Erratum: Islands in multiverse models

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We did not properly account for contributions from the Weyl anomaly and the Casimir energy in sections 2.2 and 3. They combine to give a source

$$\langle T_{\pm\pm} \rangle = \frac{c}{48\pi} \left(1 - \frac{1}{n^2} \right) \tag{1}$$

for the metric equation of motion (e.g. (2.4), (2.9)), where $\pm$ is a shorthand notation for $x^{\pm} = \sigma \pm \varphi$ and we have chosen the state in the $(z, \bar{z})$ coordinates, cf. (2.24), to be in vacuum; see, e.g., [1]. These contributions cancel when $n = 1$. (We thank Edgar Shaghoulian for pointing this out to us.)

As a consequence, only the calculations and results in section 3 that operate in the $\phi_r/G_N \gg c$ limit — where we can neglect backreaction with certain caveats — are reliable. We discuss further details in an addendum. However, the following items which assumed $\phi_r/G_N \ll c$ should not be considered reliable:

- The paragraph containing eqs. (3.12) and (3.13).

- The numerical Page curves in figures 5–6, 8–9, 13–16, 18.

- The sentence containing eq. (3.22) and the one that immediately follows it.

References

[1] V. Balasubramanian, A. Kar and T. Ugajin, *Islands in de Sitter space*, *JHEP* **02** (2021) 072 [[arXiv:2008.05275](#)] [[INSPIRE](#)].