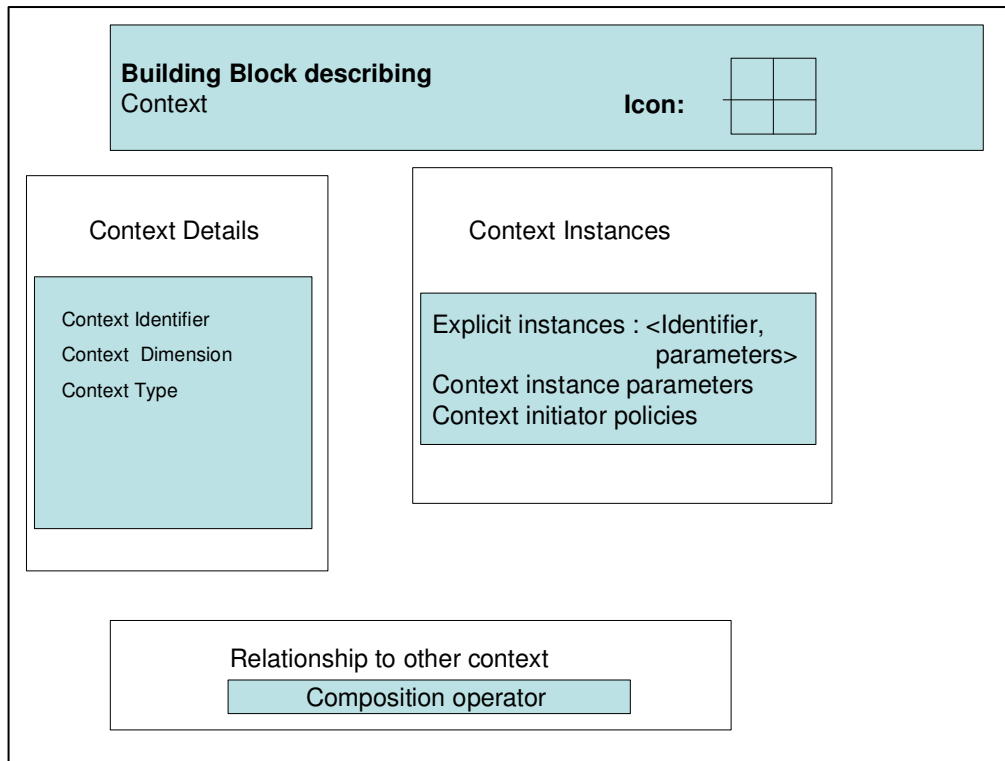
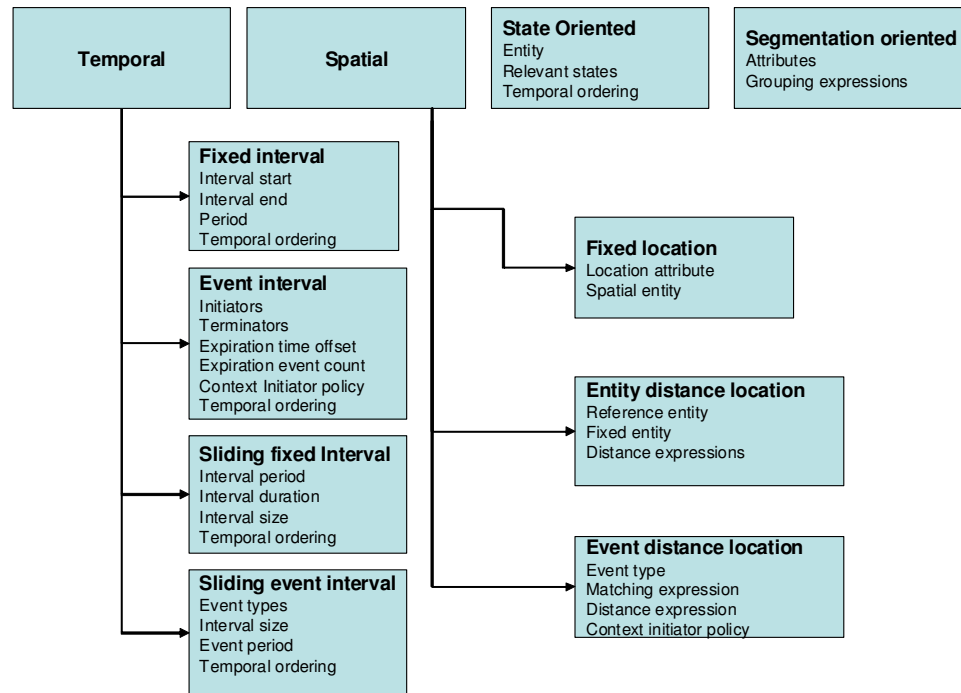


