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On the Relationships of Material Subjects

Johansen, Th.: **On the relationships of material subjects.**
Int. Classif. 14 (1987)No. 3, p. 138–144, 7 refs.

In this paper the individual material subject and the subjects related to it are used as a starting point; then the generic and the partitive types of relationships, with collections of material subjects as basis, are dealt with. While these types of relationships are of static character, a time-factor is involved when we are concerned with dynamic connections (and processes); these are the occasion of the relationship between a subject in a connection and the connection itself, and vice versa. A method of finding the subjects related to a given material subject is then proposed, and an example of the application of this method is given. Finally it is demonstrated that several types of non-hierarchial relationships can be viewed as involving three subjects, viz. those relationships between two subjects belonging to the same dynamic connection which are related 'through' that dynamic connection, and those where two dynamic connections are related 'through' a common subject. (Author)

0. Static relationships in general

As a starting point we take a static connection, i.e. a connection between two subjects, A and B, which is unchanged for at least some time[1].

We then consider the asymmetric relationships, i.e. the relationships between A and B which differ from those between B and A[2].

In the connection between A and B we call A the main subject as it will be the basis of the evaluation of the relationship, while B is called the related subject. Thus the connection consists of these two components, and it can be expressed as

The static connection
has A as its main subject
has B as a related subject

It will, however, be more convenient to use the simple expression:

A has B as a related subject

The corresponding formula,

A has X as a related subject

will be satisfied by any possible subject to which the material subject, A, is related by any possible type of relationship. But the formula only indicates that the relationship exists; it does not attempt to classify it. Very often, however, the type of related subject will itself determine the type of relationship.

Examples:

The material subject
has its material as related subject
has its colour as related subject
has its concept as related subject

In order to arrive at a general expression of the type of relationship, we introduce a third subject, the indicator, I, and then we can write

A has B as I

which is equivalent to

B is I of A

Example:

The bicycle (A) has its handle-bars (B) as part (I)
The handle-bars (B) are part (I) of the bicycle (A)

In the above expression we have A as the main subject but we can have the related subject take the place of the main subject and vice versa, and then we get: – however without reference to the example above –

B has A as its I
A is the I of B

But if we consider the two formulas:

A has B as its I
B has A as its I

the indicators will have to differ.

Example:

The text (A) has the paper (B) as its substrate (I_1)
The paper (B) has the text (A) as its 'substrated subject' (I_2)

Thus the four expressions

A has B as its I_1
B is the I_1 of A
B has A as its I_2
B is the I_2 of A

are equivalent.

Example:

This animal has 'lion' as its concept
'Lion' is the concept of this animal
'Lion' has this animal as a specimen
This animal is a specimen of 'lion'.

We are looking for an unambiguous way to express the subjects to which A is related and thus we confine ourselves to the expressions:

A has B as its I_1
A is the I_2 of B

Example:

The vase (A) has clay (B) as its material (I_1)
The vase (A) is the form (I_2) of the clay (B)

1. Relationships between a material subject and a subject of auother type

The conditions necessary for the consideration of a subject, especially where a material subject is concerned, are our *conception* of the subject, upon which its assignment to a certain concept is dependent, and the concept's denotation by means of a linguistic expression, or term.

All subjects corresponding to a certain concept, form, as we well know, a class. This aspect will be dealt with in more detail in section 3.

Then we can illustrate the connection between four important subjects by the figure below

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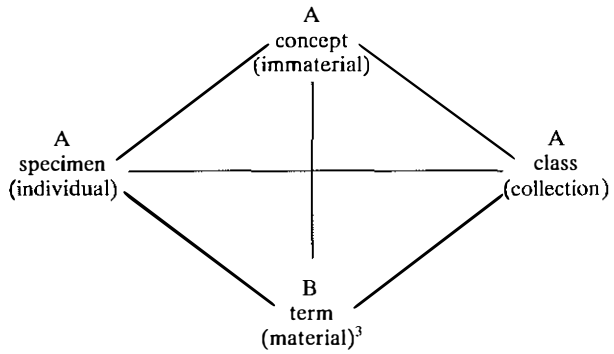
2. Relationships between a material subject and a subject of another type

The conditions necessary for the consideration of a subject, especially where a material subject is concerned, are our *conception* of the subject, upon which its assignment to a certain concept is dependent, and the concept's denotation by means of a linguistic expression, or term.

