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NEWS ANALYSIS

How a Series of Mistakes Hurt Shares of United

By MIGUEL HELFT
Published: September 14, 2008

SAN FRANCISCO — The swift, sharp and short-lived collapse of [United Airlines](#) shares last Monday was followed by a week of pointing.

Investors wiped out \$1 billion of market value of UAL, United's parent, within minutes of an erroneous flash on Bloomberg screens about United bankruptcy. [Google](#) and [Tribune Company](#), the owner of South Florida Sun-Sentinel, were other for causing the fiasco.

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FROM NYTIMES.COM

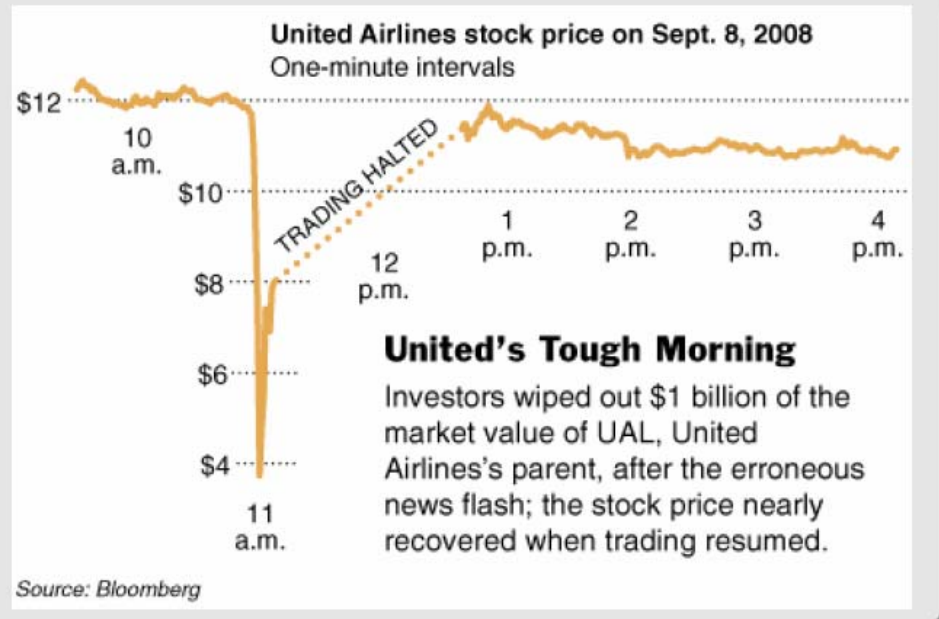
- SAP to Buy Sybase in \$5 Billion Deal

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Multimedia



Graphic
Comedy of Errors



+++ „Los Angeles (**dpa**) – In der kalifornischen Kleinstadt Bluewater soll es nach einem Bericht des örtlichen Senders vpk-tv zu einem Selbstmordanschlag gekommen sein. Es habe in einem Restaurant zwei Explosionen gegeben...“ +++

German Press Agency DPA, 10 Sep 2009



anel

Shortcut To Hollywood - Ab 24. September im Kino!

http://www.short-cut-to-hollywood.de/

uewater - Google-Suche Das dpa Bluewater Debakel » Vo... Meedia: Bluewater-Fiasko: Filme... Medienblamage: Die Bluewater-... Startseite Shortcut To Hollywood - /

von den Machern von MUXMÄUSCHENSTILL

Shortcut Cut to HOLLYWOOD

SENATOR

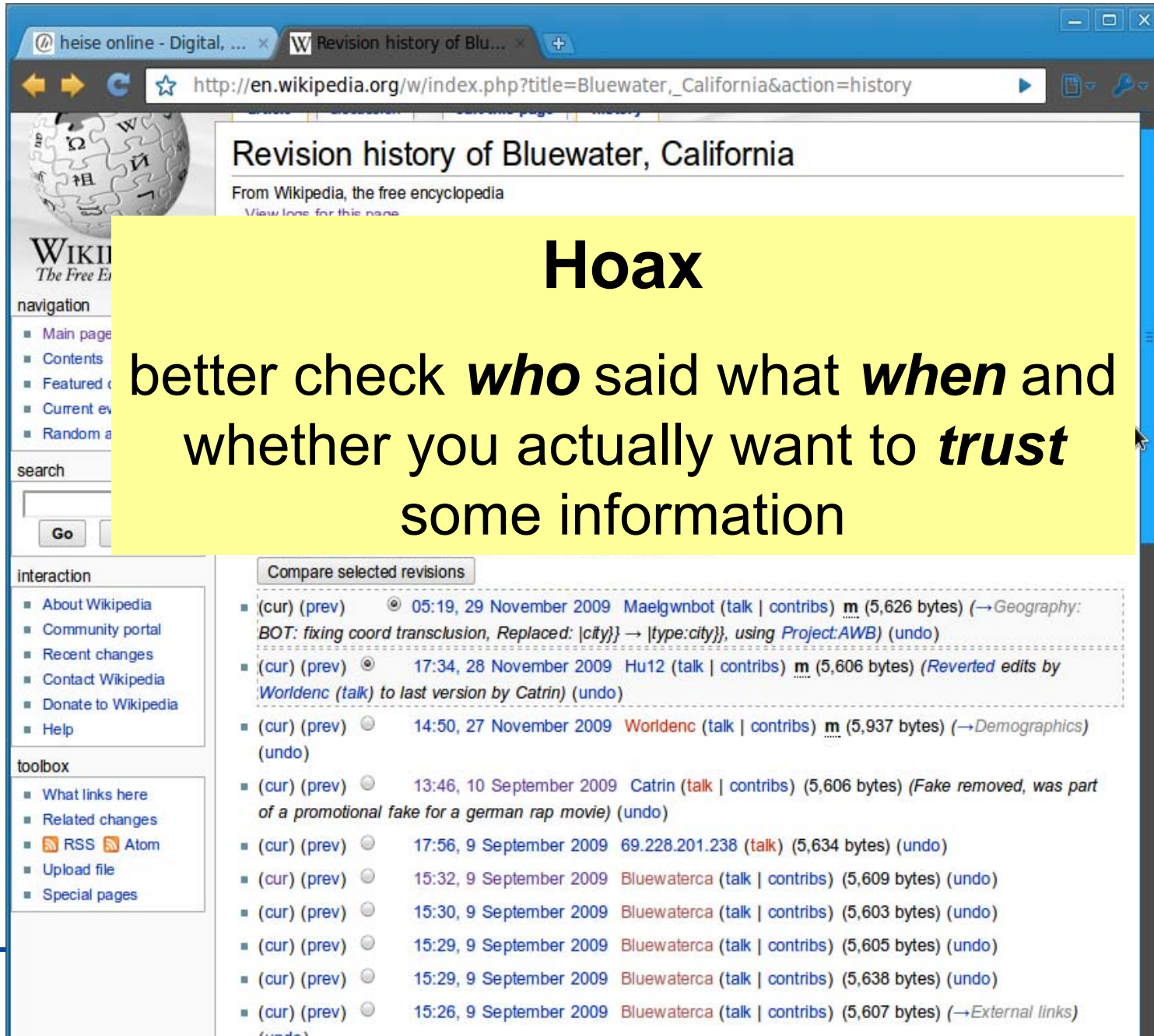
START TRAILER DER FILM CAST & CREW DIE MUSIK

JETZT SHORTCUT-AN.DE KUCHEN!

