

Indices, Meaning and Topic Maps: Some Observations



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Indices, Meaning and Topic Map: Some Observations

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description and access of knowledge sources

➔ Main tribute for this works go to Thea Miller



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Structure

1. Introduction
2. What is the nature of indices?
 - View of C. S. Peirce
 - View of Martin Heidegger
 - Comparison
3. Implications for the Topic Maps research
4. Summary

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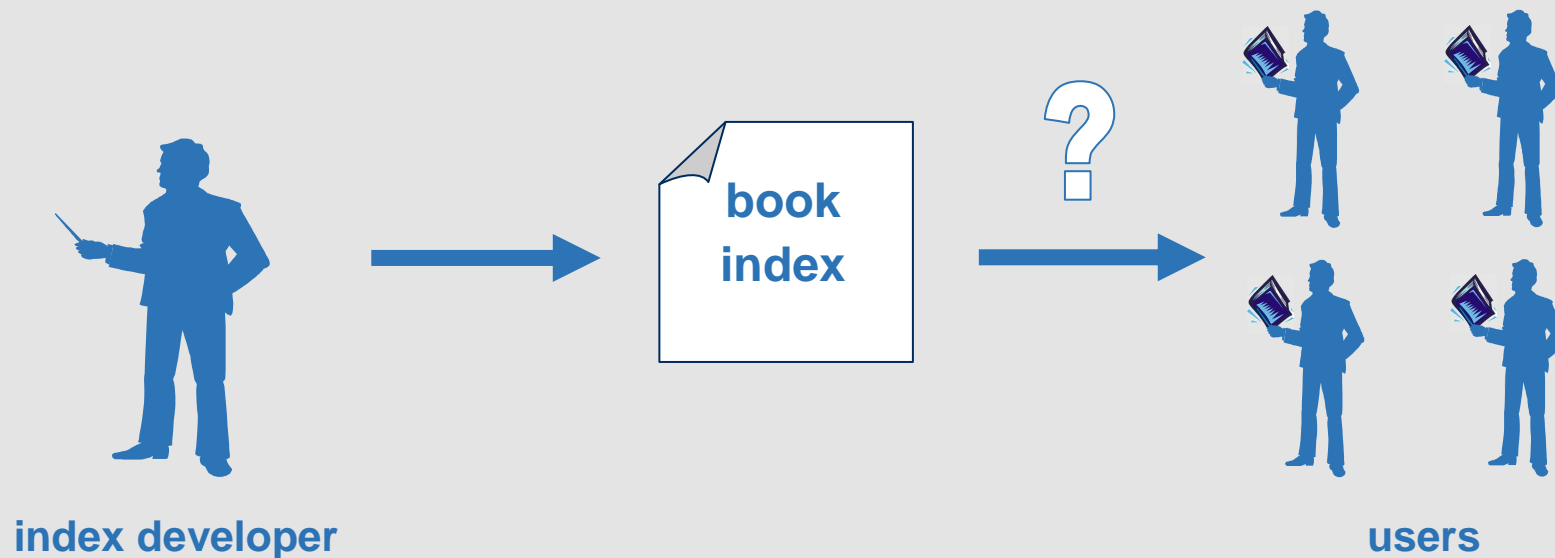
1. Introduction

- Topic Maps are developed as indexing tool
- indices inescapably bound to meaning
 - ➔ **semantic aspects have remained largely unaccounted for**
- **discussion in literature:**
 - limited to practical aspects of indexing (subject analysis, thesaurus)
 - mainly conducted from the perspective of index construction
- however philosophers and semioticians have long recognized
 - ➔ **central importance of indices as key semantic devices**

Consequence: for a optimal usage of the semantic potential of Topic Maps
 ➔ **understanding of the real nature of indices is nessesary**

