §9] stays the same.

All other assertions of [1], including the main results, are not affected.

References

[1] Erez Lapid and Alberto Mínguez, *Geometric conditions for $\square$-irreducibility of certain representations of the general linear group over a non-archimedean local field*, Adv. Math. **339** (2018), 113–190. MR3866895