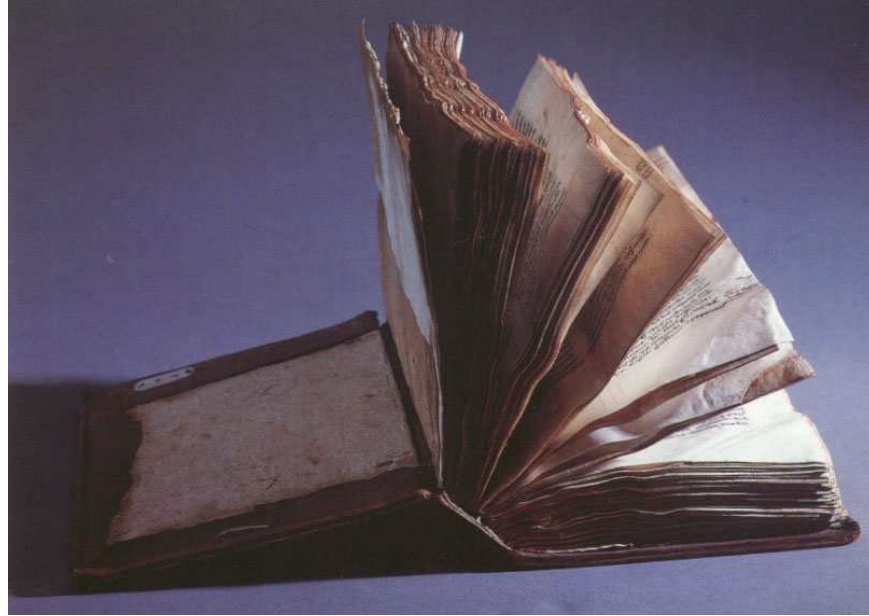


The Metaphysics of Documents



Claus Huitfeldt

DHC Kolloquium, Uni Köln 06.07.2023



Structure of this talk

- Documents, texts, and abstract objects
- A problem: Trilemmas
- Some solutions to the trilemmas
- Digital documents
- Transcription
- Conclusion: Documents are created types



"General" conclusion first:

- Metaphysics of documents is important to DH
 - We work with documents, and care about their:
 - Identity
 - Similarity
 - Retrieval
 - Format conversion
 - Version control
 - Authenticity



What is a document?

- In a wide sense:
 - Writings, images, video (film), music, monuments, buildings,...
- Here:
 - Fixations of natural verbal language in written form



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 - Writings, images, video (film), sound, monuments, buildings,...
- Here:
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- But what about:
 - Written documents containing images, video, etc.
 - Music notation, dance notation, math, architectural drawings
 - Signing language, Braille, Morse, semaphore



What is a document?

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- Here:
 - Fixations of natural verbal language in written form
- But what about:
 - Written documents containing images, video, etc.
 - Music notation, dance notation, math, architectural drawings
 - Signing language, Braille, Morse, semaphore
 - Fine, but one thing at a time...



A large, circular, ancient clay tablet, likely a Babylonian tablet, featuring a grid of cuneiform inscriptions. The tablet is divided into a grid of approximately 10 columns and 10 rows, with each cell containing a single cuneiform symbol or a small group of symbols. The tablet is made of a light-colored, possibly baked clay, and shows signs of wear and age. The background is a plain, light-colored surface.

nutter før han falt i søvn om kvelden, ble anvendt til "studieformål", der han igjen og igjen gjennomgikk de planjer og arbeidstegninger som han hadde spikret fast i taket over køyen!

På skoler eller studier er så vanskelige at en slik interesse og arbeidsmotivasjon ikke hol-

Likevel er det nok så at vi mennesker til syvende og sist *blir* nokså forskjellige, fordi vi i starten gjerne har våre spesielle anlegg eller særegenheter, men også fordi våre omgivelser har formet oss forskjellig. Noen vil slik vi før har nærmest kunne gå rundt med en svært klar

15

[illegible]

SUM : Kr 255

1 bred
2 H. melk
3 H. melk
Smør
Pålegg
Middag

ras fidionis R. & J. dicens, quod ille locus abundabat fructibus
et fluminibus et huiusmodi. Que quidem fides maiusculis labi-
cata

Hierony. in prologo, non est tamen
psalmi continui inuicem in materia
m glo. in prologo Psalterij talis conti-
nuatio

7



What is a document?

- An individual, concrete, medium-sized physical object.
 - Has shape, size, colour, weight, ...
 - Can be seen, heard, felt, smelled, tasted, ...
 - Is relatively stable

Do *digital* documents have weight, smell, taste...?



What is a document?

