

SOPHIE

Context Modelling and Control

The Context Model

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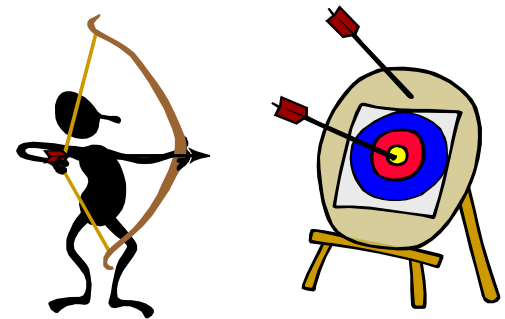
December 17th, 2003

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Goals of this Diploma Thesis

- Find a comprehensive model for context that can be used to describe context in database applications
- Metadata to react to the incoming context
- Prototype based on OMS Pro demonstrating the context model and its control



What Does Context Mean?

- Context is a term that has several overloaded meanings
- From the Online Merriam Webster Dictionary:
The interrelated conditions in which something exists or occurs.
- Dey and Abowd [DA00]:
Context is any information that can be used to characterize the situation of an entity. An entity is a person a place, or object that is considered relevant to the interaction between a user and an application, including the user and application themselves.

Several Kinds of Context

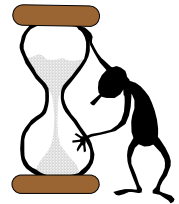
- *Computing context*

- Connectivity
- Communication costs
- Bandwidth
- Resources



- *Time*

- Absolute time
- AM/PM
- Week, Month
- Season



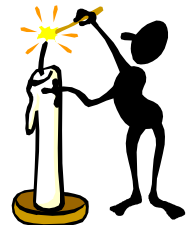
- *User context*

- Identity
- Profile
- Social situation
- Activity



- *Physical context*

- Temperature
- Lighting
- Noise



Active or passive?

- Context awareness can be active or passive
- *Active Context Awareness*
an application adapts its behaviour automatically dependent on changes in context
- *Passive Context Awareness*
the application makes the new context persistent for later explicit retrieval

