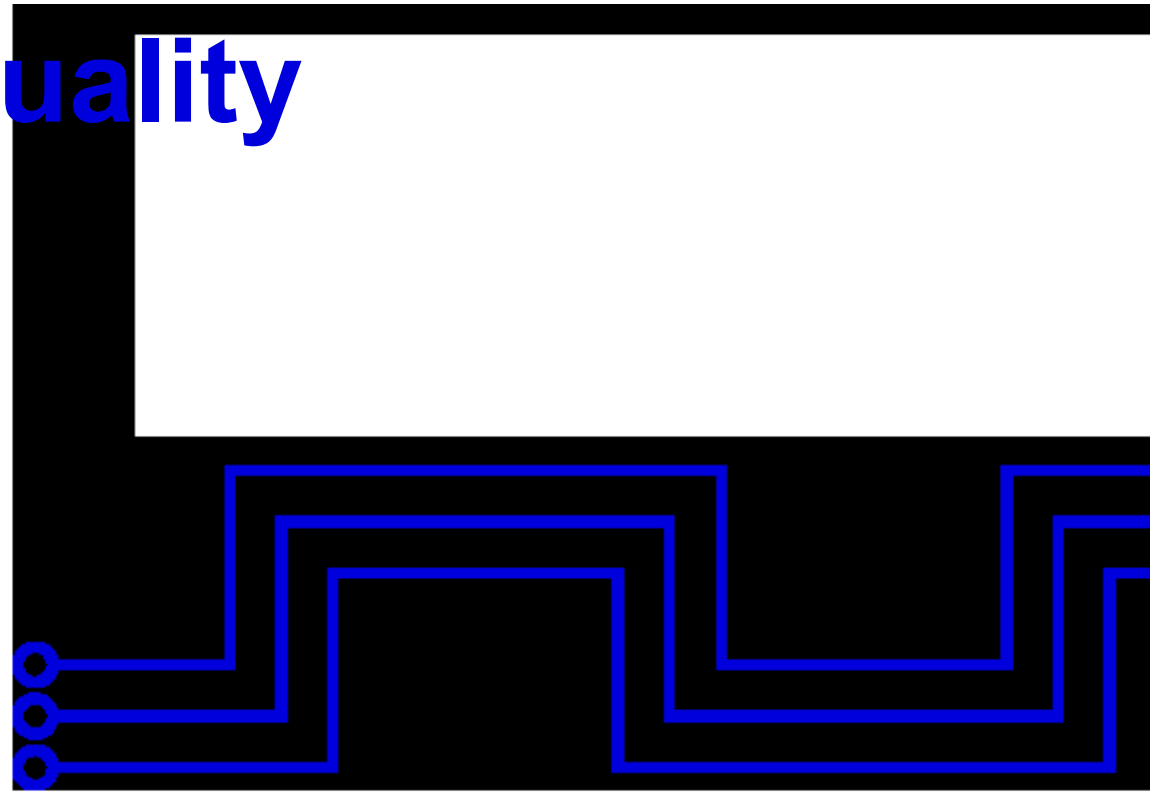
MUNI
FI

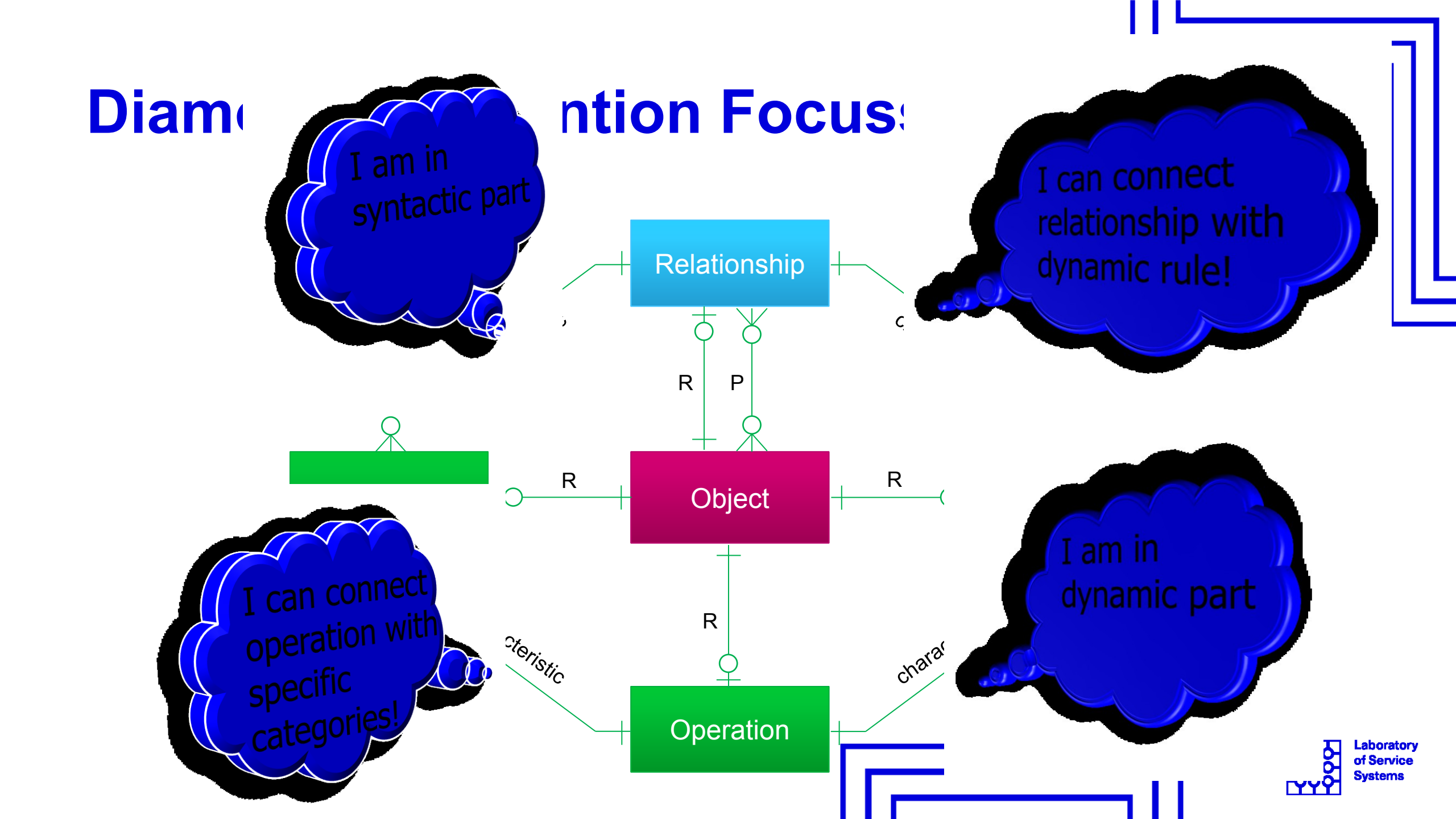
Laboratory
of Service
Systems

Complexity and contextuality

Diamonds See and Recognize



Diam ntion Focus



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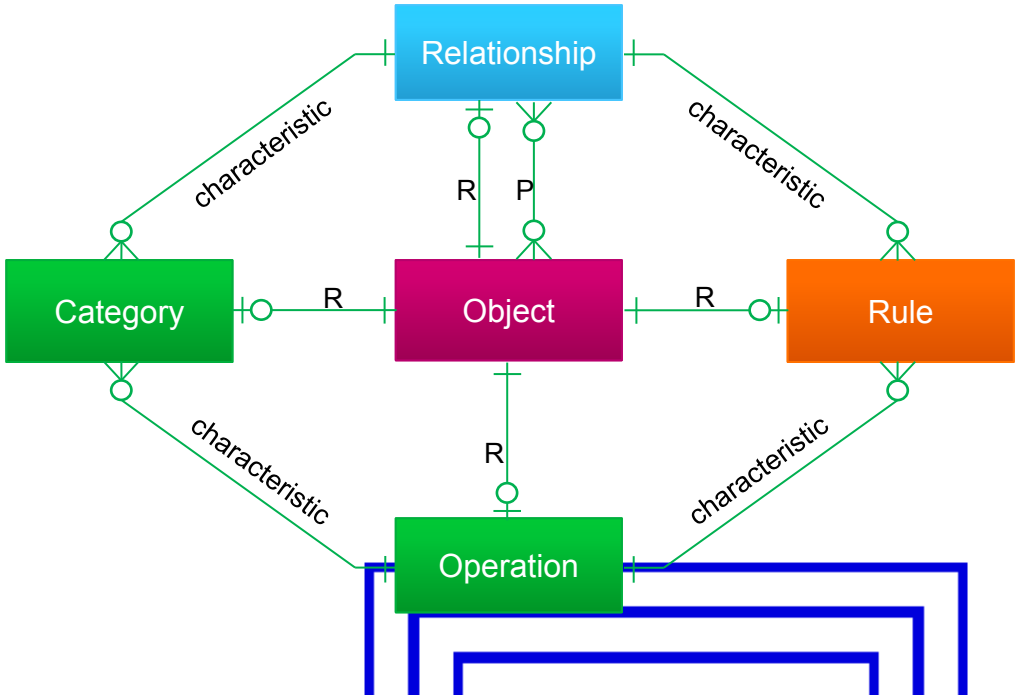
