Role of Theory

Christopher Frauenberger

User-Research Methods VU 2017

FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics

Definition

»An organized body of **concepts** and **principles** intended to **explain** particular **phenomenon**«
[Leedy & Ormrod 2005]

WHY & HOW

Good for?

- Form **Hypothesis** to be tested
- Inform us & blind us
- **Predictive** Power of what will happen
- Abstraction or a **model** of reality
- **Lens** for thinking about a problem

Theory

WHEN	WHY
Upfront	Informs the whole process, provides the angle, shapes the questions
Data Collection	Lens for what to pay attention to
Analysis	Lens for focus, help explain the data
Design	Predictive and generative translation of results

Powers of Theory

1. **Descriptive** power - conceptual framework that helps us make sense of and describe the world
2. **Rhetorical** power – help us talk about the world by naming important aspects – to communicate/ persuade to self/others
3. **Inferential** power – help us make inferences that will lead to insights or help predict consequences eg of introducing change in a particular setting
4. **Application** power – how we can apply/translate to inform and guide system design

Christine Halverson. Activity Theory and Distributed Cognition: Or What Does CSCW Need to DO with Theories? Computer Supported Cooperative Work 11: 243–267, 2002

Paradigm
Methodology
Theory

?

Used in different ways

Theory can be used to

- **Interpret** data to fit with theoretical concepts (eg as in Activity Theory)
- Using as **sensitising** concepts (eg as in Symbolic Interactionism)
- **Derive** theoretical concepts from the data itself (eg as in Ethnomethodology, Grounded Theory)
- **Evolve** domain/application-specific theories (eg as in learning theories; theories of motivation, behaviour change; social practice theory)

Some Theories

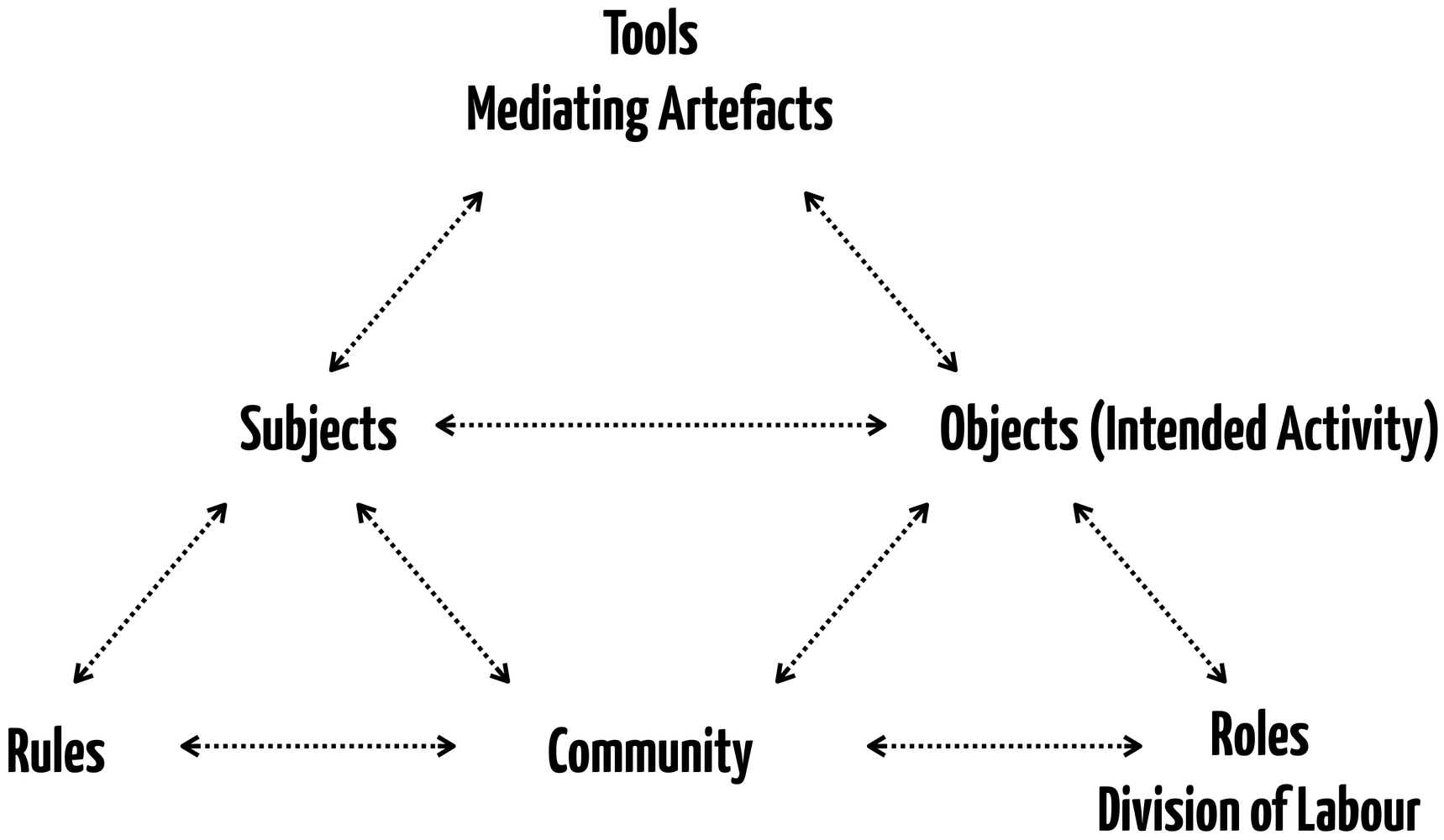
- **Activity Theory (AT)**
  Nardi, Bodker, Kaptelinen, Kuutti
- **Distributed Cognition (DC)**
  Hutchins, Halverson, Perry
- **Ethnomethodology/CA, phenomenology**
  Suchman, Health and Luff, Crabtree, Tolmie etc
- **Symbolic Interactionism / grounded theory**
  Strauss, Glaser, Star, Grinter, [Fitzpatrick]
- **Embodied cognition / Tangible Interaction Framework**
  Tasa and Yurtsever; Dourish; Hornecker;