AB 24. SEPTEMBER IM KINO!

Fotos © Stefan Falke

The screenshot shows a promotional page for the movie 'Shortcut to Hollywood'. The main image features three men standing in front of a large Hollywood sign. The sign reads 'Shortcut Cut to HOLLYWOOD' and 'von den Machern von MUXMÄUSCHENSTILL'. Below the sign, it says 'START TRAILER DER FILM CAST & CREW DIE MUSIK'. A red circular button on the left says 'JETZT SHORTCUT-AN.DE KUCHEN!'. A white banner across the middle of the collage reads 'AB 24. SEPTEMBER IM KINO!'. The collage includes several smaller photos: a man in a cowboy hat making a peace sign, a man sitting on a bench on a road, a man in a cowboy hat and sunglasses, a man in a red shirt and a woman in a white jacket, a man in a white t-shirt with an eagle graphic, a man in a dark jacket, a man in a dark jacket and a woman in a red top, and a man in a dark jacket and a woman in a red top. The bottom right photo shows a man in a dark jacket and a woman in a red top. The text 'Fotos © Stefan Falke' is visible at the bottom of the collage.



The screenshot shows the Wikipedia revision history for 'Bluewater, California'. A large yellow box is overlaid on the page with the following text:

Hoax

better check *who* said what *when* and whether you actually want to *trust* some information

The background page shows the following revision history:

Revision	Time	User	Size	Comments
(cur) (prev)	05:19, 29 November 2009	Maelgwnbot	m (5,626 bytes)	(→Geography: BOT: fixing coord transclusion, Replaced: <code> city}}</code> → <code> type:city}}</code> , using <i>Project:AWB</i>) (undo)
(cur) (prev)	17:34, 28 November 2009	Hu12	m (5,606 bytes)	(Reverted edits by <i>Worldenc</i> (talk) to last version by <i>Catrin</i>) (undo)
(cur) (prev)	14:50, 27 November 2009	Worldenc	m (5,937 bytes)	(→Demographics) (undo)
(cur) (prev)	13:46, 10 September 2009	Catrin	(5,606 bytes)	(Fake removed, was part of a promotional fake for a german rap movie) (undo)
(cur) (prev)	17:56, 9 September 2009	69.228.201.238	(5,634 bytes)	(undo)
(cur) (prev)	15:32, 9 September 2009	Bluewaterca	(5,609 bytes)	(undo)
(cur) (prev)	15:30, 9 September 2009	Bluewaterca	(5,603 bytes)	(undo)
(cur) (prev)	15:29, 9 September 2009	Bluewaterca	(5,605 bytes)	(undo)
(cur) (prev)	15:29, 9 September 2009	Bluewaterca	(5,638 bytes)	(undo)
(cur) (prev)	15:26, 9 September 2009	Bluewaterca	(5,607 bytes)	(→External links) (undo)

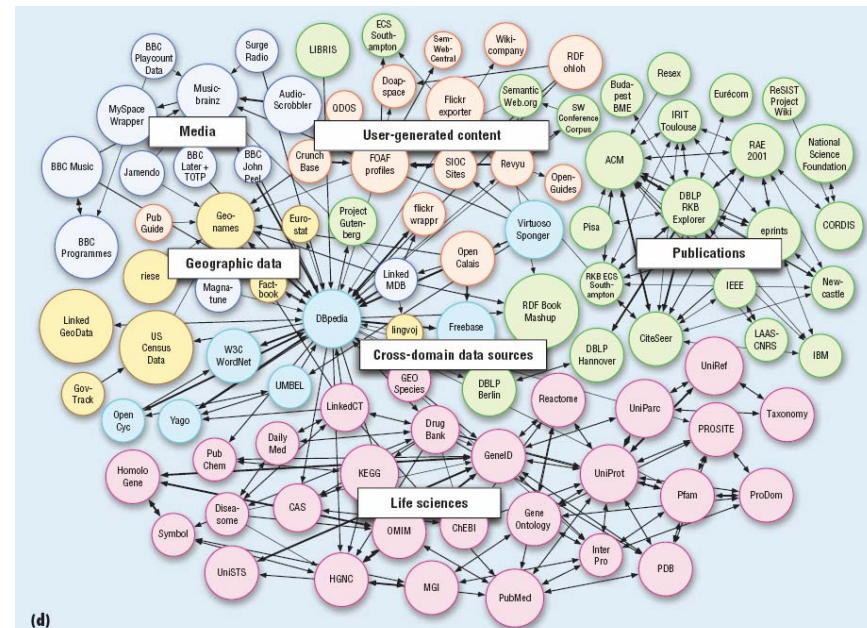
Knowing Something About Your Semantic Web Data

Steffen Staab

Joint work with

Simon Schenk, Renata Dividino, Christoph Ringelstein

- ◆ Call to Ontoprise from an insurance company:
„Can you integrate our **5000** databases?“
- ◆ EU IP experience (Large Engineering Company):
„oh, we just **found** another PC that has several tens of thousands of relevant documents“
- ◆ Linked open data cloud



- I have this piece of data.
Can I actually believe it?
 - ◆ Default answer: Find some expert and ask him. ☹️

- I have this inconsistency in my data.
Who has introduced it and why?
 - ◆ Default answer: Try to find it in the sources. ☹️

- I have this piece of data.
How can I use it? Can I show it to anyone?
 - ◆ Default answer:
 - You are not allowed to do anything with it.
Just throw it away. ☹️

Provenance labels for facts

Which confidence?

Which privileges?

Which authority?

Who?

When?