All subjects corresponding to a certain concept, form, as we well know, a class. This aspect will be dealt with in more detail in section 4.

Then we can illustrate the connection between four important subjects by the figure below



and we have:

A (concept, class, specimen)
has B as its term

A (concept, class, specimen)
is the subject denoted by B

Now let us consider the formulas

A has X as its term
The term has X as its denoted subject

Several linguistic expressions which satisfy the first formula will be synonyms, while several subjects satisfying the second one will be homonyms.
Thus the following relationships occur:

A has B_1 as its term
A has B_2 as its term,

and, as we have to choose one of them as a preferred term:

A has B_1 as its preferred term
A has B_2 as a rejected term

or, as A is represented by its term:

B_1 has B_2 as a rejected term
B_2 is a rejected term of B_1

and as regards homonymity:

(The term) A has B_1 as its denoted subject
(The term) A has B_2 as its denoted subject,

where we have to add a characterizing term to A.

The conception of A, however, is conditioned by our perception of it, and this, in turn, is due to sense-impressions which are based on its properties (colour, size, weight etc.).
Thus

A has B as its property
A is the 'carrier' of B

Finally the very existence of A is conditioned by the material of which it consists:

A has B as its material
A is the form of B.

When we are concerned with static connections it is natural to use 'material' as the indicator; however, as you cannot change the material of a subject while the *form* may be subject to change, we shall prefer to use 'form' as the indicator when we deal with dynamic connections in section 4:

A (material) has B as its form[4]

An important type of relationship is found between A and a related subject which, like the properties, has no independent existence, but in contrast to these properties is not necessarily found in connection with it. (This type may be considered as a transitiontype to the 'real' locative types between two material subjects).

The related subject may here be text, painting etc., and we get:

A has B as its 'substrated subject'
A is the substrate of B.

Although the relationships so far enumerated may be expressed as A has . . ., and A is . . ., we find that according to the types of related subjects which have no independent existence, it will be natural to prefer the formula of 'A has . . .', that is to prefer the indicators Concept, Term, Property, and 'Substrated subject'.

2. Relationships between two material subjects

These are represented by the locative relationships, but here we meet a difficulty. When we encounter a subject which locates another one, the subjects will be of the same type.

Here the indicator of 'location', i.e. 'locating subject' will be near at hand:

A has B as location (locating s)

and not

A is located by B.

Hence, the following expressions should be preferred:

A has B as its location
B is the location of A

But, as A and B are both material subjects, a decision must be made as to which one should be taken as the main s and which one as a related s in a given case.

Consider the obvious ridiculous exaınple:

Mt. Everest has the mountaineer as its location
The mountaineer is the location of Mt. Everest,

which shows that the least extensive subject should be taken as A:

The mountaineer has Mt. Everest as his location
Mt. Everest is the location of the mountaineer.

So far the question of choice of indicator and main s has been more obvious in the case of locative relationships, but what about the relative positions of the subjects in space?

If one subject is situated *inside* the other, the 'inside subject', which necessarily will be the one of least extension, should be taken as A according to the example above.

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Example:

The money has the cupboard as its outside location
The cupboard is the outside location of the money.

But what if we cannot decide which subject is the one of least extension?

The question of which subject should be taken as A or B will be decided on the basis of the preferred direction.

At first we have to decide between the directions:

Down, or up? (the axis of gravity).
In front, or behind? (the axis of the line of sight).

Here we choose 'down' and 'behind'.

Examples:

The stratosphere has the troposphere as its downside location.
The troposphere is the downside location of the stratosphere.

– and, if, depending on the angle of view, Alice's house is situated in front of John's house, we have:

Alice's house has John's house as its behind location.
John's house is the behind location of Alice's house.

Finally we have to make an arbitrary choice concerning the axis of left-right.

