an approach to compose viewpoints of different stakeholders in the specification of probabilistic systems

Developing large and complex systems often involves many stakeholders each of which has her own expectations from the system; hence, it is difficult to write a single formal specification of the system considering all of stakeholders’ requirements at once; instead, each stakeholder can specify the system from her own viewpoint first. Then, the resulting specifications can be composed to prepare the final specification. Much work has been done so far for the specification of non probabilistic systems regarding viewpoints (or expectations) of different stakeholders; however, because of big trend to apply formal methods on probabilistic systems, in this paper, we present an approach to compose viewpoints of different stakeholders in the specification of probabilistic systems. According to this approach, different viewpoints are separately specified using the Z notation. Then, the resulting specifications are composed using some new operators proposed in this paper. We show the applicability of the presented approach by performing it on a known case study.

Keywords: Formal Methods, Formal Specification, Probabilistic Systems, Partial Models, Multiple Viewpoints

https://www.civilica.com/Paper-JR_JIST-JR_JIST-2-5_002.html