Bluewater is a City

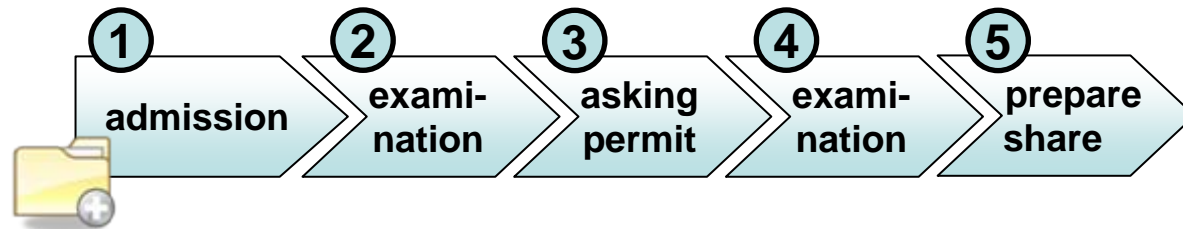
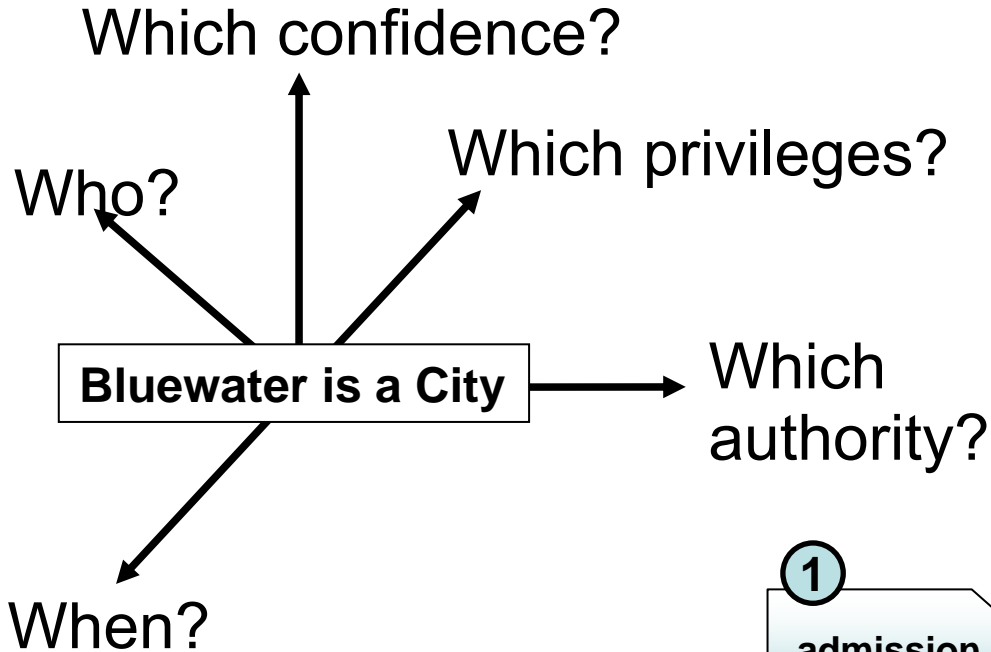


Provenance labels for facts

Open Provenance Model

▪ RDF graph representing

- ◆ Who did
 - what
 - when
 - why
 - ...
- ◆ to a data item



- ◆ „ex post“ workflow instance
- ◆ audit/re-enact

OWL REASONING USING PROVENANCE

- Works also for RDF + SPARQL
(with many technical differences of course)

R. Dividino, S. Sizov, S. Staab, B. Schüler.

Querying for Provenance, Trust, Uncertainty and other Meta Knowledge in RDF.

In: *Journal of Web Semantics*. Elsevier, 7(3), 2009, pp. 204-219.

- Our work on using provenance with OWL reasoning:

S. Schenk, R. Dividino, S. Staab, N. Kurz.

Ontology Debugging Using Provenance.

In: *Journal of Web Semantics*, Elsevier, accepted for publication.

bluewater : RealCity?

RealCity \sqsubseteq *City* \sqcap \exists *hasCompany.Broadcaster*

bluewater : City

inverseProperty(hasCompany, hqIn)

vpktv : Broadcaster

Broadcaster \sqsubseteq \exists *hqIn.City*

hqIn(vpktv, bluewater)

*German Press Agency,
Highest trust, 2001-01-03*

*Neverest,
Low trust, 2009-09-09*

Given Ontology O , Axiom α , $O' \subseteq O$

O' is an explanation (pinpoint) for α wrt. O , iff

$O' \models \alpha$ and

$O^* \not\models \alpha$ for all $O^* \subset O'$

1

$A \sqsubseteq B$

2

$B \sqsubseteq C$

3

$A \sqsubseteq D$

4

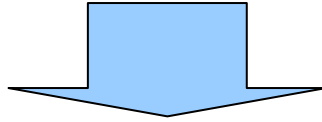
$D \sqsubseteq C$

$A \sqsubseteq C$?

Explanation formula

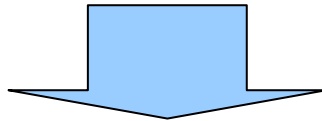
$(1 \wedge 2) \vee (3 \wedge 4)$

Query: Meta Knowledge for $O \models \alpha$

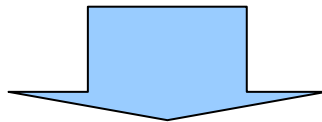


Compute Pinpointing Formula for α wrt O

$$(A_1 \wedge \dots \wedge A_m) \vee \dots \vee (Z_1 \wedge \dots \wedge Z_n)$$



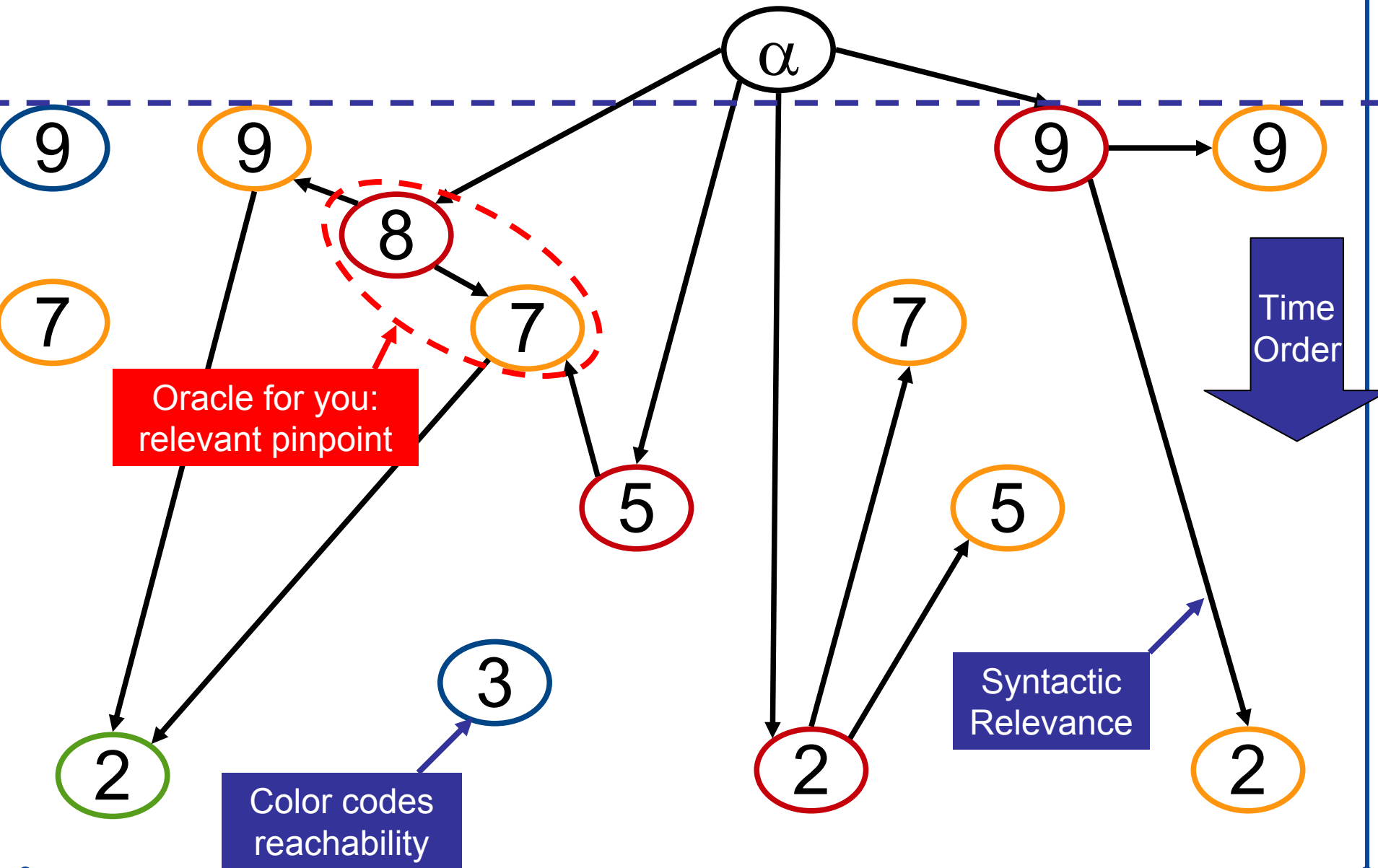
Insert Meta Knowledge degrees and operators
 $\min(\max(\text{lrm}(A_1), \dots, \text{lrm}(A_m)), \max(\text{lrm}(Z_1), \dots, \text{lrm}(Z_n)))$

