In industrial practice today, correctness of software is rarely verified using formal techniques. One reason is the lack of specification languages for this application area that are both comprehensible and sufficiently expressive. We present the concepts and logical foundations of generalised test tables – a specification language for reactive systems accessible for practitioners. Generalised test tables extend the concept of test tables, which are already frequently used in quality management of reactive systems. The main idea is to allow more general table entries, thus enabling a table to capture not just a single test case but a family of similar behavioural cases. The semantics of generalised test tables is based on a two-party game over infinite words. We show how generalised test tables can be encoded into verification conditions for state-of-the-art model checkers. And we demonstrate the applicability of the language by an example in which a function block in a programmable logic controller as used in automation industry is specified and verified.

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