Some more Theories

- **Various Communication theories**
  Common ground (Clark); Media richness theory (Daft & Lengel)
- **Critical theory, feminist theory**
  Blythe, Bardzell (S & J), Blackwell, Boehner, Rode
- **Actor Network Theory (ANT)**
  Collin, Latour

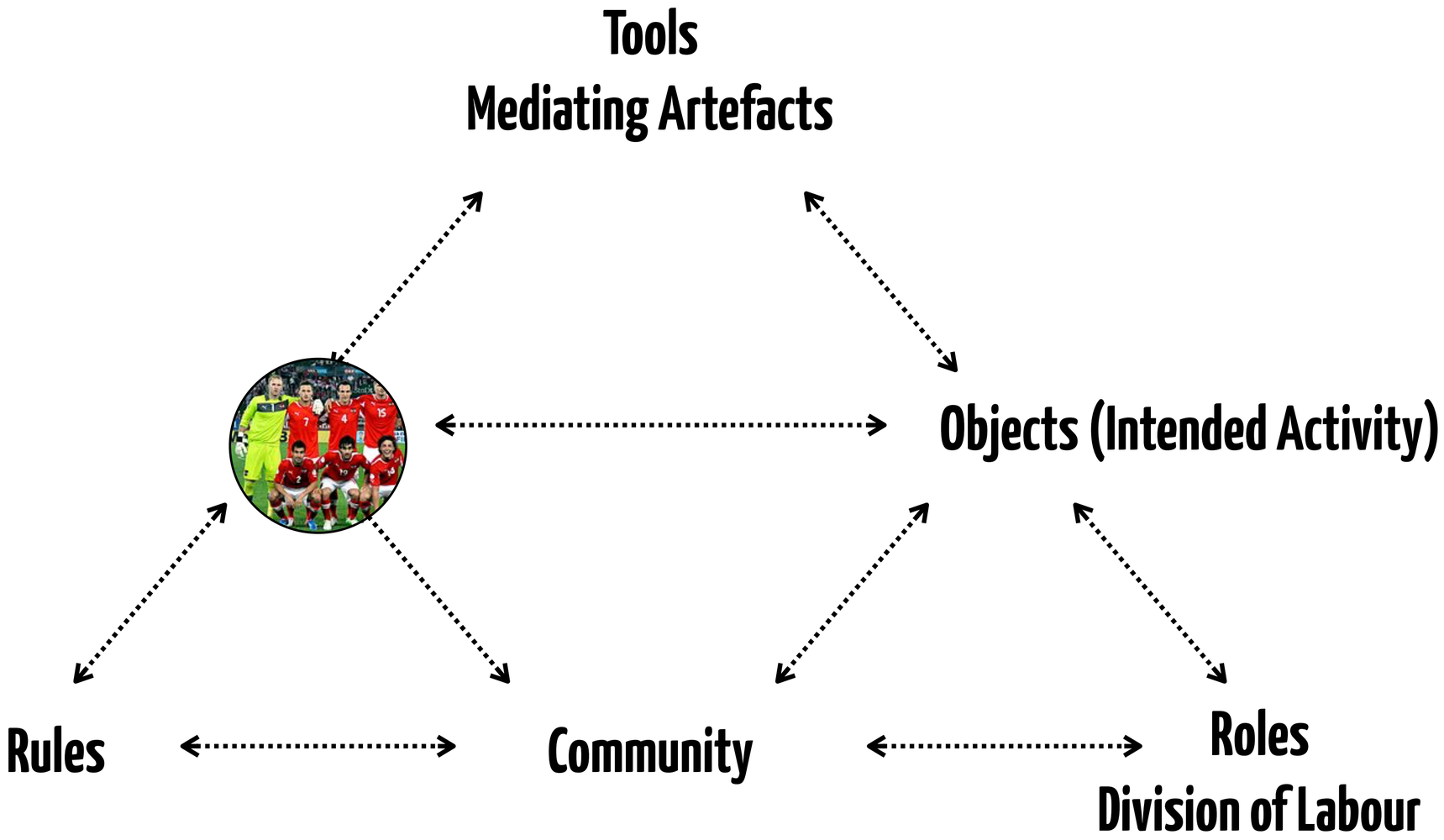
Activity Theory

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