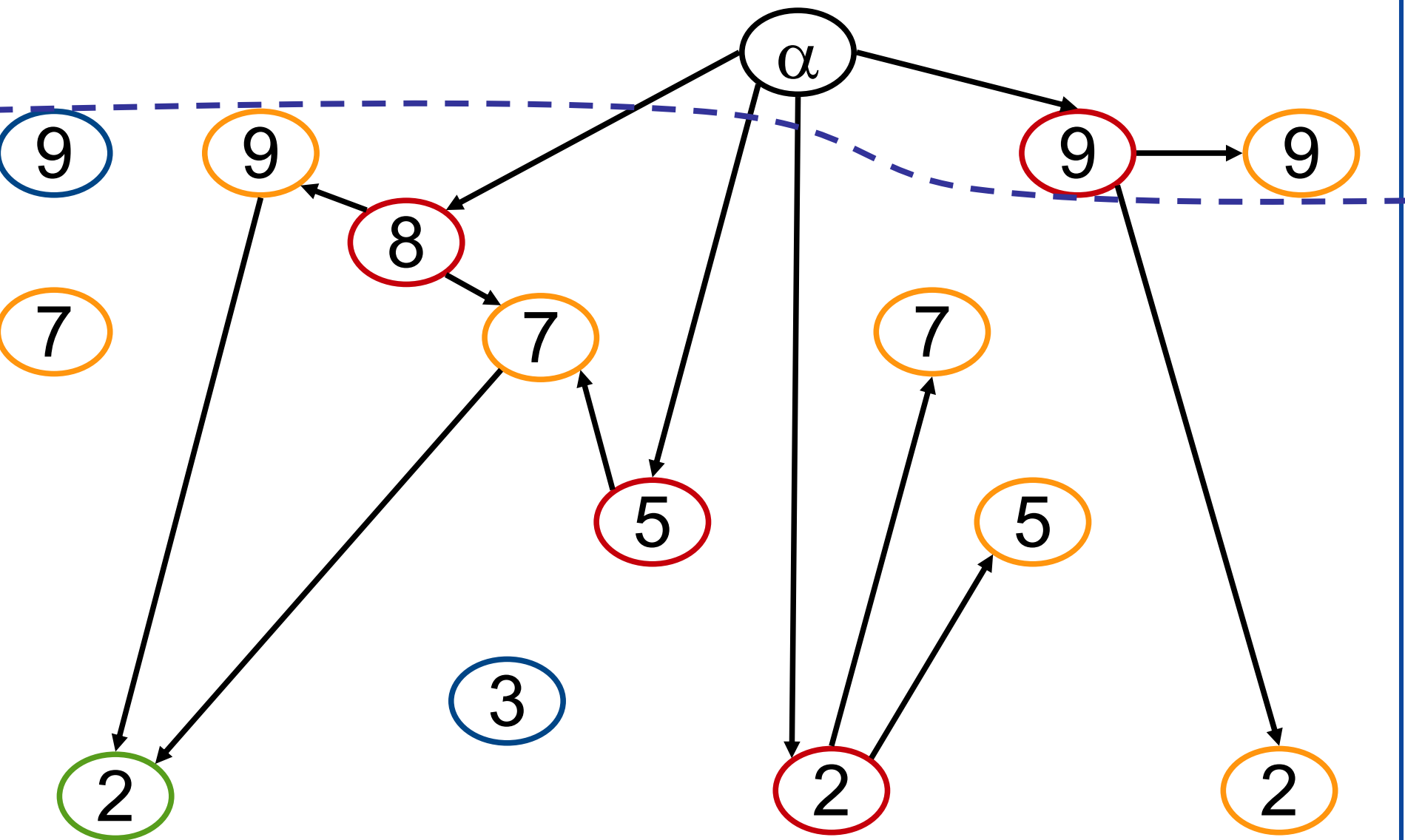


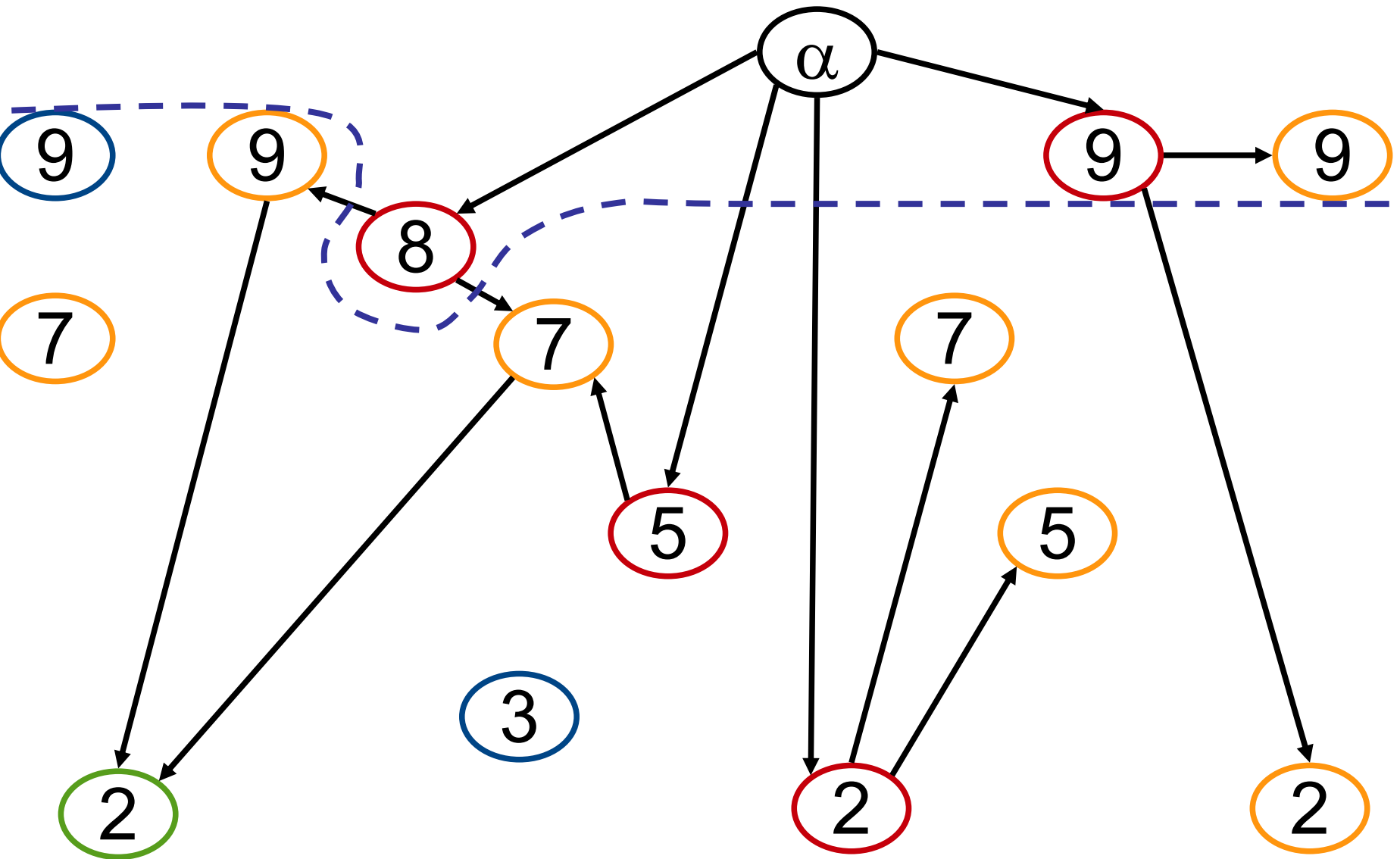
