A Philosophy of Modeling

Lars Rönnbäck
No two objects can have all the same properties.

Gottfried Wilhelm Leibniz
Everything flows.

Heraclitus
All things are momentary.

Vasubandhu

The Buddhist Doctrine of Momentariness
The reality we can put into words is never reality itself.

Werner Heisenberg
Some things are more nearly certain than others.

*Bertrand Russell*
Our subjectivity is so completely our own.

Spike Jonze
One should always aim at being interesting, rather than exact.

Voltaire
If it quacks like a duck...

James Whitcomb Riley
Same same, but different.

_Thai salesperson_
When is a thing a thing?
When is a thing a thing?
• Things are important
• Their properties are important
• Their classification is ephemeral
• Values are always imprecise
• Changes can be captured through sampling
• Only identities are immutable
• We record statements about reality, and we do not record reality itself
• The certainty of true reality cannot be captured
• Opinions may differ and may be revised
• Keep the number of things that have to be agreed upon small
[(Identity_1, role_1), ..., (Identity_n, role_n)], value, timepoint]
[{(42, husband), (43, wife)}, married, 2004-06-19]
[(42, name), Lars Samuelsson, 1972-08-20]
[(42, hair color), gray, 2022-02-22]
VALUES ARE CHANGING OVER TIME

[[(42, name)], Lars Samuelsson, 1972-08-20]
[[(42, name)], Lars Rönnbäck, 2005-03-30]
[[(42, hair color)], brown, 1973-02-13]
[[(42, hair color)], gray, 2022-02-22]
DATA

[[(42, name)], Lars Rönnbäck, 2005-03-30]

DATA

[[(42, hair color)], gray, 2022-02-22]

DATA

[[(4711, name)], Person, 2019-10-20]

PERIDATA

[[(42, thing), (4711, class)], active, 1972-08-20]
555 ← [{(42, name)}, Lars Rönnbäck, 1972-08-20]
556 ← [{(42, hair color)}, gray, 2022-02-22]
557 ← [{(42, husband), (43, wife)}, married, 2004-06-19]
555 ← [{(42, name)}, Lars Rönnbäck, 1972-08-20]
556 ← [{(42, hair color)}, gray, 2022-02-22]
557 ← [{(42, husband), (43, wife)}, married, 2004-06-19]

[{{555, posit}, (42, determines confidence)}, 90%, 2019-10-20]
555 ← [((42, name)), Lars Rönnbäck, 1972-08-20]
556 ← [((42, hair color)), gray, 2022-02-22]
557 ← [((42, husband), (43, wife)), married, 2004-06-19]

[((555, posit), (42, determines confidence)), 90%, 2019-10-20]
[((556, posit), (42, determines confidence)), –80%, 2019-10-20]
[((557, posit), (42, determines confidence)), 0%, 2019-10-21]

COMPLETE UNCERTAINTY


CONFIDENCE IS CHANGING OVER TIME

\{((557, \textit{posit}), (42, \textit{determines confidence})), 90\%, 2019-10-20\}
\{((557, \textit{posit}), (43, \textit{determines confidence})), -100\%, 2019-10-20\}
\{((557, \textit{posit}), (42, \textit{determines confidence})), 0\%, 2019-10-21\}
\{((558, \textit{posit}), (42, \textit{determines confidence})), 100\%, 2019-10-21\}
\{((558, \textit{posit}), (43, \textit{determines confidence})), 100\%, 2019-10-21\}
555 ← [((42, name)), Lars Rönnbäck, 1972-08-20]
556 ← [((42, hair color)), gray, 2022-02-22]
557 ← [((42, husband), (43, wife)), married, 2004-06-19]

METADATA

[[(555, posit), (2001, loading job)), success, 2019-10-20]
[[(2001, started at)), 2019-10-20 10:15, 2019-10-20]
[[(2001, user)), SQLAgent, 2019-10-20]
Anchor Modeling

Lars Rönnbäck
An anchor named PE_Person holds the identities for things of the Person class.
A static attribute named PE_NAM_Person_Name holds a reference to an identity and a primitive value.