Diamond of Attention Focussing

Known as See Diamond

Definition of objects and relationaships among them

Mention and use duality



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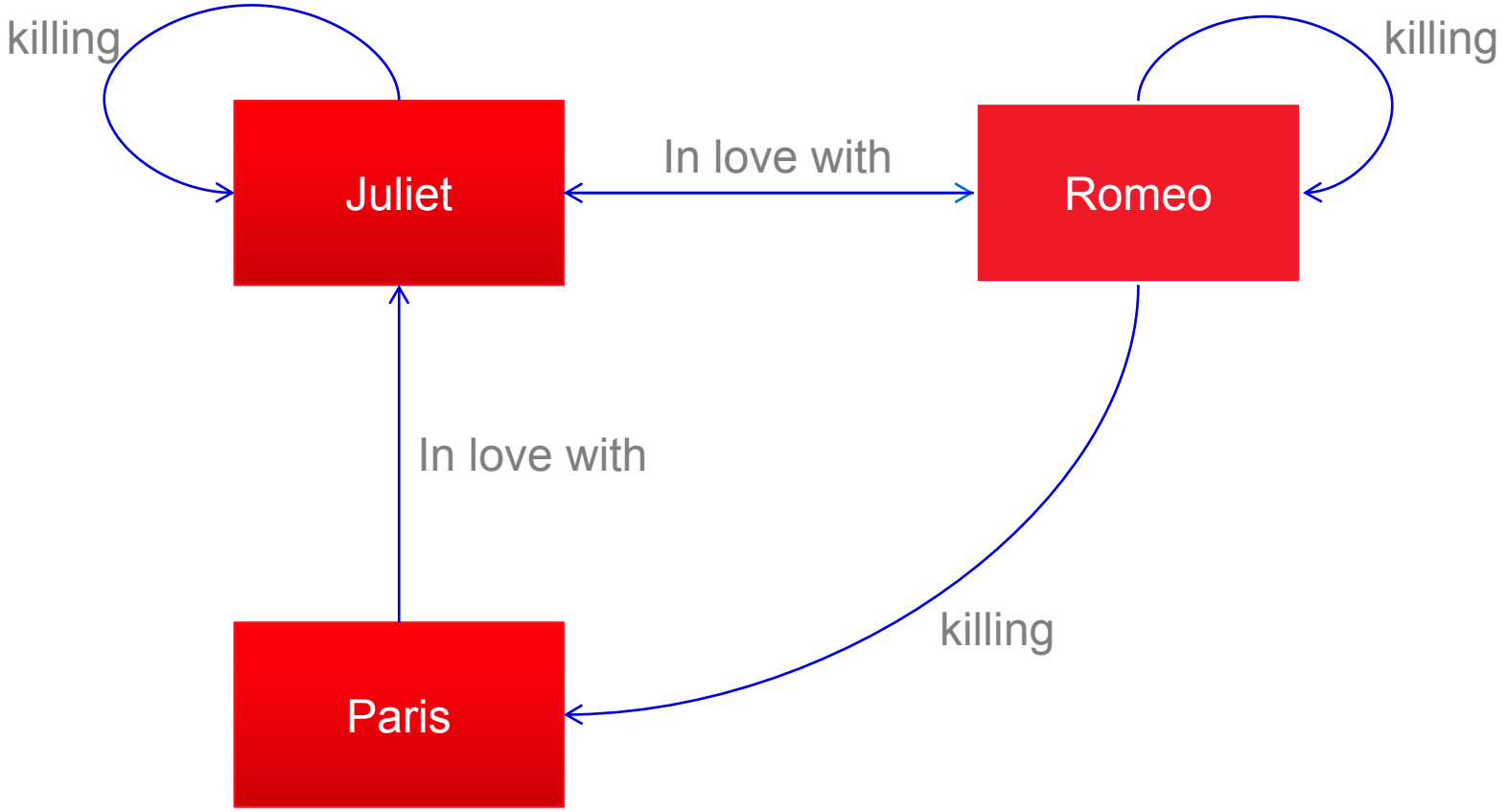
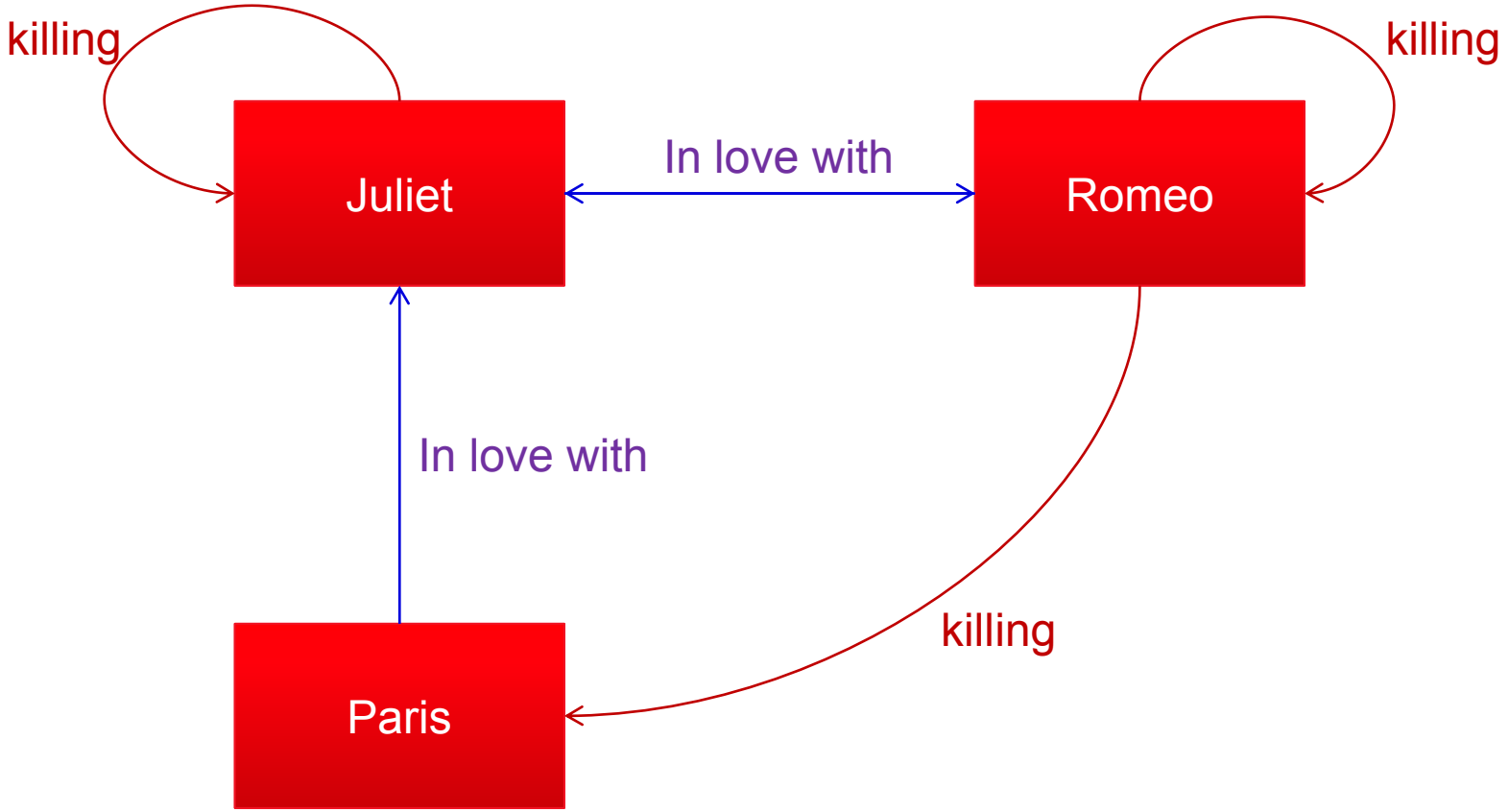
What to do next