- An individual, concrete, medium-sized physical object.
- Distinct from other such objects because:
 - It is an artefact (intentionally created by a human)
 - It carries inscription in some writing system
 - It has linguistic content, conveys meaning
 - It is **repeatable**.

ChatGPT?



Spoiler:

- Edge, corner and borderline cases not addressed:
 - Size: Projected on the Moon, nano-writing
 - Stability: Sky writing, smoke signals, rolling text boards
 - Perceivability: Invisible writing
 - Intentionality: 1,000,000 monkeys hammering on typewriters, pebbles on a beach, Broca's aphasia
- Let's see if we can handle the easier cases first.
 - Then, let's dive into the edge cases.



Documents are repeatable

- The individuality of documents is often irrelevant
 - As opposed to e.g. paintings and sculptures
 - "If Mona Lisa is in the Louvre, where is Hamlet?"
 - Any individual document is functionally equivalent (for certain purposes) to other objects of a certain class
- Repeatability explained by instantiation:
 - Any document instantiates a text.
 - Any text may be instantiated by many documents.
 - A text is an **abstract object**.

Goodman:
autographic vs
allographic arts



Documents and texts

- Documents instantiate the same text if they:
 - Have the same linguistic content
 - Express the same meaning
 - Physical or perceptual similarity of documents is irrelevant

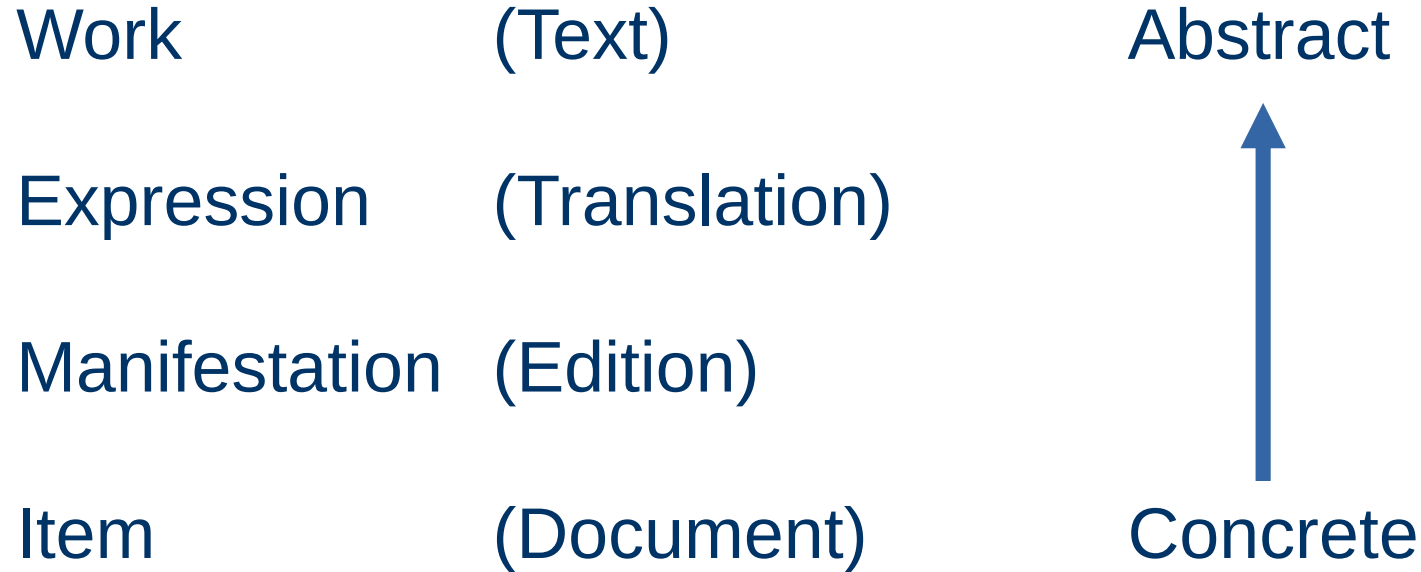


[Not considered here:]

- Instead of abstract objects, text may be seen as:
 - Mental states or events, mental representations
 - Brain states
 - Events
 - Actions, individual or collective
 - Social constructs

Librarians regard documents as abstract objects

- The FRBR* hierarchy:



* Functional Requirements for Bibliographic Records



Yay!! We are well into metaphysics!