Evaluate

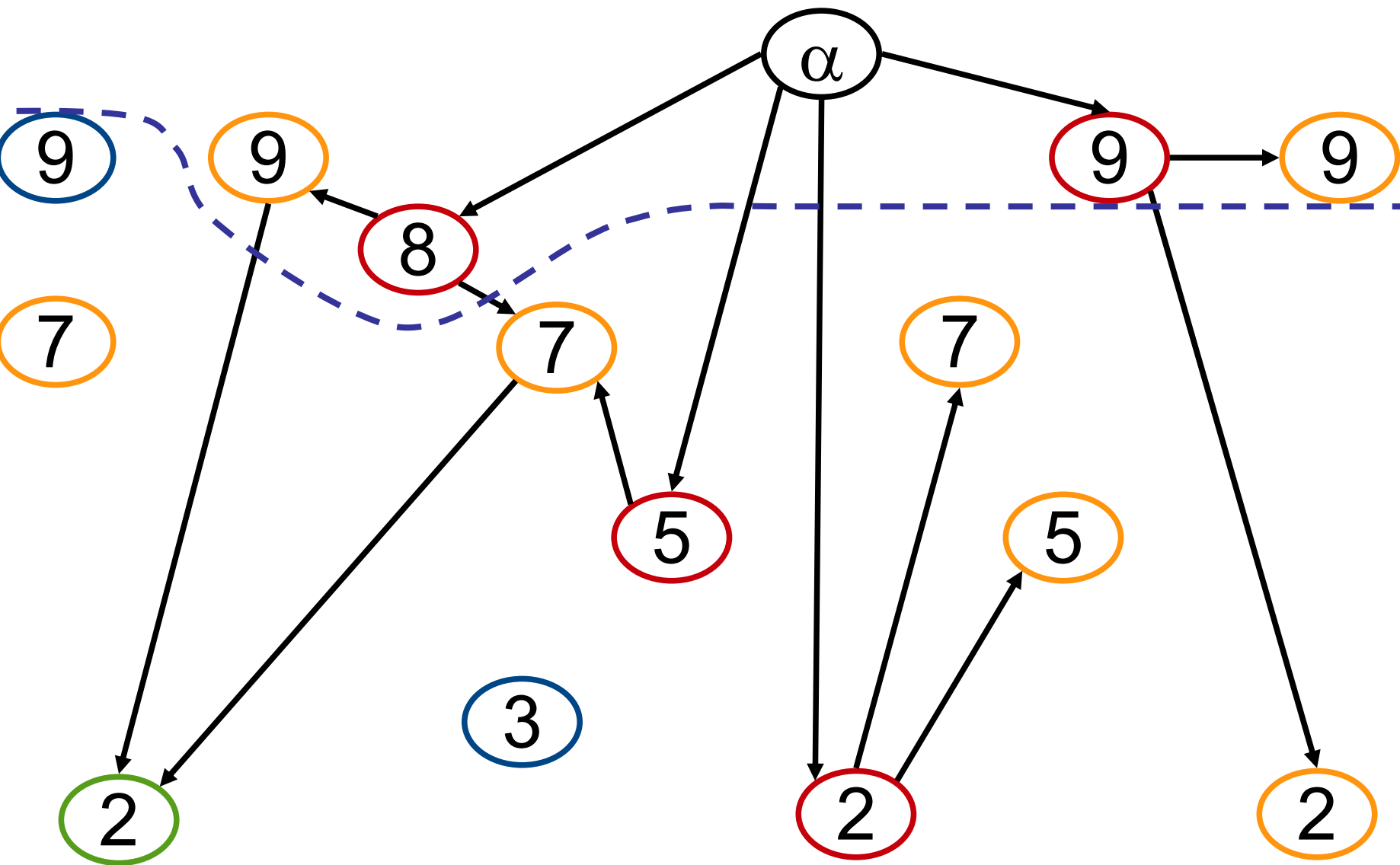
[KI 2009,
SWPM2009]