- If we want to understand complexity, we need to have holistic approach
- What is holistic approach?
  - In a medical setting, a holistic approach to problem solving refers to addressing the whole person, including their physical, mental, and emotional health, while taking social factors into consideration.
  - In problem solving, a holistic approach starts by first identifying an obstacle, then taking a step back to understand the situation as a whole.
  - In service environment, a holistic approach means to understand the value of the service from different perspectives, from the all important stakeholders point of view, to analyze overlaps to the other domains and take them into the consideration

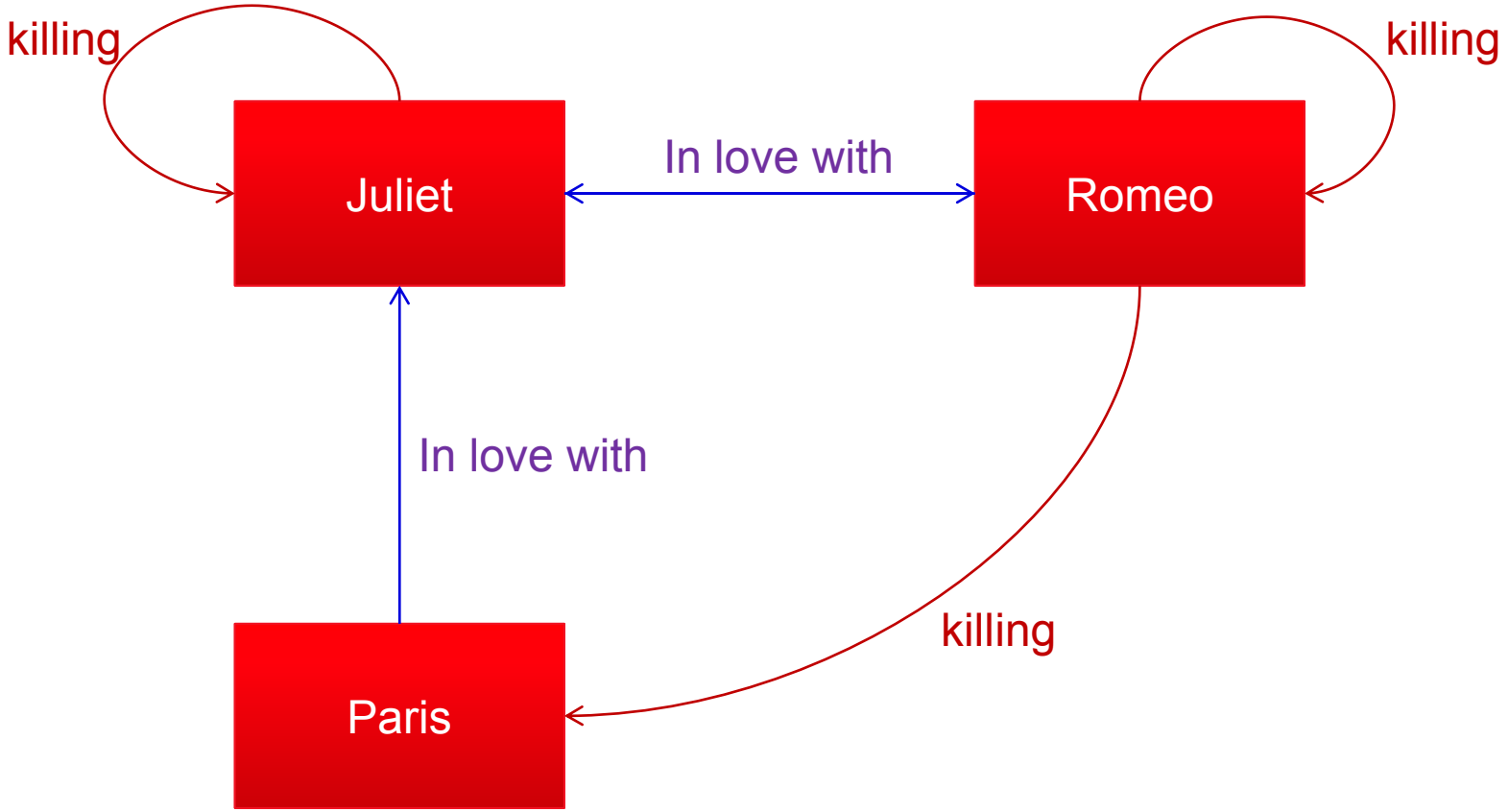
Classification example



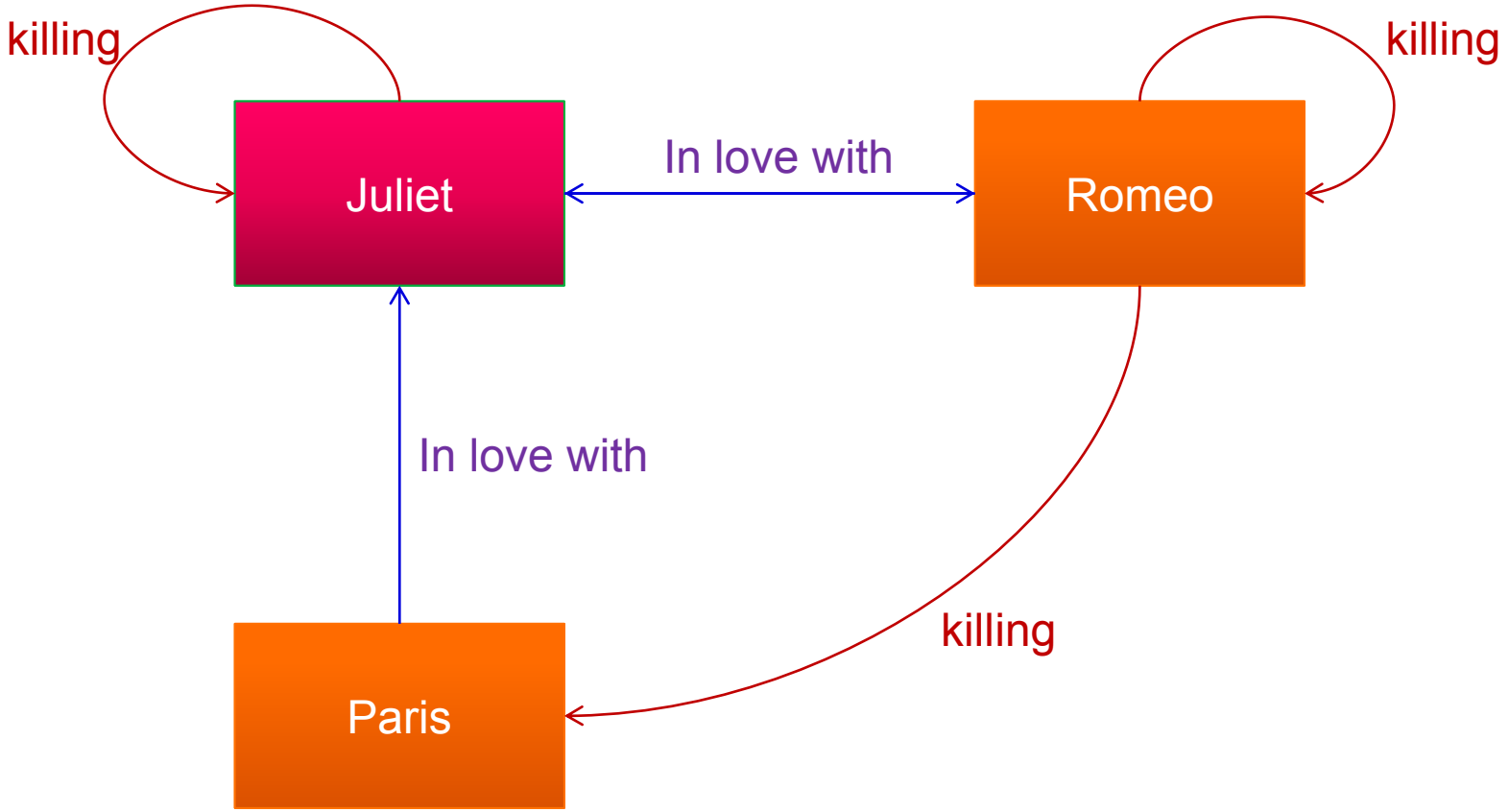
We can see that some connections are somehow similar – they belong to the same category:



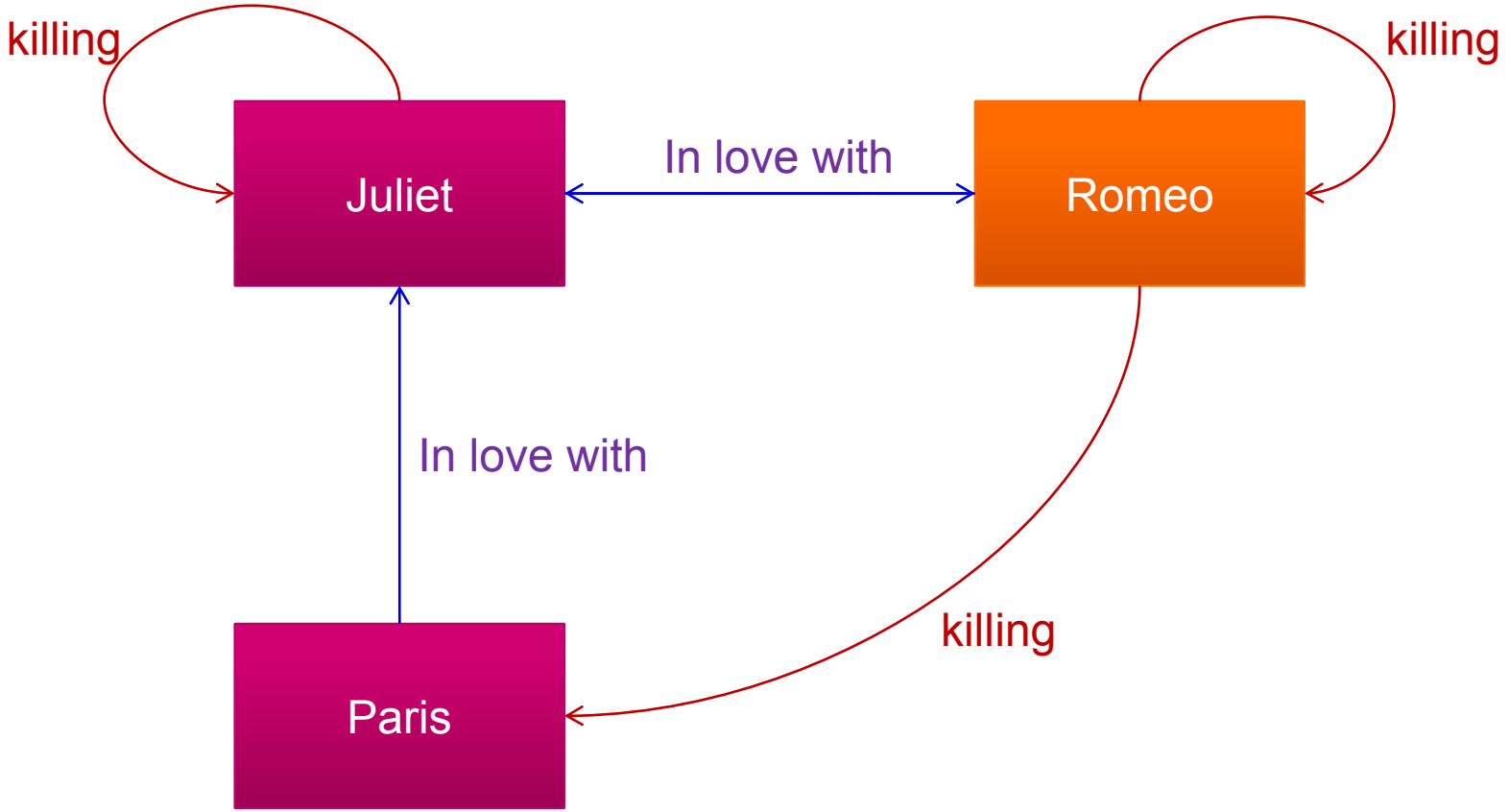
It‘s possible to classify everything we see in the diagram. But how to classify our objects?



