

Practically using Glorp

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28.08.2012

25 Years Georg Heeg eK



Donnerstag, 30. August 12

My Name is Karsten, i work for Georg Heeg
i want to talk about glorp
highly flexible object relational mapping framework for Smalltalk
throughout the last year we had several successful projects using Glorp



Objects

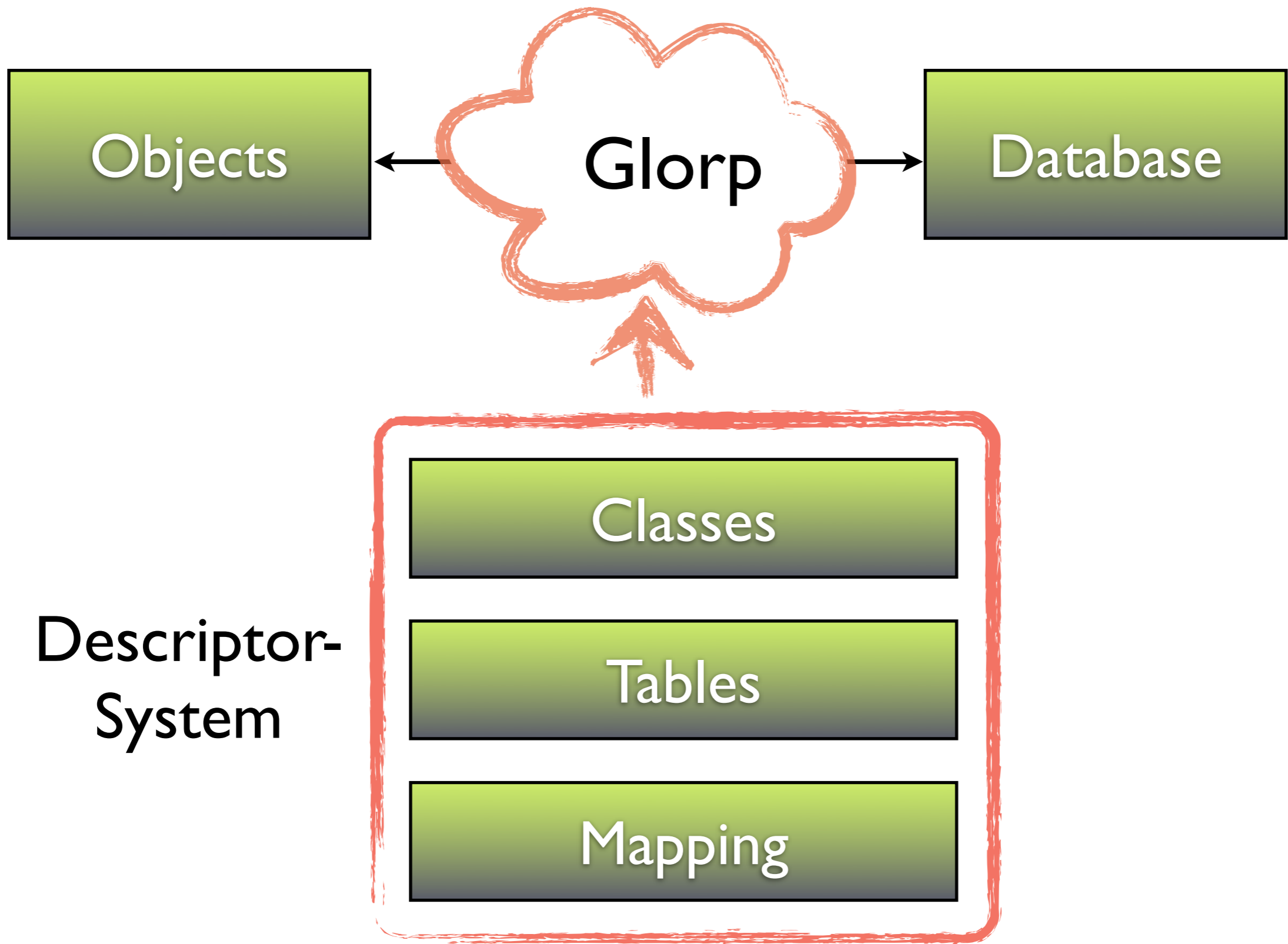
Glorp

Tables

Valley of
„You Don't Want To Be Here“

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Objects and Tables are like water and oil, you need a third component for a good result
Glorp is very flexible yet easy to use



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sits between objects and classes
needs to know classes, tables, their relationship
Change your Objects or your Database, adjust your descriptor system!!



First Steps

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Very simple Datastructure – logging messages with severity

1 Class: LogItem, with timestamp, message, severity

Small Database, Small descriptor system

Demo

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Create the DescriptorSystem for a LogItem class and its table.

Demo

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the video

Writing

session transact: [aLogItem].

