

Comments on "English grammar as a sentence model for conceptual modelling using NIAM" by J. A. Sykes

R. Hotaka

University of Tsukuba

1-1-1 Tennodai Tsukuba Ibaraki 305, Japan

Phone: +81-298-535087, Fax: +81-298-535070,

E-mail: hotaka@shako.sk.tsukuba.ac.jp

This paper investigates the correspondence between natural language sentences and the conceptual modelling with NIAM and pointed out several useful observations based on a grammatical approach.

The commentator, however, wants to point out another important interpretation or usage of sentence-based approaches (such as NIAM):

- (1) that is almost independent from the detailed grammatical investigations as achieved by the author of the paper,
- and
- (2) that gives sentence-based modelling more representational capability.

Consider the following sentences:

(S)	(V)	(C)		(A)	
'Einstein'	moved to	'USA'	in	1933.	(s1)
'Neumann'	moved to	'USA'	in	1933.	(s2)

In the above sentences (s1) and (s2), only the subject part (S) changes while the other parts remain constant. In other words, (s1) and (s2) are obtained by instantiating the following sentence (type):

<i>x</i>	moved to	'USA'	in	1933.	(t1)
----------	----------	-------	----	-------	------

with the variable *x* replaced by 'Einstein' and 'Neumann' respectively. In order to express that the above *x* plays the role of a scientist who moved, one could rephrase (t1) as follows:

<i>Scientist x</i>	moved to	'USA'	in	1933.	(t2)
--------------------	----------	-------	----	-------	------

Scientist is an attribute that specifies the role *x* plays in (t2). The attribute also specifies the entity type of the instance *x*.

Consider further the following sentence:

(S)	(V)	(C)		(A)	
'Gödel'	moved to	'Germany'	in	1937.	(s3)

If we consider (s1), (s2) and (s3) at the same time, the subject part (S) and the adverbial part (A) change while the other parts remain constant. In other words, (s1), (s2) and (s3) are instances of the following sentence (type)

<i>x</i>	moved to	'USA'	in	<i>z</i> .	(t3)
----------	----------	-------	----	------------	------

with *x* replaced by 'Einstein', 'Neumann' and 'Gödel' and with *z* replaced by '1933', '1933' and '1937' respectively. In order to express that the above *x* plays the role of scientist who moved and *z* plays the role of the year when the corresponding scientist moved, one could rephrase (t1) as follows:

<i>Scientist x</i>	moved to	'USA'	in year	1933.	(t4)
--------------------	----------	-------	---------	-------	------

year is an attribute that specifies the role *x* plays in (t4). In other words, the sentence type (t4) is a common sentence or a representation of the semantics that was factored out from the three sentences (s1), (s2) and (s3). We can always instantiate a sentence type by substituting particular values to variables such as *x* or *z*.

If we interpret or use NIAM sentences (or facts) as above, what is important is not the grammatical observations, but the semantics the designer of an information system wants to factor out from a set of sentences.

In this way, even the following sentences

'Columbus'	'discovered'	'America'.	in the year 1492.
'Edison'	'invented'	'phonograph'.	in the year 1902.
'Franklin'	'captured'	'thunder'.	in the year 1892.

are instances of the sentence type

<i>Subject x</i>	<i>verb y</i>	<i>object z</i>	in the year <i>w</i> .
------------------	---------------	-----------------	------------------------

This interpretation or usage may be difficult by the approach proposed by the author of this paper.