Invent. math. 108, 453–454 (1992)

Inventiones mathematicae

Erratum
Functional determinants and geometry

Robin Forman
Department of Mathematics, Rice University, Houston, TX 77251, USA

Oblatum 11-VII-1991

The author would like to thank D. Burghelea and T. Kappeler for pointing out the existence of an error in the paper *Functional determinants and geometry*, Invent. Math. 88, 447–493 (1987). The error occurs in part 2 of Lemma 3.1, which should read:

2. If n is odd then for each x there is some projection π_x such that

$$\lim_{s\to 0}(L^{-s}f)(x)=\frac{1}{n}[\pi_x f(x+)+(1-\pi_x)f(x-)]\,.$$

The rest of the lemma remains as is. The mistake occurs at the top of p. 478, which should read:

$$\lim_{s\to 0}\pm\sum_{k=1}^{\infty}\frac{1}{i(k)^{1+sn}}(e^{i\frac{\pi}{2}s}-e^{-i\frac{\pi}{2}s})=\lim_{s\to 0}\pm\left(2\sin\left(\frac{\pi}{2}s\right)\right)\sum_{k=1}^{\infty}\frac{1}{k^{1+sn}}$$

with the sign being $+1$ or -1 if $n\equiv 1\ (\mathrm{mod}\ 4)$ or $n\equiv 3\ (\mathrm{mod}\ 4)$ resp. The simple estimate

$$\frac{1}{sn}=\int_1^{\infty}x^{-(1+sn)}dx<\sum_{k=1}^{\infty}\frac{1}{k^{1+sn}}<1+\int_1^{\infty}x^{-(1+sn)}dx=1+\frac{1}{sn}$$

shows that

$$\lim_{s\to 0}(L^{-s}f)(x)=\lim_{s\to 0}\pm\left(2\sin\left(\frac{\pi}{2}s\right)\right)\sum_{k=1}^{\infty}\frac{1}{k^{1+sn}}=\pm\frac{\pi}{n}=\frac{1}{n}\lim_{x\to\pi\mp}h(x)\,.$$

The remainder of the proof proceeds as before. There is a corresponding change in the definition of $R(x)$ given in formula (4)

$$R(x)=\begin{cases}\dfrac{1}{2} & \text{if } n \text{ is even}\\[2ex] \dfrac{\pi_x}{n} & \text{if } n \text{ is odd}\,.\end{cases}\tag{4}$$

Similarly, in the case of n odd, in all formulae between statement (4) (bottom p. 478) and statement (5) (top p. 480), the term

$$(1 - R(x))$$

should be replaced by

$$\left(\frac{1}{n} - R(x)\right) = \frac{1 - \pi_x}{n}.$$

These changes do not at all affect the examples considered in the paper.