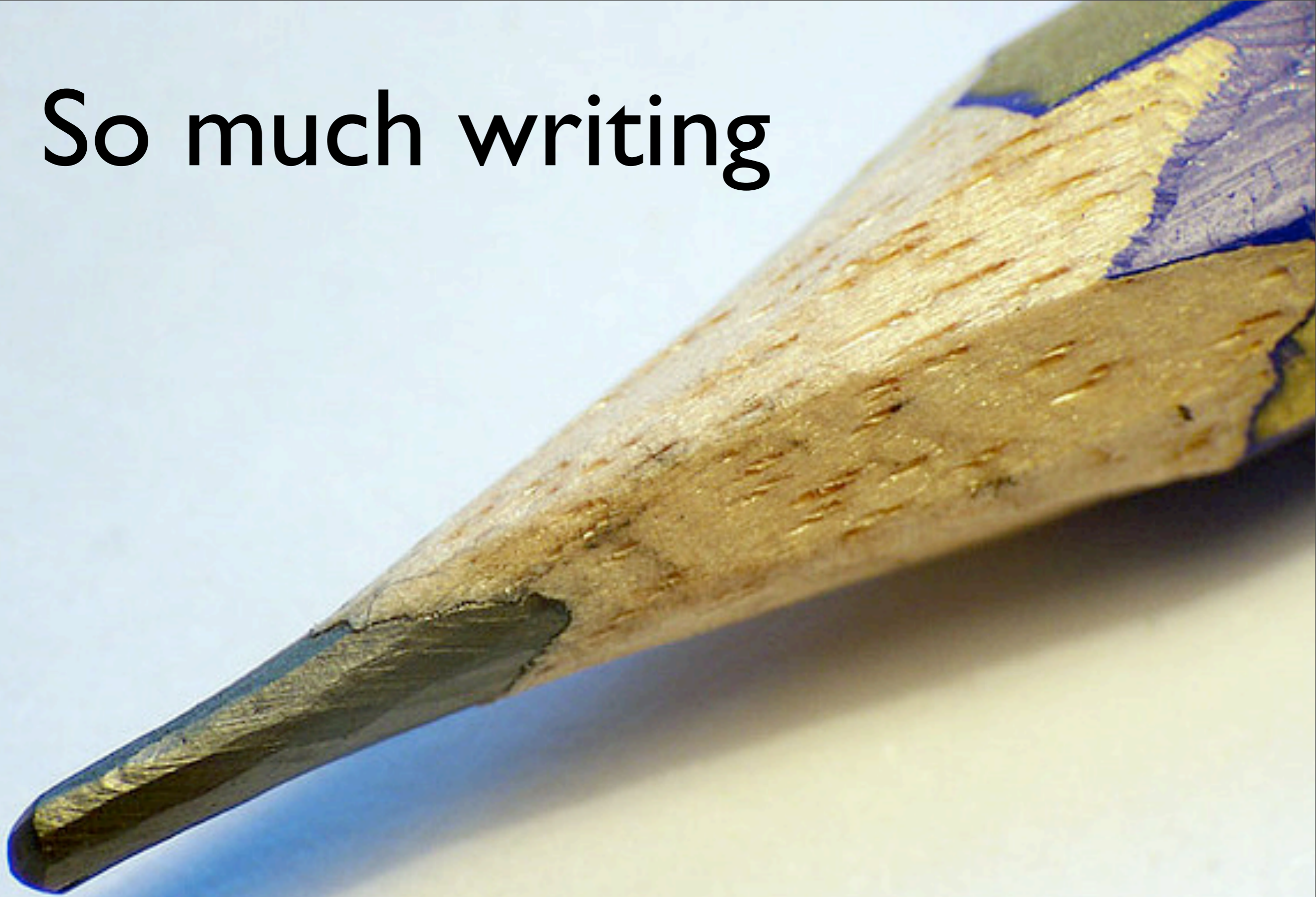
Reading

tenMinutesAgo := Timestamp now - 10 minutes.

session read: LogItem where:

[:each | each timestamp > tenMinutesAgo].

So much writing



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much writing for the descriptor
when the objects or the tables change, adjust the descriptor system
connect to existing database is boring and time consuming, error prone



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the solution to manual labor is automation, next are some technologies that ease the pain