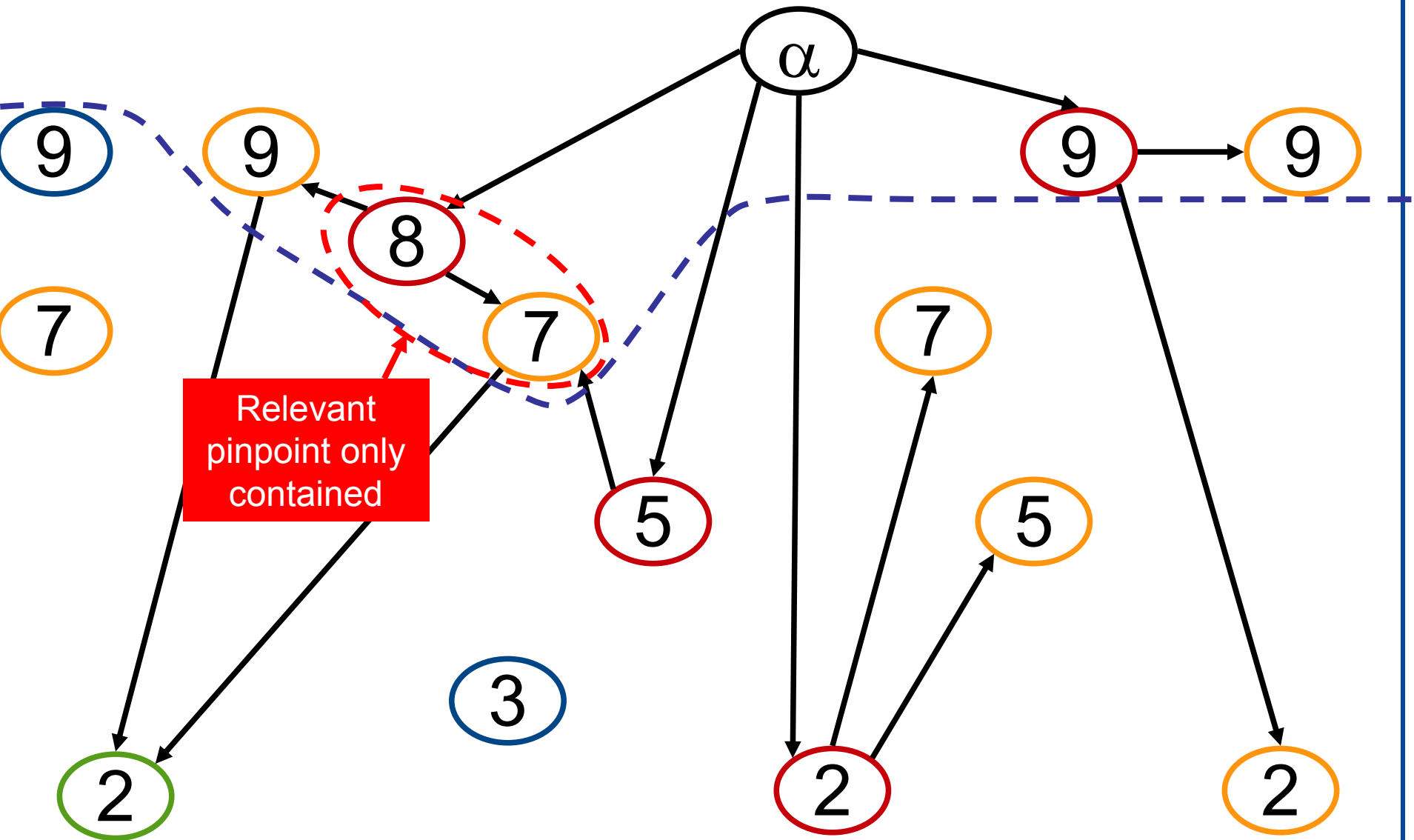




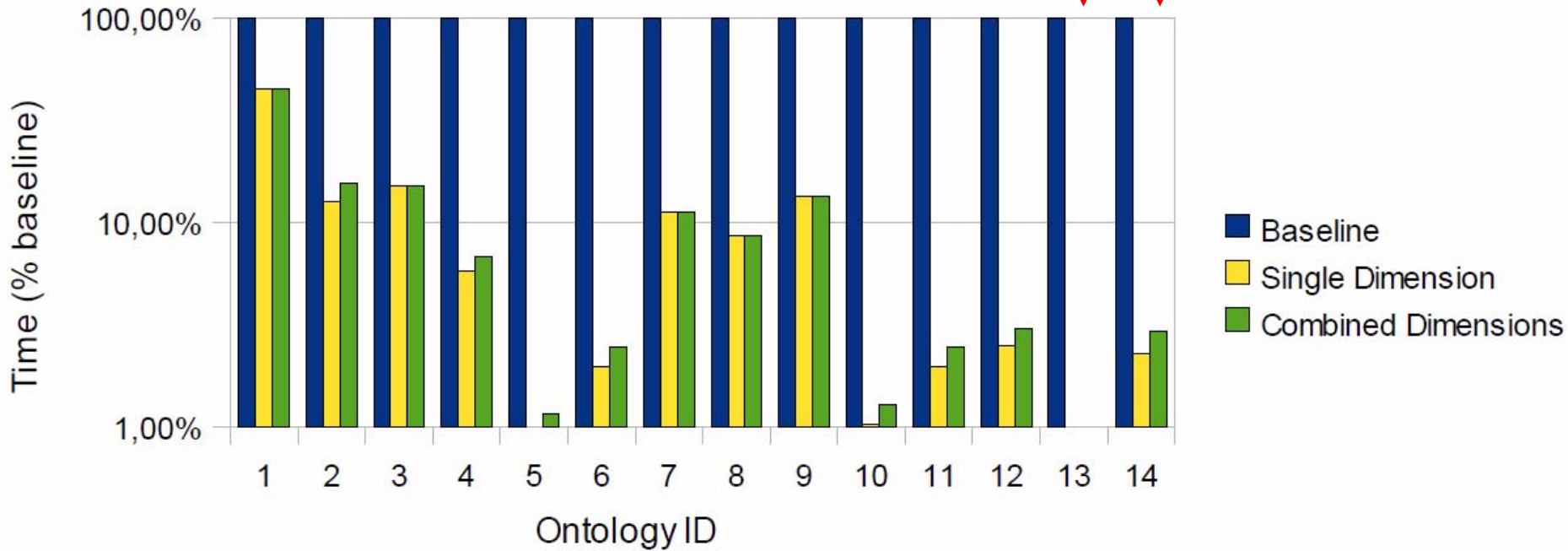




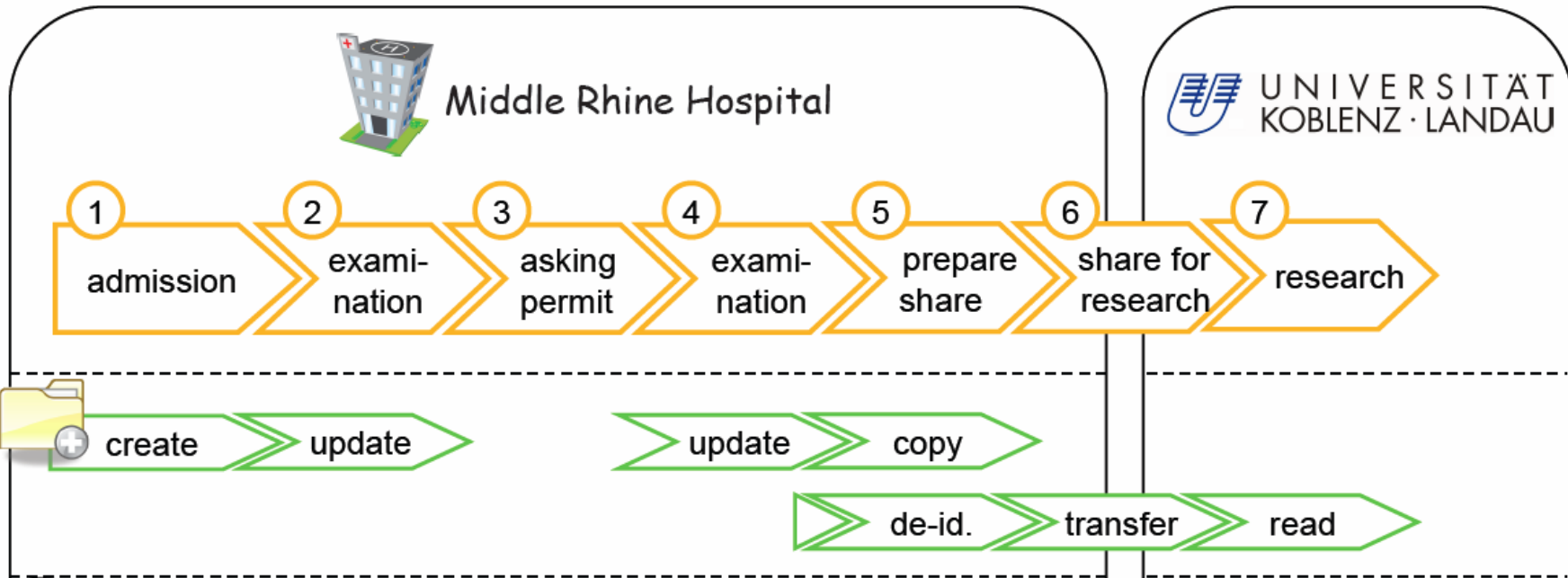




Real-world provenance!



PROVENANCE AWARE POLICY LANGUAGE





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1

admission

Health
Record



create

Policies



create

Sticky
Log



creat

(P1): *ukob* is allowed to process health records for research