THE UNIVERSITY of York

Mutation Models Notes

M^2 Discussions

- Theoretical versus practical interests
- How to choose mutation operators
- New modelling languages to mutate?
- Assessing utility of different operators sets?
- Scaleability
- Purposes of mutation. Abstraction and then mutate?
- Oracles?
- Can you transform between deterministic models to stochastic models usefully (and how does this fit with mutation),
- Are there language specific fault taxonomy
- How complete are rule sets.
- Examples – lots of errors in OCL.
- Invariant synthesis and suitability checking.
- Transformation langue flaws versus transformation language implementations.
- Sloppy/loose oracles?????

M^2 Discussions

- Invariant synthesis??? For transformed constraints.
- Established fault taxonomies for model transformations.
- Systematic mutation derivation for transformation notations? Hazops.
- Transformation language coverage metrics? Shouldn't these exist by now?????
- Coverage of input metamodel/output metamodel (cause effect graphing)?
- Can we sensibly appropriate concepts of mutation testing in the context of transformations?
- Particularisations/specialisations.
- Small beautiful and really important applications?
- How well defined are the semantics of transformation languages?
- Variations in underpinning semantics. Mutation testing to target these things?
- Model transformations for tools creation.
- Transformations for specific test goals.
- Coverage of orderings of rules. (a la method sequences)
- Testing of transformation engines?
- Issues of execution environements?

M^2 Discussions

- Given two models can you predict the differences between transformed models and their differences in their behaviours?
- Uses of metamorphic testing ideas and metamorphic relations?
- Can we help with tools generation when more sophisticated mutation generation? Knowledge of type systems etc.
- Lingua Franca (assembly language) for Trans Languages.
- OCL as an intermediate languages.
- Possibility of round tripping A->B->C->A via various transformations and also back to back testing.a
- There has been some work done on formally defined transformations. Especially for graph transformations.