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## Corrigendum to “On the rate of decrease in logical depth” [Theor. Comput. Sci. 702 (2017) 60–64] by L.F. Antunes, A. Souto, and P.M.B. Vitányi

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## ARTICLE INFO

*Article history:*

Received 11 July 2018

Accepted 13 July 2018

Available online xxxx

Communicated by P. Spirakis

In section 4 of the paper mentioned in the title it is assumed that, for all  $x \in \{0, 1\}^*$ , the string  $x^*$  is the only incompressible string such that  $U(x^*) = x$ . However, this assumption is wrong in that for many  $x$  there may be an incompressible string  $p$  with  $|x| \geq |p| > |x^*|$  such that  $U(p) = x$ . Moreover, the computation of  $U(p) = x$  may be faster than that of  $U(x^*) = x$ . For example, the function from  $x \in \{0, 1\}^*$  to the least number of steps in a computation  $U(p) = x$  for an incompressible string  $p$  may be computable. The argument in the paper is correct if we use

**Definition 1.** Let  $x$  be a string and  $b$  a nonnegative integer. The logical depth, version 2, of  $x$  at significance level  $b$ , is

$$\text{depth}_b^{(2)}(x) = \min \left\{ d : p \in \{0, 1\}^* \wedge U^d(p) = x \wedge |p| \leq K(x) + b \right\},$$

the least number of steps to compute  $x$  by a program which is  $b$ -incompressible with respect to  $x^*$ .

As a further correction: In the first line of the proof of Theorem 2 the string  $x_n$  is more properly denoted by  $x$ ; the remaining changes are self-evident.

**Acknowledgement**

The problem addressed here was raised by Marlou Gijzen.

DOI of original article: <https://doi.org/10.1016/j.tcs.2017.08.012>.

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<https://doi.org/10.1016/j.tcs.2018.07.009>

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