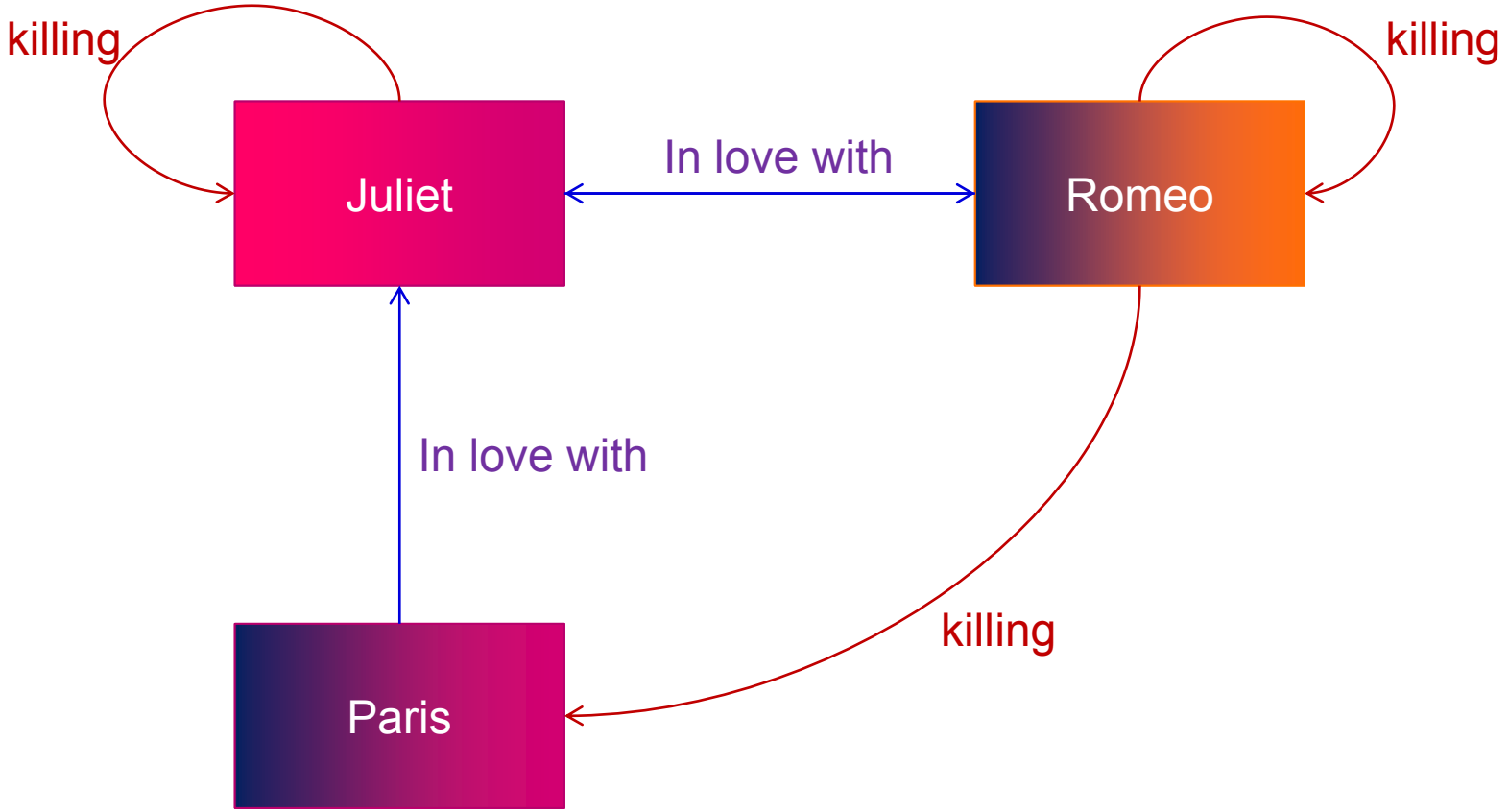
We could certainly divide the objects to men and women:



But won‘t it be more useful to show, which character belongs to the house of Montague and which one to the house of Capulet?



It probably depends on a context – a mental model we want to build. Sometimes, both categorizations may be useful:

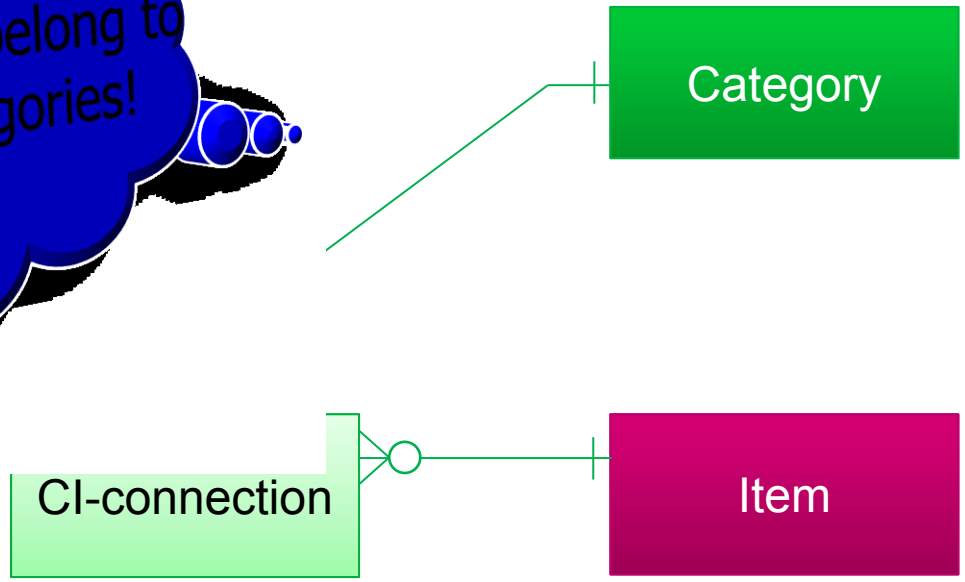


Classifications are blurred

Good or bad?

