

Measuring Goal-Oriented Requirements Language Actor Stability

Jameleddine Hassine*, Mohammad Alshayeb*

**Information and Computer Science Department, King Fahd University of Petroleum and Minerals*

jhassine@kfupm.edu.sa, Alshayeb@kfupm.edu.sa

Abstract

Background: Goal models describe interests, preferences, intentions, desired goals and strategies of intervening stakeholders during the early requirements engineering stage. When capturing the requirements of real-world systems such as socio-technical systems, the produced goal models evolve quickly to become large and complex. Hence, gaining a sufficient level of understanding of such goal models, to perform maintenance tasks, becomes more challenging. Metric-based approaches have shown good potential in improving software designs and making them more understandable and easier to maintain.

Aim: In this paper, we propose a novel metric to measure GRL (Goal-oriented Requirements Language) “actor stability” that provides a quantitative indicator of the actor maintainability.

Method: We first, validate the proposed metric theoretically then empirically using a case study of a GRL model describing the fostering of the relationship between the university and its alumni.

Results: The proposed actor stability metric is found to have significant negative correlation with the maintenance effort of GRL models.

Conclusions: Our results show that the proposed metric is a good indicator of GRL actors’ stability.

Keywords: Goal models, Goal-oriented Requirements Language (GRL), stability, metrics, maintenance