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Roles in Evolution

or: Evolutionary Development

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OUTPUT Demo Day of the Department

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Filters in Evolution

or: Evolutionary Development

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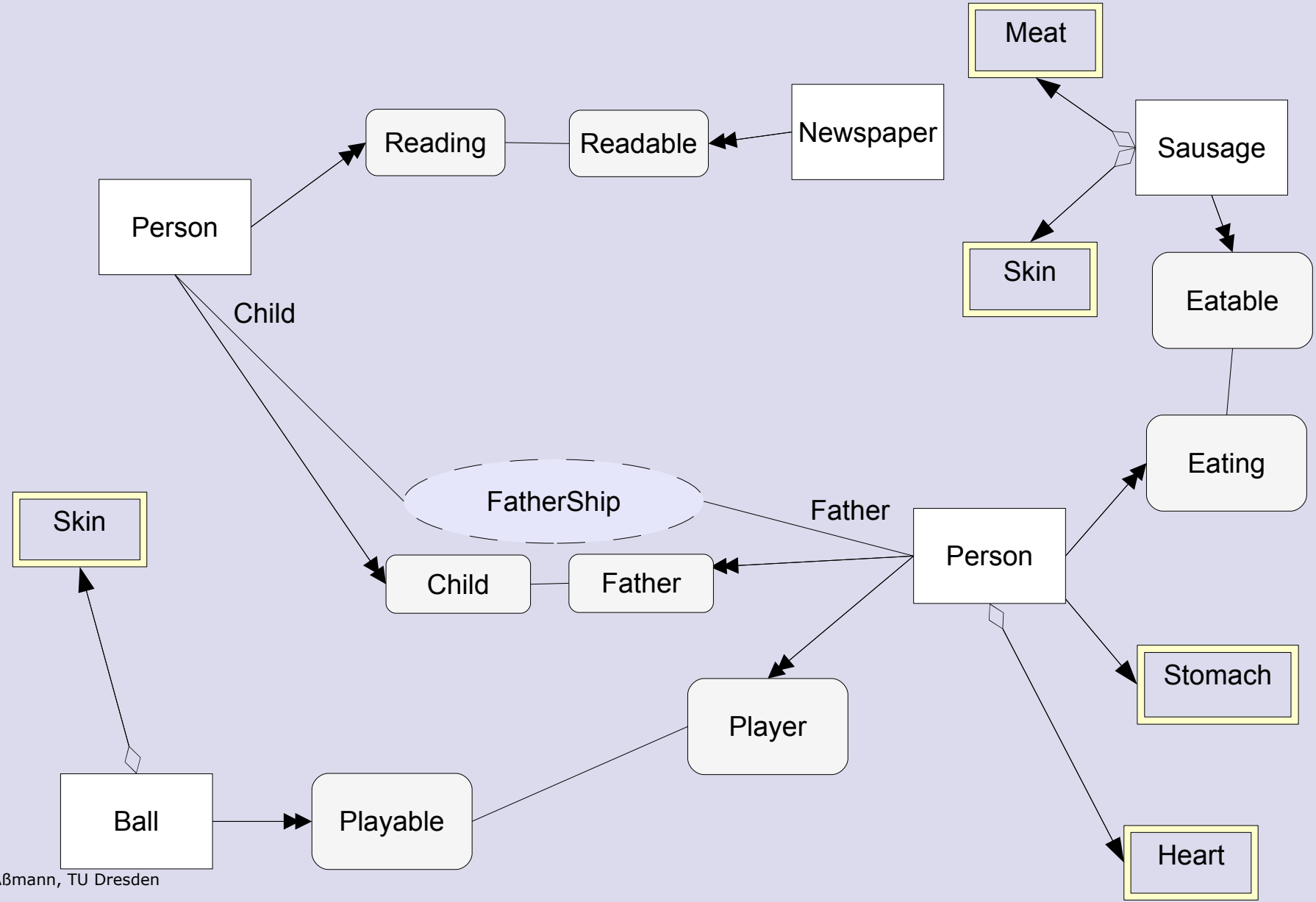
My Sabbatical

- Proposals, ...