Certainty

ns (= objects as such, not their constructs) belongs to a
egory with a given certainty



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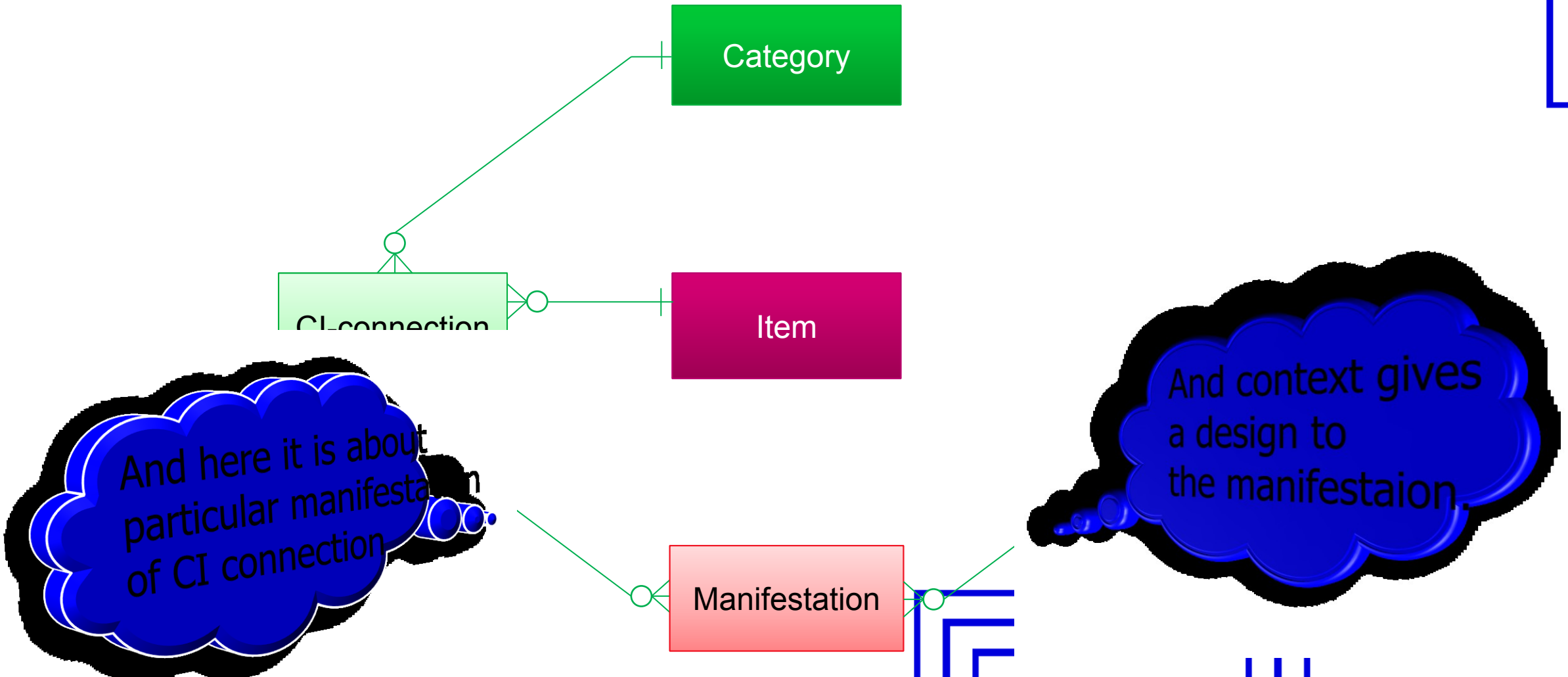
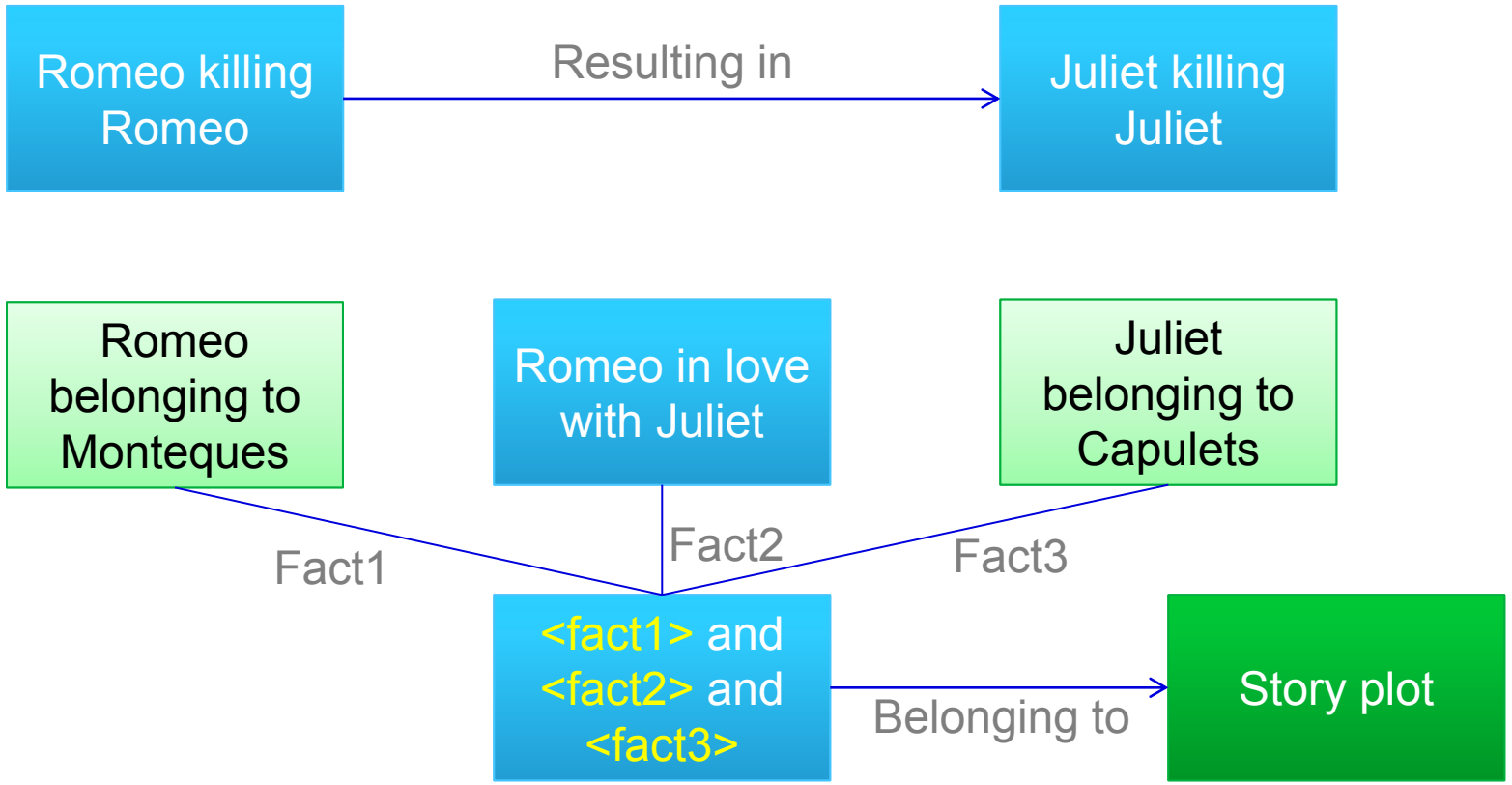
Attention