Mapping Tool

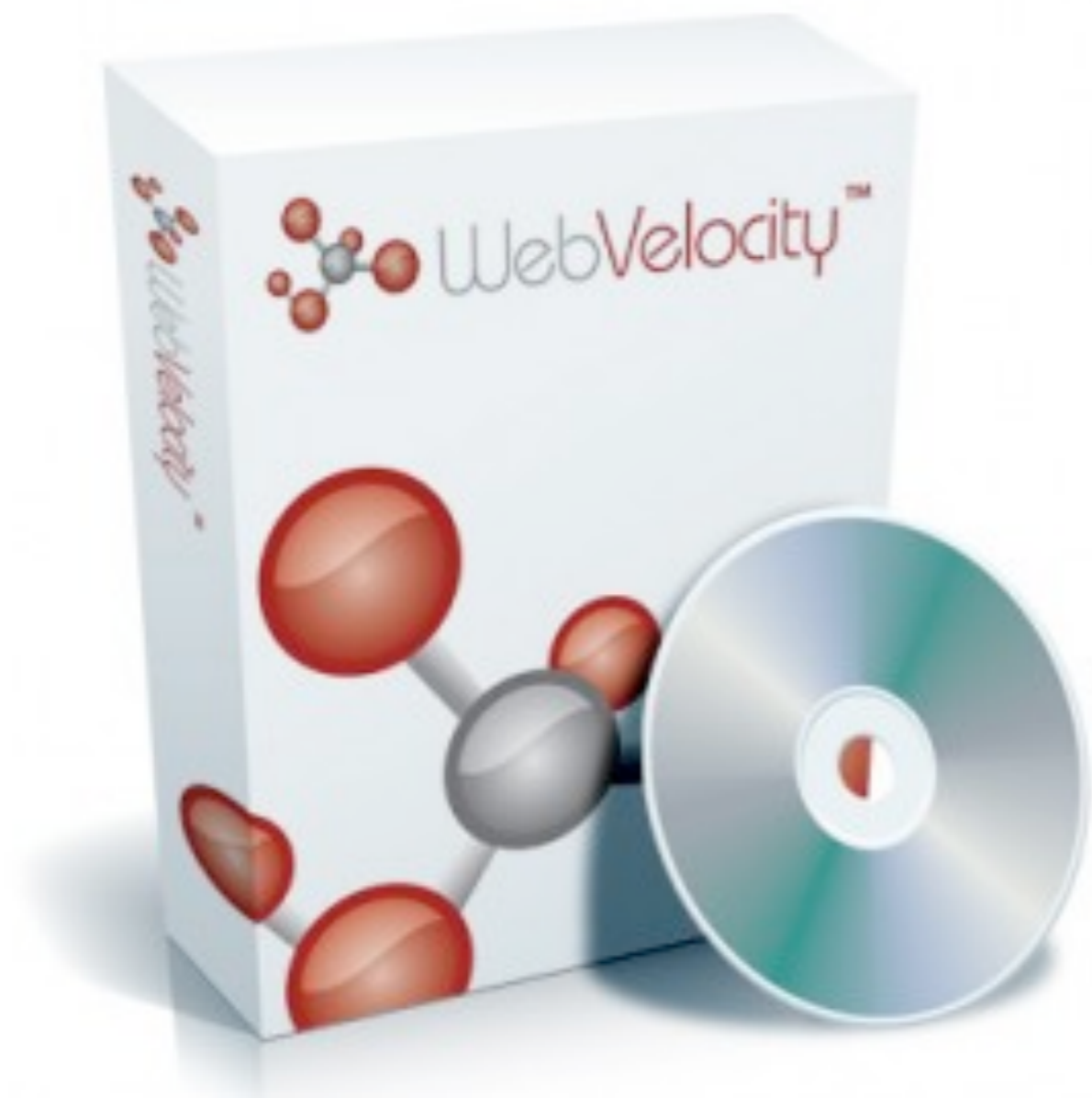


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part of ObjectStudio

define the mapping by hand or let the Mapping Tool help you

Active Record



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Got popular in Ruby on Rails
Used in Web Velocity
Naming Conventions

Easy

- If you know the rules of Active Record
- If you have control over the database

Limitations

- Ugly existing databases
- Steep learning curve
- Debugging problems



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know the conventions, the rules
existing databases with weird constraints and names
debugging inference code is no fun

Wishes

- Automatic Conversion
- Ease of use



Built my own Tool

- Active Record Compiler
- Creates Classes from Tables
- Creates Mappings from Constraints

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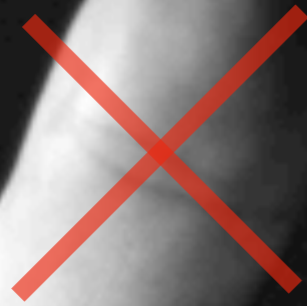
Reads meta information from database,
Supports One-One, One-Many, Many-To-Many Mappings