Steven McMenamin

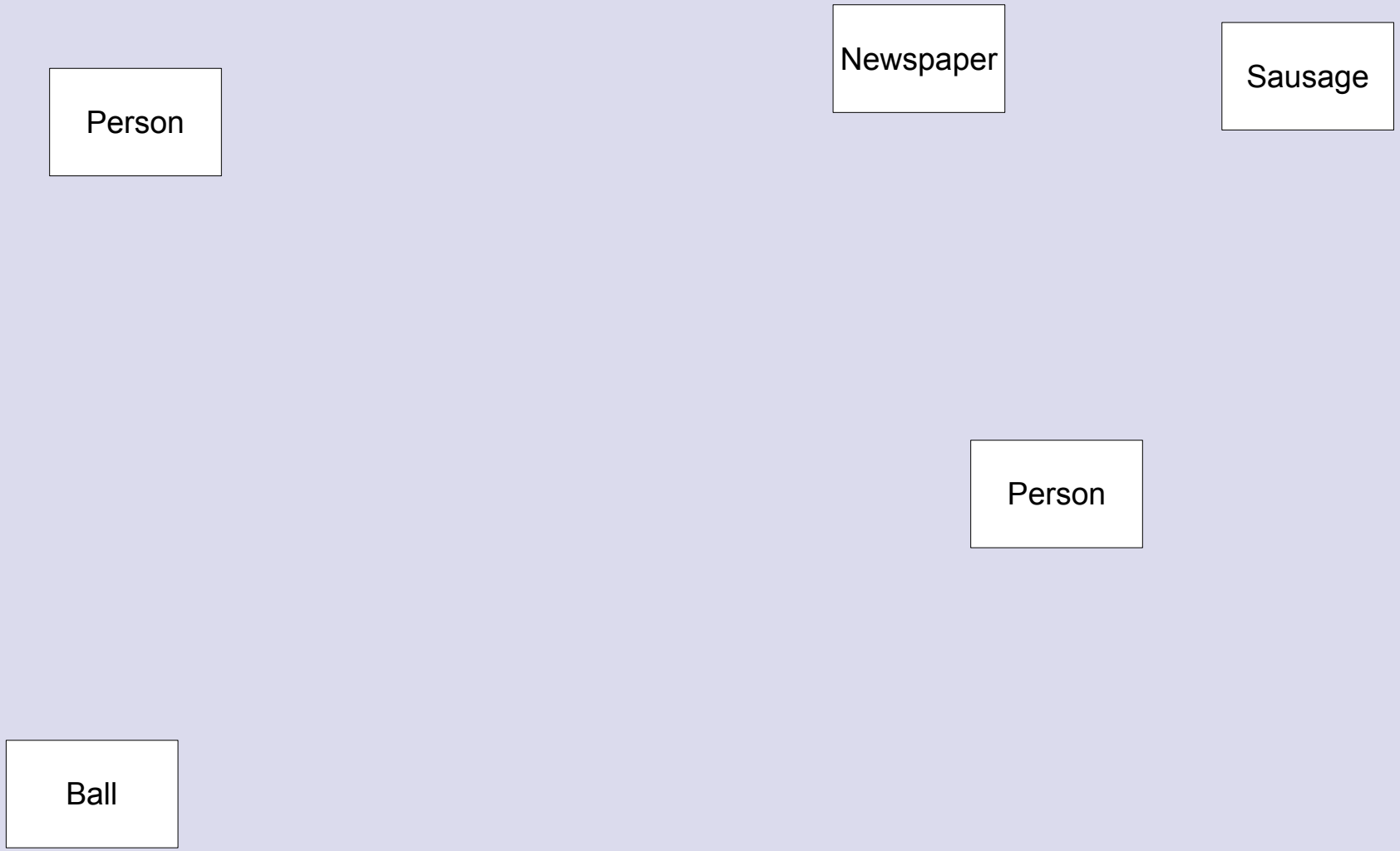
Slicing, e.g. with Role Models

An Analysis Model



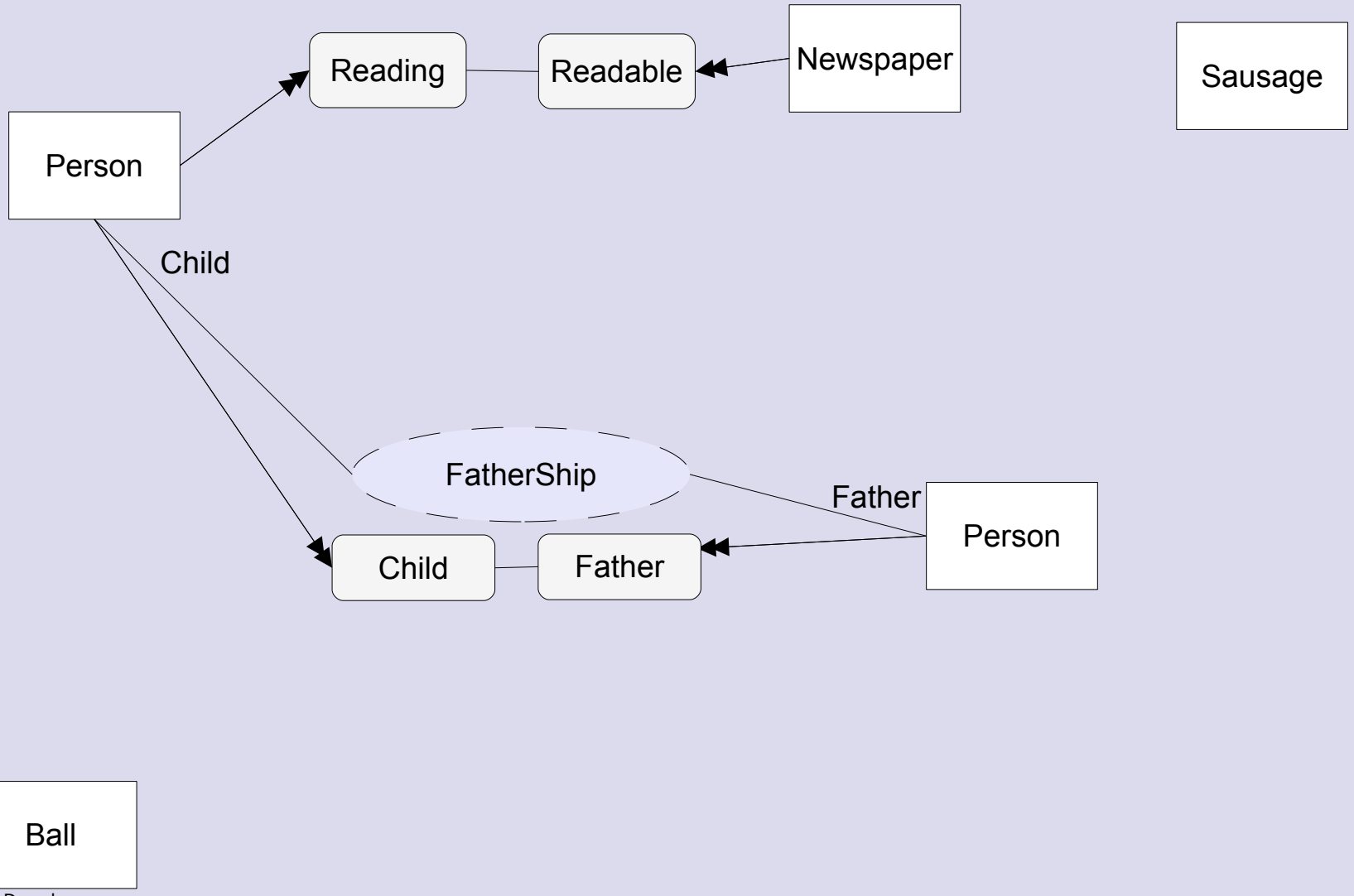
Refinement of Natural Objects by adding Collaborations

- Initial State: Identification of natural types of domain model



Refinement of Natural Objects by adding Collaborations

Extension by collaborations (connectors, teams)



