Journal of Cosmology and
Astroparticle Physics

ERRATUM

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To cite this article: Raúl Carballo-Rubio *et al* JCAP11(2018)E02

Journal of Cosmology and Astroparticle Physics
An IOP and SISSA journal

JCAP11(2018)E02

Erratum: Minimally modified theories of gravity: a playground for testing the uniqueness of general relativity

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Received October 24, 2018
Accepted October 24, 2018
Published November 29, 2018

Erratum to: JCAP06(2018)026

Abstract. In this erratum we correct a mistake in the published version of this paper that changes the leading behavior for large momenta of certain Feynman diagrams and modifies the set of n-point amplitudes that can be shown to be equivalent to the corresponding amplitudes of general relativity. The physical conclusions in the paper remain unchanged.

ArXiv ePrint: 1802.02537

https://doi.org/10.1088/1475-7516/2018/11/E02

After publication of the paper the authors have noticed the existence of interaction vertices that modify the leading behavior for large momenta of certain Feynman diagrams, with consequences for the discussion presented in section 3.5. These interaction vertices are proportional to $R^{(1)}R^{(2)}$ and can display a leading behavior z^3 even if one of the external legs is on-shell. This modifies eqs. (3.34) and (3.36). No other equations in the paper need to be modified. Eq. (3.34) should read

$$A_n(z) \propto \left(z^{-2}\right)^{N+1} \left(z^{-1}\right)^{p} \left(z^{3}\right)^{v}, \tag{3.34}$$

where $v = e + i$ is the total number of vertices (i.e., external and internal) in the diagram. Eq. (3.36) is subsequently modified to

$$N > n - \frac{5}{2}. \tag{3.36}$$

This inequality is satisfied for all $N \geq n/2$ when n is even only if $n < 6$, and for all $N \geq (n+1)/2$ when n is odd only if $n < 7$.

This change affects the summary provided in the bullet list at the end of page 13, which should read instead:

- $n = 4$ and $n = 5$: all amplitudes $A_n(1^{h_1}2^{h_2}\ldots n^{h_n})$ can be constructed from 3-point amplitudes and are therefore the same as in general relativity.
- $n \geq 6$: the MHV amplitude $A_6(1^-2^-3^+4^+5^+6^+)$ is the same as in general relativity. This argument does not fix the form of $A_6(1^-2^-3^-4^+5^+6^+)$ or any of the remaining n-point amplitudes with $n > 6$ that are not already contained in eq. (3.32).

This result is slightly weaker than the one presented in the paper but the main physical conclusions are unchanged. We still have hints regarding the possible equivalence of these theories and general relativity, but further studies are needed in order to clarify this issue.

JCAP11(2018)E02