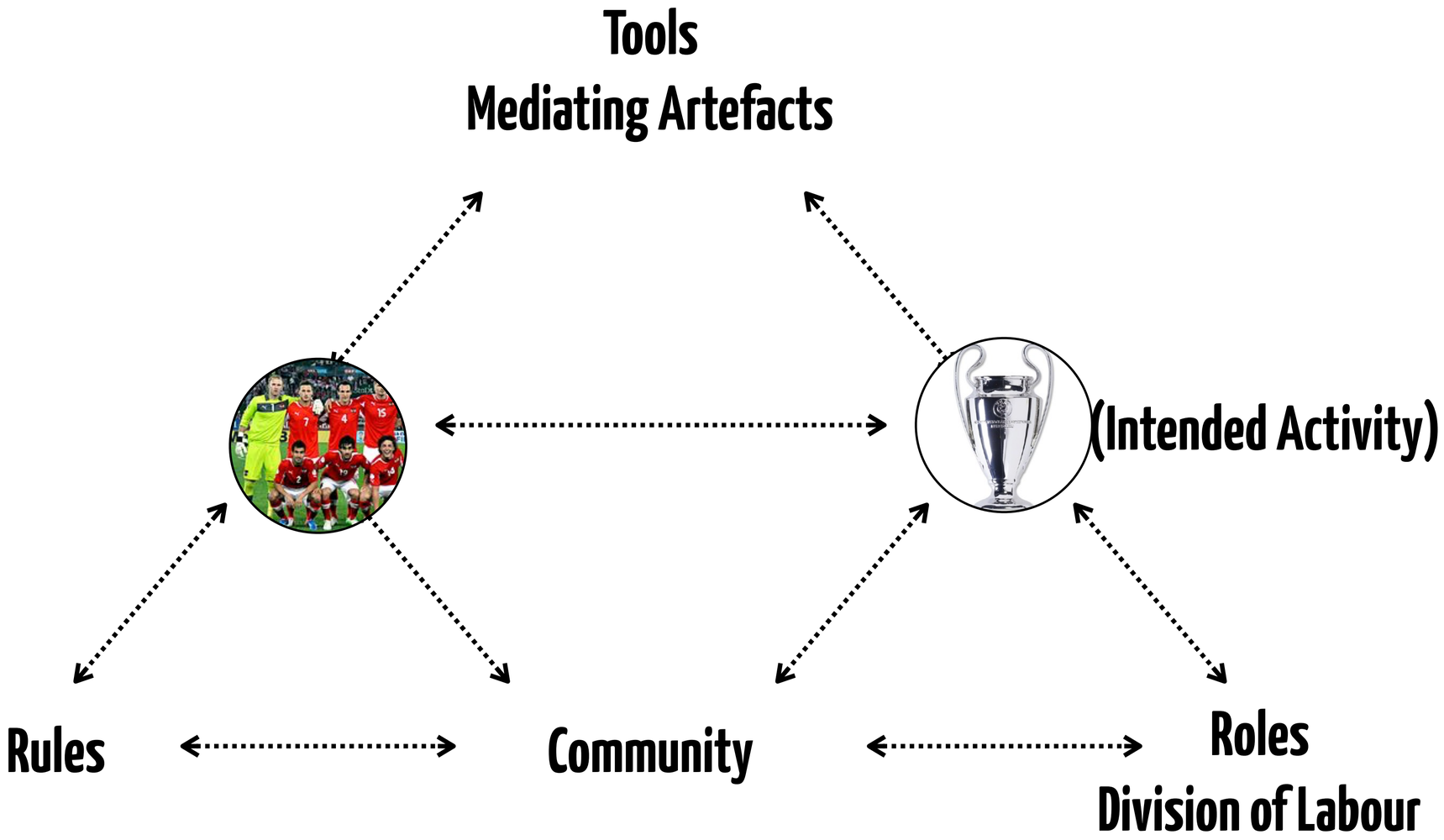
Activity Theory

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



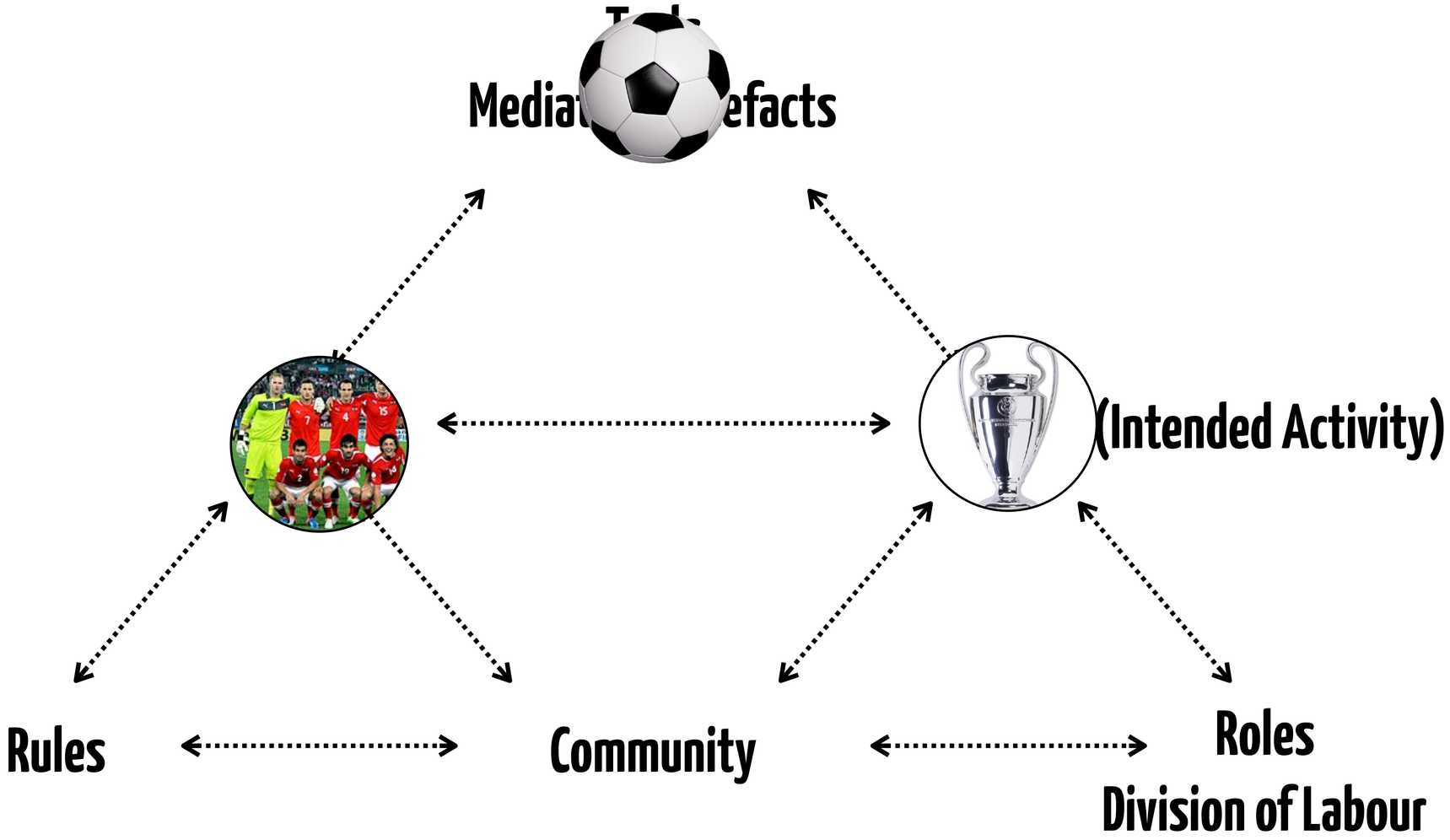
Activity Theory

