Semiosis & sign exchange: design for a subjective situationism, including conceptual grounds of business information modeling

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An obvious question about the conceptual grounds presented in this treatise is: How practical are they?

It started with highly practical work on information systems. For an answer I first of all quote myself from *Multicontextual paradigm for object orientation*, an essay published as part of my book *Informatiekundige ontwerpleer* (1999, pp 261-262):

As I am a practicing designer, I feel the need for a better theory coming up when faced with a practical problem for which I do not seem to have an adequate conceptual framework (read also: paradigm) available. In this case, it was a problem that I encountered at a publishing house. One of its magazines had a single sport as its subject matter. To strengthen the position of this already dominating magazine, the publisher saw opportunities to bring, what he called, a comprehensive database to the marketplace.

Comprehensive? I asked what he meant. The answer was: “Well, everything.”

My first task was to convince the publisher that such a specification is, to put it mildly, somewhat unrealistic. Computers, programs and databases do not work miracles. They never do. “Everything” does not exist with information technology.

But at the same time, I recognized a challenge. I thought I could show how to realize storage and retrieval of widely diversified information. The essential problem, in my view, was the impossibility of a unified structure for all pertinent information. I increased the challenge by broadening my attention from the one sport in question to all sports. By now, of course, I was indeed looking for an information model of “everything.”

I decided the problem was so complex that it needed a practical prototype for further research. But, of course, even to develop a prototype, I needed a design. What model of the relevant information would I start with?

Fascinating about all the countless sports and games is that they manifest exemplary variety. And any relevant information system, a database for example, must reflect this variety. So, immediately, it was clear that it is impossible to design a detailed pattern where information
about all such divergent human activities properly fits.

Now, what is important about the previous sentence, is that I connected the adjective detailed to the noun pattern. Indeed, such a detailed a priori pattern is impossible to conceive in the face of overwhelming and ever changing variety.

So, what is the most promising direction to look for a solution to this formidable information problem? I did not find further refinement of the pattern at all attractive. The logical conclusion I made from the infinite variety was that I would end up with specialized information structures for almost every detail.

Where variety is beyond practical enumeration, the only reasonable patterning direction is to go, first of all, from concreteness to abstraction. A more general pattern will hold all relevant details. But holding is not enough. Because specialization has been lost through abstraction (generalization), secondly, the general pattern must allow for a description of its relevant specialization to be included along with the concrete information that is registered. Storage, retrieval and presentation of information should be based on such handling of specializations.

From there I went on to design the metapattern, an approach to conceptual modeling including context and time (Wisse, 2001). It became clear metapattern-based information models cannot be implemented in a straightforward fashion using a relational database management system or a database management system for, say, traditional object orientation.

My company Information Dynamics started creating software to implement metapattern-based information models. The concept of fifth behavioral form (see Multicontextual paradigm for object orientation) indicated, surprisingly perhaps, that a relational database management system provides the preferred infrastructure to continue to build from. Additional software structurally supports differentiating a signature's (object's) intext (behavior) according to context (situation). First Ivar de Jong and later Martijn Houtman have worked with Information Dynamics and engineered such information management software. It is called KnitbITs.2

At the time of writing this appendix Houtman continues to make fundamental contributions along the whole range of software engineering on behalf of Information Dynamics. KnitbITs has reached the stage where it can be used for realistically prototyping complex information systems, with distributed processing for multiple users. For an overview of conceptual possibilities I refer to Metapattern: context and time in information models (2001). Including more than 170 figures, it provides many modeling examples, covering a wide range of information management.

A general idea of what the actual KnitbITs software encompasses might be gathered from my playful attempt at writing advertising copy. This draft, developed to get an even tighter focus on relevant design issues, is presented...
You simply gain time for success.

Simplicity wins you success. But how do you manage when information requirements are highly complex?

You succeed with KnitbITs® for it helps you tie all your information together. Infininitely, even, when you have to.

Pervasively adjustable. Always relevant and cohesive.

Your system development is as simple and speedy as possible with KnitbITs®.

Its flexibility is characteristic for, with due apologies for obscure terminology, semantic modeling.

KnitbITs® offers practical knowledge technology for integrated, object-oriented information systems in organizations and processes.

Featuring scaled metavariables plus heterogeneous classification networks, including contextual identity for each node.

Simple? Fast? Yes!

KnitbITs® secures all relevant information relationships. It leaves you free to concentrate fully on opportunities for innovation.

The KnitbITs® application components library sees you off to a swift start.

Your success is complete because KnitbITs® even ‘understands’ that information is more and more a question of time.

Every aspect – from basic property to recursively configured object,

including processing rules – is modeled with time as a standardized variable.

Everything is ready for both continuity and change.

It has all been taken care of.

That is how you simply gain time for success.

KnitbITs®

the original knitware by Information Dynamics

knit ... compact, connect, loop, join, tie, unite, weave, web, ...

a (abbv.) knowledge network with integrated time control

KnitbITs® is the original knitware, ... wizard, K. are wisbits

knitbot is KnitbITs® software agent

knit-picker is KnitbITs® developer

knitty-gritty is KnitbITs® architecture

knitware is digital tool-kit for knits

knitwit is KnitbITs® consultant

KnitbITs® is a tool for development, maintenance and management of custom-made and packaged software.

The target programs run on servers with one or more relational database management systems, and on Windows® clients.

Processing is distributed based on standardized object brokerage. Internet technology is applied throughout.

The availability of variations through time establishes the operational information as a data warehouse, too.

KnitbITs® itself runs on Windows® workstations. It can be used in combination with other tools, with Delphi®, for example.

The KnitbITs® application components library contains associated software components for information systems

where especially time is the critical variable.

Authorization, for example. And personnel, organization, and position management. Relationship management. Addresses & geography.

Copy & publication rights, workflow, currencies & exchange rates, financial accounting, travel management,

management of technical infrastructure & configurations, work breakdown structures (products and services), etcetera.

Contact us when you want time, and much more that KnitbITs® offers, simply start running for you.

KnitbITs is a registered trademark of Information Dynamics bv, Voorburg, The Netherlands.
The pseudo-advertising text also briefly illustrates the evolution of KnitbITs into much more than an extension to relational database management. It should be clear that the metapattern's characteristic requirements for structuring information continue to provide a unique focus. However, multiple time and especially multiple contexts have proven to affect the whole infrastructural chain from technical server to technical client, and back.

Recognizing additional opportunities, Information Dynamics has moved ahead to develop KnitbITs as a set of components ranging from data server to – control of – presentation clients. As a matter of policy the latest of Internet technologies are implemented as soon as they are available. It helps to achieve an extraordinary level of integration of all aspects. KnitbITs is designed and continually improved to give a preview of what may well become standard variety in information systems. In time, KnitbITs should also have the qualities to grow beyond experiments. It will then support fully operational information systems.

It has been primarily in anticipation of operational applications that I wrote Metapattern (2001). However, it was only after I had completed it, and because I had learned again so much from writing on it, that I started to really grasp several issues of an even more fundamentally theoretical nature. So, it has largely been with the aim to understand my own previous practice and, where possible, to improve upon it for the future, that I have developed the theory presented here in Semiosis & Sign Exchange. With Metapattern as a metahandbook for KnitbITs, this treatise is a metahandbook for applying the modeling approach of the metapattern. Having engineered powerful conceptual grounds, too, makes me confident about what can be practically build with KnitbITs.