

Interpreting Activity Theory as a Software Engineering Methodology

Cleidson de Souza and
David Redmiles

Universidade Federal do Pará, Brazil
University of California, Irvine, USA
{cdesouza,redmiles}@ics.uci.edu

Outline

- Methodologies in Software Engineering
 - Components of a methodology
- Activity Theory as a framework to derive Methodologies
 - Modeling Concepts and Notation
 - Development Process
 - Hints and Rules-of-Thumb
- Questions?

Methodologies in Software Engineering

1. A set of *modeling concepts*

- For example object-oriented methodologies use concepts such as objects, classes, inheritance, methods and so on;

2. A set of *notations and views*, to represent the modeling concepts for human understanding and modification.

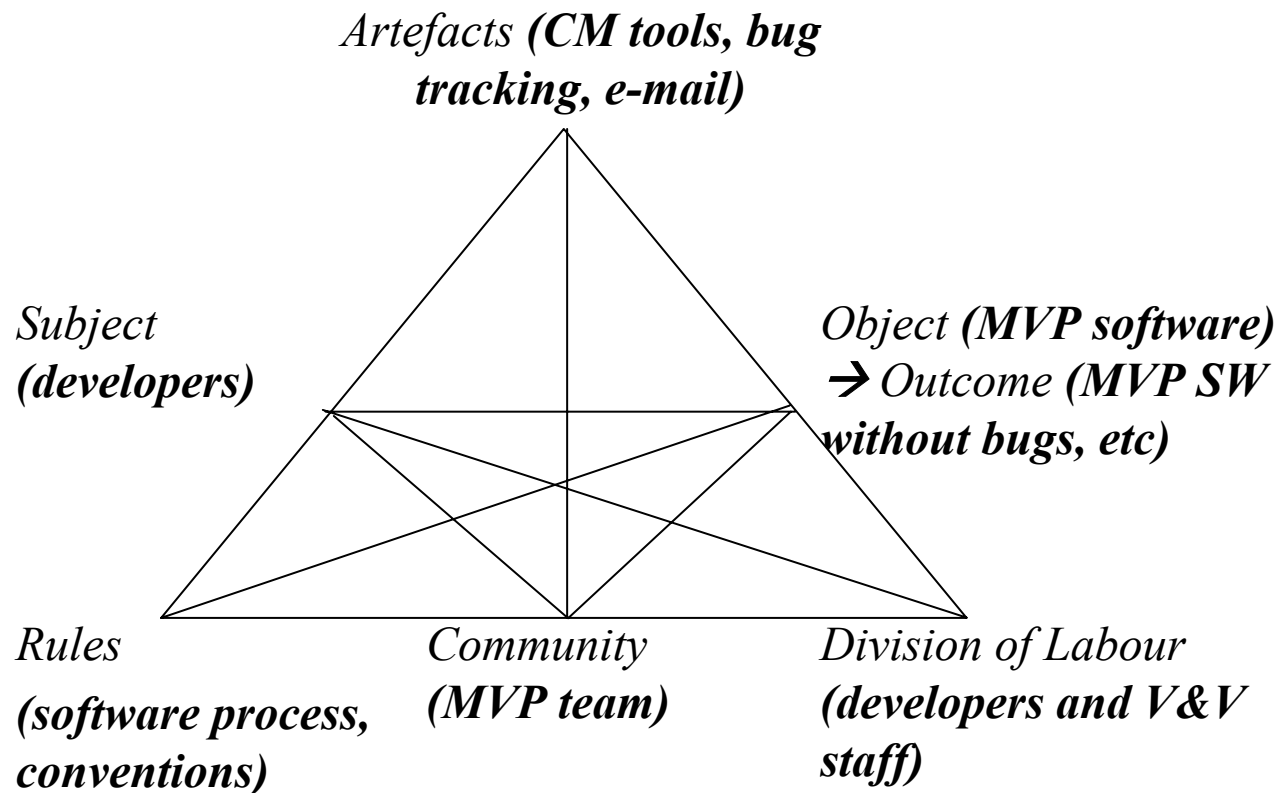
- An example of a set of notations is the Unified Modeling Language (UML) (Rumbaugh, Jacobson et al. 1999), while the views are the several UML diagrams, such as activity, classes and so on;

Methodologies in Software Engineering

3. A *development process* that is used to guide the development of the models.
 - In this case, a good example is the Unified Software Process (Jacobson, Booch et al. 1999).
4. And, finally, a collection of *hints and rules-of-thumb* that are used to guide, evaluate, or improve the development process, and therefore the construction of models.

Activity Theory as a Methodology?

Modeling Concepts and Notations



Activity Theory as a Methodology?

Development Process

- Guidance for the construction of the models?
 - Which level of abstraction?
 - When to stop?
 - How to construct the models?
 - How to provide guidance in the usage of the AT framework without reducing its flexibility ?

Activity Theory as a Methodology?

Hints and Rules-of-Thumb

- Hints and rules-of-thumb are used to guide, evaluate, or improve the development process, and therefore the construction of models.
- How to document the experience of using the AT framework?
- How to document it in such a way that it is reusable?
- Promising approach: patterns (Gamma, Helm et al. 1995).
 - How to represent the context where AT was successfully applied so that one does not try to reuse solutions in inappropriate contexts?

Questions

- Which set of modeling concepts to use and how to represent them?
- How to provide guidance in the usage of the AT framework without reducing its flexibility ?
- How to document, in a reusable way, the experience of using the AT framework?