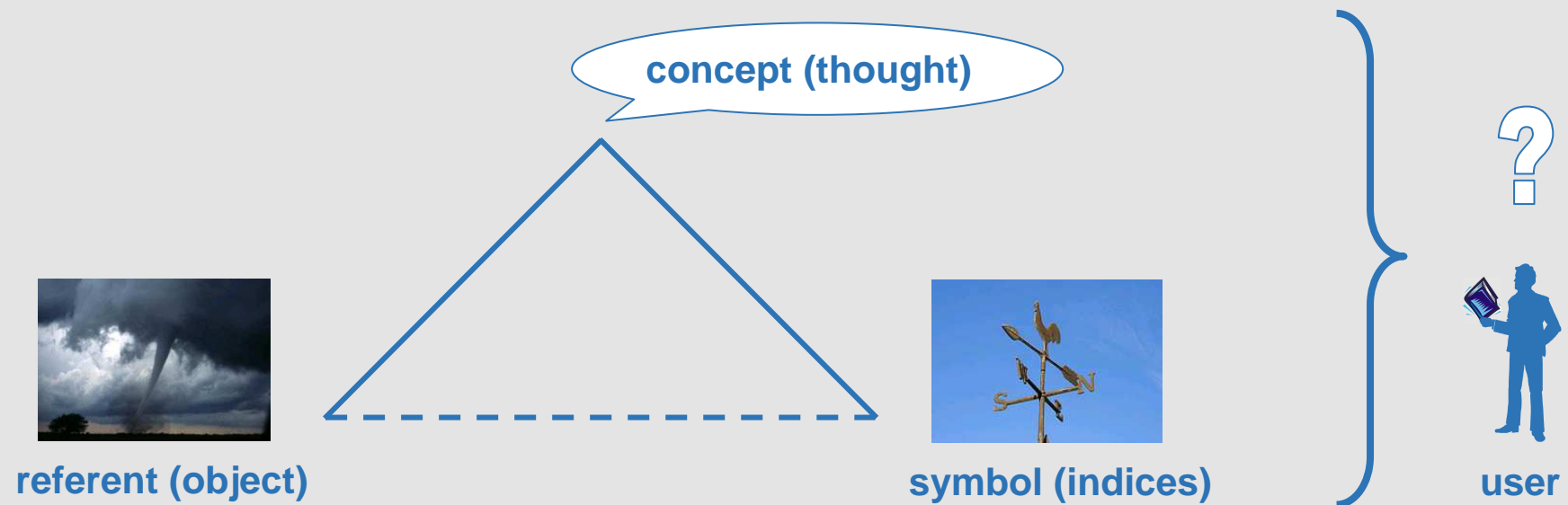
2. What is the nature of indices?

- indices are communication tools
- meaning of an index derives from how the user understands it, not from how it was constructed.
- ➔ **issue of meaning relates to the receiver and not to the transmitter**



2. What are indices? – Concept Triangle

- illustrate the three factors involved whenever any statement is made or understood
- no way of determining how any given symbol refers to any given referent



➔ user determines whether the concept or symbol is meaningful

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2. What are indices? – C. S. Peirce (1/4)

- **Peirce's theory of signs:**

“A sign is something which stands to somebody for something in some respect or capacity”

- three different types of signs which differ only in manner they **represent**:

- **icons** = through resembling what they stand for
- **symbol** = through established conventions
- **indices** = through sharing some quality with their object.

- Examples of indices: behavior, instruments (clocks, barometers), alphabetic characters etc.

Nature of index: is to forcibly draw attention to an object
by being directly associated with it

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2. What are indices? – C. S. Peirce’s Weathercock Example (2/4)

- **Weathercock = index of the direction of the wind**
 - self-same direction as the wind = real connection
 - when a weathercock pointing in a certain direction
 - ➔ it draws the attention to that direction
 - if the weathercock veering with the wind
 - ➔ direction is connected with the wind



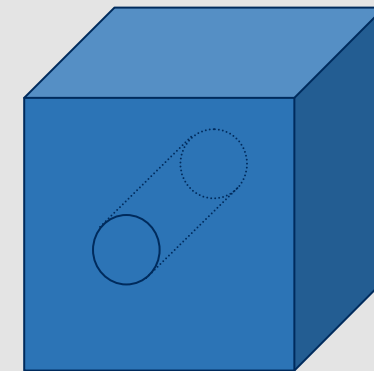
Two kinds of associations involved with indices:

- between the object and the indexical sign
- between the sign and the idea of it in the mind of the observer
- ➔ **meaning of the index**

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2. What are indices? – C. S. Peirce (3/4)

- the index does not require that there be an idea of it:
 - index lose the character if its object were removed
 - would not lose character if there was no interpretant.
- **Example:** piece of mould with a bullet-hole in it as sign of a shot
 - no shot, no hole;
 - there is a hole there, whether anybody has the sense to attribute it to a shot or not



