ERRATA: 'LOCALLY POTENTIALLY EQUIVALENT GALOIS REPRESENTATIONS'

VIJAY M. PATANKAR AND C. S. RAJAN

1.

It was pointed out by J.-P. Serre that the proof of Theorem 2.1 given in [2] is erroneous. The error in the argument occurs in line 17, page 84, where it is asserted that under the map $x \mapsto x^m$ of an algebraic group G, a connected component G^ϕ maps *onto* a connected component. This is not true, as can be seen by considering G to be the normalizer of a maximal torus in $SL(2)$ and $m = 2$.

Theorem 1.1 [1] partially salvages this by proving a version of Theorem 2.1 of [2] for $n = 2$. In [1], a proof of Theorem 2.1 is given under the additional assumptions that $n = 2$, and the algebraic monodromy group of one of the Galois representations is $GL(2)$. From this it follows that Theorem 1.1 of [2] holds true.

Remark 2.6 following the proof of Theorem 2.1 holds true as it does not use the above argument.

The proof of [2, Theorem 3.1] was given as a consequence of Theorem 2.1. In [1], we give essentially the same proof and show how to avoid using Theorem 2.1.

Theorem 4.1 of [2] also cannot be claimed to be true, as its proof rests on the validity of Theorem 2.1.

Acknowledgements: The authors thank Professor J.-P. Serre for pointing out the above error in the proof of Theorem 2.1.

References

[1] Manisha Kulkarni, Vijay M. Patankar, C. S. Rajan, Locally potentially equivalent two dimensional Galois representations and Frobenius fields of elliptic curves, preprint (submitted), http://arxiv.org/abs/1403.5635, 15 pages.

[2] Vijay M. Patankar, C. S. Rajan, Locally potentially equivalent Galois representations, J. of Ramanujan Math. Soc., Vol. 27, No. 1, (2012), 77–90.

School of Physical Sciences, Jawaharlal Nehru University, New Delhi, INDIA 110067.

1991 *Mathematics Subject Classification.* Primary 11F80; Secondary 11R45.

Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay - 400 005, India.

E-mail address: vijaypatankar@gmail.com, rajan@math.tifr.res.in