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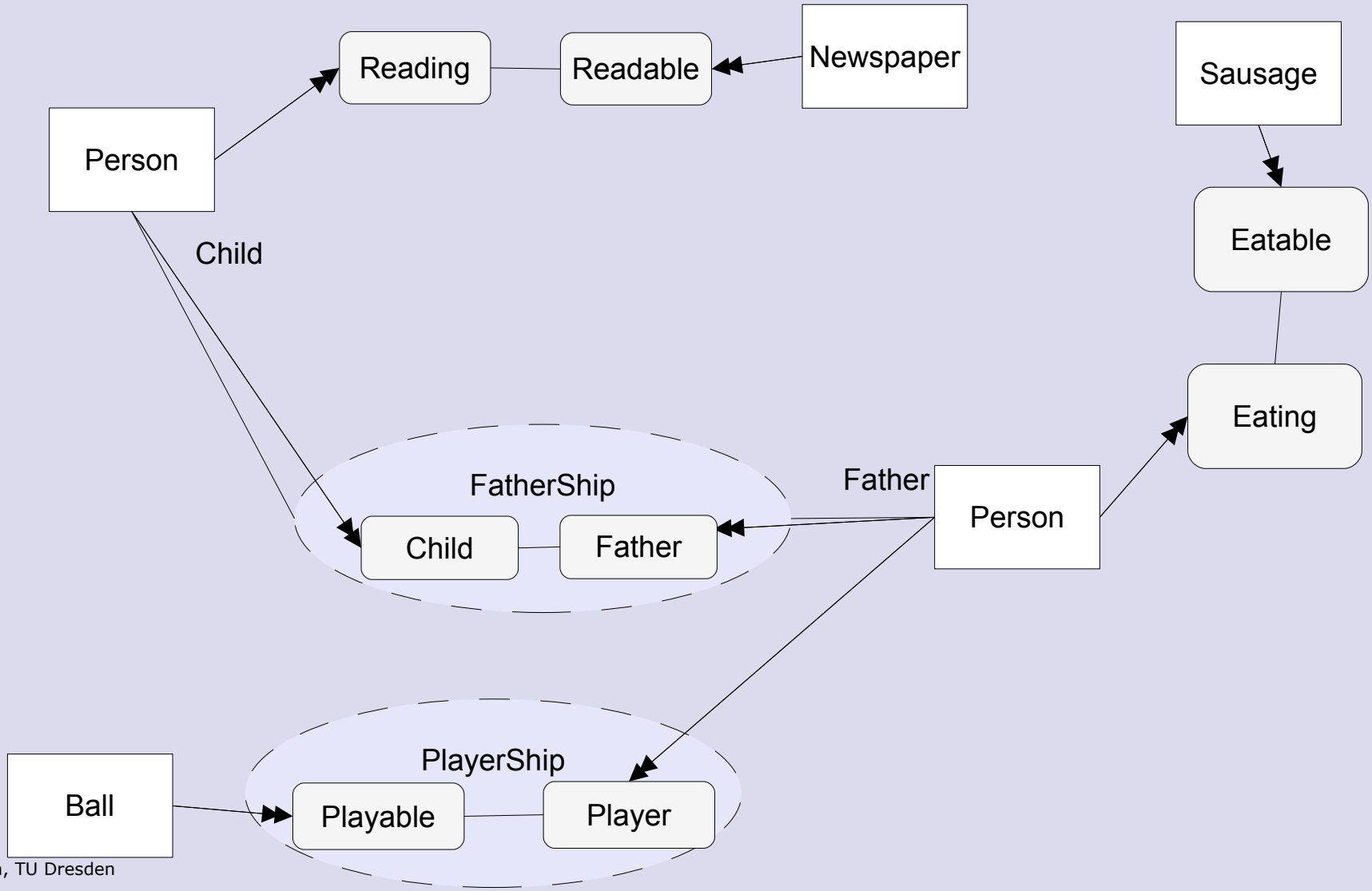

Implementation of Collaboration Schemas

Collaboration schemas are *type functors*

- Functions on types

Direct implementation

- Languages: ComposeJ, ObjectTeams, CeasarJ
- Mixin layers
- Role Object Pattern
- Semantic macros
- Generic templates (BETA, Compost)
- Aspects

Rewriting to standard languages

- Mapping (MDD process), e.g., with graph rewriting systems

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Essence, Administration and Infrastructure

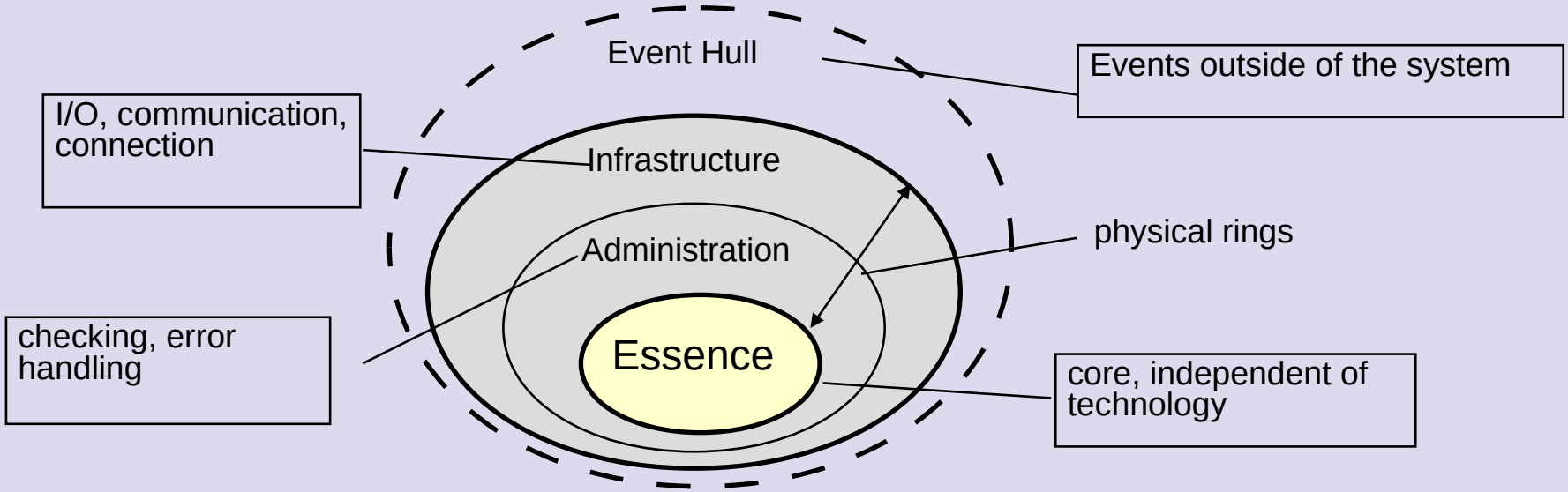
- **Structured Analysis of Second Generation**
- **McMenamin, S., Palmer, J.: Essential Systems Analysis, Yourdon Press, 1984.**