Best Case Scenario



- Proper Database Description
- Proper Classes
- Working DescriptorSystem

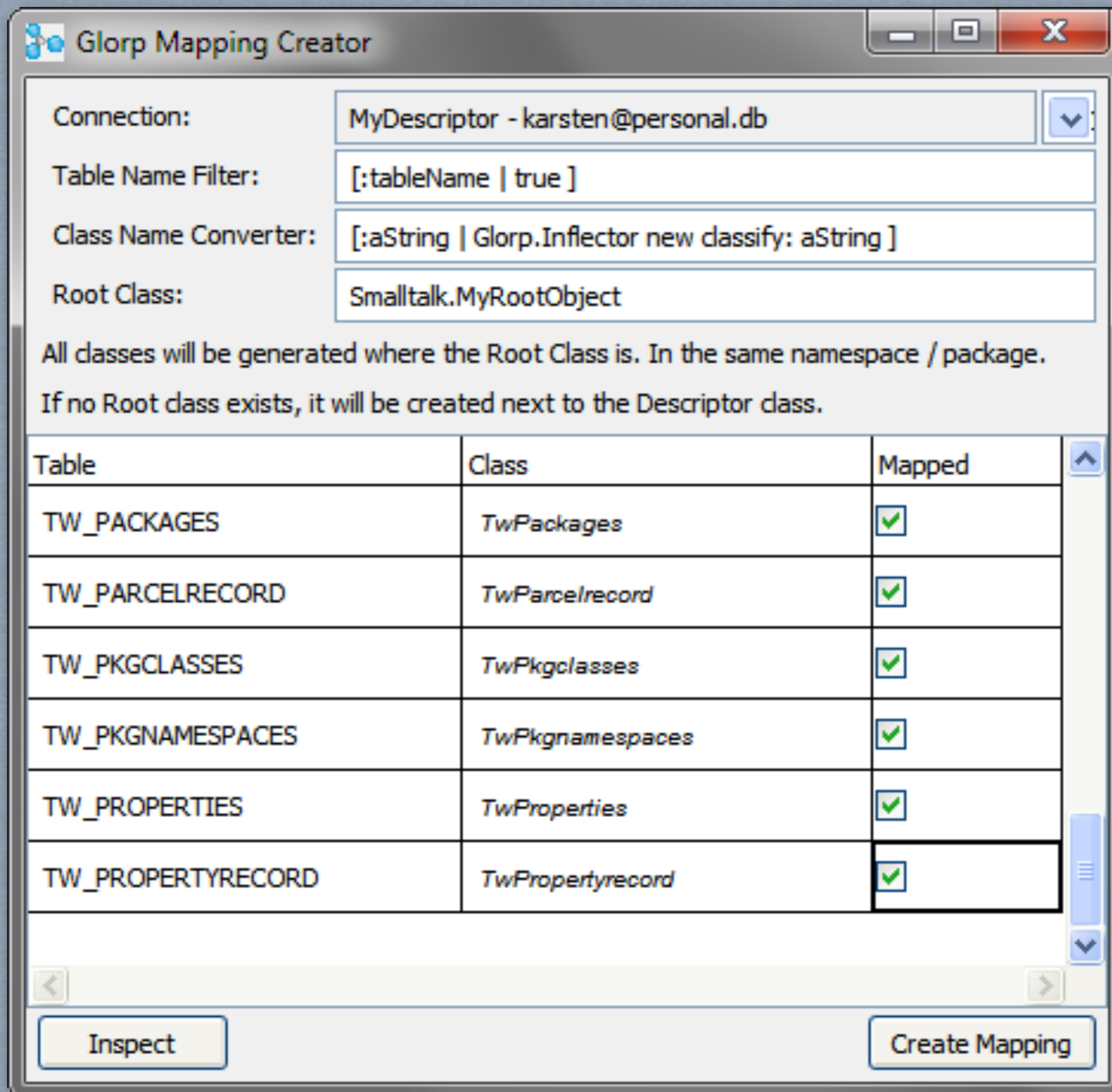
~~Best~~ Worst Case Scenario



- Proper Database Description
- ~~Proper Classes~~
- ~~Working DescriptorSystem~~

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At Least, it creates a basis for your mapping and you can edit



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select database, enter class names, run
Change database, run again!
Update Domain Model Code, but not your Mapping

Demo

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create SQLite3 Store Database, create Mapping for it, inspect the database
show the created descriptor system

Demo

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the video

Benefits

- Design in the DB
- Quick Recreation
- Smart Recreation

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Database Tools provide Simplest way of describing databases
at least SQL Server Management Studio

Drawbacks

- Backpointers
- Instance Variable Names



Tables to Objects



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described how to edit your tables in order to get your objects
now about the opposite approach

Objects to Tables



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described how to edit your tables in order to get your objects
now about the opposite approach



O r p h e u s

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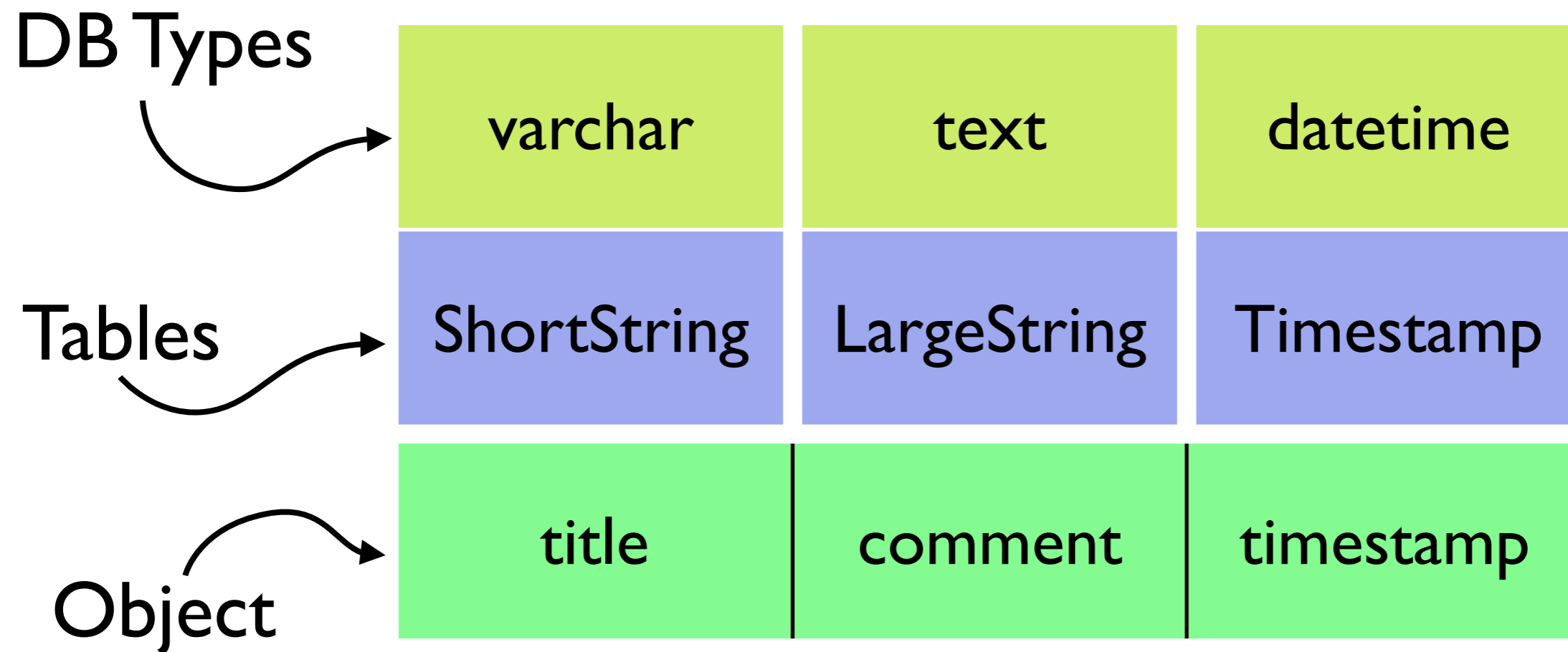
Orpheus is software we acquired



