MODELING ACTIVITY DIAGRAMS WITH EXTENDED PETRI NETS

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ABSTRACT—To enhance trustworthiness, UML (unified modeling language) activity diagrams are transformed into Petri nets for verification and analysis. Data concerned Petri net (DCPN) is proposed for activity diagrams’ modeling. Mapping rules for transforming elements in an activity diagram into DCPNs are proposed in both graphical and formal forms. Weaving method is used to compose DCPNs. This paper provides foundation for developing a tool which can automatically transform an activity diagram into an analyzable Petri net. A case study shows the feasibility and applicability of the proposed method.

Key Words: UML; activity diagram; aspect oriented; Petri net; mapping rule