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



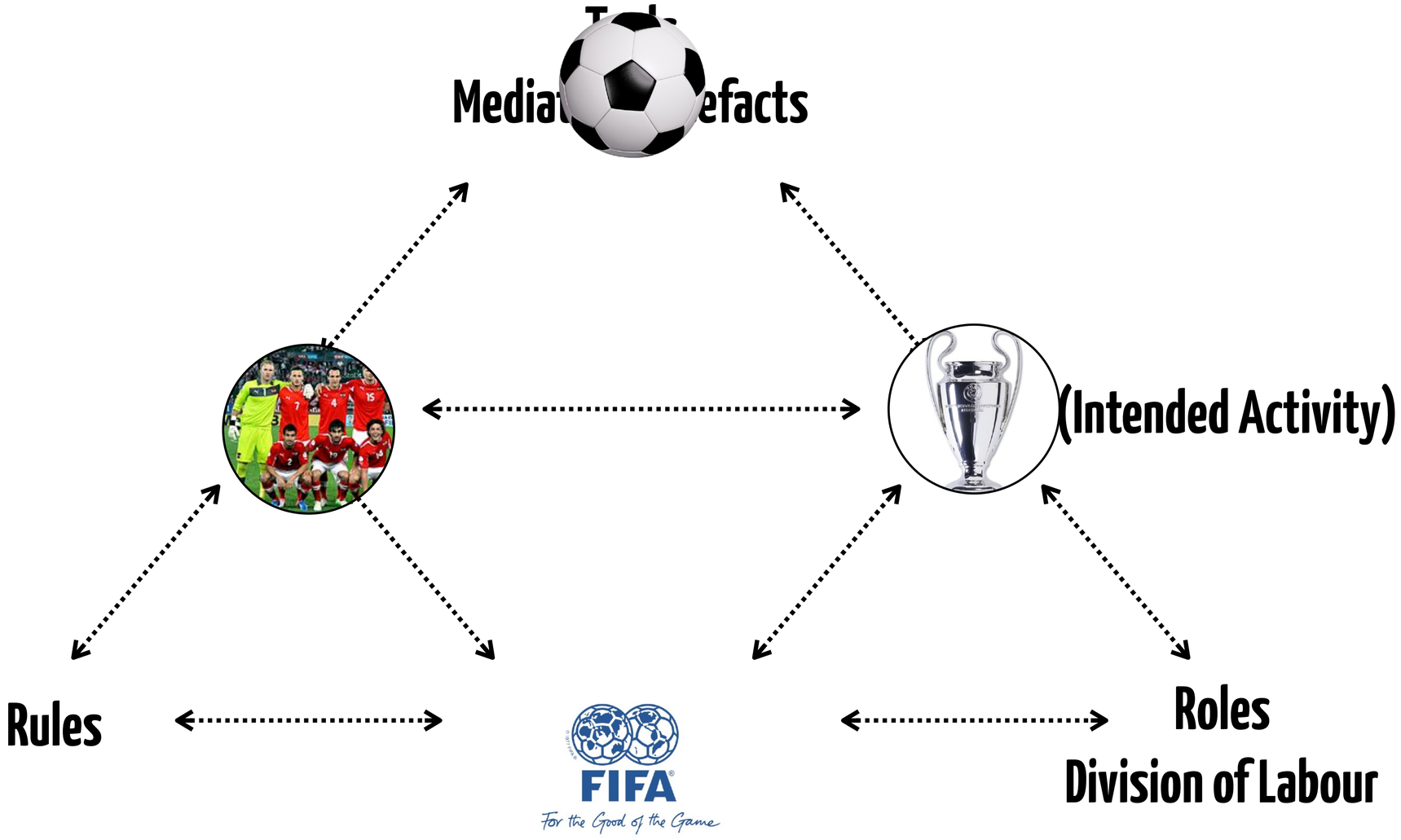
Activity Theory

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



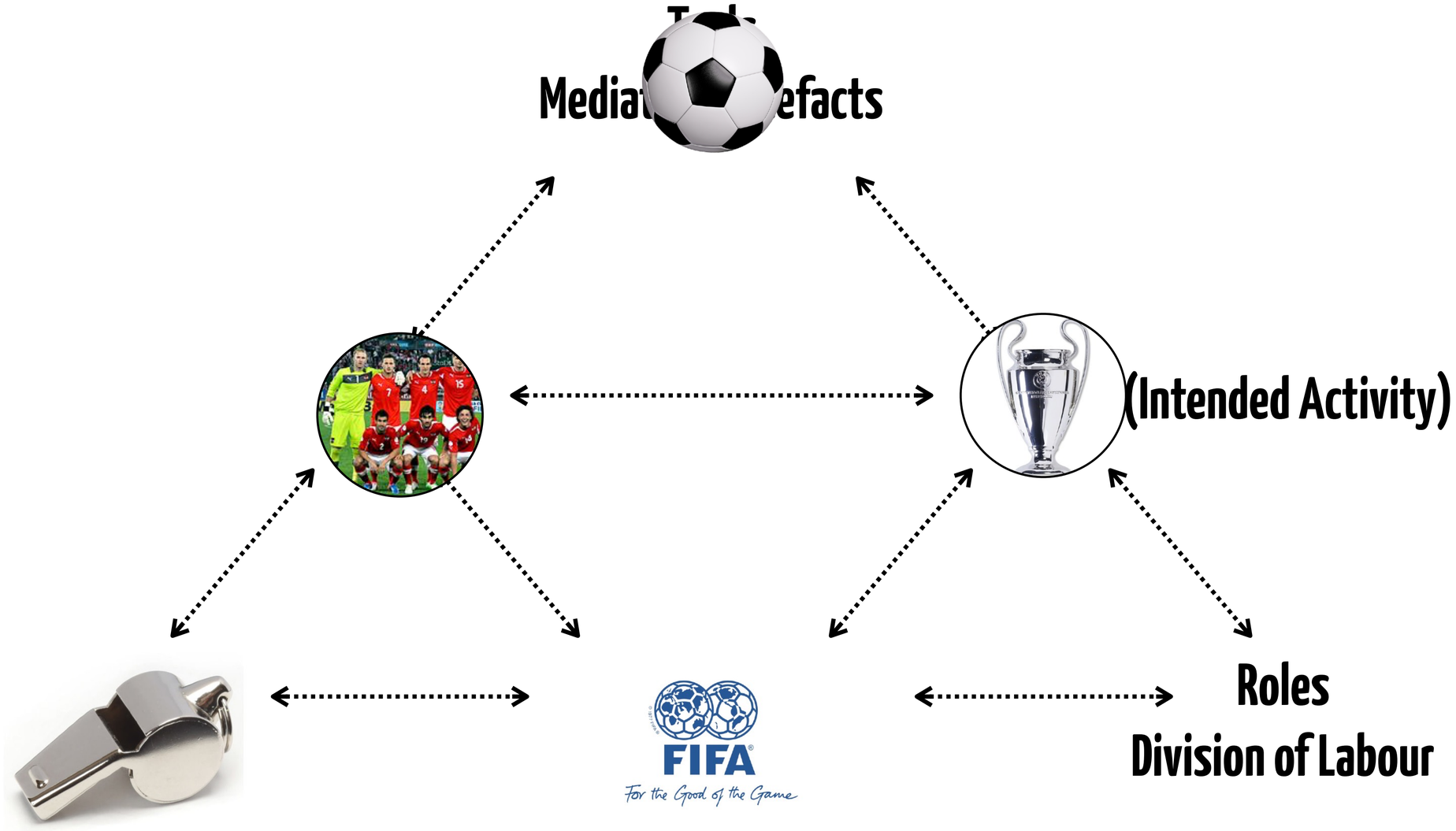
