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Circularity, composition, and decomposition results for pebble macro tree transducers.
(English summary)

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By combining the notions of “pebble tree transducer” and “macro tree transducer”, the authors introduce the structure “pebble macro tree transducer” (PMTT) and investigate some of its properties. The authors define what they call “weakly circular”, “circular”, and “strongly circular” PMTTs, and prove that these properties are decidable. After considering the composition and decomposition of PMTTs, it is shown that every non-weakly circular deterministic PMTT(-computable) transformation can be decomposed into a non-circular deterministic pebble tree transformation and a partial deterministic yield tree transformation. Also, that every non-weakly circular context-linear PMTT transformation can be decomposed into a non-circular pebble tree transformation and a partial deterministic yield tree transformation. Among other results, it is also shown that the compositions of pebble tree transformations and yield tree transformations are PMTT transformations.

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