- Or strictly speaking, ontology^P
 - Though not ontology^C as in computer science
- Ontology^P: Which are the basic constituents of the world?
- Some candidates:
 - Slices of time and space
 - Objects, properties and relations
 - Events, agents and actions
 - Universals and particulars
 - Concreta and abstracta

Quine



Concrete or abstract, particular or universal?

| | | Particular | Universal |
|----------|----------------------------|---------------------------|---------------------|
| | | In at most one place at t | In many places at t |
| Concrete | In only p at t | | |
| Abstract | Not in space or time | | |

(Adapted from Cynthia McDonald, *Varieties of Things*, 2005)



Concrete or abstract, particular or universal?

| | | Particular | Universal |
|----------|----------------------|---------------------------|-----------------------|
| | | In at most one p at t | Many in p at t |
| Concrete | In only p at t | Planets, trees, electrons | |
| Abstract | Not in space or time | Numbers, sets | Properties, relations |

(Adapted from Cynthia McDonald, *Varieties of Things*, 2005)



Concrete or abstract, particular or universal?

| | | Particular | Universal |
|----------|----------------------|---|-----------------------|
| | | In at most one p at t | Many in p at t |
| Concrete | In only p at t | Planets, trees, electrons, documents | ? |
| Abstract | Not in space or time | Numbers, sets, texts | Properties, relations |

(Adapted from Cynthia McDonald, *Varieties of Things*, 2005)



Texts as abstract objects

- As such, texts are on a par with numbers and sets:
 - They have all their intrinsic properties essentially,
 - are not in space and time,
 - are causally inert,
 - cannot be created or cease to exist,
 - cannot be changed.
 - They do have instances
- Think of numbers and (pure) sets:
 - The number 2 cannot change.
 - "New" prime numbers are discovered, not created.

Abstract objects belong to Frege's "third realm": not physical or mental, but abstract.



A trilemma

- 1) Texts are abstract objects
- 2) Abstract objects are **not created**
- 3) Texts are **created**

A trilemma

- 1) Texts are abstract objects
- 2) Abstract objects **do not change**
- 3) Texts **change**

A trilemma

- 1) Texts are abstract objects
- 2) Abstract objects **do not cause anything**
- 3) Texts **cause things**

A trilemma

- 1) Texts are abstract objects
- 2) Abstract objects **do not cause anything**
- 3) Texts **cause things**

For "texts", read:

- musical works
- games (chess)
- computer programs
- concepts
- words



Responses to the trilemma

- Authors do not create texts.
 - They discover, select or indicate them.
- To edit a document is not to change a text.
 - It is to change the document so it instantiates another text.
- Texts have no causal effects, only documents have.
- Texts are not abstract objects, but something else...
- Texts are "really" only mereological sums of documents.
- Texts do not exist.



Texts as Timed abstract objects (TAO)

- Texts construed as functions from points of time to abstract objects (e.g. strings):

| Time | String |
|-------|-------------------------------|
| t_1 | I remember Verona |
| t_2 | I remember, but dimly, Verona |

- The abstract objects (strings) don't change.
- The text doesn't change (it is a function).
- But questions remain, e.g.:
 - What is the relation between the document and the function?
 - It is reasonable to view its history as "baked into" the text?

Where has this brought us?

- One question we have not considered yet:
 - If texts are abstract objects, i.e. causally inert:
- How can they represent and transmit knowledge?
 - Text is, after all, often called "knowledge representation".
- This is not a knock-down argument, but a nice exit point:

Exit (immutable) abstract objects!



Digital documents

Notice the shift from "text" to "document" below.

- The OHCO thesis*:
 - Texts are ordered hierarchies of content objects (OHCO).
 - SGML (XML) documents are OHCOs, too.
- XML markup captures the logical structure of documents.
- TEI, according to some (caricatures, perhaps):
 - We should distinguish the physical from the logical document.
 - Traditional layout is just presentational markup.
 - XML markup makes explicit the structure which is only implicit in traditional documents.

* Coombs, Renear, DeRose (1987), 'Markup Systems and the Future of Scholarly Processing', Communications of the ACM, 30: 933-947.



A (counter-)example: UnderDok

- An XML-based document system for the creation and maintenance of multi-lingual administrative documents in higher education.



Course Description for FIL124

Course name

Introduksjon til praktisk filosofi

Bokmål: Introduksjon til praktisk filosofi

English: Introduction to practical philosophy

Course Credit Points

10 points.

Course Code

FIL124

Course Unit Level

Bachelor

Department

Department of Philosophy

Access to the Course Unit

The course is open to students admitted at the University of Bergen

Language of Instruction

Norwegian or English

Aim and Content

Philosophy is often divided into practical philosophy and theoretical philosophy. Practical philosophy includes such areas as ethics, aesthetics, political and social philosophy, philosophy of law, philosophy of religion, feminist philosophy, action theory and value theory. The distinction between practical philosophy and theoretical philosophy is, however, not always clear and is a matter of debate, and problems within practical philosophy are often relevant for questions in theoretical philosophy. It is therefore important that all who study philosophy have a solid knowledge of practical philosophy, even if they in their advanced studies choose to concentrate on theoretical philosophy.