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One ring to rule them all
One Database schema for all objects

Virtual Mapping



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Objects are stored in multiple tables

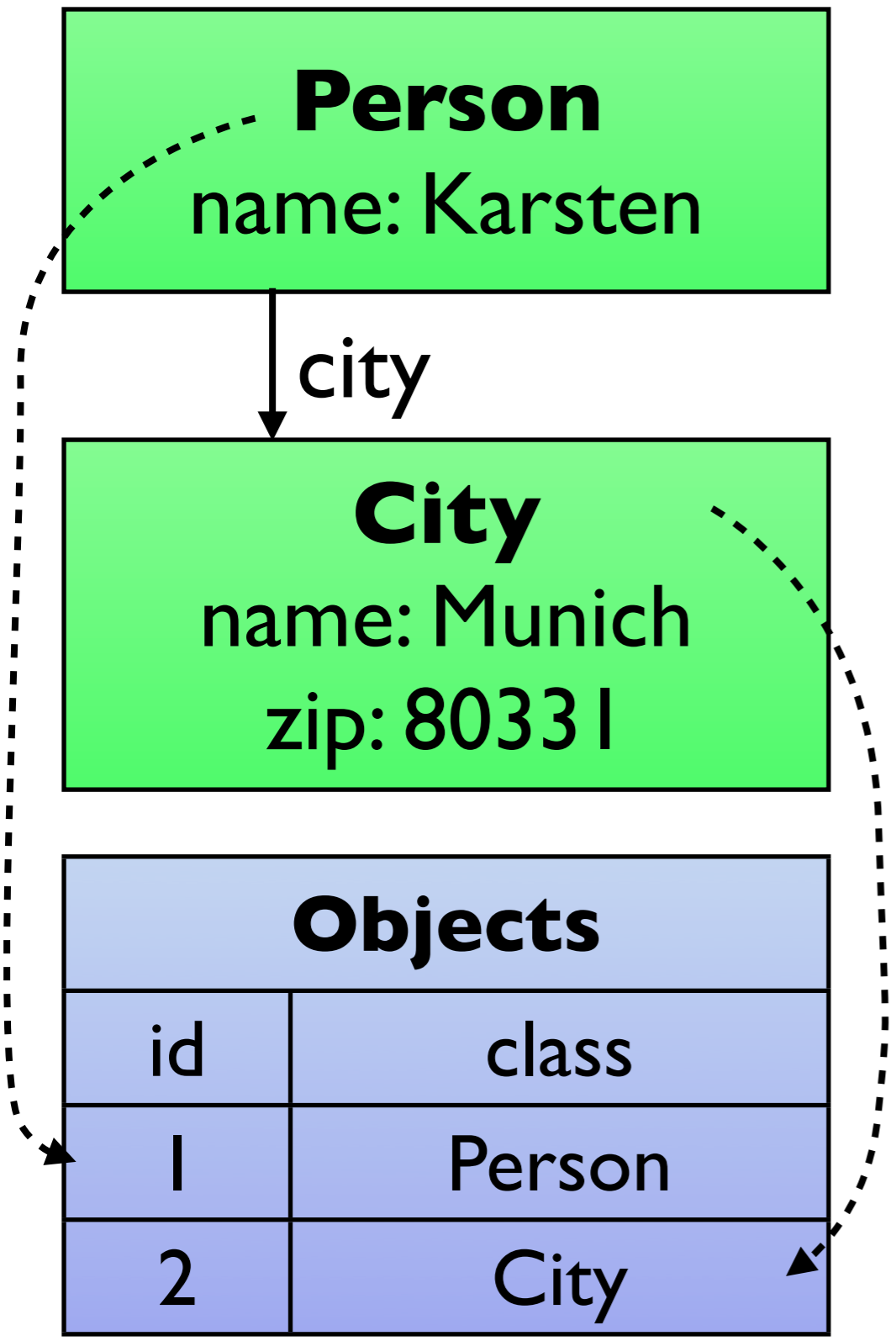
one table per database-datatype

Change your objects, and your mapping, but not your database

Person
name: Karsten

↓
city

City
name: Munich
zip: 80331



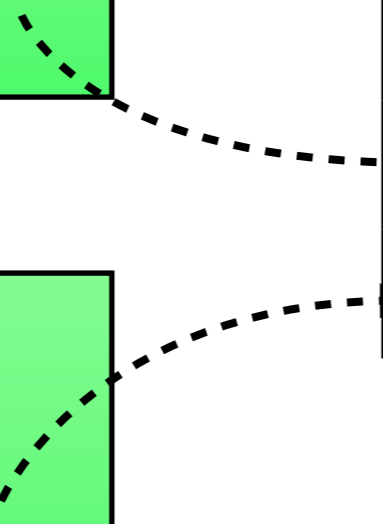
Person
name: Karsten

city

City
name: Munich
zip: 80331

ShortString		
object	instVar	value
1	name	Karsten
2	name	Munich

Objects	
id	class
1	Person
2	City