Apart from these relative types we have the absolute ones given as the corners of the compass, here again the rule of taking the subject of the greater extent as A should prevail.

Example:

St. Alban's has London as its southerly location.
London is the southerly location of St. Alban's.

In a case where this rule cannot be used we shall have to make a choice of the preferred direction.

Finally it should be mentioned that the question of the relative and absolute location in *time* could be relevant:

Examples:

The German-Roman Empire had the Middle Ages as its location in time.
The French revolution had 1789–1794 as its location in time.

3. Relationships concerning a collection of material subjects

The introduction of collections will give rise to other types of relationships, and at the same time it should be noted that some of the relationships enumerated in the previous section will be irrelevant in connection with collections. This will be the case with subject/substrates, subject/property, and subject/material as these will be relevant only to the *items* of the collection. (As regards the subject/property relationship we can of course have extent (esp. number) as a related subject to collections, but we shall omit this type of relationship for the sake of simplicity).

To determine the items of a collection there will be a determining subject, D, in regard to which there are two main types, according to whether D is immaterial or not.

If D is immaterial the collection will consist of material subjects corresponding to the concept, D.

Example:

The collection (the class) of ships corresponding to the concept of 'ship'.

If D is material it may be identical with the collection it determines. In this case the collection consists of the parts of D.

Example:

A ship consisting of the collection of its single parts.

If D is material, but not identical with the collection, we have a case of locative relationship where one of the subjects is substituted with a collection. This case is considered of lesser importance and will accordingly not be dealt with.

3.1 Dealing with collections in general, it is noted that if we take the collection, A, as main subject, it is possible to extract from A a collection b_1, of lesser extent. This procedure is characterized in two ways. It can be performed . . .

1 in various ways according to the principle of subdivision,
2 in several iterations according to the extent of the collection.

Example 1:

Animals/carnivorous animals, or animals/African animals

Example 2:

Animals/carnivorous animals/tigers

Thus we have:

A has $b_1, b_2 \ldots$ as subcollections
b_1 has $c_1, c_2 \ldots$ as subcollections etc.

But on the other hand A may be a subcollection of a collection of larger extent:

A is a subcollection of $B_1, B_2, \ldots$
B_1 is a subcollection of $C_1, C_2, \ldots$ etc.

Thus C_1, B_1, A, b_1, c_1, will form a succession of collections or, if we denote the collections by their respective terms, a succession of terms, a hierarchy.

If we demand that a succession shall contain at least three terms it is seen that the relationships dealt with in section 2 cannot form successions as a necessary condition is that the subjects denoted by their terms in a succession will belong to the same type of subject. Furthermore the indicators will be identical.

3.2 Choice of indicator: The introduction of collections as main subjects gives rise, as mentioned, to the relationships

A has B as a subcollection
A is a supercollection of B.

As the collections are denoted by their terms we prefer 'term' as indicator.

In case of the partitive type of relationship this corresponds to:

A has B as a partitive subordinate term
A is a partitive superordinate term of B.

Correspondingly we have:

A has B as a generic subordinate term
A is a generic superordinate term of B.

Instead of 'partitive subordinate term' and 'generic subordinate term' we shall, however, prefer 'part' and 'subordinate term', respectively.

In order to avoid 'gaps' in the succession of terms the nearest ones should be chosen according to the circumstances which depend on the language in question

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and on the structure of the material subject, respectively.

3.3 Finally the relationship common to all collections, which connects a collection with its items:[5]

A has B as an item
A is the collection of (items) B,

which shows that 'item' should be the preferred indicator.

A collection of subjects which corresponds to a given concept is, as we know, a class, and a subordinate class belonging to it corresponds to a narrower concept. Thus the expression 'part of class' indicates the connection between the generic and the partitive relationships respectively, and the basic difference should be noted, i.e. that between

'part of class', and
'class of parts',

being a subordinate class and a class of subordinate parts, respectively.

It is worth noting that an individual material subject is the 'top-subject' of a partitive succession (hierarchy) where the 'bottom-subjects' will be the subatomic particles, and at the same time an individual material subject will be the 'bottom-subject' of a generic succession (hierarchy) where the 'top-subject' will be the Indian concept of Brahma.

