

Star Join, Version 1.0

URL

<http://www.wiley.com/compbooks/poole/patterns/StarJoin.pdf>

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Structural Classification

Domain pattern

Usage Category

Interpretation

Intent

Provides a domain pattern for constructing and identifying instances of relational star schemas.

Also Known As

- Star schema
- Relational star schema
- Dimensional star schema

Motivation

The basic star-join design is used extensively in data warehousing as a means of organizing analysis data into a dimensional format. Star-joins are generally used to define relational schemas in such a manner that the dimensional nature of the stored data is readily apparent from the structure of the relational schema itself.

Applicability

This pattern is used whenever there is a need to interchange a relational model that is organized as a star-join or star-schema structure.

Projection

The Star Join pattern is based on a sub-graph of the CWM metamodel consisting of the meta classes

- org.omg.cwm.objectmodel.core.Stereotype

- org.omg.cwm.resource.relational.Table
- org.omg.cwm.resource.relational.Column
- org.omg.cwm.foundation.keysindexes.UniqueKey
- org.omg.cwm.foundation.keysindexes.KeyRelationship

and the associations

- org.omg.cwm.objectmodel.core.ElementOwnership
- org.omg.cwm.objectmodel.core.ClassifierFeature
- org.omg.cwm.objectmodel.core.StereotypedElement
- org.omg.cwm.foundation.keysindexes.UniqueFeature
- org.omg.cwm.foundation.keysindexes.KeyRelationshipFeatures
- org.omg.cwm.foundation.keysindexes.UniqueKeyRelationship

This sub-graph is illustrated in the diagram below:

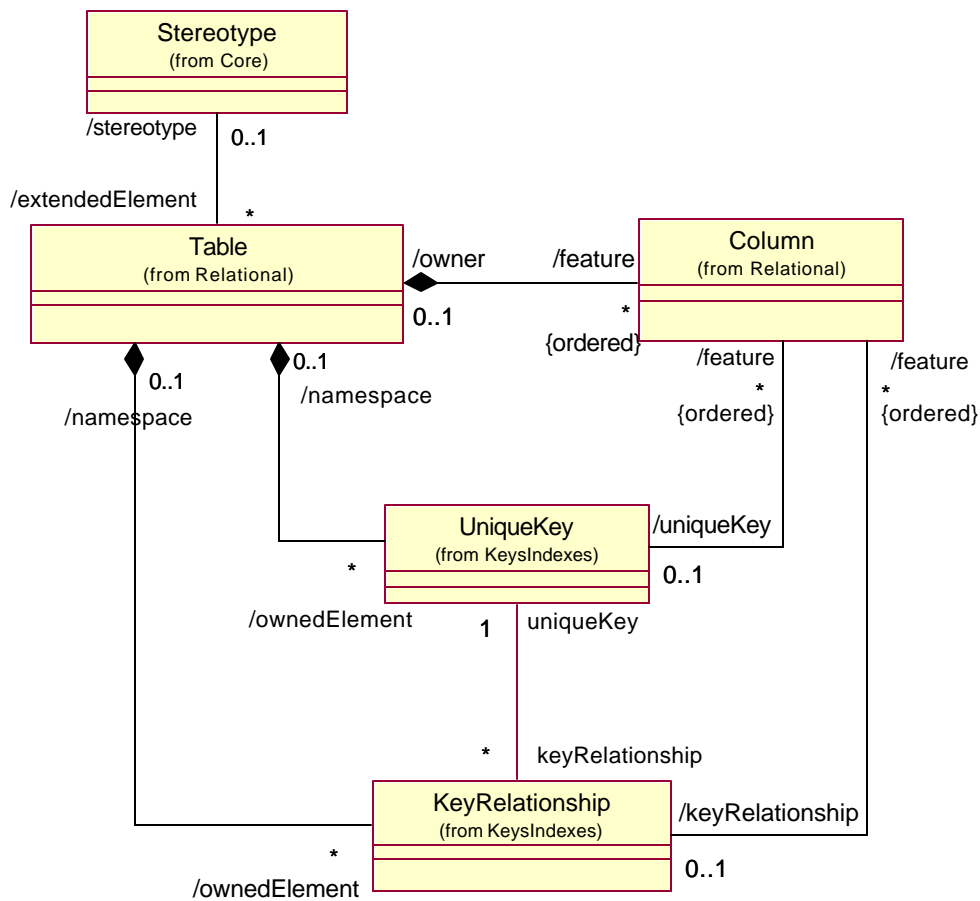


Figure 1: Star Join Projection

Restriction(s)