Person
name: Karsten



City
name: Munich
zip: 80331

Objects	
id	class
1	Person
2	City

ShortString		
object	instVar	value
1	name	Karsten
2	name	Munich

ObjectReferences		
object	instVar	value
1	city	2

Person
name: Karsten

city

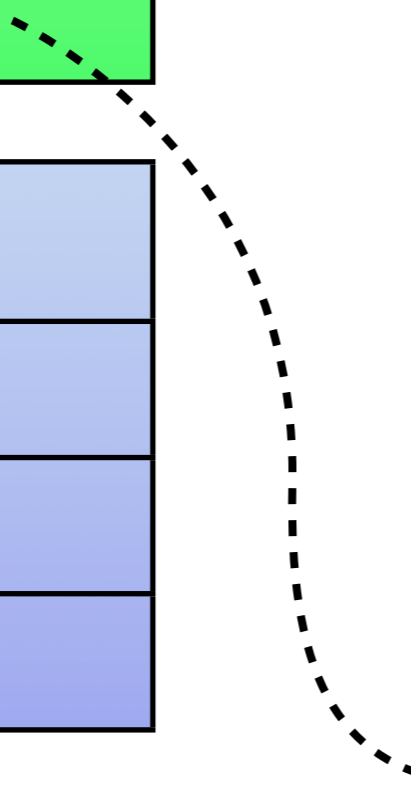
City
name: Munich
zip: 80331

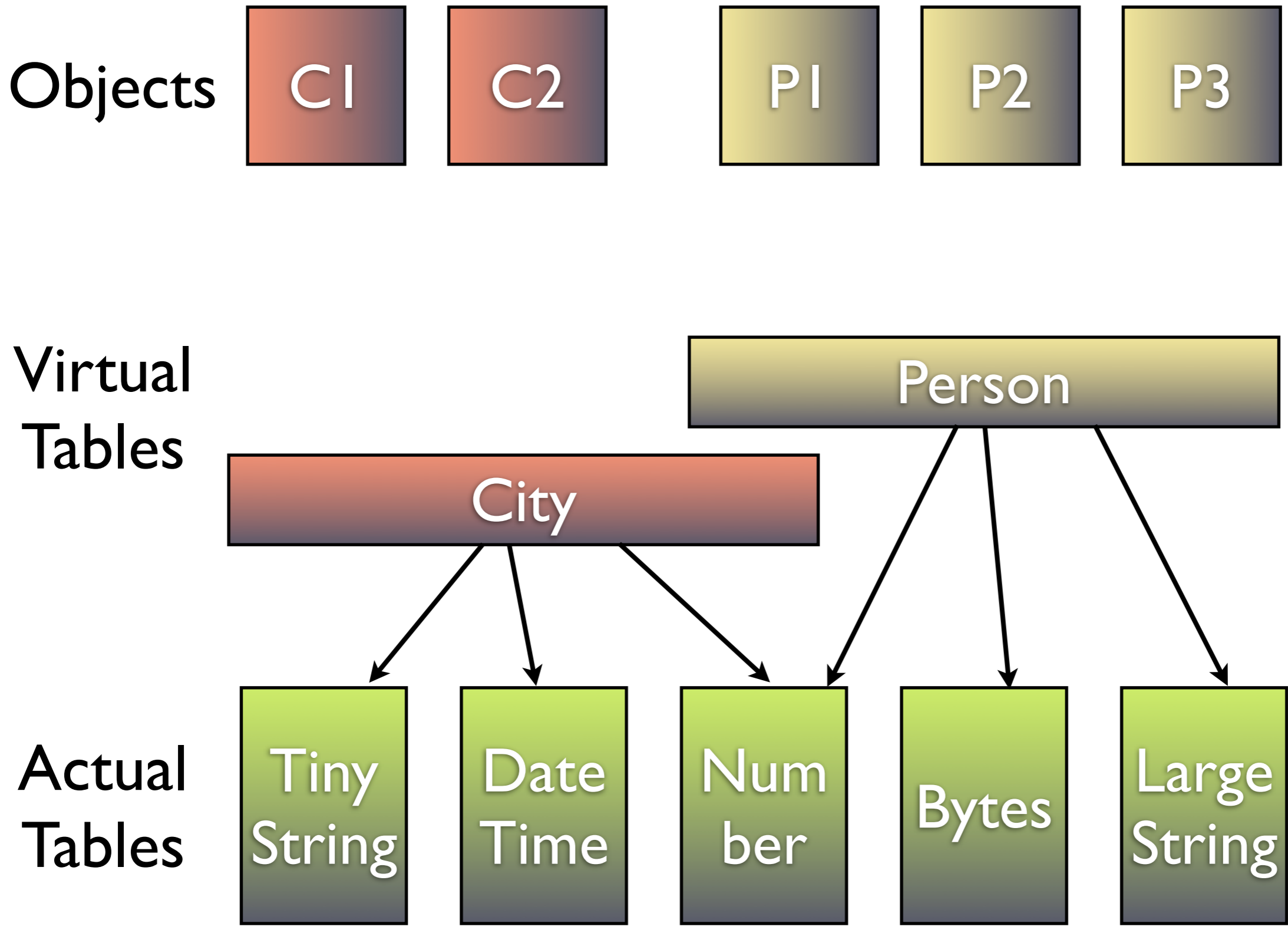
Objects	
id	class
1	Person
2	City

ShortString		
object	instVar	value
1	name	Karsten
2	name	Munich

ObjectReferences		
object	instVar	value
1	city	2

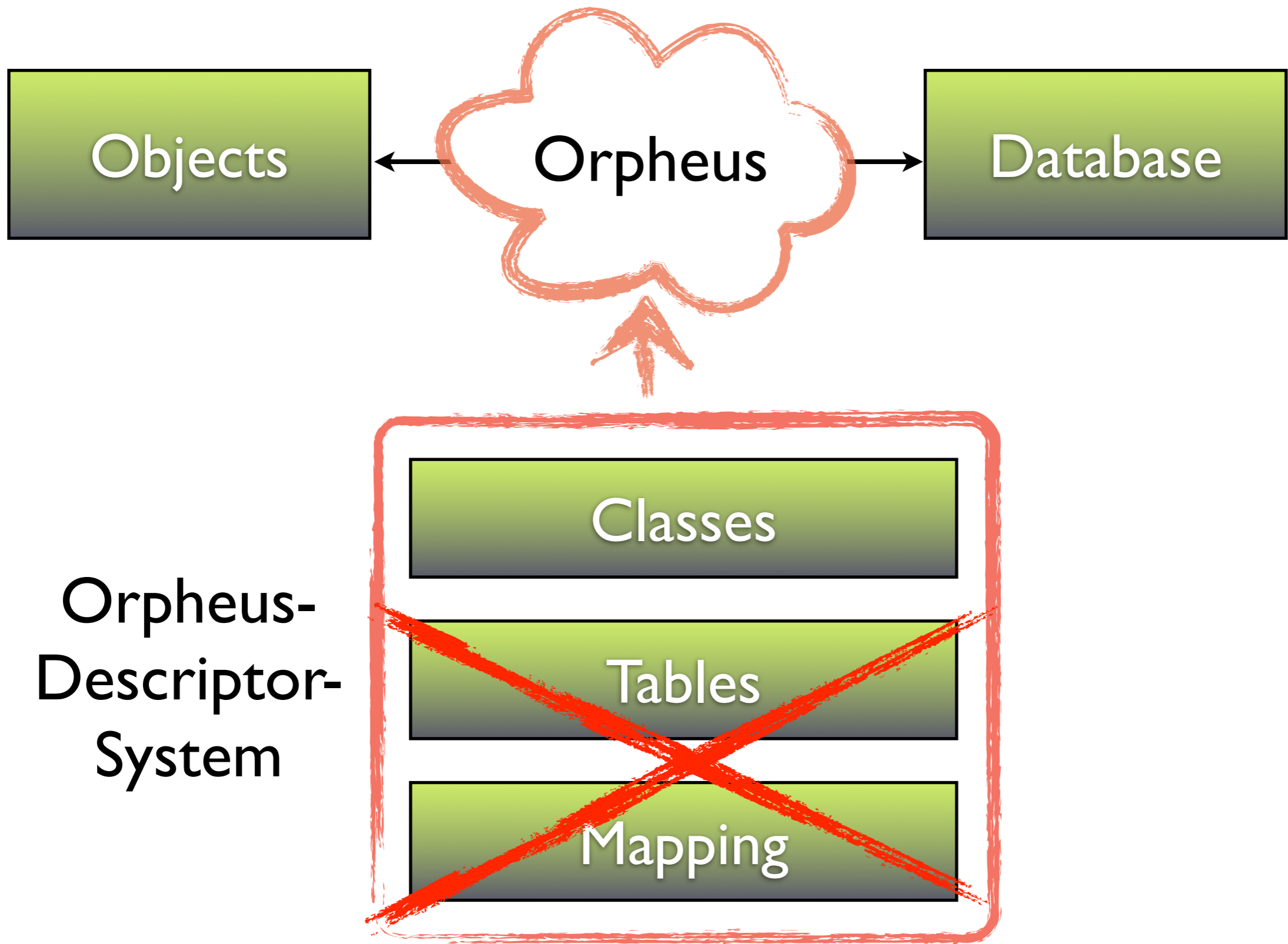
Integer		
object	instVar	value
2	zip	80331





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Create virtual tables that only glorp knows, so that it can work properly.
They are created by orpheus automatically



CSDescriptorSystem >> classModelForAccount:

Browser Edit Find View Package Class Protocol Method Tools Help

Find: classmodelforaccount

Package Class Instance Class Shared Variable Instance Variable

Object
 DescriptorSystem
 OrpheusDescriptorSys
CSDescriptorSystem

CS-Database-Glorp

1 api
 649 classes
 1 initialization

classModelForAbstract
 classModelForAbstract
classModelForAccount
 classModelForAdditio
 classModelForAdditio
 classModelForAddress
 classModelForAddress
 classModelForAddress