4. Relationships concerning a dynamic connexion of material snbjects

Up to now we have been concerned with relationships of a static character expressed by the general formula:

A has B as its indicator

and its derivatives.

4.1 By introducing a time-factor we arrive at relationships of a dynamic character, i.e. processes which may be augmented with certain subjects to a dynamic connection.

"Process is primarily the fact of going on or being carried on, as an action, or, as a series of actions or events, progress, course"[6].

We shall take the view that a process means a change of state or condition of a subject. If in a sentence or other linguistic expression the subject is denoted by some noun, 'N', then the answer to the question 'What happened to N?' will normally express the change by a 'Process-sentence'. For instance: 'The dish broke' as the answer to the question: 'What happened to the dish?'[7].

That a subject has changed its state or condition means that after the process it will be in another state or condition than before. Now our concern will be the 'before' and 'after' conditions, or the pre- and post-connections which constitute the process. Regarding the formula:

A has B_1 as I,

this means that B_1 is replaced by another subject, B_2, while A, which is here called the object, and the indicator, are unchanged. We shall call B_1 and B_2 the pre-related and the post-related subjects, respectively.

Thus a process, obviously, can be expressed as follows:

A has B_1 as its indicator
A has B_2 as its indicator

or, in a more comprehensive form:
The process

has B_1 as its pre-related s
has B_2 as its post-related s
has A as its object
has I as its indicator.

Hence the object will manifest itself as a (material) subject, in principle unchanged by the process, but having an exchange of subjects – whether its designation is present in the linguistic expression of the process, or not.

Example:

'The voyage of a ship from Halifax to New York'

Here the pre- and post-connexions will be:

The ship has Halifax as its location.
The ship has New York as its location,

or, in the more comprehensive form:
The voyage

has Halifax as its pre-related s
has New York as its post-related s
has ship as its object
has location as its indicator.

If, however, one or both of the pre- and post-connexions can be expressed by one term, we shall prefer to use the expressions:

pre-subject (pre-s)
post-subject (post-s)[8])

This will be the case where the indicator is 'concept'; then the first set of expressions will take the form of

A has B_1 as its concept
A has B_2 as its concept
B_1 is the concept of A
B_2 is the concept of A,

which shows that we are concerned with a subject which is changed into another subject. – Thus the comprehensive form of the process will be:
The process

has B_1 as its pre-s
has B_2 as its post-s
has A as its object.

Linguistically the A will be more or less covered by the linguistic expressions of B_1 and B_2. The indicator 'concept' is implicit.

Example:

'The conversion of a two-seater to a racing-car'.

Here we have:

The car has 'two-seater' as its concept
the car has 'racing-car' as its concept

or:

The conversion . . .
has two-seater as its pre-s
has racing-car as its post-s
has car as its object.

Here 'car' is the lowest subject in a generic hierarchy which comprises the two related subjects.

A more outré case is found in this example:

'The burning of wood to charcoal'.

The comprehensive formula will be:

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'The burning . . .'
has wood as its pre-s
has charcoal as its post-s
has matter as its object.

Clearly such a case calls for the omission of the linguistic expression for the object as it is covered by the expressions for the related subjects.

The following example, however, shows that the use of pre- and post-subject need not be restricted to the cases with 'concept' as indicator:

Example:

'The writing of a letter' where the two connections will be:
The paper has no substrated subject
The paper has the text as its substrated subject

and hence:

'The writing . . .'
has the letter as its post-s
has 'paper' as its object
has 'substracted s' as its indicator (implicit)

4.2 Now we augment the process by adding the following components and arrive at a dynamic connection[9]: The

- agent, the subject which is the cause of the process
- instrument, a subject which is used by the agent in order to carry out the process
- governing subject, the rules or conditions according to which it is carried out.

The instrument and the governing s are in a certain sense complementary. While the first makes the process possible, the other one sets the limits for the instruments used.

To these subjects must be added the place in time and space of the process, likewise its properties which will be the way in which it is carried out, quickly, for instance.