Activity Theory

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



Activity Theory

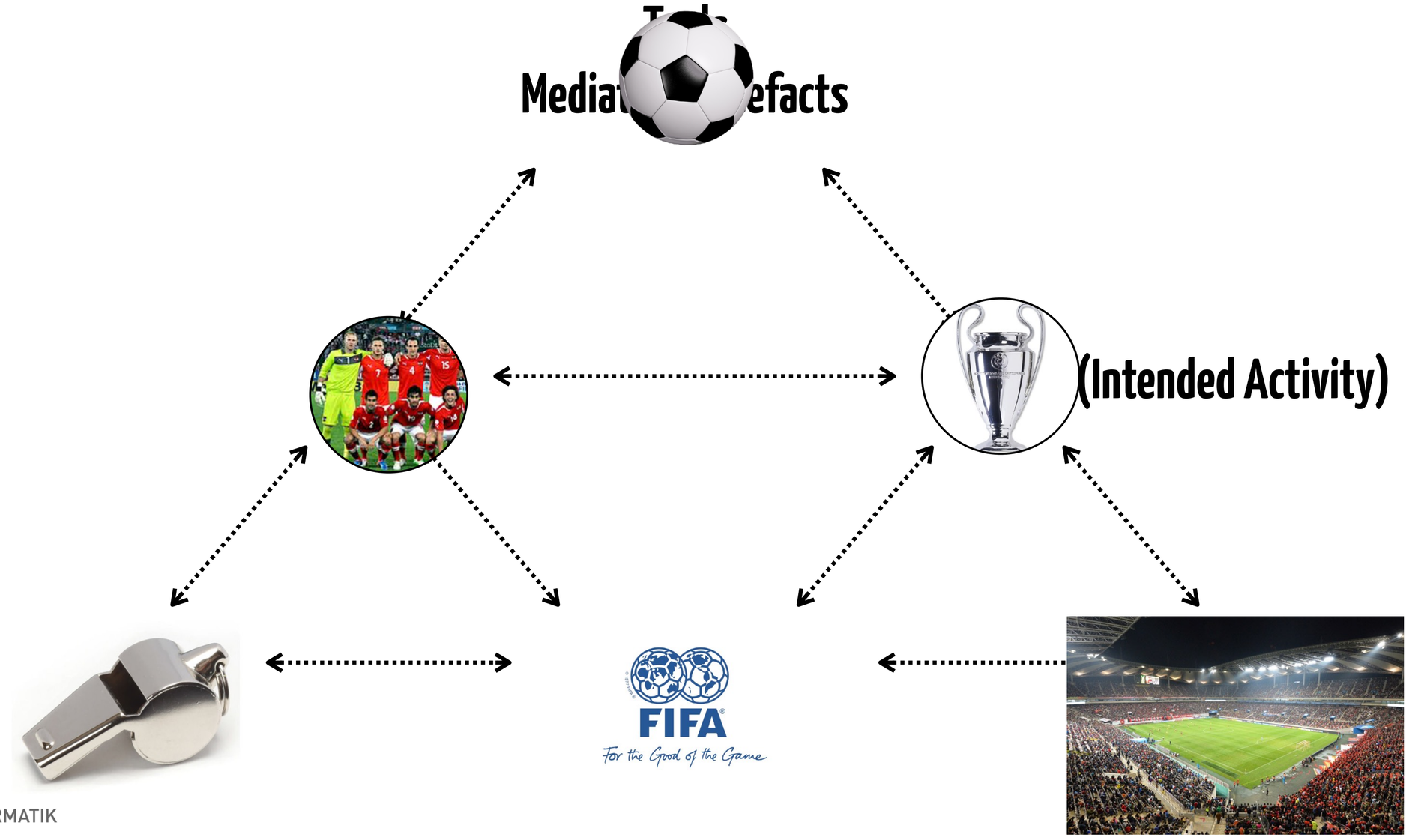
https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics

