FLAIRS-30 Poster Abstracts

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Editors

Application of Argumentation Logic for Decision on Bug Handling

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We address the application of argumentation logic to one of the most common workflows in decision making for software bug handling. The first step in such a problem is making a decision on whether the bug is valid. That includes whether there is sufficient data to understand the behavior described by the bug report. During a triage process, the undesired behavior is discussed, the appropriate criticality is assigned depending on the historical or perceived damage caused by the bug, and it is decided whether a fix is necessary. The next step is to assign it to the best available engineer who investigates the issue given the available data, generates a closure of all duplicates and proposes a fix for review including a description of what was done to verify that the fix worked (by referencing some test code). Reviewers try to understand how the fix works, whether there are any side effects, and respond with comments and suggestions. Once they are satisfied with the overall value, they approve and deploy it. If there are any further failures, the bug is reopened and the process starts again. If there is proof that the fix worked, the issue is closed. As engineering is a social process, every step involves a varying degree of trust. We model the argumentations steps encountered in the above process using a new logic specially designed for hard decisions, and extract the most comprehensive arguments to be presented to reviewers and engineers leading the decision making process.