5. A procedure to find the subjects related to a certain subject

This procedure is based on the relationships mentioned in sections 2–4. The related subjects will be the subjects which satisfy the formulas given below.

We have, however, omitted the relationships between a subject and its properties because they are always present and have no independent existence. Likewise the generic and the partitive relationships have been placed before the other relationships. Finally, the three types of subject: Individual material s., collection, and dynamic connection, (denoted by is, cl, and dc, respectively), are stated to the right in order to show the types of subjects, A, for which the 'has-formulas' are relevant. Correspondingly, to show the types of subjects, X, for which the 'is-formulas' are relevant.

A has X as a subordinate term	is	cl	dc
A has X as a part	is	cl	dc
A has X as an item		cl	
A has X as its material	is		
A has X as its substrated s	is		
A has X as a location	is	cl	dc
A has X as its Y			dc
A is a subordinate term of X	is	cl	dc
A is a part of X	is	cl	dc
A is an item of X		cl	
A is the material of X	is		
A is the substrated s of X	is		
A is a location of X	is	cl	dc
A is the Y of X			dc

To show an example of the application of the procedure we shall find the subjects related to 'cataloguing' (i.e. a card-catalogue).

Cataloguing
has *descriptive cataloguing* as a part[10]
has *choice of heading* as a part
has *catalogue-card* as its object
has *entry* as its post-s
has *cataloguer* as its agent
has *document* as its instrument[11]
has *cataloguing-rules* as its governing s

Now the procedure should be repeated for each of the subjects found. However we shall limit ourselves to repeating it in the cases of *catalogue-card* and *entry*.

Catalogue-card
has *paper* as its material
has *entry* as its substrated s
has *drawer* as its location

This shows that we should not go further with the found subjects, as *paper* and *drawer* are irrelevant to cataloguing, but this is not the case with entry. (It should be noted that 'entry' is used for 'catalogue-card with text' and for 'text in itself' as well).

Entry
has *subject-entry etc* as its subordinate terms[12]
has *description* as a part
has *heading* as a part
is an item of *collection of entries*
is an item of a *card-catalogue*
is the substrated s of *catalogue-card*
is the post-s of *cataloguing*

To make it clear why we have to operate with both *entry* and *collection of entries* we point out, that

Collection of entries
has *entry* as an item
is the object of *filing*

I.e. we have to use 'collection of entries' as the object of filing as you cannot file only one entry, which is the post-s of cataloguing.

Another example shows that we may form a succession of related subjects starting and ending with the same subject:

Document
is the instrument of *cataloguing*
Cataloguing
has *entry* as its post-s
Entry
is an item of *collection of entries*
Collection of entries
is the object of *filing*
Filing
has *card-catalogue* as its post-s
Card-catalogue
is an instrument of *information retrieval*
Information retrieval
has *document* as its post-s

Of course we could have come directly from entry to card-catalogue (see the previous example) but then the process of filing would not be mentioned.

6. Relationships involving three subjects

On the basis of the structure of a dynamic connection we can express the relationships between

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– a dynamic connection and a subject belonging to it
– a subject belonging to a dynamic connection (dcn) and the connection itself.

From here we may go a step further and concern ourselves with the three-subject relationship, viz.

$Subject_1/dcn/subject_2$, and
$Dcn_1/subject/dcn_2$.

On the basis of these two formulas we can anticipate a very great number of three-subject-relationships.

The final example of section 5 furnishes us with examples of both types:

Example:

Document/entry
Document
is the instrument of *cataloguing*
Cataloguing
has *entry* as its post-s

Example:

Filing/information retrieval
Filing
has *card-catalogue* as its post-s
Card-catalogue
is an instrument of *information retrieval*

The relationships between two dynamic connections will be experienced as being more distant in contrast to those of two subjects entering a dynamic connection, which is due to the fact that the subjects that bind the dynamic connections together normally do not play the same role in them, as in the above example: Post-s and instrument.