purposes. However, **ukob** is not allowed to transfer the health records of patients to other organizations.

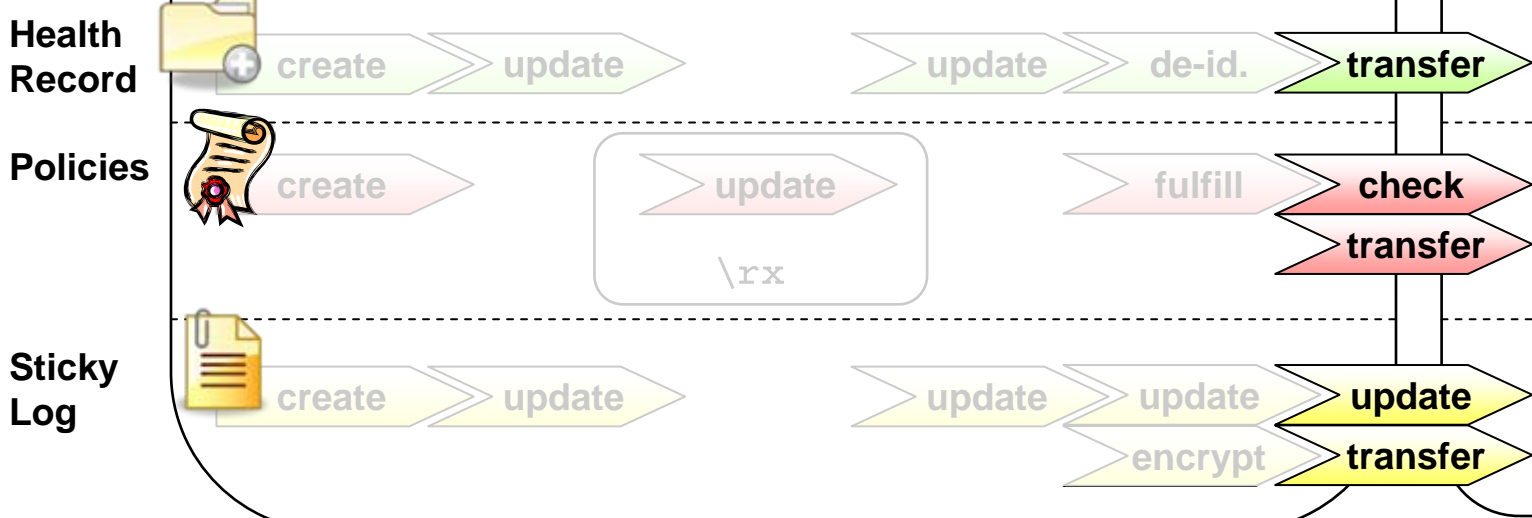
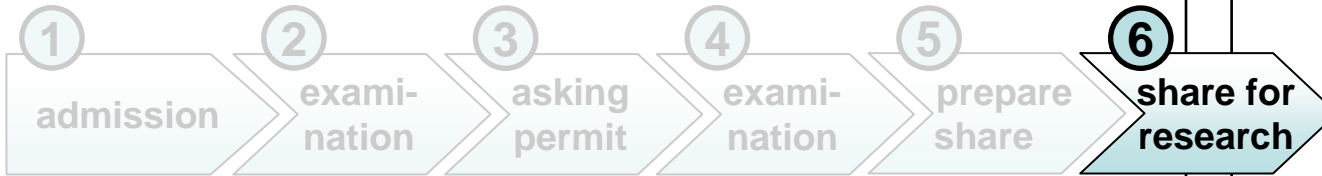
(P2): The **mrh** demands that the record is only accessed by **ukob** after the sharing of the health records is approved by the patient and the approval must have been confirmed by a doctor.