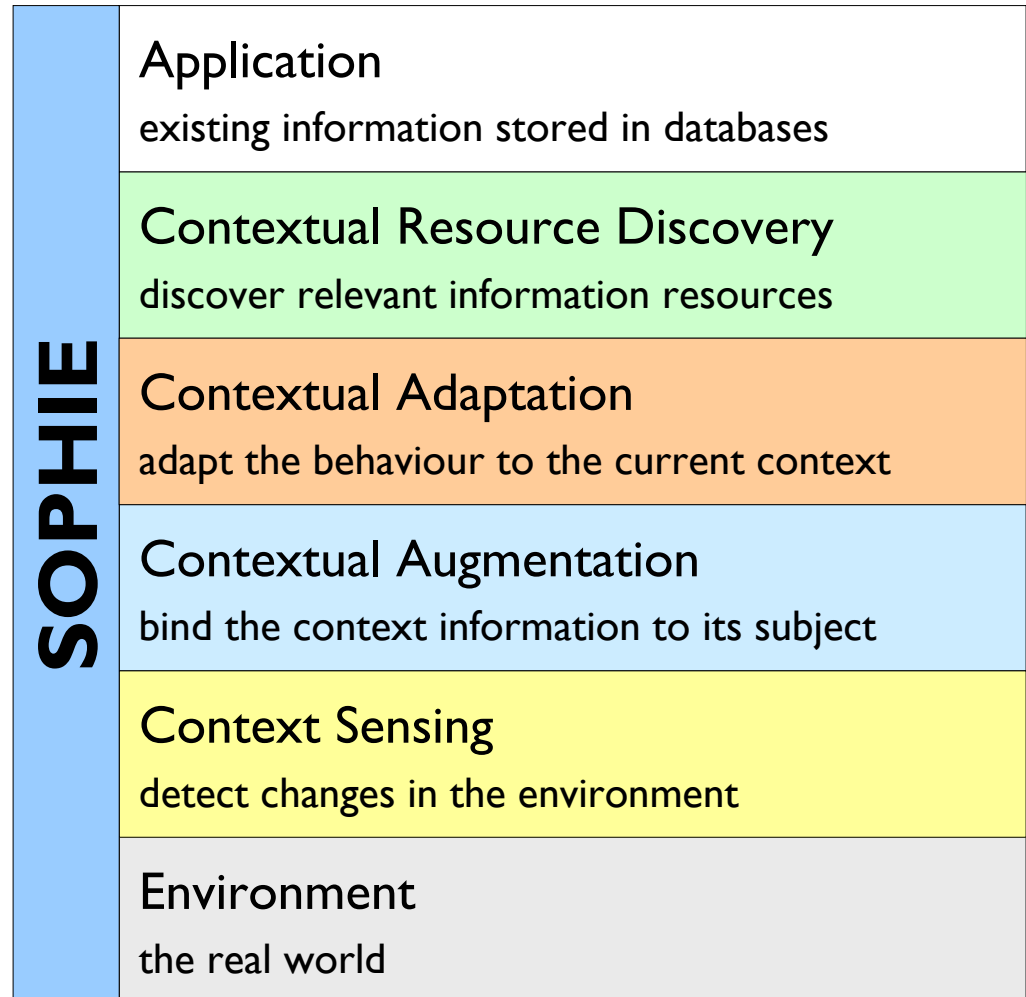
SOPHIE's Requirements

- *Context sensing*
Get the context information from the context producers
- *Contextual augmentation*
Store the context information in relation to its subject
- *Contextual adaptation*
Adapt to the incoming changes in context
- *Contextual resource discovery*
Discover context dependent resources and information

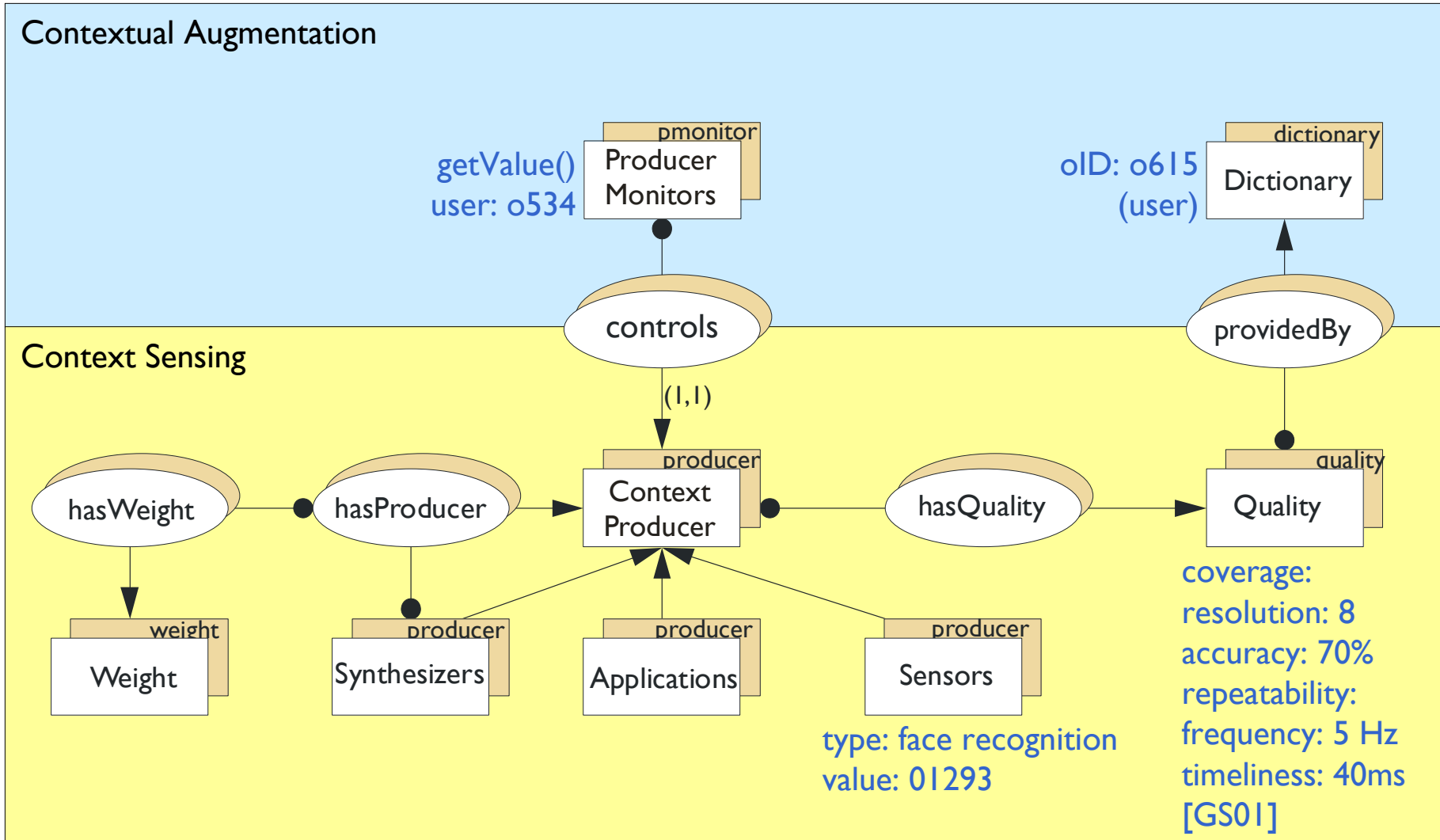
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The Architecture Model