The fact is manifested with a certain attention in a given context

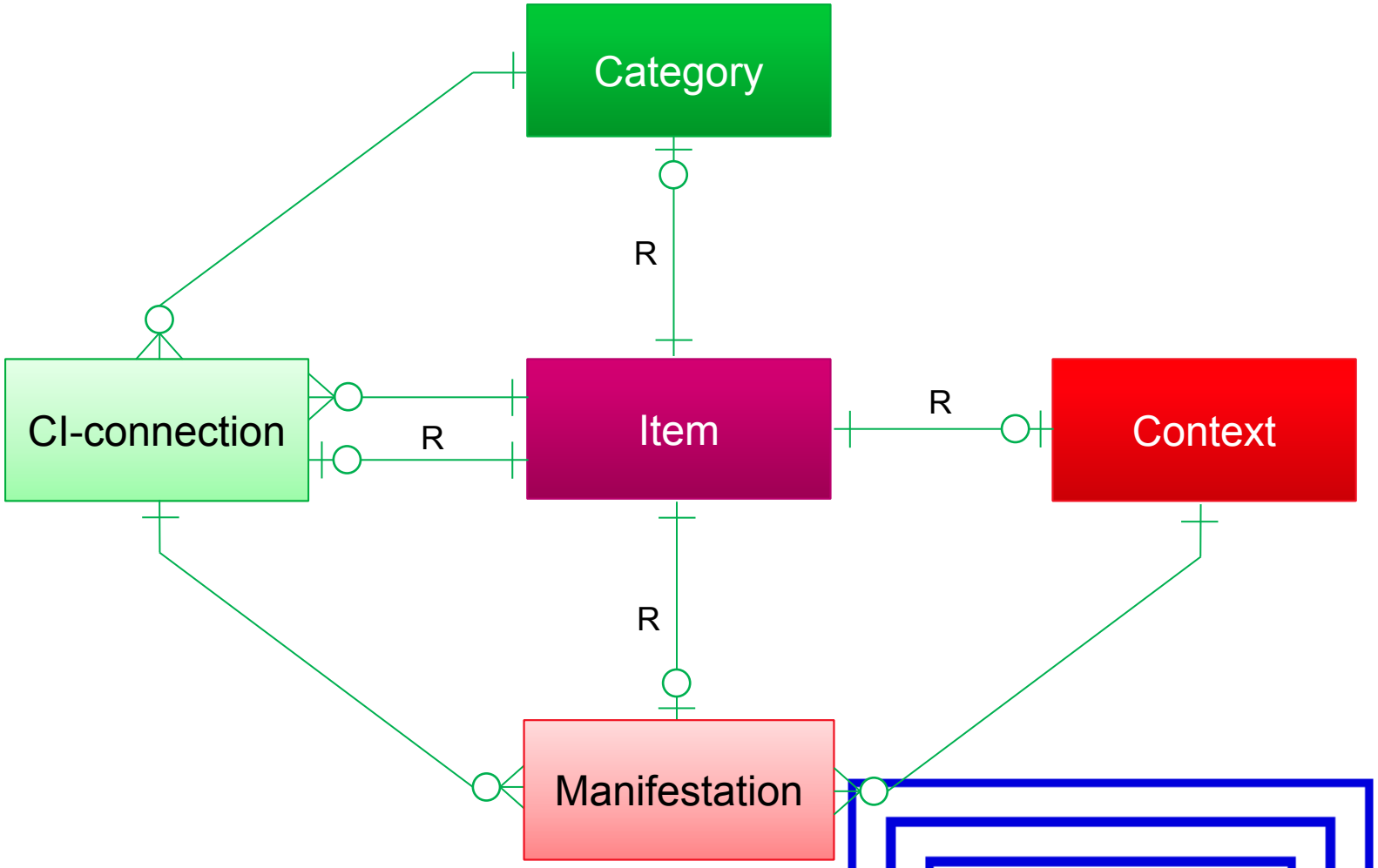


R-edges

- In some cases, it might be also useful to mention non-trivial concepts – contexts, categories, classifications or manifestations