Essence Decomposition

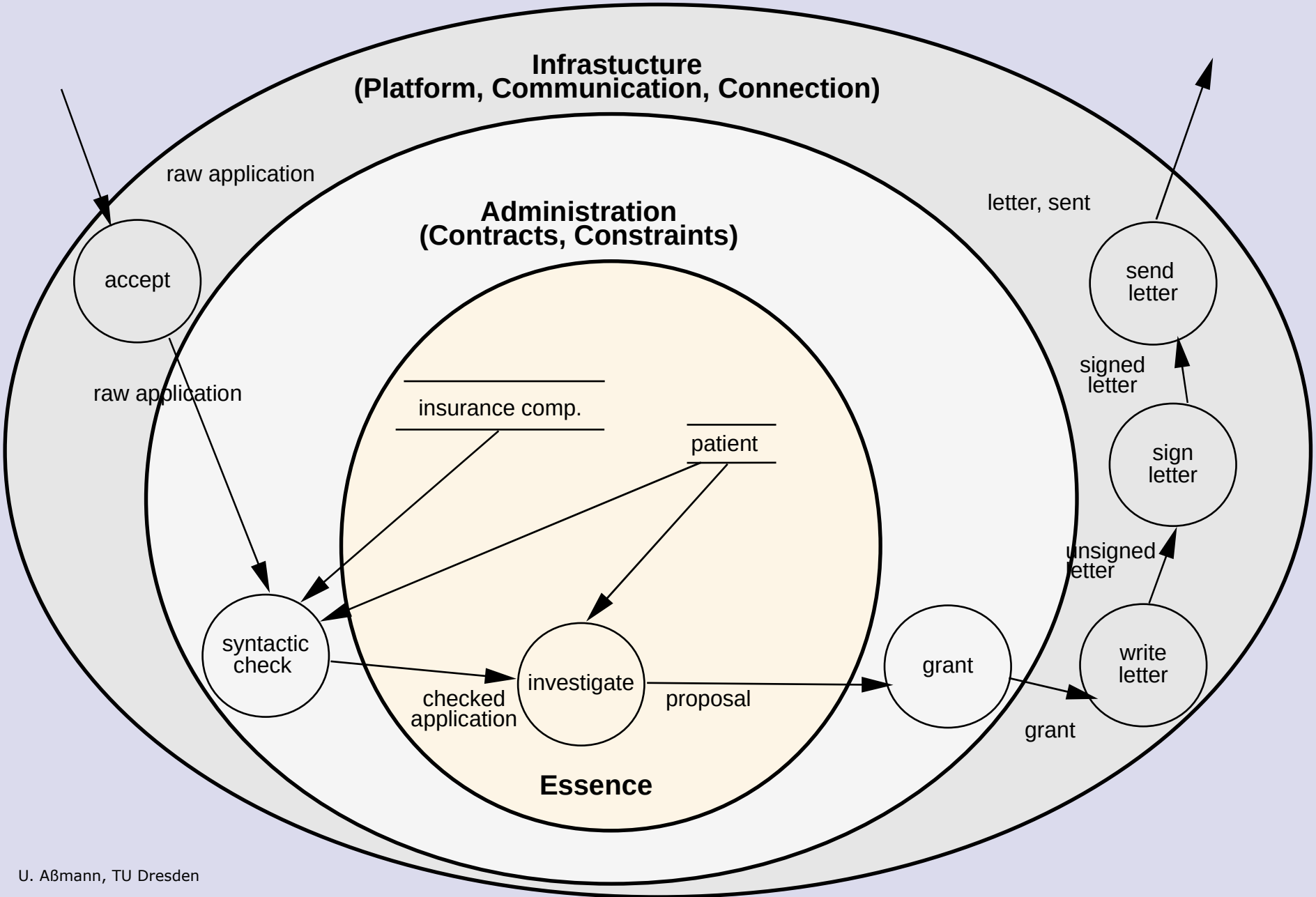
Decomposition for Essence identifies those parts of a system that is not dependent on any technology.

