Erratum

Temporal Logic with Past is Exponentially More Succinct

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In [Mar03b, end of Section 1] and [Mar03a, Section 1.2.2.2], the informal proof of the claim that PLTL can be translated into LTL over infinite words with a triply-exponential blowup is wrong: the translation given in [MP90, MP94] does not return pure-future LTL formulas, but Boolean combinations of formulas of the form $\text{GF} \phi$, where $\phi \in \text{PLTL}$.

To the best of my knowledge as of June 3, 2020, no progresses have been made on the translation of PLTL to LTL over infinite words since the (non-elementary) translations of [Gab89] and [MMKR94].

Notice that a (doubly-exponential) transformation from deterministic counter-free finite-state automata into LTL exists over finite words [Wil99]. A translation from PLTL to LTL over finite words follows (with a 4-exponential blowup).

References