This is not so if one of the two dynamic connections is the cause of the other[13]. We have introduced the agent as the cause of the process, but, one could ask, why does the agent act only at a certain point in time? That must be due to a newly established static connection of which the agent is a component. But in this case the said static connection will be the post-connection of a previous dynamic connection, which then is the cause of the following one.

Example:

The formation of clouds/rain[14].

Here we understand 'rain' as a dynamic connection: Raindrops falling from the clouds to the earth:

Formation of clouds
has water vapour as its pre-related s
has cloud as its post-related s
has water as its object
has form as its indicator

Rain
has cloud as its pre-related s
has earth as its post-related s
has raindrops as its object
has location as its indicator
has cloud as its agent

In this case the relationship is very strong as the post-related s in the first connection is identical with the agent in the second one, which is the basis of the cause-and-effect-relationship. Furthermore the agent is identical with the pre-related s in the second connection[15]. Thus the example can be given in short form:

Formation of clouds
has *cloud* as its post-related s
Cloud
is the agent of *rain*

To close this section we shall now give two final examples of the three-subject-relationship:

Example:

'Willy Brandt as predecessor of Helmut Schmidt'[16].

Here the dynamic connection will be: 'Election of the chancellor of the FRG'.

Election . . .
has *Willy Brandt* as its pre-related s
has *Helmut Schmidt* as its post-related s
has FRG as its object
has chancellor as its indicator

Willy Brandt
is the pre-related s of *election* . . .
Election . . .
has *Helmut Schmidt* as its post-related s

Example:

Patient/hospital[17]

As a patient is a person who is taken to a hospital (not employed in a hospital) this is a three-subject-relationship with 'taking to a hospital' as the dynamic connection.

Taking . . .
has home as its pre-related s
has hospital as its post-related s
has person as its object
has location as its indicator

and according to the definition of 'patient'

– has patient as post-s

Thus:

Patient
is the post-s of *taking* . . .
Taking . . .
has *hospital* as its post-related s

7. Conclusion

When comparing the two comprehensive formulas of static and dynamic connections one may wonder why, in the case of a static connection, we indicate the relationships directly between the subjects involved:

static connexion
main s —— related s
(indicator)

which is in contrast to the case of a dynamic connexion:

dynamic connexion

pre-related s	post-related s	object	agent etc.

(indicator)

The difference reflects the fact that a static connection is of a stable character and only involves two subjects (in fact a static connection often *is* itself a material subject), in contrast to the other type of connection where a time-factor is involved. In consequence the subjects are connected to each other by virtue of their belonging to the connection, thus forming a temporary form of relationship.

Looking back at the subject types dealt with, i.e. individual material subjects, collections, and dynamic con-

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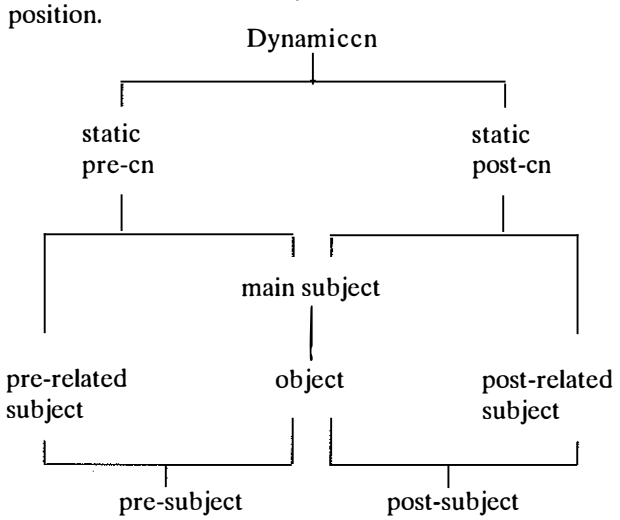
nections, we can express their mutual relationships by use of the figure below, which represents an empty structure in which the subjects dealt with can find their position.



If we remove the time-factor in this arrangement, then the static pre- and post-connections as well as the pre- and post-subjects will be identical and the object will have to be indicated by 'main subject'. I.e. the dynamic connection will 'collapse' into a static connection.