Source Comment Definition Rewrite Code Critic

classModelForAccount: aClassModel

```

self classModelForVirtualClass: aClassModel.
aClassModel newVirtualAttributeNamed: #accountNo type: #String baseType: #TinyString.
aClassModel newVirtualAttributeNamed: #designation type: #String baseType: #ShortString.
aClassModel newVirtualAttributeNamed: #use type: #String baseType: #TinyString.
aClassModel newVirtualAttributeNamed: #newAccount type: #Account baseType: #ObjectReference.
aClassModel newVirtualAttributeNamed: #newAccountValidFrom type: #Date baseType: #TimestampValue

```

Method: #classModelForAccount: (classes) Package: CS-Database-Glorp

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Class Model describes class
 Used for virtual table
 used for mapping
 creates constraints on possible object composition

Lens Migration

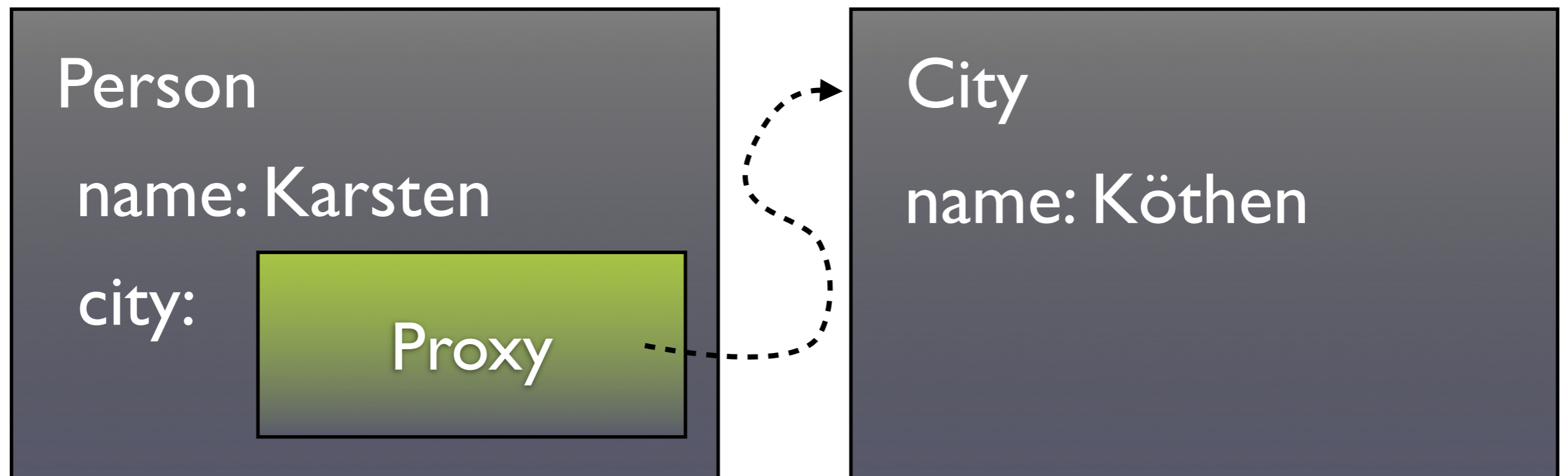
A close-up photograph of a camera lens. The lens is dark and has several concentric rings. Through the lens, a sunset scene is visible, with a bright orange and yellow sun low on the horizon, transitioning to a purple and blue sky. The lens is slightly out of focus, creating a bokeh effect.

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Orpheus was written in Lens
Porting to Glorp
interesting problems

Proxies

- Glorp keeps Proxies
- == doesn't work





Per Session Objects

- no Session Pool

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Good for seaside, not so good for desktop client apps
cannot fetch objects in the background



Method Inlining

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problems on how glorp creates SQL statements

Person
Karsten

city

City
Köthen

country

Country
Germany

```
session read: Person where[:each |  
each city country name = 'Germany']
```

countryName

[^]self city country name

```
session read: Person where[:each |  
each countryName = 'Germany']
```

Query Optimization

Before:

```
[ :a | a = 2 & (false | true) | NOT(true) ]
```

After:

```
[ :a | a = 2 ]
```

Glorp Bashing



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glorp has some strange behavior for somethings

Column Width

**50
Characters**

VS

varchar[20]

Multithreading

**One Process
Per Session**

VS

**Two Sessions
Share No
Objects**

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One session on multiple processes crashes badly and you need to login again
sharing objects between sessions also not possible

Vicious Cache

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read object, modify in DB, read again... no change
tell Query or Session to refresh

Modifying Objects

Fetch Object

Start Transaction

Register Object

Change Object

Commit Transaction

X



Dictionaries

```
object dictionary at: #a put: 123.  
session transact:[  
    session register: object.  
    object dictionary at: #a put: 456.  
]
```


<pragma: class>

#classModelFor**LogItem**:

#descriptorFor**LogItem**:

#tableFor**LOGITEM**:



Conclusion

- Glorp is simple, flexible, fast
- platform independent
- supports complex mappings
- tools could be better
- we built our own tools

Thanks

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Little Feet - <http://www.flickr.com/photos/goulao/173213992>

Single pencil - <http://www.flickr.com/photos/ardabalkan/353004619>

Easy Button - <http://www.flickr.com/photos/bravo213/376781221>

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