FIL124 aims to give students an overview of important basic concepts, arguments and positions in practical philosophy. Although the main emphasis is on subjects from contemporary philosophy, it will often be appropriate to start with philosophical works and positions from previous time periods. After completion of the course, the students should be able to demonstrate insight into central theories and problems from within practical philosophy and to see their relevance and applicability for other contexts. The course provides a foundation for further studies in philosophy at the Bachelor level.

Learning Outcomes

Knowledge:

After taking the course, the students should have a good knowledge of important basic concepts, arguments and positions in practical philosophy.

Skills:

After taking the course, the students should be able to recognize and demonstrate insight into basic problems and arguments within practical philosophy in different contexts.

Competence:

The course provides a basis for further studies with the aim of attaining a B.A. in philosophy. In combination with other subjects and disciplines it can form part of an education which qualifies for teaching philosophy in high schools. The course can also serve as support for a deeper understanding of basic questions in connection with the study of other disciplines.

Overlap

Pre-requirements

Recommended previous knowledge

Approved first semester studies. A good proficiency in English is necessary since it ought to be assumed that much of the prescribed reading will be in English. Students are advised to take FIL124 in parallel with or after FIL120 (History of philosophy, from ancient times to the enlightenment) and FIL121 (History of philosophy, from the enlightenment to the 20th century)

Teaching Methods

Teaching is offered in the form of lectures and seminars. The seminars focus on student activities related to topics from the lectures. Seminars are compulsory.

Assessment methods

A 4-day Home examination of 3000- 5000 words (not including table of contents, list of references etc.). The paper should be submitted electronically via "Mi side".

Exams in the course are held every semester.

The compulsory activities have to be formally approved before one can take an exam in the course.

The compulsory requirements have to be formally approved in a semester in which there is teaching in the relevant course in order to register for the examination in a semester in which there is no teaching in that course.

Compulsory Requirements

Oral presentation in groups on the seminar.

Students must attend at least two thirds of the seminars.

An approval of compulsory requirements is valid for three semesters, including the semester in which the approval is given.

Reading List

The reading list includes an introductory text book and selected excerpts from other texts.

Grading Scale

From A to F

Teaching Term

Fall.

Place of Teaching

Bergen

Course Unit Evaluation

The teaching will be evaluated from time to time.

Contact Information

Department of Philosophy

Email: studierettleiar@fof.uib.no



[Screenshot]