A historized attribute named PE_HAC_Person_HairColor holds a reference to an identity, a primitive value, and a time point since when it came into effect.
A knot named COL_Color holds an enumeration of primitive values along with their own identities.

Knots are equivalent to an anchor with a single static attribute.
A static tie named PE_lecturer_IN_invoice holds references to identities in adjoined anchors.

\[
[(42, \text{lecturer}), (911, \text{invoice})], \text{created, 2019-10-20}
\]

\[
[(42, \text{husband}), (43, \text{wife})], \text{married, 2004-06-19}
\]

A historized tie named PE_husband_PE_wife holds references to identities in adjoined anchors, and a time point indicating since when the relationship has been in effect.
A knotted historized tie named PE_husband_PE_wife_STA currently holds references to identities in adjoined anchors, a time point indicating since when the relationship has been in effect, and the identity of an enumerated value from a knot.
A knotted historized tie named PE_husband_PE_wife_STA_currently holds references to identities in adjoined anchors, a time point indicating since when the relationship has been in effect, and the identity of an enumerated value from a knot.

With metadata it also holds a reference to a metadata identity.

555 ← [((42, name)), Lars Rönnbäck, 1972-08-20]
[[(555, posit), (2001, loading job)], success, 2019-10-20]
[[(2001, started at)], 2019-10-20 10:15, 2019-10-20]
[[(2001, user)], SQLAgent, 2019-10-20]
In *uni-temporal* Anchor modeling, only posits are stored.

In *concurrent-reliance-temporal* Anchor modeling an Annex table is added, in which assertions are stored.
Additional Resources

Lars Rönnbäck
Appearance is Everything

In my previous article “What needs to be agreed upon”, from my series about #transitional modeling, I listed the few things that must be interpreted equally among those sharing information between them. To recall, these were identities, values, roles, and time points. If we do not agree upon these, ambiguities arise, and it is no longer certain that we are talking about the same thing. We used this to create the fundamental construct in transitional modeling: the posit, which is a “triple” on the form $((id^1, role^1), ..., (id^n, role^n))$, value, time position is called a dereferencing set, and each one is called an appearance. An appearance consists of identities, values, and time and they will be the topic of this article.

What is interesting and different from most other things is that what the identities represent may be subjective to individuals exchanging information in transitional modeling. On the classifications of the things they discuss, identity 42 is thought of as a ‘Living Thing’ by one, a ‘Person’ by a third, a ‘Customer’ by a fourth, an ‘Animate Object’ by a sixth, a ‘Transaction’ by a seventh, and so they all go on and on. What happens is that we have an appearance of the same identity, it is a collection of things, but what things they are is subjective to those that apply the appearance. And of course, that’s why the appearance is a fundamental construct in transitional modeling.
www.anchormodeling.com/modeler/latest
sisula

sisula, short for "simple substitution language", is a language for producing text output from XML input.

The current version is built in JavaScript and should run using HTA in any Windows version from the last decade. There are no special requirements or dependencies. A legacy version using JScript in Windows Scripting Host is also available.

ETL

The ETL branch contains an SQL driven ETL framework for data warehouse automation. This framework can be used with SQL Server and is particularly useful for Anchor Modelling. There is a playlist of video tutorials on how to use it available here: https://www.youtube.com/playlist?list=PLG6-3kKEOyYlWEaFzhcARtjqjHU6znFtH

Sisulator

The sisulator takes an XML file as input and converts this into a JSON-compatible object according to a mapping ruleset. It will then process a number of sisules as specified in the given directive, which retrieves the object as input. The sisules are parsed and the sisula language substituted to JavaScript/JScript using regular expressions, after which the JavaScript/JScript is evaluated and the output stored.

History

sisula was introduced in Anchor Modeling in order to replace XSLT for producing text output, and a first JavaScript version of the Sisulator is built into its modeling tool. This version is derived from that work.
www.linkedin.com/in/ronnback