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```

Sticky Log:

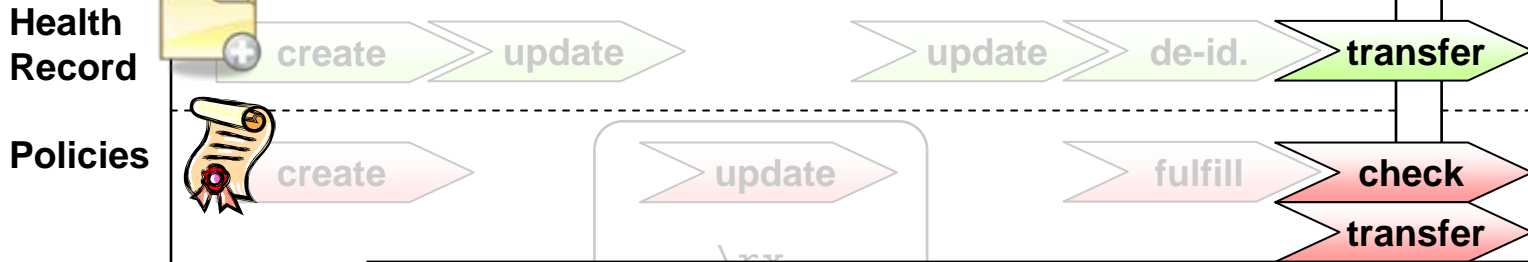
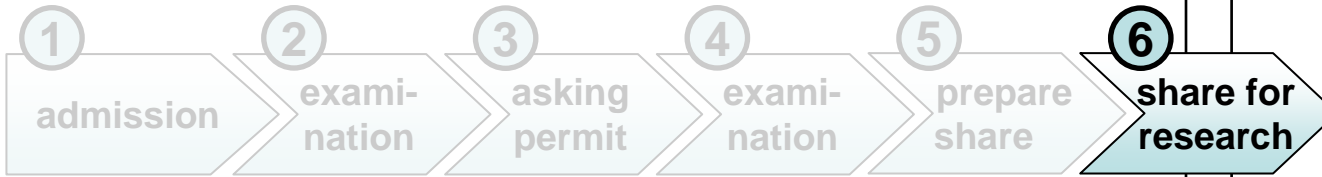
step (record, {mrh}, {}, create, patient_treatment, 1, {0})
step (record, {mrh}, {}, update, examination, 2, {1})
reduced (record, hidden, hidden, update, hidden, 4, {2})
step (record, {mrh}, {}, de-identified, privacy, 5, {4})
attribute (record, de-identified, true, 5)
step (record, {mrh}, {ukob}, transfer, research, 6, {5})
  
```



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Sticky Log

```

    permit (6)?
    (P3):
    permit (ID) IF (step (record, _, _, transfer, _, ID, _) AND
                   attribute (record, de-identified, true, ID)).
  
```

```

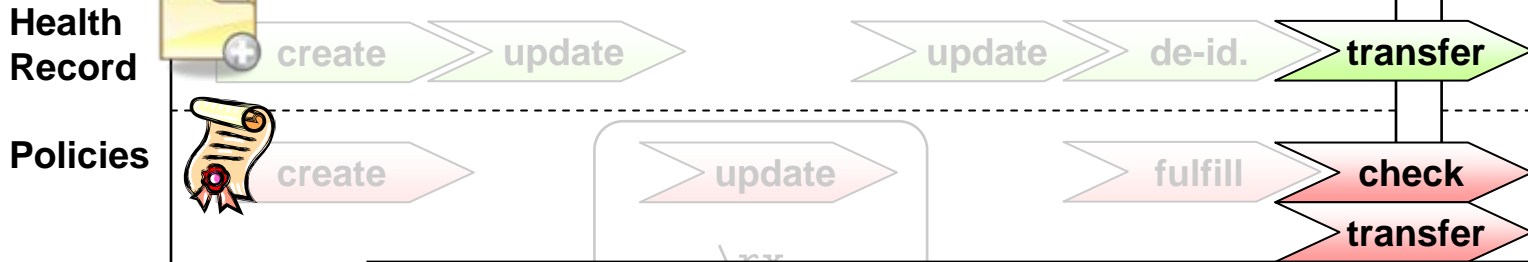
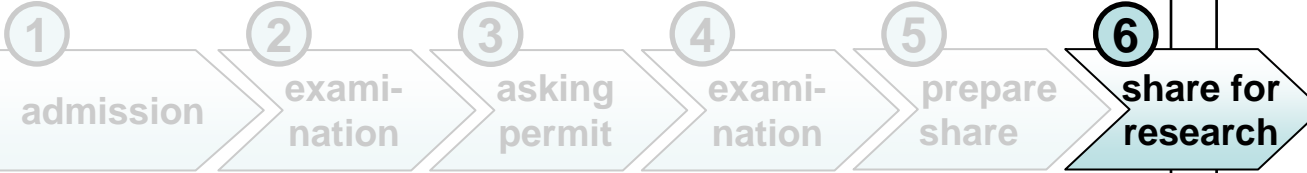
    Sticky Log:
    step (record, {mrh}, {}, create, patient_treatment, 1, {0})
    step (record, {mrh}, {}, update, examination, 2, {1})
    reduced (record, hidden, hidden, update, hidden, 4, {2})
    step (record, {mrh}, {}, de-identified, privacy, 5, {4})
    attribute (record, de-identified, true, 5)
    step (record, {mrh}, {ukob}, transfer, research, 6, {5})
  
```



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Sticky Log

```

    permit (6)?
    (P3):
    permit (ID) IF (step (record, _, _, transfer, _, ID, _) AND
    attribute (record, de-identified, true, ID)).
  
```

```

    Sticky Log:
    step (record, {mrh}, {}, create, patient_treatment, 1, {0})
    step (record, {mrh}, {}, update, examination, 2, {1})
    reduced (record, hidden, hidden, update, hidden, 4, {2})
    step (record, {mrh}, {}, de-identified, privacy, 5, {4})
    attribute (record, de-identified, true, 5)
    step (record, {mrh}, {ukob}, transfer, research, 6, {5})
  
```

CONCLUSION

Past

- Knowing what happened to your data
- Knowing why it happened to your data

Present

- Drawing the right conclusions from your data

Future

- Deciding upon the destiny of your data

Your Strategy is based on Provenance!
You better take care!

Provenance in RDF

- R. Dividino, S. Sizov, S. Staab, B. Schüler. Querying for Provenance, Trust, Uncertainty and other Meta Knowledge in RDF. In: *Journal of Web Semantics*. Special issue on "The Web of Data". Elsevier, 7(3), 2009, pp. 204-219.

Provenance in OWL

- S. Schenk, R. Dividino, S. Staab, N. Kurz. Ontology Debugging Using Provenance. In: *Journal of Web Semantics*. Special issue on "Ontology Dynamics", Elsevier, accepted for publication.

Provenance for Policy Languages

- C. Ringelstein, S. Staab. Provenance-aware Policy Definition and Execution. In: *IEEE Internet Computing*, special issue on Provenance in Web Applications, Jan/Feb 2011, pp. 49-58.

Capturing Provenance in Distributed Workflows

- C. Ringelstein, S. Staab. DiALog: A Distributed Model for Capturing Provenance and Auditing Information. *International Journal of Web Services Research (JWSR)*, Idea Group Publishing, 7(2): 1-20, 2010.

Thank You!

<http://west.uni-koblenz.de>



See you again at...