Activity Theory

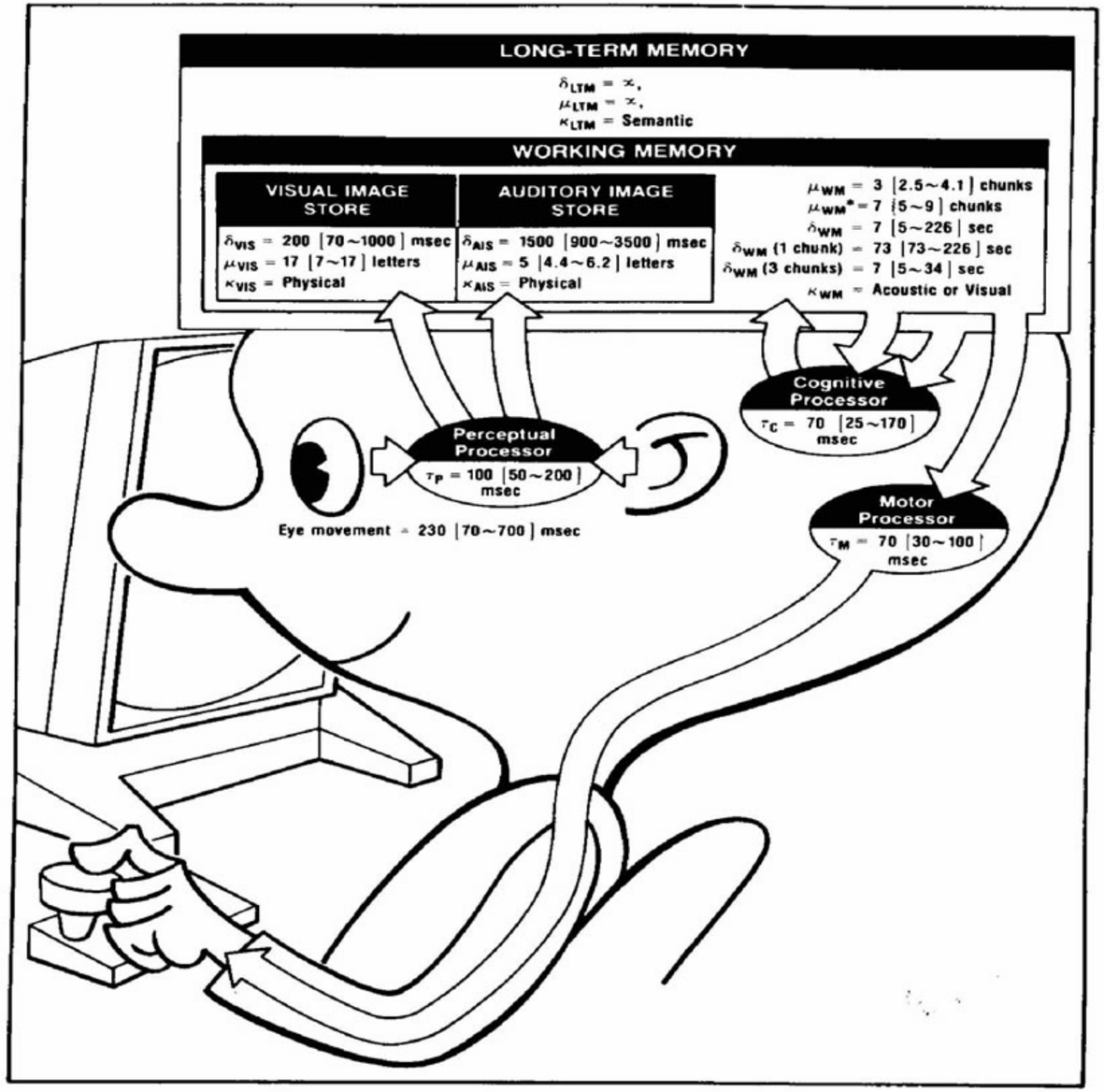
https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory



