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From Software Specifics to Software-Specific Vagueness

Gianmarco Campagnolo
University of Trento, gianmarco.campagnolo@gmail.com

Giolo Fele
University of Trento, giolo.fele@soc.unitn.it

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From Software Specifics to Software-Specific Vagueness

Gianmarco Campagnolo
University of Trento, Italy

Giolo Fele
University of Trento, Italy

Abstract
The paper identifies some recurrent forms of â software-specificâ vagueness in the context of software engineering work practices as a set of conditions for establishing shared understanding between engineers and users on the features and possible uses of the system. Relying in particular on about 20 hours of audio-video recording of meetings between the software engineers and users at three different sites, the paper identifies three recurrent patterns of â software-specificâ vagueness: (i) â openness versus completenessâ , that is, the extent to which the software-based modeling tool requirement of internal completeness hampers the flexibility crucial to its function; (ii) â representation versus coordinationâ , that is, the degree of recognizability of system features as management support functions of control with respect to line work management functions and (iii) â object orientation versus procedural orientationâ , that is, the order that the model imposes on interaction and the representations of interaction located within the object instead of on a procedural level as in e.g. issue lists. Contrary to expectations concerning software engineering when it is viewed as a matter of logic, the establishment of a common ground of reference between engineers and users does not rely on making instructions about the software more accurate, more detailed or more specific. Rather, the paper argues that the vagueness of many expressions, specifically with regard to openness, coordination functions and procedural-orientation of the software, helps build a shared understanding.

Keywords: specific vagueness, ethnomethodology, enterprise modeling

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Introduction

This paper presents a multi-sited ethnography of meetings between software engineers and industrial users in the context of industrial negotiations for the adoption of particular software solutions in a firm. The empirical material derives from an extended ethnography conducted as part of the MAPPER project, a three-year EU project on engineering production processes in the factory[1].

The paper focuses on meetings held by software engineers and users to discuss a software visual modeling tool being implemented within the project for the purpose of visualizing industrial users' manufacturing processes. The paper argues that, in order to implement the system, engineers must be 'specifically vague'[2] regarding work requirements and technological possibilities. The paper identifies some recurrent forms of 'software-specific' vagueness in the context of software engineering work practices as a set of conditions for establishing shared understanding between engineers and users on the features and possible uses of the system. Relying in particular on about 20 hours of audio-video recording of meetings between the software engineers and users at three different sites, the paper identifies three recurrent patterns of 'software-specific' vagueness: (i) *openness* versus *completeness*, that is, the extent to which the software-based modeling tool requirement of internal completeness hampers the flexibility crucial to its function; (ii) *representation* versus *coordination*, that is, the degree of recognizability of system features as management support functions of control with respect to line work management functions and (iii) *object-orientation* versus *procedural orientation*, that is, the order that the model imposes on interaction and the representations of interaction located within the object instead of on a procedural level as in e.g. issue lists.

[1] EU STREP Contract no. 016527.
[2] Garfinkel, *Studies in Ethnomethodology*, 1967.

The paper conceives modeler/user interactions as socio-material assemblages where discursive practices are constituted in, and inseparable from, the computational artifact[3]. Contrary to expectations concerning software engineering when it is viewed as a matter of logic, the establishment of a common ground of reference between engineers and users does not rely on making instructions about the software more accurate, more detailed or more specific. Rather, the paper argues that the vagueness of many expressions, specifically with regard to openness, coordination functions and procedural-orientation of the software, helps build a shared understanding.

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[3] Suchman, Trigg & Blomberg, *"Working artefacts: ethnomethods of the prototype"*, 2002, 163-179.

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Office:
Sprouts
University of Amsterdam
Roetersstraat 11, Room E 2.74
1018 WB Amsterdam, Netherlands
Email: admin@sprouts.aisnet.org

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