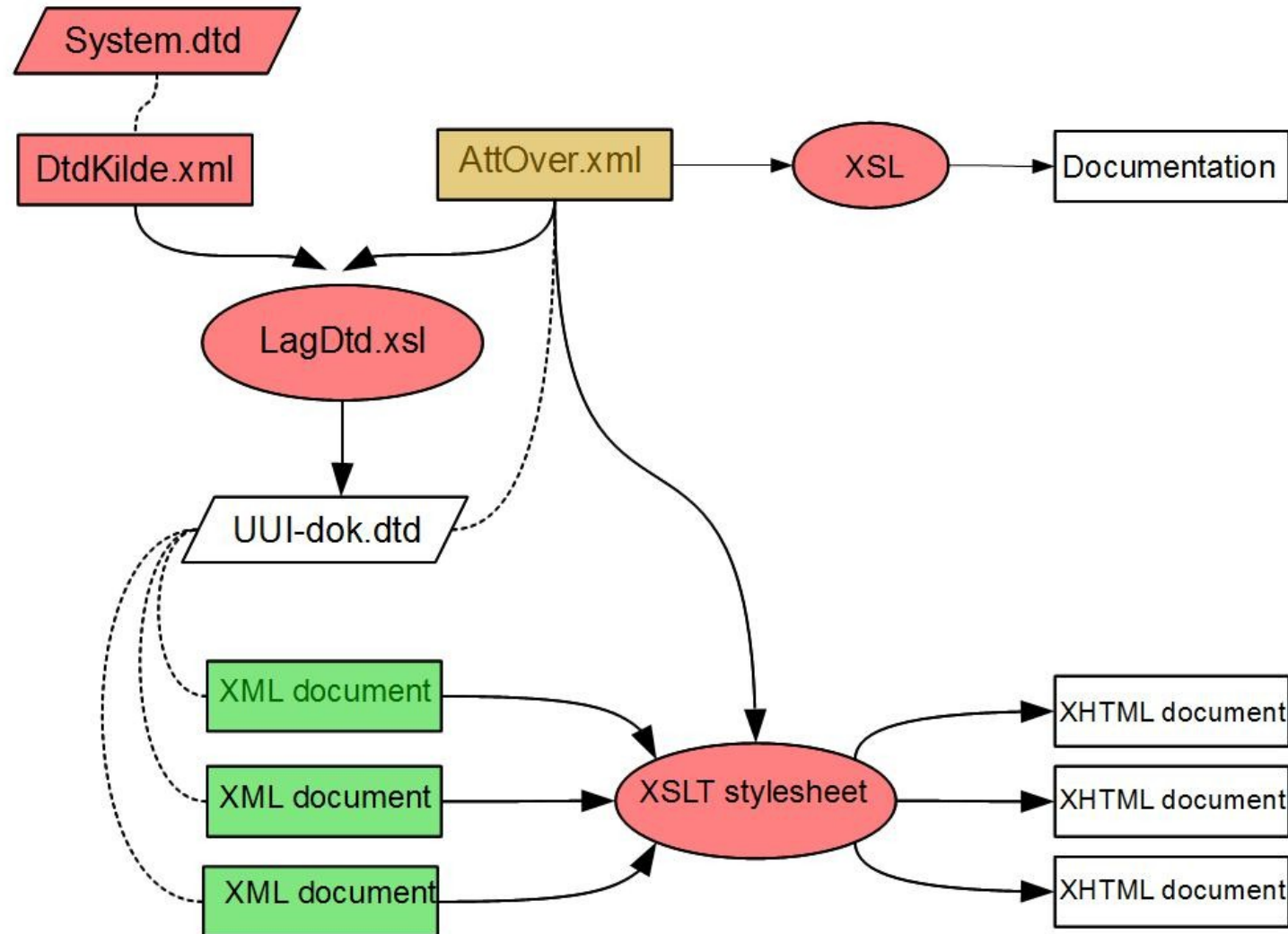
Contact Information

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FIL124.xml

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<Kontaktinfo Er="FoF-kontakt"/>
```



FIL124.xml

```
<Kontaktinfo Er="FoF-kontakt"/>
```

AttOver.xml

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    <Eng>Contact Information</Eng>
  </Overskrift>
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    <SpesialAttributter>
      <Verdi id="FoF-kontakt">
        <Norsk>
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          <Avsnitt>E-post: <Lenke>
            <Mål>studierettleiar@fof.uib.no</Mål>
            <Anker>studierettleiar@fof.uib.no</Anker>
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        </Norsk>
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Std.xsl

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  <xsl:call-template name="Overskrift"/>
  <xsl:call-template name="Attributt"/>
  <xsl:apply-templates/>
</xsl:template>

<xsl:template name="Overskrift">
  <xsl:element name="h3">
    <xsl:call-template name="Overskrift-tekst"/>
  </xsl:element>
</xsl:template>
```

Gen.xsl

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  <xsl:apply-templates
    select="document('AttOver.xml')/*[@id=(name(current()))]/Overskrift"/>
</xsl:template>

<xsl:template name="Attributt">
  <xsl:if test="not((@Er='Ingen') or (@Er='Anna'))">
    <xsl:choose>
      <xsl:when test="((@Er='Anna') and ($Språk='Kort'))">
        <xsl:text> [...]</xsl:text>
      </xsl:when>
      <xsl:otherwise>
        <xsl:apply-templates select="document('AttOver.xml')
          /*/Element[@id=(name(current()))] /*[@id=(current()/@Er)]"/>
      </xsl:otherwise>
    </xsl:choose>
  </xsl:if>
</xsl:template>
```

FIL124.xml