- assuming perfect technology

3 aspects: E-A-I



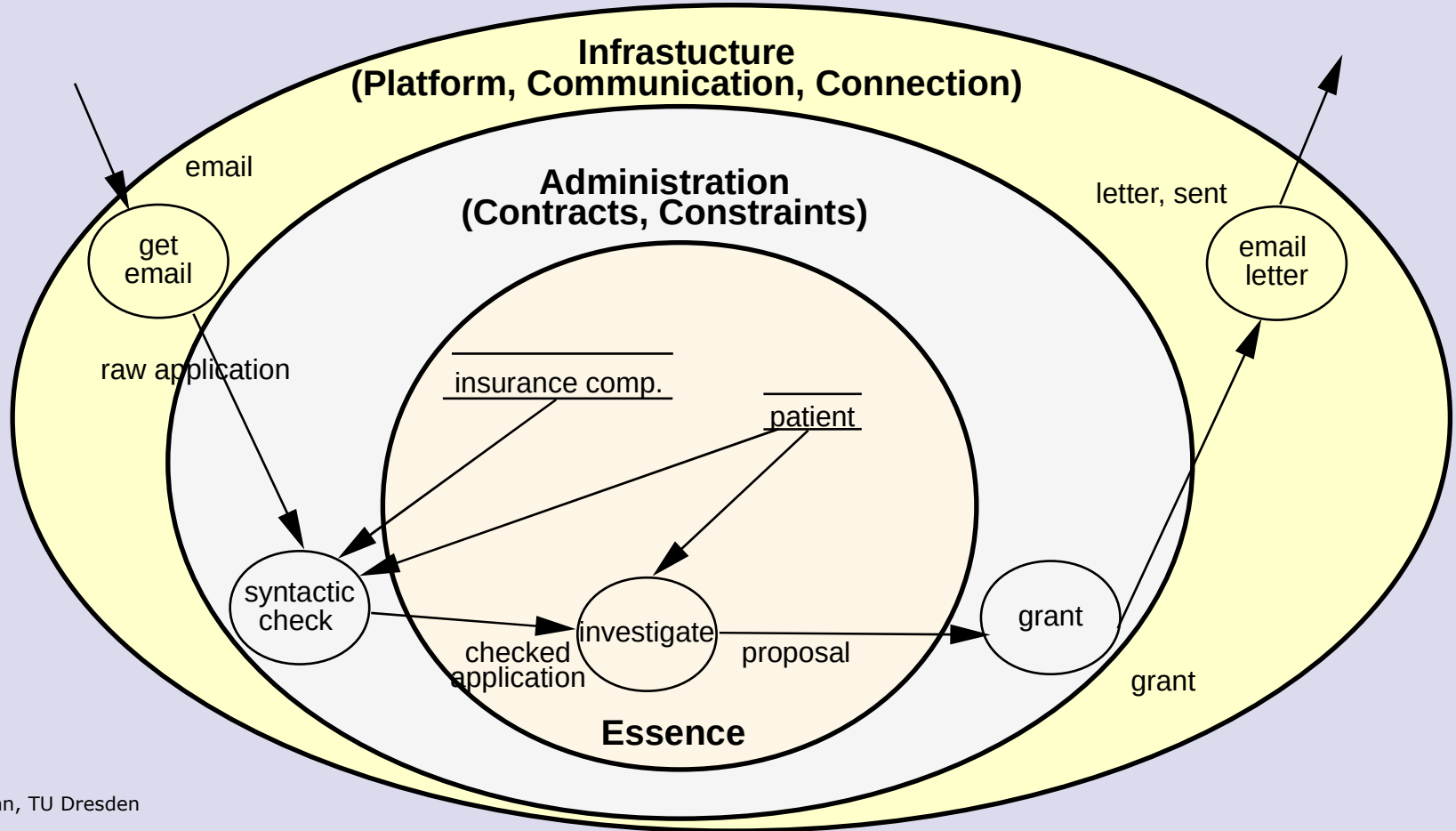
E-A-I of a Business Process



Use of E-A-I in Evolution

Administration and Infrastructure can change. Here: exchange infrastructure

That's how to evolve



E-A-I and MDA

Similar goals:

- Technology (platform) independence
- Reuse of essential parts
- Technology variation (platform change)
- Separation of concerns

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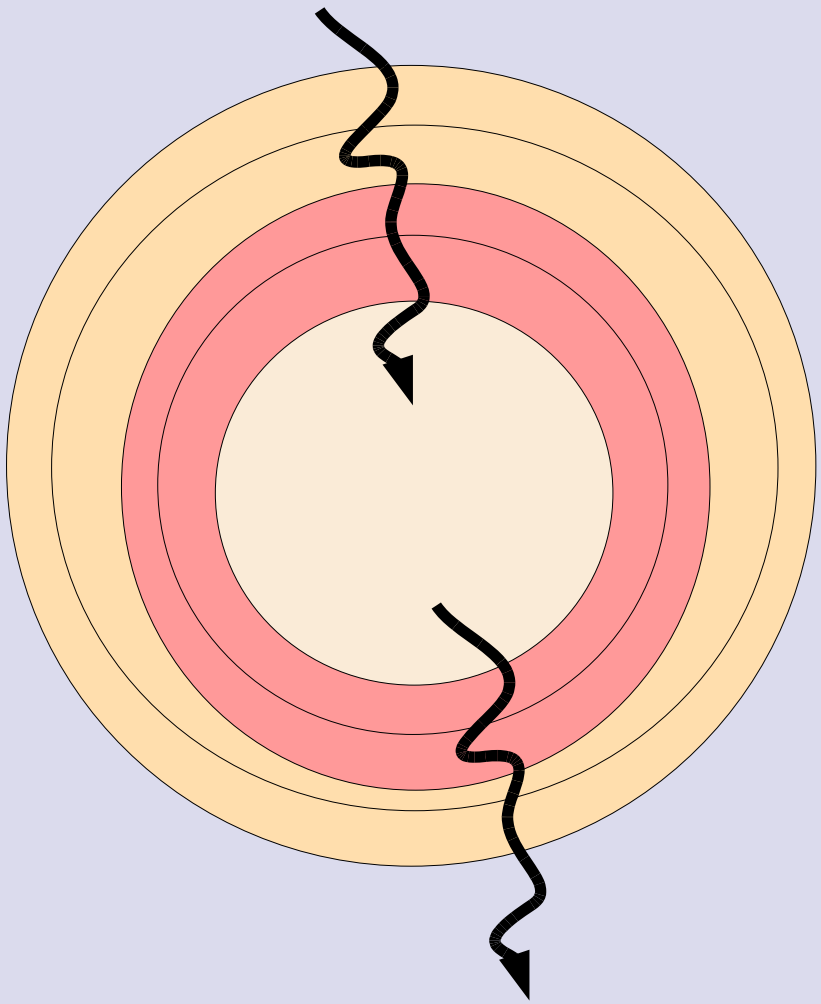
Essence, Administration and Infrastructure in Objects

