

A functional taxonomy for artifacts

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Sergio Esparcia
Estefanía Argente



Grupo de Tecnología Informática
Inteligencia Artificial

OUTLINE

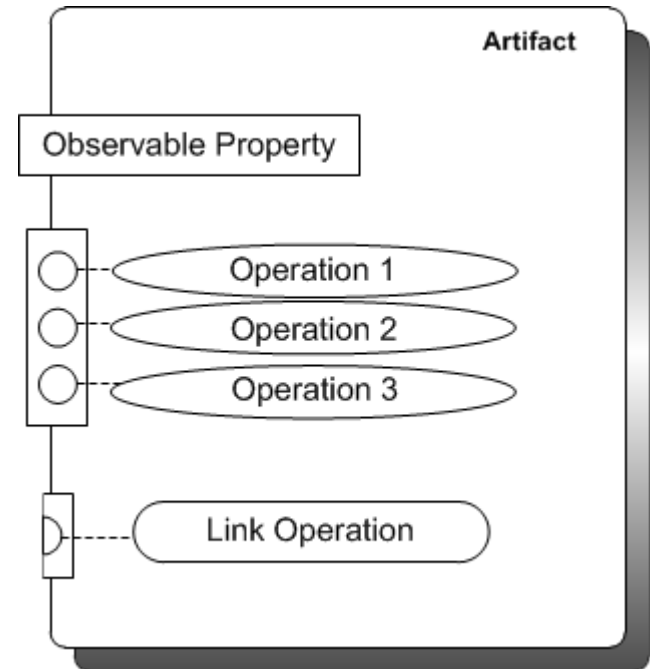
- Introduction
- Artifacts
- Functional Taxonomy of Artifacts
- Conclusions

INTRODUCTION

- Environment is a first class abstraction inside a MAS
- Agents & Artifacts (A&A) framework [Ricci, 2007a]
 - Agents
 - Artifacts
 - Workspaces
- Need to know about functionalities of the artifacts
 - We present a functional taxonomy of artifacts

ARTIFACTS

- Artifacts are non-proactive, reactive entities that agents employ to achieve their goals
- Artifacts are provided with:
 - Observable properties
 - Operations
 - Link operations
 - Functional description
- CArtAgO framework
[Ricci, 2006]

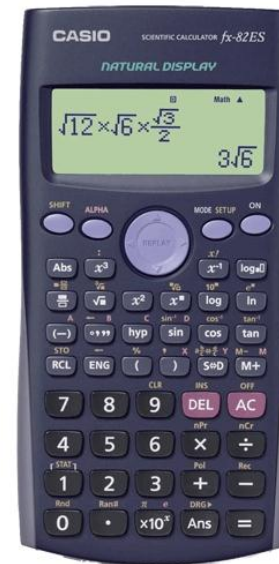


FUNCTIONAL TAXONOMY OF ARTIFACTS

- Basic artifact
- Coordination Artifact
- Cognitive Stigmergy Artifact
- Organizational Artifact
- Reputation Artifact
- Argumentation Artifact

BASIC ARTIFACT

- General usage features
- Provides:
 - General information
 - Functions to help agents
- Examples:
 - Clock
 - Database [Ricci, 2009]
 - Calculator



COORDINATION ARTIFACT

- Enabling/improving coordination
- Coordination behavior specification
- Agents are able to know:
 - When an action is being executed
 - When the action finishes
 - Next action to do
- Examples:
 - Information panel
 - Follow Me [Omicini, 2004]



COGNITIVE STIGMERGY ARTIFACT

- Promote awareness into a MAS
- Support awareness in three ways:
 - Personal way
 - Social way
 - System's point of view
- Examples:
 - Social networks
 - Dashboard, log, diary, note-board [Ricci, 2007b]
- Emergency can produce self-organization



twitter



ORGANIZATIONAL ARTIFACT

- Manage an agent organization
- Reach global goals
- Inform agents about:
 - Norms
 - Structure
 - Available actions
- Example:
 - ORA4MAS [Hubner, 2009]

REPUTATION ARTIFACT

- Evaluate each agent/artifact
- Establish their reputation
- Example:
 - Alice's MSc Course [Hubner, 2008]

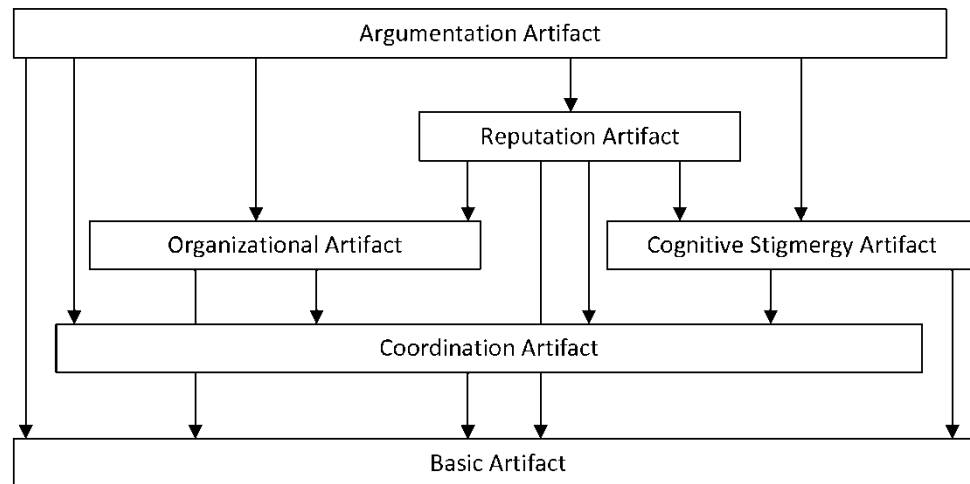
ARGUMENTATION ARTIFACT

- Evaluate social acceptability of arguments
- Coordinate argumentation process
- Social acceptability
 - Admissibility of the arguments of an agent
- Social behavior
 - Overall behavior of the society
- Examples:
 - Interactive TV show
 - Argument Acceptance Artifact [Oliva, 2008]



FUNCTIONAL TAXONOMY OF ARTIFACTS

- Relationships between categories



CONCLUSIONS

- Artifacts can be classified in several ways
 - There was not a classification about functionality
- We presented a new taxonomy focused on the purpose and functionality of artifacts
- New artifacts might appear in the future
- New categories could be added to the taxonomy

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THANK YOU FOR YOUR ATTENTION

Any questions?