```
<Kontaktinfo Er="FoF-kontakt"/>
```

FIL124.xhtml

```
<h3>Contact Information</h3>
<p>Department of Philosophy</p>
<p>Email: <a href="studierettleiar@fof.uib.no">
  studierettleiar@fof.uib.no</a></p>
```

[Screenshot]

Contact Information
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Where is the document?

FIL124.xml

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<Kontaktinfo Er="FoF-kontakt"/>
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FIL124.xhtml

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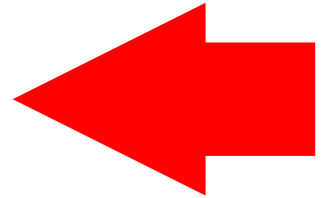
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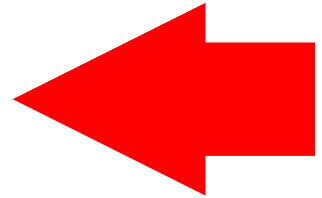
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```

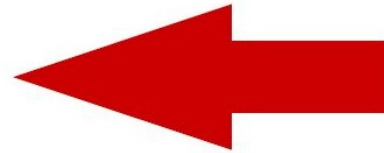
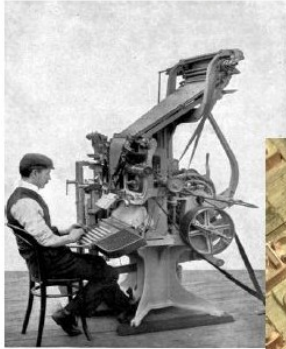
[Screenshot]

Contact Information
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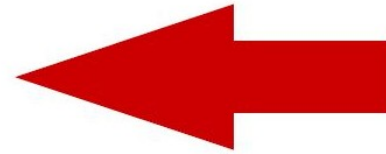
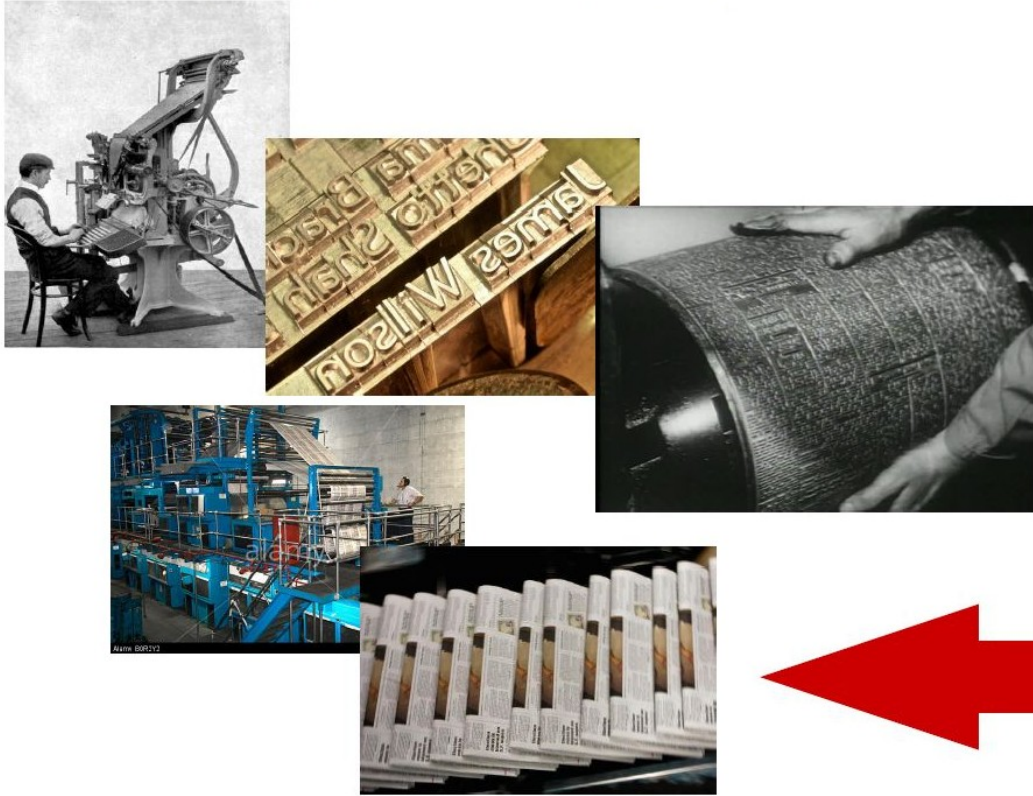


- Though in absence of the latter, we can hope to reconstruct it from the former. And info about production process often valuable.

Where is the document?



Where is the document?



- Though in absence of the latter, we can hope to reconstruct it from the former. And info about production process often valuable.

And now to something *not* entirely different: Transcription!

- "Transcription" as in critical editing, not genetics*
- Vander Meulen and Tanselle:
 - "... by transcription we mean the effort to report [...] precisely what the textual inscription of a manuscript consists of."
- So one would think transcribers know something about document identity criteria.
- The cardinal sin of transcription is "interpretation".
- Yet we hear that "all transcription is interpretational".



Transcription

- Different kinds of transcription:
 - For diplomatic, critical, documentary, normalized, modernized, genetic, or synoptic editions etc.
- Levels of transcription:
 - Getting every word right, or also every letter?
 - If word -- what is a word and what is "right"?
 - If letter -- graphetic, allographic, graphemic?
 - Misspellings, slips of the pen, deletions, insertions, substitutions, abbreviations, different hands, etc.



A formal account of transcription

- Based on C.S. Peirce's type-token distinction.
 - There are 14 "the"s on this page, but only one word "the" in the English language. (From memory. One type, many tokens.)
- We expand on Peirce:
 - *Simple* and *compound* tokens and types
 - Type *repertoires* (letters, words, sentences, ...)
- Goal: A formal model which can be proved consistent by some formal logic (FPC)

Sperberg-McQueen*
and
Huitfeldt,
forever
forthcoming



A formal account of transcription

- Documents are physical objects containing *marks*.
- Some of those marks are *tokens* instantiating *types* in some *type repertoire*.
- Documents may employ several type repertoires, together constituting a *type system*.
- Documents contain *sequences, sets or bags* of *simple or compound* tokens and types.



A formal account of transcription

- The assignment of tokens to types is decided by a *reading*, which is a *relation* between documents, their tokens, and type systems.
- Roughly, if a document T is a transcription of another document E, there is some reading such that T and E constitute *the same complex type* in some type system.
- We may then say that T and E are *T-similar*.
- Thus, T-similarity is an equivalence relation.
- T-similarity is a *necessary* (not sufficient) condition for T to be a transcription of E.



A formal account of transcription