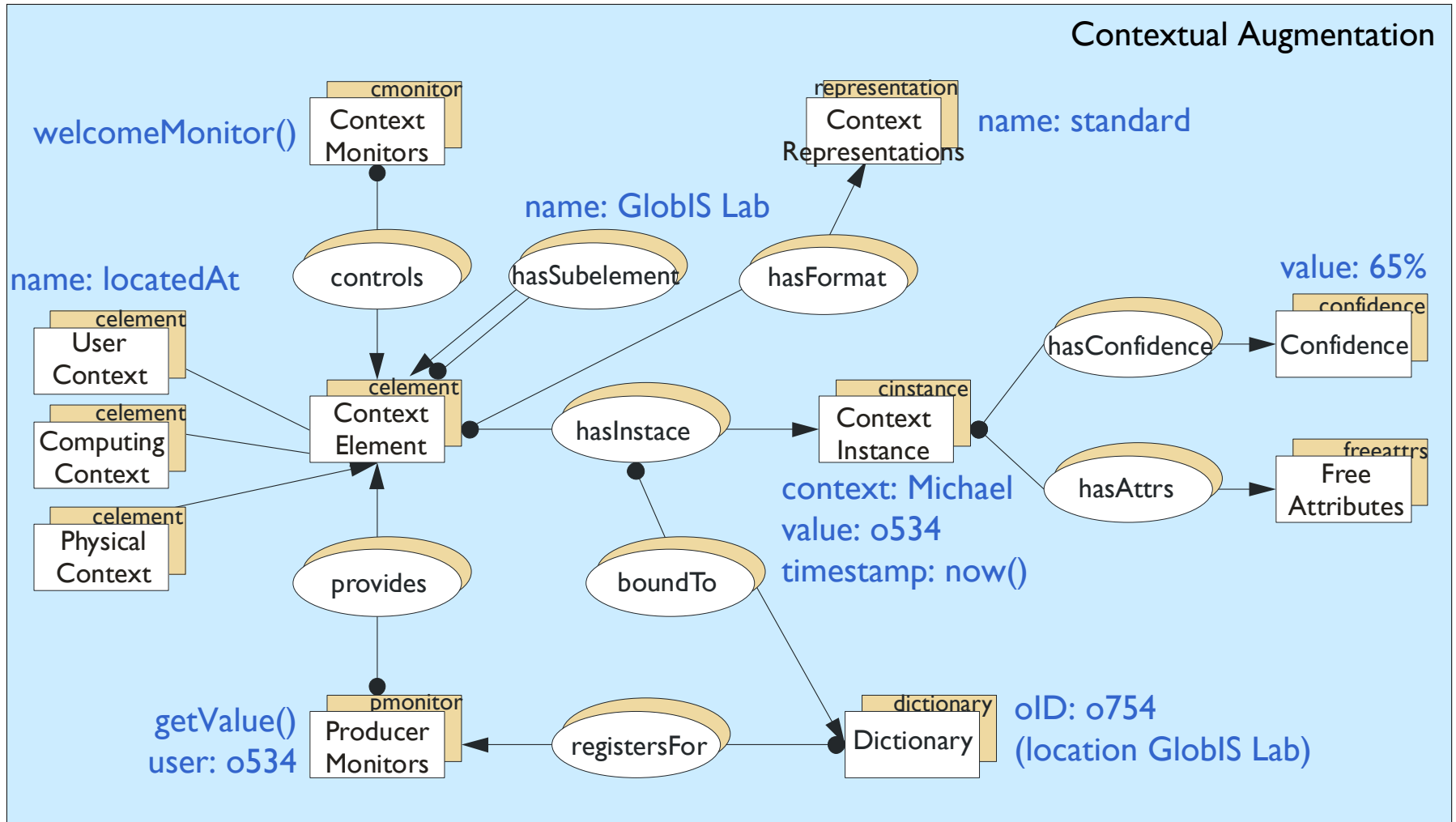
- Several layers that represent different abstraction levels