- **How to enrich E-A-I with OO?**

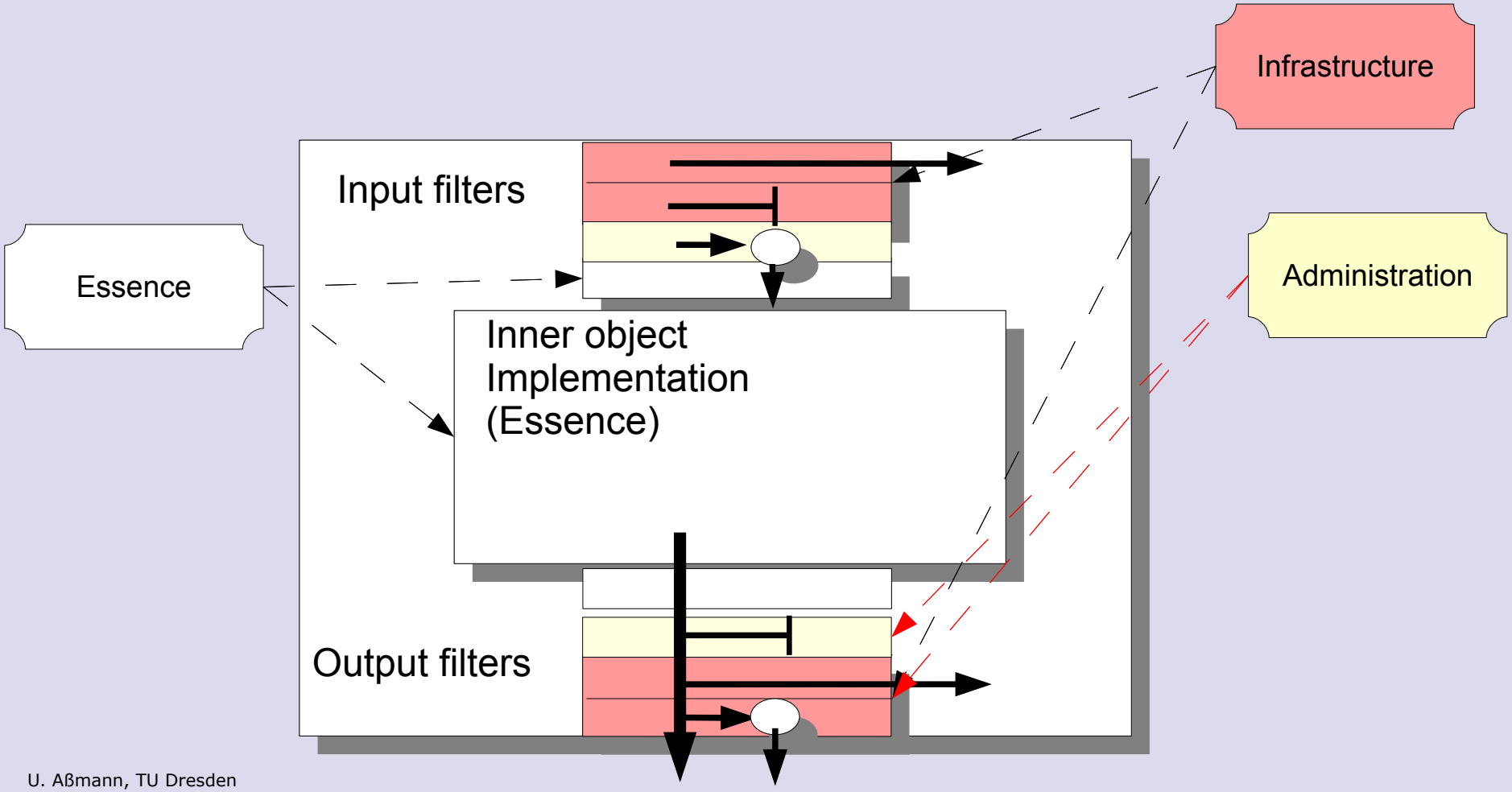
Combine Composition Filters with E-A-I

- Composition Filters (CF) wraps objects with *filters*
  - Messages flow through the filters
  - are accepted or rejected
  - are modified by them

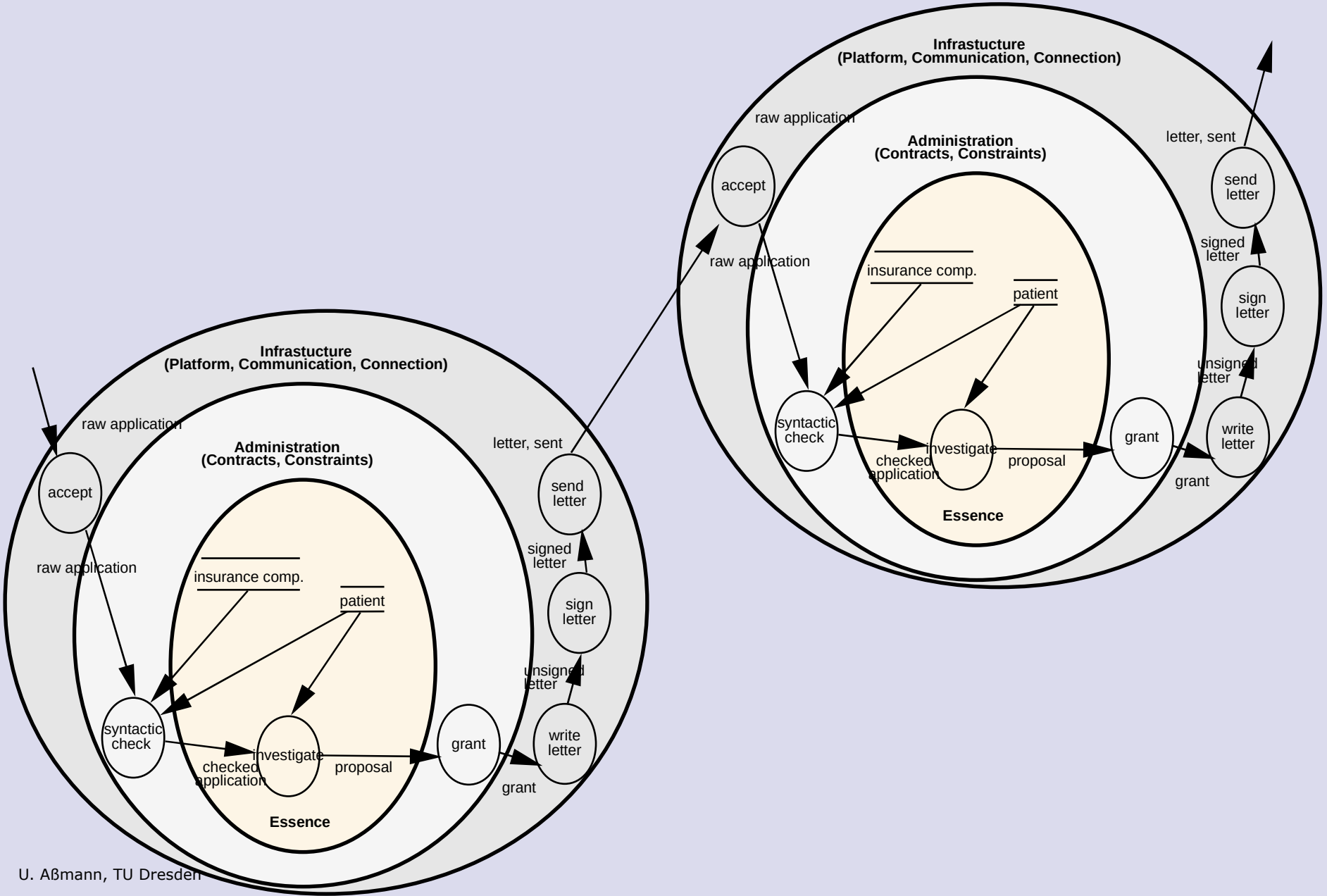
Composition Filters an ideal form of object-oriented E-A-I.