Restrictions on instances of the projection are as follows:

- There must be at least one relational Table (the *join table*) whose unique key values represent compositions of the unique key values of two or more other relational Tables. This relationship is made explicit through instances of the UniqueKey and KeyRelationship classes.
- Optionally, an instance of Stereotype may be attached to any Table serving as the join table of the star schema, making its role explicit. This Stereotype's name must be set to the value "StarJoin".

Usage

TBD

Parameters

M2 Parameter	M1 Value	Comments
Stereotype.ModelElement::name	"StarJoin"	Value is fixed.

Commentary

None.

Consequences

TBD

Known Uses

TBD

Related Patterns

Surrogate Key is often used as a constructional/structural pattern in the realizations of the Star Join domain pattern.

Sample Solution

The instance diagram below illustrates an occurrence of the Star Join pattern. In this example, a single Table instance called "Sales" serves as the join table relating two other Tables called "Product" and "Time", respectively. This forms a very simple star-schema that supports data warehouse analyses of tracking how sales figures relate to geographic regions, over time. The corresponding XMI fragment shows how the star schema instance would appear in an XMI interchange stream.

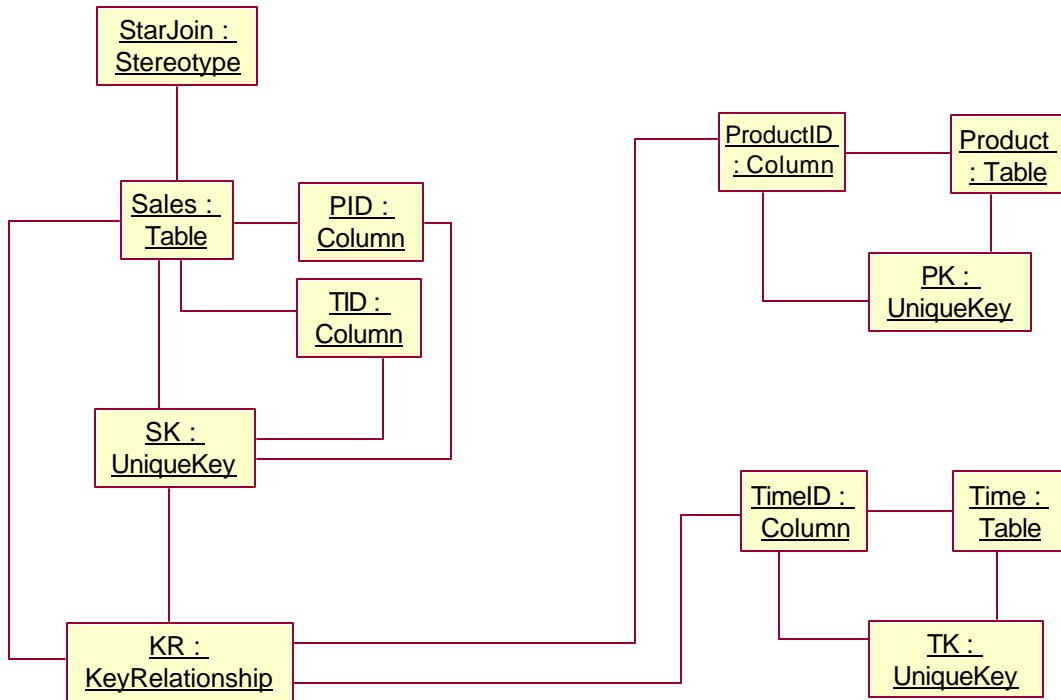


Figure 2: Instance Diagram: Star Join Example