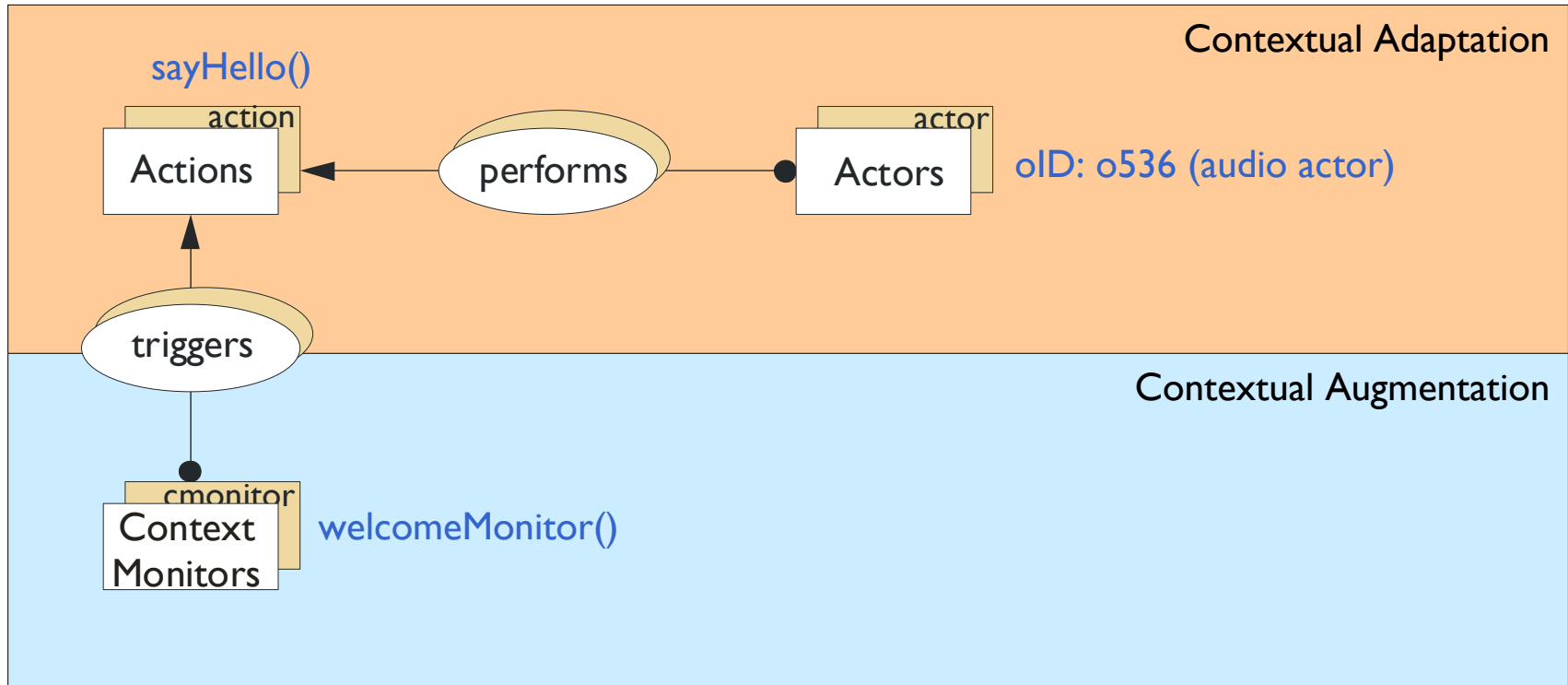
Context Sensing



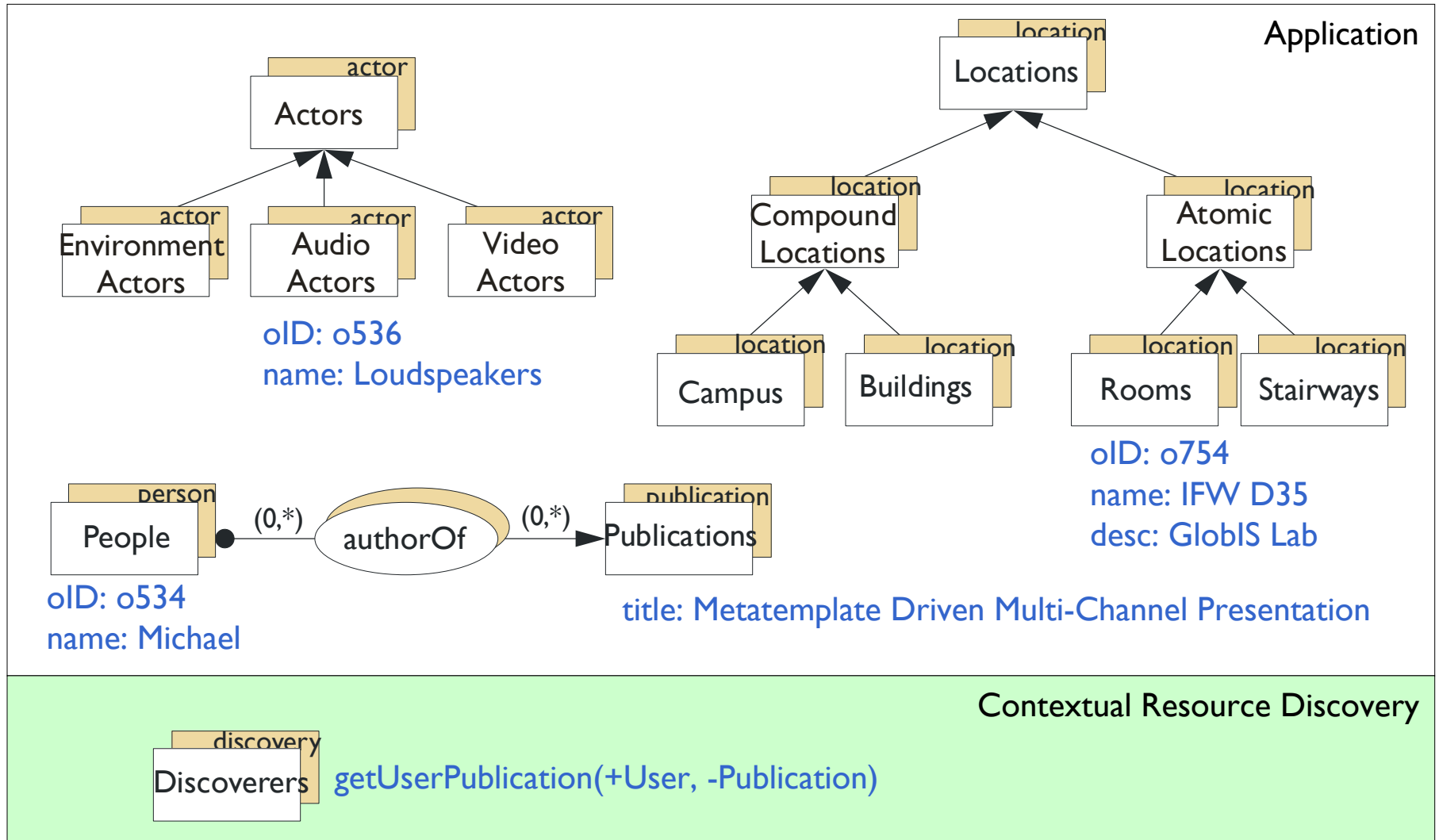
Contextual Augmentation



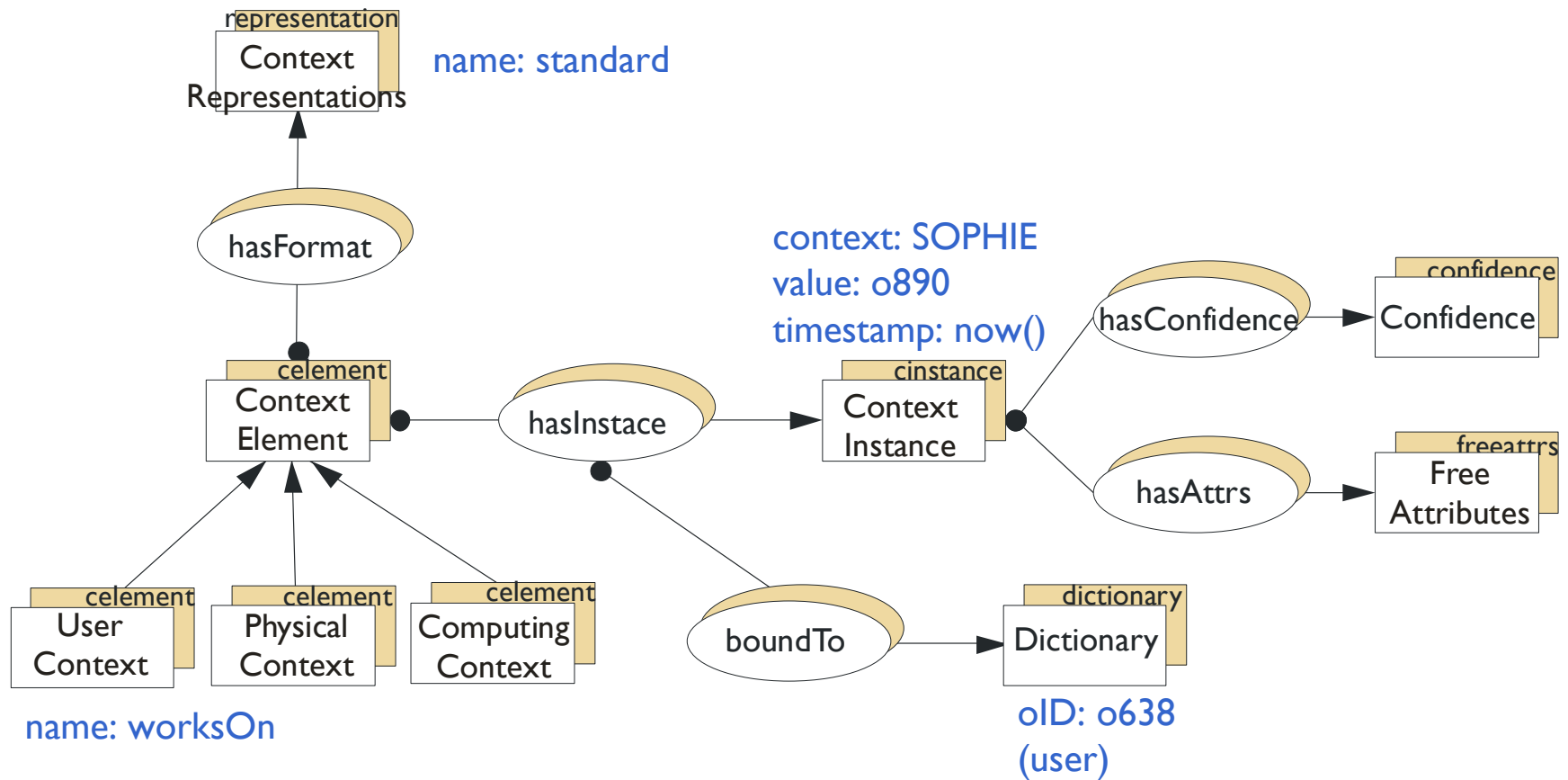
Contextual Adaptation