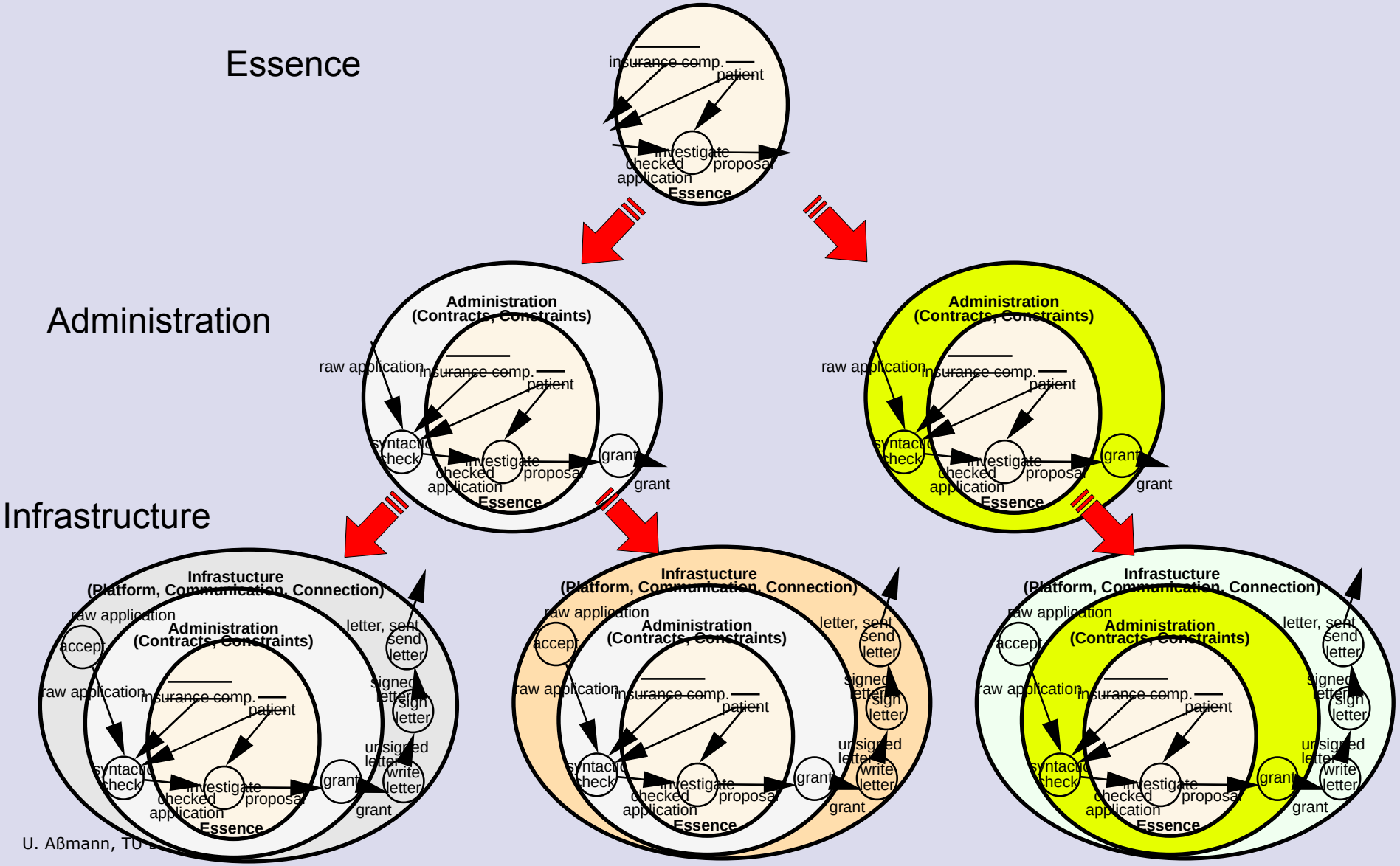
Filters can be related to E-A-I Concerns