Hence, when looking at subject-connections in general, the following two characteristics stand out clearly; *change*, displayed by the dynamic connections, and *differentiation*, displayed by the dissimilarity of the two subjects entering the static connection. In other words: Two main characteristics of the world we live in.

Notes

1 Cf. Johansen (2), section 2.
2 This limitation thus excludes the relationship of similarity and that of contrast.
3 'Term': In this case understood as a material subject as it can be apprehended by the senses of hearing and seeing in form of sound and writing, respectively.
4 Cf. Johansen (2), section 3.
5 According to the ISO standard: The instance relationship (8.3.6).
6 Oxford English Dictionary.
7 Cf. Chafe, p. 99ff.
8 Corresponding to Fillmore's cases of objective and factitive, respectively, which, however, are also used in relation to static connexions, cf. p. 25.
9 Dynamic connections have been treated more fully in Johansen (2), section 4, and (1), section 2.2–2.3. Here the 'real' agent is identified as 'a newly established static connection between the agent and another subject'.
10 At first glance 'descriptive cataloguing' might be considered as a special type of cataloguing, i.e. as a generic subordinate term. As, however, descriptive cataloguing, and other operations concerning 'cataloguing', are performed in a certain succession, it will be considered a part.
Quite another argument is: Entry is the post-subject of cataloguing. Description is the post-subject of descriptive cataloguing. As the description is a part of the entry, then descriptive cataloguing accordingly will be a part of cataloguing.
11 Possibly this could be felt as controversial as the document linguistically is the object of cataloguing. Seen from the non-linguistic point of view, the object, however, is the component of the dynamic connection the relationship of which is changed, i.e. the catalogue-card, whereas nothing happens to the document. The document is, on the other hand, a necessary condition of performing a cataloguing-process, and is thus the instrument. The possible controversy stems from the fact that when cataloguing we focus on the document (which is in fact an object, albeit in the process of 'using the instrument', a process which is a subprocess of 'cataloguing'.
The process has very much in common with the processes of reading and writing, cf. Johansen (1), section 4. As regards the role of the instrument, cf. Johansen (2), section 4.
12 'Etc' indicates the other types of entries: Author-entry, title-entry . . .
13 Cf. Johansen (1), section 2.3 and (2), section 4.
14 Cf. Neelameghan, p. 27, ex. 16.
15 Cf. Johansen (2), section 6.1.2.
16 Wersig's example (7), p. 136.
17 Neelameghan's example, p. 27, ex. 15.

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7th International SCCAC Meeting

The Society for Conceptual and Content Analysis by Computer had invited to its 7th Meeting in connection with the International Congress on Terminology and Knowledge Engineering, Sept.28, 1987, at Trier. Chaired by Prof.Klaus SCHMIDT (Bowling Green, USA) and others, some 35 participants discussed the following papers: G.P.ZARRI: Creating and structuring a knowledge-based system for storing and intelligently retrieving the knowledge found in natural language messages. R.RIEGER: Report on a new project of MESY (mathematisch-empirische Systemforschung). A.ROTHKEGEL: How to get relevant information? (An outline of the system TEXPERT). K.GÄRTNER: Das Trierer Findebuch zu den nach Lexers mhd.Handwörterbuch erschienenen Quellen des mhd.Wortschatzes. K.M.SCHMIDT: Recognition patterns for automatic disambiguation. E.NISSAN: Onomaturge: An expert system for word-formation and morpho-semantic clarity evaluation. I.DAHLBERG: Computerization of definition texts: A new approach. W.NEDOBITY: The creation of semantic networks by conceptual analysis. J.DUCHASTEL/ L.DUPUY: An integrated system of computer assisted content analysis. P.P.MOHLER: Political changes in West Germany as observed by a content analysis of elite newspapers. F.W.RIGGS: Conceptual and terminological problems in the social sciences.

On Sept.29, 1987 a Panel Discussion was held on the problem: "Where do we go from here", the contributions of which will probably appear in the Newsletter of SCCAC. For any further information contact (until July 1988): Prof.K.M.Schmidt, Inst.f.Anglistik, Universität Salzburg, Akademiestr.24, A-5020 Salzburg.

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