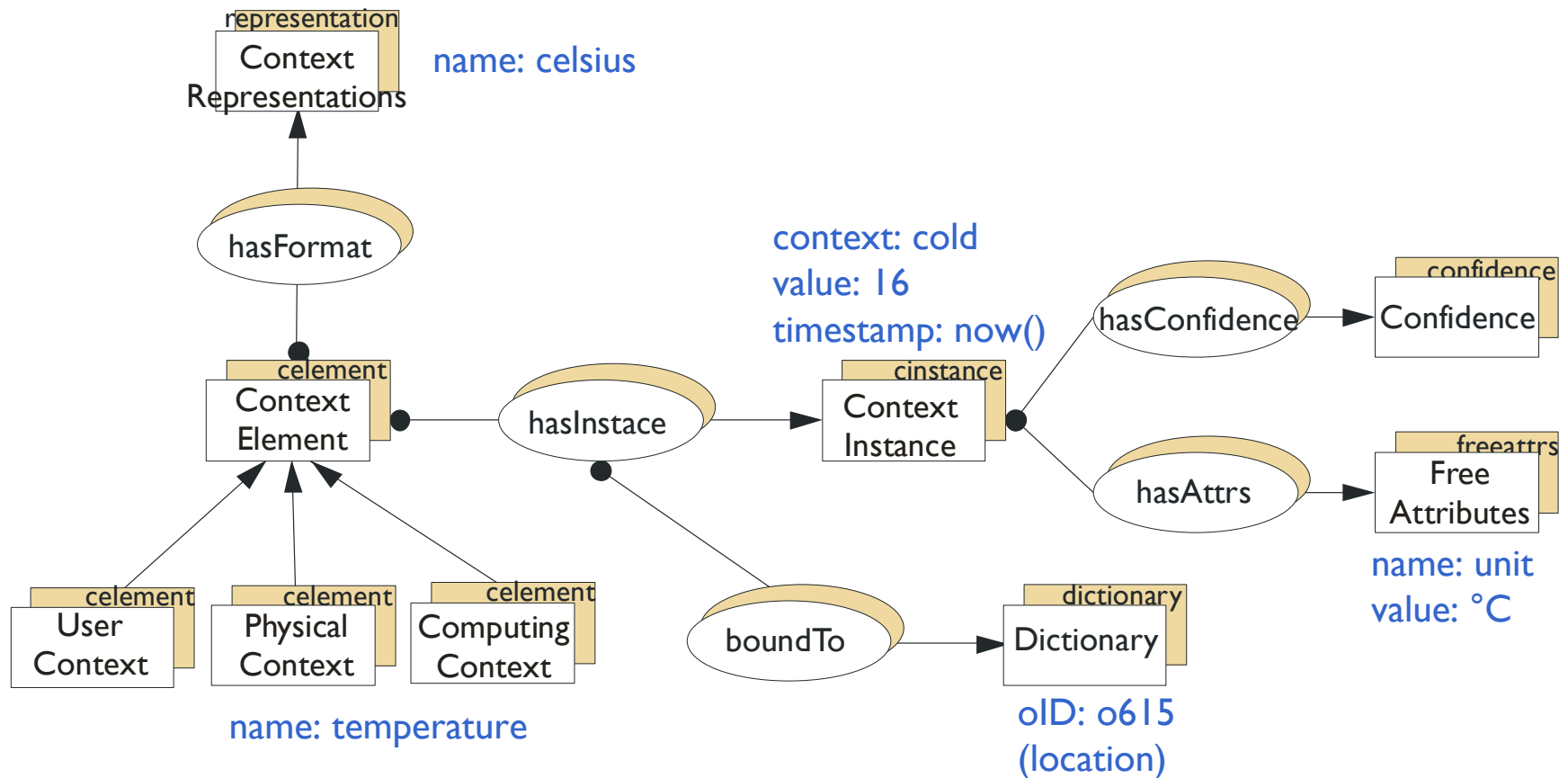
Contextual Resource Discovery



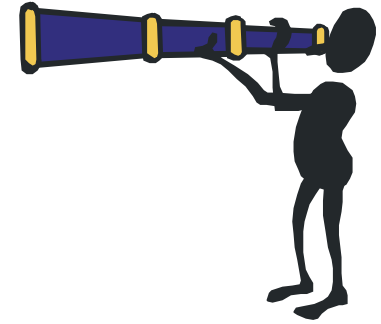
Context Examples: worksOn



Context Examples: Temperature



Conclusion & Outlook



- Context is used to enrich the content
- General model to represent context
- Not bound to a fixed application specific model

- Define details
- Connection between different data sources?
- Implement prototype

Questions?

These slides and a bibliography are available at
<http://www.rudibelotti.com>

**I wish you
Merry Christmas
and Happy New Year!**

