

# Documents as Timed Abstract Objects

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# Structure

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- Timed Abstract Objects
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# Background

# Background

Renear and Wickett, Balisage 2009 & 2010:

- Documents Cannot Be Edited
- There are No Documents

The inconsistent triad:

- Documents are strings\* .
- Strings cannot be modified.
- Documents can be modified.

# Documents and abstract objects

The idea that documents are abstract:

- library and information science
- literary studies
- linguistics, history, ...

Why?

Accounts for the identity of documents through plurality and change.

# Abstract objects

What does it mean to say that something is abstract?

- not (directly) perceivable
- not material
- cognitively accessible

The (well, one) standard account:

- non-spatial
- atemporal
- causally inert

- I remember Verona
- I remember, but dimly, Verona

# Review of the discussion

# Renear & Wickett, reformulated\*

- 1 . Documents are abstract objects.\*
2. Abstract objects cannot change.
3. Documents exist, and they can change.\*

# Renear & Wickett, reformulated

Denial of 1. Documents are abstract objects.

- materialist strategy
- social object strategy

2. Abstract objects cannot change.

3. Documents exist, and they can change.

# Renear & Wickett, reformulated

Denial of 1. Documents are abstract objects.

- materialist strategy
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2. Abstract objects cannot change.

Denial of 3. Documents exist, and they can change.

- new document strategy
- selection strategy
- no document strategy

# Renear & Wickett, reformulated

Denial of 1. Documents are abstract objects.

- materialist strategy
- social object strategy

Denial of 2. Abstract objects cannot change.

- not considered

Denial of 3. Documents exist, and they can change.

- new document strategy
- selection strategy
- no document strategy

# Renear and Wickett, conclusion:

- Partial denial of 1 and 3:
  - Documents are "strings in a role"
- Denial of
  2. Abstract objects cannot change.was not considered.

# Timed Abstract Objects (TAO)

Let us stick to the assumption that abstract objects cannot change.

Can we find another account of documents in terms of abstract objects, compatible with the fact that documents can change?

Yes, we can.

- Dynamical systems theory describes physical processes in terms of time-independent mathematical concepts
  - uses functions of time to model the evolution of points in a phase space
  - phase space usually continuous
- Automata studies describes the behaviour of abstract machines in terms of functions from one state to another
  - uses transition functions to model evolution within a state space
  - state space discrete

Documents can be regarded as functions from points of time\* to strings.

Time	String
$t_1$	I remember Verona
$t_2$	I remember, but dimly, Verona

- Strings don't change.
- Documents don't change.
- But documents are not strings – they are functions from points in time to strings.

# An application: FRBR

Work

Expression

Manifestation

Item

# Problems

- Is their change history really part of the identity criteria of documents?
  - cf. Borge's Pierre Menard, Author of Quixote
- Is this really change?
  - the function that constitutes a document does not itself change
  - cf. four-dimensionalism:
    - counter-intuitive
    - no integrity constraints (too many objects)

## The main problem:

How can we have access to abstract objects, if they are atemporal and causally inert?

Epistemology is the Achilles' heel of realism about abstracta. We are biological organisms thoroughly ensconced in the natural, spatio-temporal causal order. Abstract entities, by contrast are atemporal, non-spatial, and causally inert, so they cannot affect our senses, our brains, or our instruments for measuring and detecting. (Swoyer)

# Suggestions for an alternative account

?

# Conclusion

The TAO account has a major drawback: It is incapable of explaining how we can have epistemic access to documents.

So either documents are not abstract objects, or they exemplify abstract objects of a kind which is not atemoral and causally inert.

That being said, however:

TAO seems to be the best theory around.

Thank you