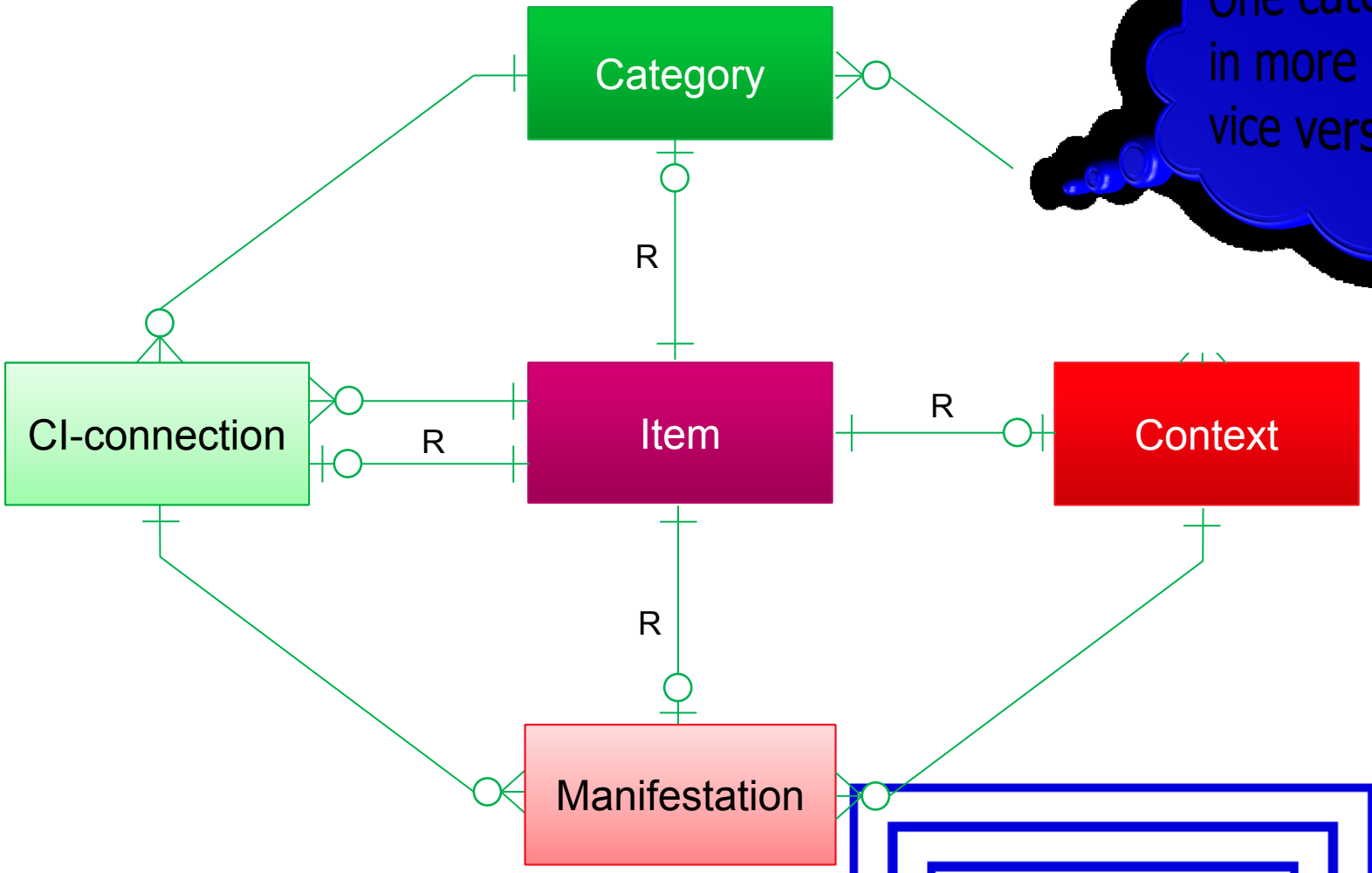


R-edges



Context base

Context serves as
defines the set of
to



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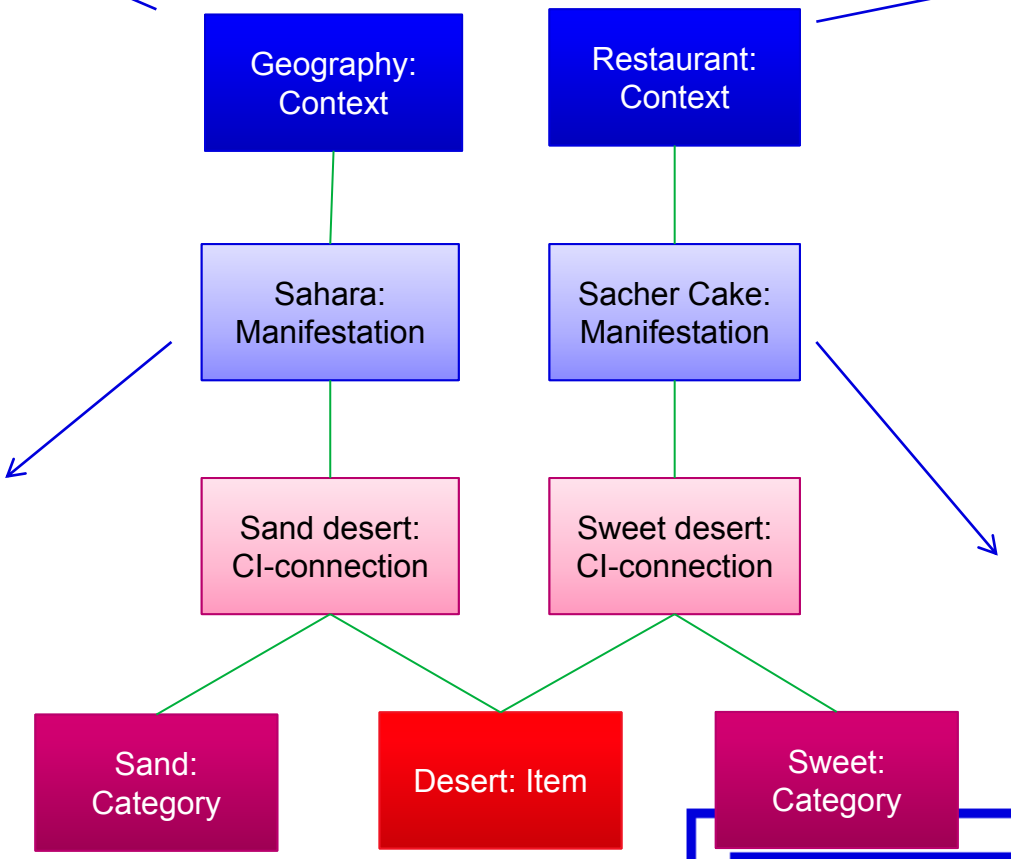
Independent models

Geography

Restaurant



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Examples of manifestation of DATA

IT	• is any sequence of one or more symbols given meaning by specific act(s) of interpretation
Common understanding	• individual units of information.
Star Trek	• A character

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Why we need it?

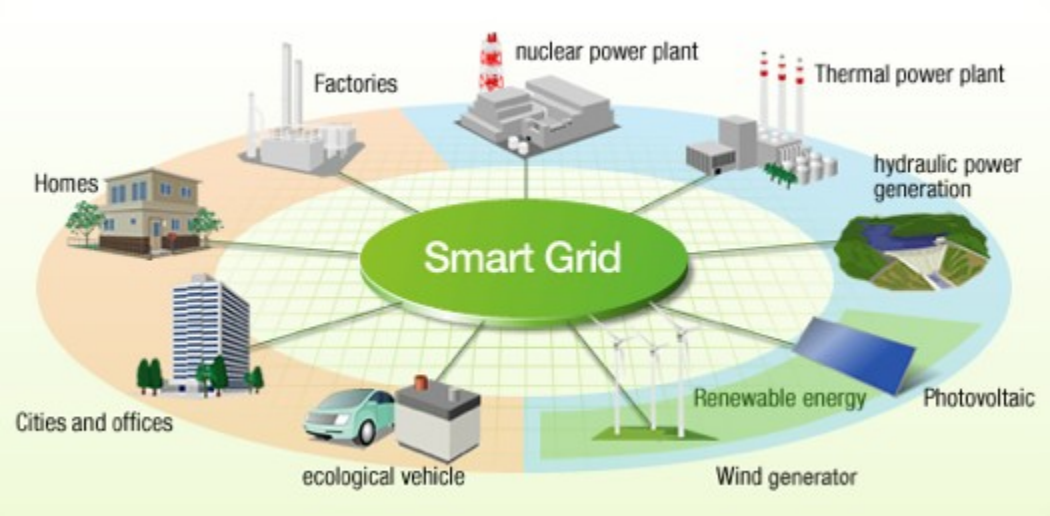
In the complex service environment (like Smart City) only one perspective is not enough

Already in a very simple applications we need to work with different manifestation of the same item

If we add the relation to other Services, environments (e.q. contexts) we get very complex model

To understand we need to have the possibility to analyze the manifestation of each item in all contexts

Examples



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Example of smart street categories and objects

Street parts	Safety	Public transport	IT Devices	Vehicles
• Driving lines • All vehicles • Traffic on the road • Traffic lights • Parking slots	• Cameras • Pedestrian way • Pedestrian blocks • Speed sensor • Smart Screen	• Bus • Bus stop • Ticket machine • Tram line • Smart Screen	• Cameras • Smart Screen • Traffic lights • Traffic sensor • Pollution sensor • Ticket machine	• Car • Bicycle • Bus • Tram

Questions

What other categories can we identify?

Can we identify the common domain (context of them)?

- What about Security in IT or Transportation context?

What categories appear in more than one context?

Conclusion

- Contextuality
- Diamond Recognize, its elements and relationships
- Examples and differences