➔ for every index exists an object to which it refers

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2. What are indices? – C. S. Peirce (4/4)

- indices are always meaningful = **always represent a true state of affairs**
- Peirce's fundamental **pragmatic approach**:
 - a person does not have a complete grasp of a predicate **X**
 - if the person is unable to say what would be the consequences of hypothesis of the sort "**a is X**"
- **Example**: bread baking



➔ **the very existence of indices indicates a factual state of affairs**



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2. What are indices? – M. Heidegger (1/3)

- unfolds this account in four steps: referencing, signs, availability, meaningfulness
- **referencing (*Verweisen*):**
 - formal character = relationship
 - every reference is a relationship, but not every relationship is a reference
 - in scope of Heidegger's Dasein:
 - a human is always interpreting its situation
 - in order to pursue its particular life projects
 - needs to be able to make connections and establish contexts
 - ➔ perceive an instance of referencing is functionally crucial to an individual's action
 - **characterize referencing:** “serviceable for”, “harmful for”, “useful to”

➔ **A references B because A is useful to B**

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2. What are indices? – M. Heidegger’s turn signal example (2/3)

- indicate which direction the car will take
- sign is a device which is not just present-to-hand for the driver’s action (turning)
 - ➔ others make use of it (keeping to the appropriate side)
- sign is innerworldly present-to-hand **in the whole of the device context**
 - traffic
 - vehicles
 - traffic regulations
- has the character of “in order to” indicate
- indication of the sign can be understood as “referencing”



➔ **device is constituted as a sign device through referencing**

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2. What are indices? – M. Heidegger’s turn signal example (3/3)

1.) sign is only relevant because it is useful to the actions of the individuals involved

2.) function as a sign is due to the context within it is used

- sign device, as referent, is available within a specific context
 - turn signal shows the direction the driver intends to steer;
 - not for predicting the weather or indicating the mood of the driver
- once **availability** is perceived ➔ **context is revealed**
 - the other devices and individuals within that context
 - which are relevant to the individual’s purpose of action



➔ for referencing must be a context

2. What are indices? – Comparison (1/2)

Similarities:

- pragmatic approach
- assign indices in regard to human action
- index have an especially close relationship with its object

Dissimilarities:

- nature of relationships
 - *Peirce*: relationships have an existence independent of human cognition
 - *Heidegger*: a relationship only exists relative to needs of the acting individual
- how indices are perceived
 - *Peirce*: law-like manner ➔ mind is forced to acknowledge the object which the index references
 - *Heidegger*: indices, by revealing their contexts, also reveal a part of the world to each individual

2. What are indices? – Comparison (2/2)

Dissimilarities:

- nature of indices
 - *Peirce*: **index** is a sign and signs **represent**
 - one object representing another ➔ ontological relationship
 - *Heidegger*: all signs are indices, and all **indices reference**
 - relationship is constituted by the specific activity of the individual acting within their life world (context)
 - if the “is useful for ...” is not perceived within the context of this action,
 - ➔ no sign ➔ no referencing (= **no index**)

➔ consideration of the referential view of indexical meaning

3. Implications for the Topic Maps research

- various ways for topics to **referentially related** to each other (associations, scopes)
 - ➔ open the way to a more intuitive process of knowledge discovery
- focusing on referential relationships among topics, rather than on topics by themselves
- **problem of subject identity** can be approached via referential relationships:
 - identity of any given subject at any given time
 - is constituted precisely by the (unique) set of its referential relationships
 - with other subjects at that given time.

- **PSI** ➔ good for computing (identify subjects, merging,)
 - **referential relationships** ➔ better for browsing, where user must understand the meaning of the indices (topics) fast and easy
- Open Tasks:** representation ✓, Who?, How?

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4. Summary

- Exploration of the semantic aspects of Topic Maps should take into account nature of indices
 - ➔ **indices are semantically rich devices**
- indices play a fundamental role in **how people navigate through their everyday activity**
 - ➔ needs to develop a critical stance to the notion of Topic Maps as a representational device
 - ➔ need to pay more attention to referencing and its role in how we find information to support our activities
 - ➔ cultivating the indexical qualities of Topic Maps (regard to referencing)

➔ **possibility to enhance the contextual environment within which the search for information is conducted**

Thanks for your attention.