- Why should we believe this?
 - The account cannot help us automatize transcription.
 - It cannot decide whether a transcription is correct or not.
 - But it does help identifying what transcribers disagree about, when they disagree.
 - And it does seem to suggest that the search for document identity criteria might fruitfully be replaced by negotiations over (exactly) what constitutes a correct reading of a document
- To transcribe is first to read, and then to write down what one has read.

Patrick Sahle, from memory. Patrick Sahle 2012:
"Transcription is reading written down again."



But aren't types just abstract objects again?

- Yes, according to some, types, too, are immutable. Though types are not quite like numbers and sets:
 - They share more of their properties with their tokens than sets do with their members.
 - There is no set of essential properties that needs to be shared by all tokens of a type
 - So they are more like "impure sets", e.g. {Eiffel Tower}
- Our account is compatible with this view of types
 - But there are alternatives:

Linda
Wetzel



But aren't types just abstract objects again?

- *Created types* can be created, change, and go out of existence.
 - They are not in space, but in time.
 - They are "universals tracing historical chains of (re)production" (cf. TAO above)
 - A type exists iff it has at least one embodiment, i.e.
 - it has tokens
 - a recipe for its creation exists (XML?)
 - it is stored*

Lee
Walters
2013

No problems with this theory? Of course (and cmsmcq may have reservations). But we need to wrap up soon.



Concluding, hand-waving remarks

- We may replace identity criteria based on
 - instantiation of "traditional" abstract objects
- with identity criteria based on
 - correctness of reading in terms of created types embedded within type systems
 - conventions and practices for tracing such types
- parts of this lends itself to formal modelling



Concluding, hand-waving remarks

In general we should strive towards explication, formalization and objectivity. But, cum grano salis:

- There is an end to explication.
- There are limits to formalization.
- Interpretation is not inherently subjective.



Thank you



References (Not formal bibl. refs, but should be ok for web search.)

- Coombs, Renear, DeRose, "Markup Systems and the Future of Scholarly Text Processing"
- FRBR: "Functional Requirements for Bibliographic Records"
- Goodman, Nelson: "Languages of Art"
- Huitfeldt, Sperberg-McQueen: "What is transcription?"
- Huitfeldt, Marcoux, Sperberg-McQueen: "Extension of the type/token distinction to document structure"
- Huitfeldt, Vitali, Peroni: Documents as Timed Abstract Objects
- Huitfeldt: "UnderDok"
- McDonald, Cynthia: "Varieties of Things", 2005
- Sahle, "Modeling Transcription", wordpress 2012.
- Vander Meulen and Tanselle "A system of manuscript transcription."
- Quine: "On what there is"
- Walters, Lee: "Repeatable artworks as created types"
- Wetzell, Linda: "Types and tokens", 2009

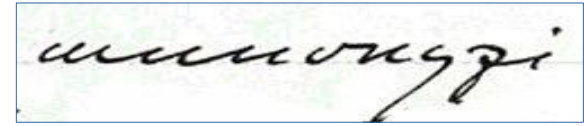


Extra! Extra! Is transcription interpretational?

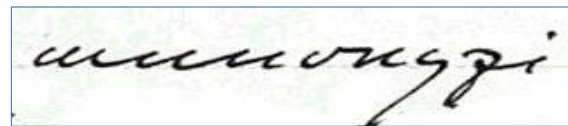
- Example 1: Wittgenstein
- Example 2: The cat is on the mat
- Example 3: Uncertainty



Example 1: Wittgenstein

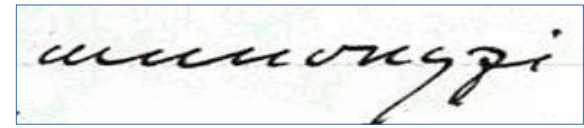
A handwritten signature in cursive script, enclosed in a thin blue rectangular border. The signature appears to read 'L. Wittgenstein'.

Example 1: Wittgenstein



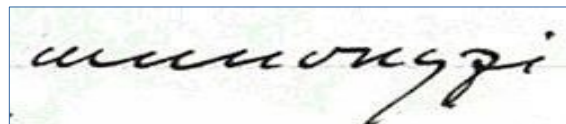
A and B volunteered to transcribe this snippet of writing. Neither of them had any clue as to what it might be. Let us see what happened.