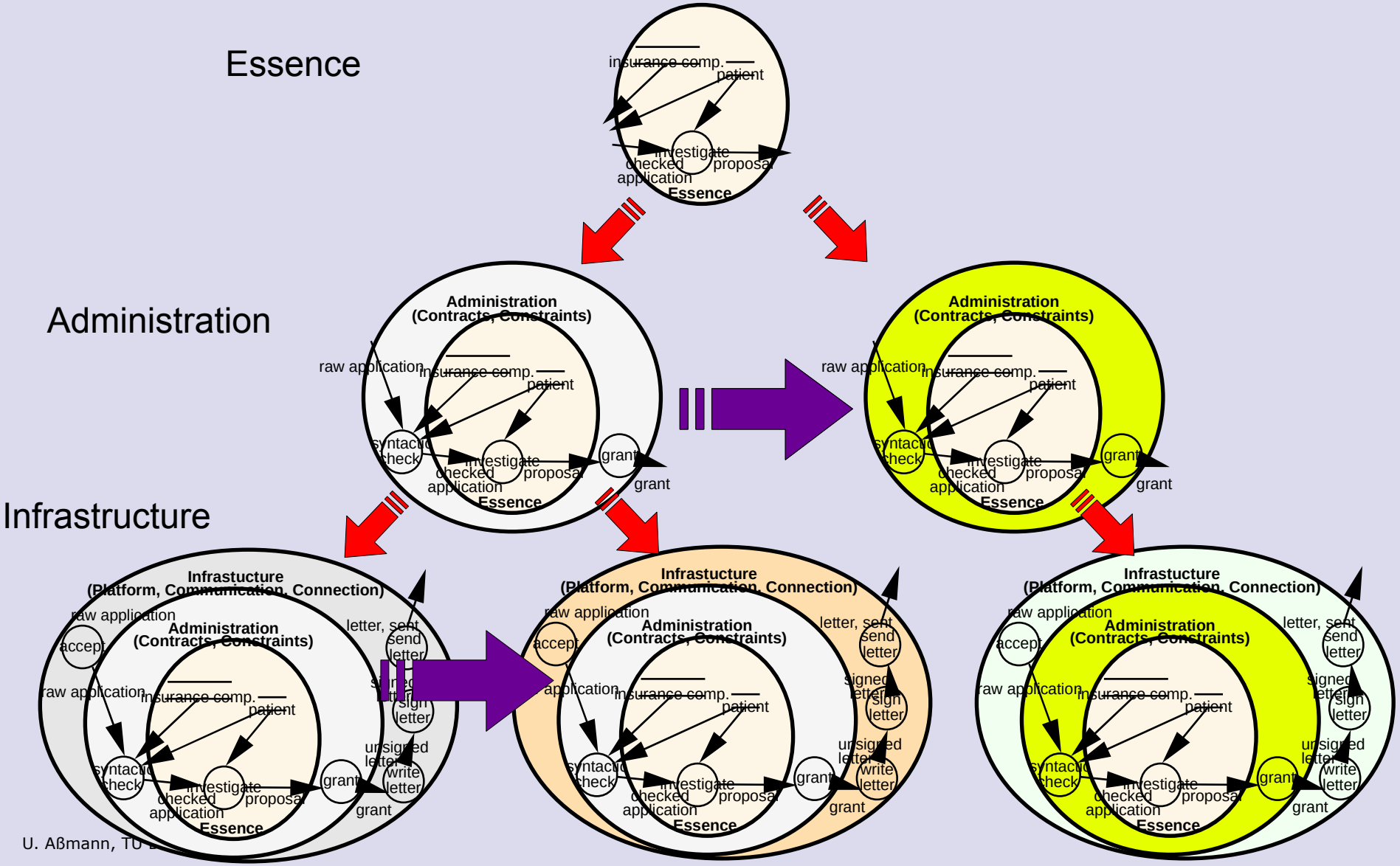
E-A-I of Composition Filters



MDA of Composition Filters, with E-A-I



Evolution of Composition Filters, with E-A-I

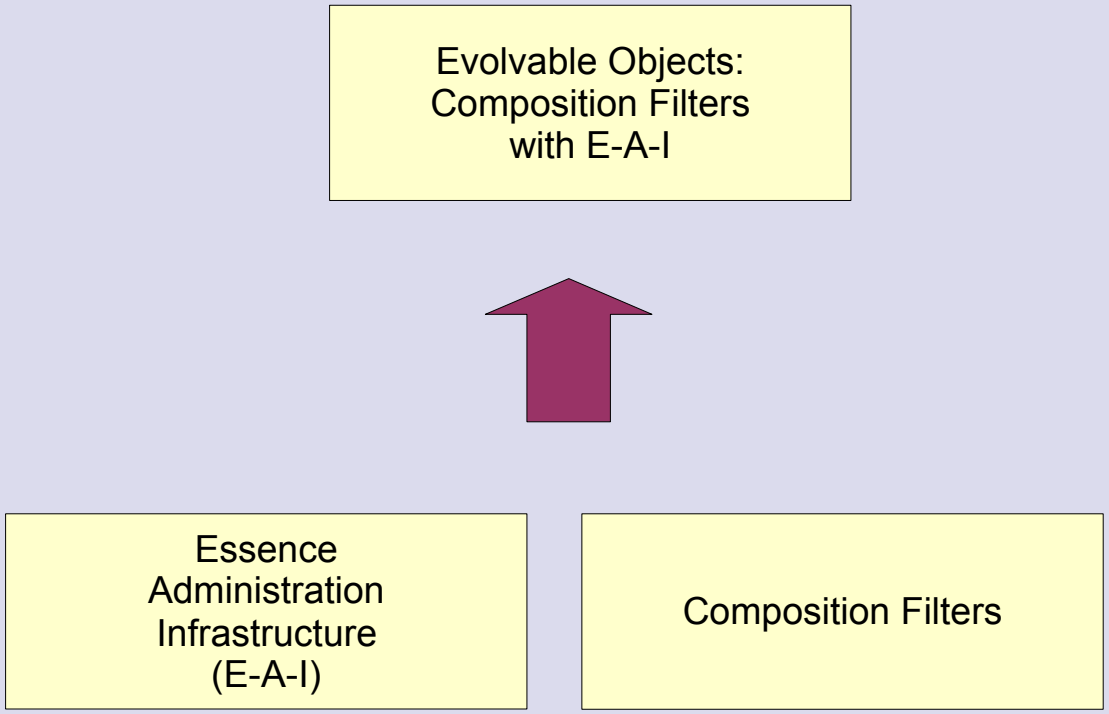


Evolution is...

the change of
Infrastructure and administration filters

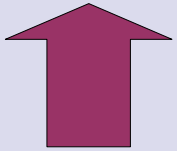
the change of
essence (filters and inner objects)

Evolvable Objects: Filters with Variability (E-A-I concerns)



Evolvable Objects: Filters with Variability (E-A-I concerns)

Evolvable Objects: Composition Filters with E-A-I



Essence Administration Infrastructure (E-A-I)

Composition Filters

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The End

REWERSE Working Group I3 (*Composition and Typing*) **http://www.rewerse.net**

TUD ST group	**http://st.inf.tu-dresden.de**
Reuseware toolset	**http://www.reuseware.org**
ModelPlex project	**http://www.modelplex.org**
MOST project	**http://www.most-project.eu**