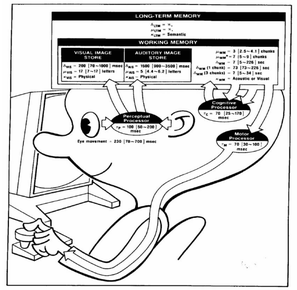
FAKULTÄT
FÜR !NFORMATIK

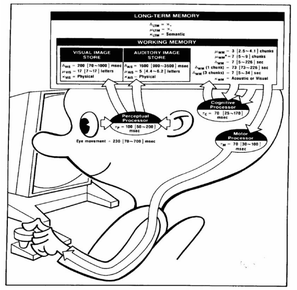
Faculty of Informatics

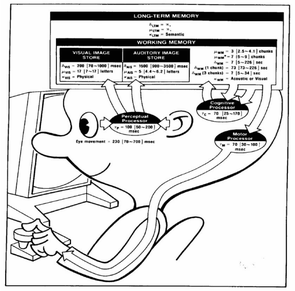
Distributed Cognition

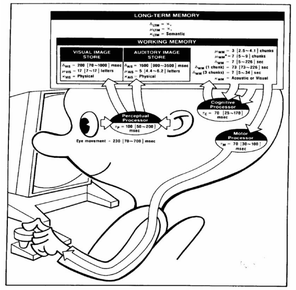


Distributed Cognition









FAKULTÄT
FÜR !NFORMATIK

Faculty of Informatics

Ethnomethodology

What are the **social orders** that rule our behaviours?
Harold Garfinkel 1960's

»Ethnomethodologists explore the question of how people **account for their behaviours**. To answer this question, they may deliberately **disrupt** social norms to see how people respond and how they try to restore social «
https://www.thoughtco.com/what-is-ethnomethodology-3026553

The Guest in your own Home Study

Phenomenology

Edmund **Husserl**, Martin **Heidegger**, Maurice **Merleau-Ponty**

- Ontology is the study of beings or their being—what is.
- Epistemology is the study of knowledge—how we know.
- Logic is the study of valid reasoning—how to reason.
- Ethics is the study of right and wrong—how we should act.
- **Phenomenology is the study of our experience—how we experience**.

Being and Time - Being in the World - Dasein

Intentionality towards objects

Ready at Hand - Present at Hand

https://plato.stanford.edu/entries/phenomenology/

Phenomenology

Edmund **Husserl**, Martin **Heidegger**, Maurice **Merleau-Ponty**

- Ontology is the study of beings or their being—what is.
- Epistemology is the study of knowledge—how we know.
- Logic is the study of valid reasoning—how to reason.
- Ethics is the study of right and wrong—how we should act.
- **Phenomenology is the study of our experience—how we experience**.

Being and Time - Being in the World - Dasein

Intentionality towards objects

Ready at Hand - Present at Hand

https://plato.stanford.edu/entries/phenomenology/

Embodiment & Tangible Interaction

Paul **Dourish** »Where the action is«

Interaction with technology is **social & embodied**

FAKULTÄT FÜR !NFORMATIK

Faculty of Informatics

Embodied Cognition

Our cognitive **processes** are dependent on the features of the **physical body** of an agent. What we can think depends on our being in the world.

https://plato.stanford.edu/entries/embodied-cognition/

Cognition is
situated & embodied,
not just in our brains.

Credits: Jelle van Dijk

Symbolic Interactionism

Max **Weber**, George Herbert **Mead**…

Symbolic interaction theory analyzes society by addressing the **subjective meanings that people impose** on objects, events, and behaviours. Subjective meanings are given primacy because it is believed that **people behave based on what they believe and not just on what is objectively true**. Thus, society is thought to be socially constructed through human interpretation. People interpret one another's behaviour and it is these interpretations that form the social bond. These interpretations are called the »**definition of the situation**.«

https://www.thoughtco.com/symbolic-interaction-theory-3026633

Critical Theory

1930's influenced by **Marx**, **Freud**...
Frankfurt School (**Marcuse, Adorno, Horkheimer, Habermas**...)

Classic Theory	Critical Theory
Explain	**Critique**
Observe	**Challenge**
Understand	**Change**

Influential for HCI:
Feminism, e.g., Donna **Haraway** (»The Cyborg Manifesto«)
Shawn & Jeff **Bardzell, Dunne-Raby** (Critical Design)

Actor Network Theory

Bruno **Latour,** Michel **Callon,** John **Law**...

FAKULTÄT
FÜR !NFORMATIK

Faculty of Informatics

Activity Theory
Distributed Cognition
Discourse Analysis
Phenomenology, Embodiment
Symbolic Interactionism
Communication Theories
Critical Theory, Feminism
Actor-Network Theory

Activity Theory

Distributed Cognition

Discourse Analysis

Phenomenology, Embodiment

Symbolic Interactionism

Communication theories

Critical Theory, Feminism

Actor-Network Theory

Trying to make sense of a **socio-material world**, i.e., our relationship as humans with the things around us

FAKULTÄT FÜR !NFORMATIK

Faculty of Informatics

Activity Theory

Distributed Cognition

Dis

Ph

Sy

Con

Critic, Feminism

Actor-Network Theory

Recognising the **situatedness** of this relationship

material w humans with the

se of a **socio-**

lationship as

d us

FAKULTÄT
FÜR !NFORMATIK

Faculty of Informatics