Contexts

The way we view things in our daily life is affected by their context. Context may relate to the state of the weather, for example I can open my car with the remote control from quite a long distance at night but have to come quite close when it is sunny. Context may also relate to location, in my own city I might feel safe enough to carry money in my wallet, while in some countries which have a reputation of people being mugged, I hide the money. Context may relate to other external conditions such as the state of the traffic, the route I choose to drive to the airport might depend on my knowledge of likely traffic conditions, or on congestion reports that I have picked up from the radio.

In this chapter we discuss context as an explicit building block in our event processing model and provide a deep dive into the idea of context applied to the processing of events. This chapter discusses the notion of context and the way it affects the processing of events. It looks at four context dimensions: state-oriented, temporal, spatial and semantic, and explains the meaning of a context instance in each of these dimensions. It also introduces a mechanism to fine-tune a context definition, which we refer to as a context policy. Like the other chapters in this part of the book it also shows how contexts are used in the Fast Flower Delivery application.





- relates to the state of the weather (clear, cloudy, rain, snow). The composite context has four instances, one for each state of the weather applied to events that occur within the city of Trento.
- Composition of segmentation context and spatial context: In this example suppose that the segmentation context relates to car type and the spatial context is the distance from Malpensa Airport (near Milan, Italy). If the segmentation context has twenty different car types and the spatial context has three context instances (for example for distances 0-5KM, 5-10KM, 10-30KM) then the composite context will have sixty instances, one for every combination of car type and distance range.

These are three examples of composite contexts, all of them multidimensional. The first example combines segmentation-oriented (by customers) with fixed sliding temporal context (by hour); every combination of hour and customer creates another context instance. The second composite context combines state oriented (weather) and fixed location (neighborhoods). The third composite event combines segmentation-oriented context and spatial context.

In the next section we'll wrap up this chapter by showing how contexts are used in the Fast Flower Delivery example.

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CCL example for Window and keep policies

```
Windows are like streams, but store records
CREATE WINDOW Book_w SCHEMA Book_t KEEP ALL;
INSERT INTO Book_w
  SELECT * FROM Book_s;
```

Sample of KEEP policies (there are others):

```
KEEP LAST PER Id
KEEP 3 MINUTES
KEEP EVERY 3 MINUTES
KEEP UNTIL ("MON 17:00:00")
KEEP 10 ROWS
KEEP LAST ROW
KEEP 10 ROWS PER Symbol
```

AMiT context example

DeliveryBidAlertLifespan1 (Lifespan)

General Information
 This section describes general information about this resource.

Created By: ellak Status:
 Created On: 11/29/09 Definition description:
 Updated By:
 Updated On:
 Rule Set:

Initiators
 This section describes how this lifespan is initiated Hide Advan

At Startup

Event Initiators' Table

Name	Alias	Correlation	Condition
BidRequest		ignore	

Add
Edit
Remove
Reorde

Absolute Time Initiator Table

Time	Correlation

Add
Edit

DeliveryBidAlertLifespan1 (Lifespan)

Keys
 This section describes the event grouping keys

Name
RequestKey

Add
Edit
Remove
Reorder

Terminators
 This section describes how this lifespan is terminated Hide Advan

Never Ends

Absolute Time: Edit.. Terminator Type:

Relative Time: Edit.. Terminator Type:

Terminate By Event

Name	Alias	Quantifier	Termination Type	Condition
DeliveryBid		first	discard	

Add
Edit
Remove
Reorde