Example 1: Wittgenstein

A handwritten signature in black ink, appearing to read 'Wittgenstein', enclosed in a thin blue rectangular border.

1. Information provided: European language, Latin script.

Example 1: Wittgenstein



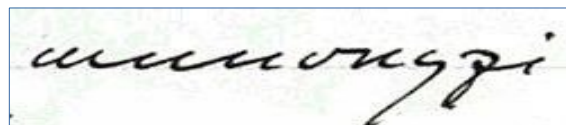
1. Information provided: European language, Latin script.

A: munonyqi

B: wunouyqi



Example 1: Wittgenstein



1. Information provided: European language, Latin script.

A: munonyqi
B: wunouyqi

2. Information provided: German language.
NB: A doesn't know German

Example 1: Wittgenstein

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A: munonyqi
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2. Information provided: German language.
NB: A doesn't know German

A: ofnmnbkr
B: dfnmfbkr

Example 1: Wittgenstein

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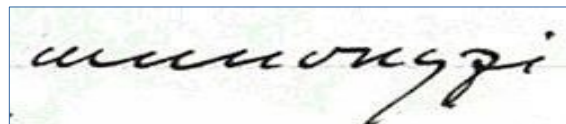
A: munonyqi
B: wunouyqi

2. Information provided: German language.
NB: A doesn't know German

A: ofnmnbkr
B: dfnmfbkr

3. Information provided: Wittgenstein, reversed alphabet.

Example 1: Wittgenstein



1. Information provided: European language, Latin script.

A: munonyqi
B: wunouyqi

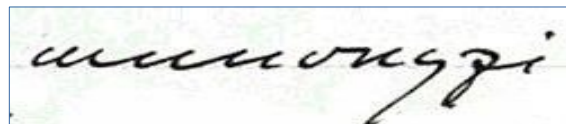
2. Information provided: German language.
NB: A doesn't know German

A: ofnmnbkr
B: dfnmfbkr

3. Information provided: Wittgenstein, reversed alphabet.

A: ofnmnbkr
B: offenbar

Example 1: Wittgenstein



1. Information provided: European language, Latin script.

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B: wunouyqi

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NB: A doesn't know German

A: ofnmnbkr
B: dfnmfbkr

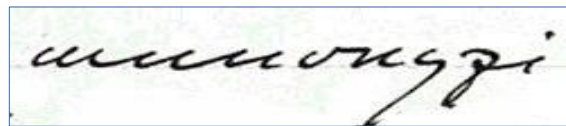
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4. Agreed by both: The text actually reads...

offenbar

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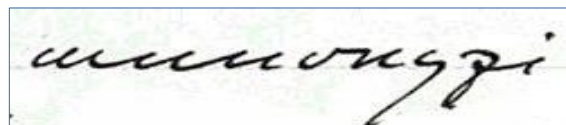
4. Agreed by both: The text actually reads...

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5. Agreed by both: The correct transcription is...

muuvnyzi

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muuvnyzi

All of the steps 1-5 are *interpretational*. They do involve degrees of *uncertainty*. But in what sense are 4 and 5 *subjective*? Are there interpretational alternatives (subjective or not)?



Example 2: The cat is on the mat

Exemplar

The cat is on the mat



Example 2: The cat is on the mat

Exemplar

The cat is on the mat

Transcription 1

The cat is on the mat

In what sense is this transcription interpretational? Is it the font? Is it the colour? Is it subjective?

Example 2: The cat is on the mat

Exemplar

The cat is on the mat

Transcription 1

The cat is on the mat

In what sense is this transcription interpretational? Is it the font? Is it the colour? Is it subjective?

Transcription 2

The cub is on the mat.

Differences, yes. But are they interpretational? Are they subjective? – Not if scheme requires supplying missing full stops. And not if text is clearly about cats and not about cubs, so that "cubs" is a likely typo for "cats", and if typos are to be silently corrected.

Example 3: Uncertainty

Exemplar

de@@en

("@" stands for unreadable letters)

Transcription 1

de**en

("*" stands for unreadable letters)

Transcription 2

denken

Transcription 3

deuten

Transcription 1 is less interpretational than 2 and 3. Yet transcribers 2 and 3 may agree that "@" is unreadable. However, they supply readings, and those readings are based on different interpretations.

But isn't that just ordinary uncertainty, rather than subjectivity?