Apart from the corrections mentioned above, and shown in the figures, the discussion in Ref. [4] is unaltered. The exact numbers, but not the trend, in Fig. 1 are changed, and so are a few values quoted in the paper, but the necessary changes can easily be inferred from the corrected figures included in this erratum.

[1] M. S. Berger and R. L. Jaffe, Phys. Rev. C **35**, 213 (1987).
[2] M. S. Berger, Phys. Rev. D **40**, 2128 (1989).
[3] M. S. Berger and R. L. Jaffe, Phys. Rev. C **44**, 566(E) (1991); M. S. Berger, Phys. Rev. D **44**, 4150(E) (1991).
[4] J. Madsen and M. L. Olesen, Phys. Rev. D **43**, 1069 (1991).

Erratum: Large- and small-angle anisotropies of the microwave background in cosmological models with nonzero Λ term [Phys. Rev. D 41, 2434 (1990)]

Jerzy Stelmach, Ryszard Byrka, and Mariusz P. Dąbrowski

Expression (4) should read

$$\chi_R = R_0 \int_0^{z_R} \frac{dz}{[C_R(z+1)^4 + C_m R_0 (z+1)^3 - kR_0^2(z+1)^2 + (\Lambda/3)R_0^4]^{1/2}} .$$

The integrals we evaluate in the paper are $\int dx/\sqrt{Q(x)}$ and $\int dx\, x^2/\sqrt{Q(x)}$ and not $\int dx \sqrt{Q(x)}$ and $\int dx\, x^2\sqrt{Q(x)}$ as it was written at the beginning of the Appendix.

Of course these misprints do not affect either analytic or numerical results given in the paper.

Moreover the thick lines presented in Fig. 4 do not correspond to the radiation-density parameter $\Omega_{r0}=0.000\,04$ but rather to the unphysical value $\Omega_{r0}=0.004$ (incorrect input data). Setting the more likely value for Ω_{r0} (which in our opinion is just 0.000 04) causes the thick lines to not differ too much from the thin lines ($\Omega_{r0}=0$). All other conclusions given in the paper are still valid.

Erratum: Comment on "Comment on 'Quantum cosmology and the initial state of the universe' " [Phys. Rev. D 41, 1353 (1990)]

Karl Svozil

In my Comment on Woo's algorithmic information approach to cosmology [1], I have stated that no formal system, i.e., no axiomatic theory T, can produce a theorem x of higher algorithmic information content $H(x)$ than the algorithmic information $H(T)$ of the theory itself *in finite time*. This is incorrect, as can be seen from the following counterexample, which was communicated to me by Chaitin [2]: The algorithmic information of a theorem of the form "$n = n$" can be made arbitrarily large by assuming Peano arithmetic and inserting "very complex" but finite numbers n. Since there is an equivalence between formal theories and effectively computable processes [3], Zurek arrived at a similar conclusion [4] by a counting algorithm.

This scenario of an increase of algorithmic information in finite time suffers from the fact that, due to Chaitin's incompleteness theorems for lower bounds on algorithmic information [5], any such increase is *uncomputable*. More precisely, although it may be possible to state in T that "$H(n) + O(1) \geq H(n = n) > H(T) + O(1)$" [$O(1)$ stands for a bounded function whose absolute value is less than or equal to an unspecified constant], in this case within T one cannot derive the *exact value* of algorithmic information of the integer n and thus of "$n = n$." Stated pointedly, *"you might be able to produce a 20-pound theorem (object) from a 10-pound theory (computation) if pound is the unit of algorithmic information, but you won't be able to proof that."*

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[1] C. H. Woo, Phys. Rev. D **39**, 3174 (1989).
[2] G. Chaitin (private communication).
[3] K. Svozil, *Randomness and Undecidability in Physics* (World Scientific, Singapore, in press).
[4] W. H. Zurek, Phys. Rev. A **40**, 4731 (1989).
[5] G. J. Chaitin, *Algorithmic Information Theory* (Cambridge University Press, Cambridge, England, 1987).