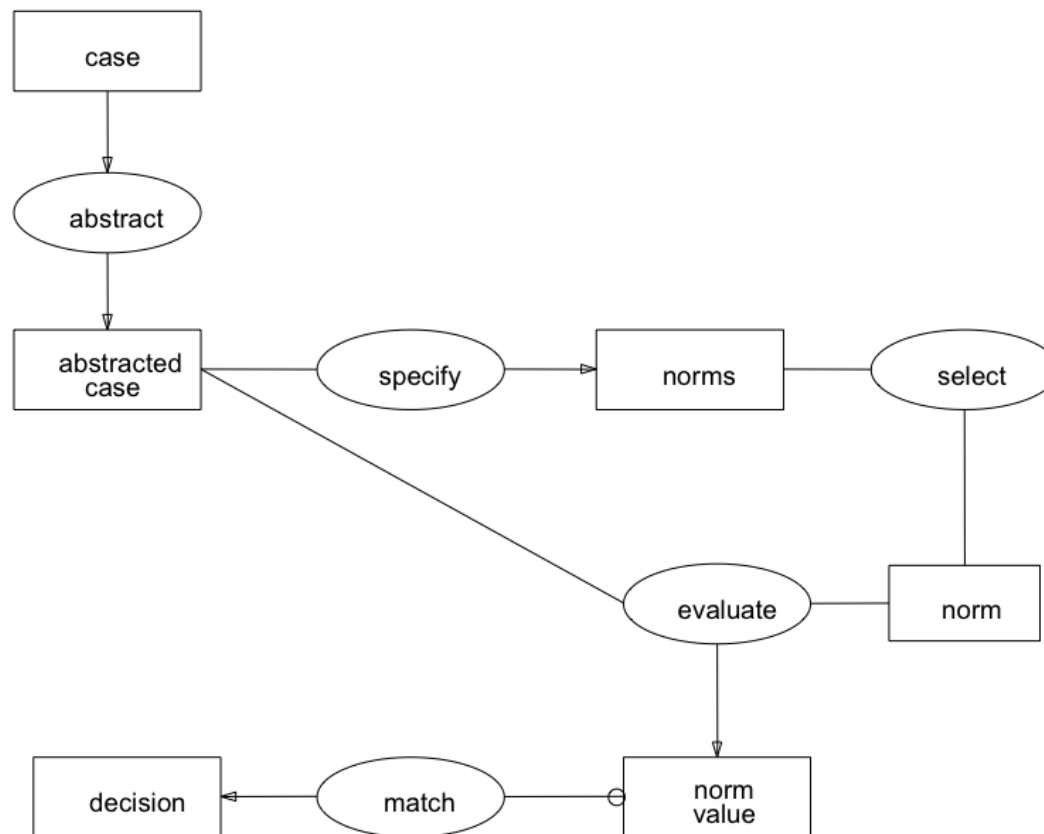


The Art of Knowledge Engineering or: knowledge engineering of art

Guus Schreiber

Knowledge engineering: From art to discipline

- Objective of knowledge engineering (KE) in 90's
- Use of knowledge patterns for “expert” tasks



The popularity of “ontology”

- One of the first ontologies: traffic ontology
 - “On representational promiscuity”
 - “Vacuous paper with no content” (Brian Gaines, KAW 93)
- Now seen as panacea for the Holy Grail of information integration
- There is even a Web language for it
- But will it stand the test of time?
 - are our current conceptions of formal classes and properties sufficient to grasp the complexity of the Web?

The Web: knowledge engineering for the masses

- KE is outside the former small research community
- Everyone is building hierarchies and describes classes

Henri Matisse

From Wikipedia, the free encyclopedia
(Redirected from *Matisse*)

"Matisse" redirects here. For other uses, see [Matisse \(disambiguation\)](#).

See also: *[List of works by Henri Matisse](#)*

Henri Matisse (French pronunciation: [ɑ̃ʁi maʁis]; 31 December 1869 – 3 November 1954) was a French artist, known for his use of colour and his fluid and original draughtsmanship. He was a draughtsman, printmaker, and sculptor, but is known primarily as a painter. Matisse is commonly regarded, along with Picasso and Marcel Duchamp, as one of the three artists who helped to define the revolutionary developments in the plastic arts in the opening decades of the 20th century, responsible for significant developments in painting and sculpture.^{[1][2][3][4]} Although he was initially labelled a *Fauve* (wild beast), by the 1920s he was increasingly hailed as an upholder of the classical tradition in French painting.^[5] His mastery of the expressive language of colour and drawing, displayed in a body of work spanning over a half-century, won him recognition as a leading figure in modern art.^[6]

Contents [hide]

- Early life and education
 - Early paintings
- Fauvism
- Gertrude Stein, Académie Matisse, and the Cone sisters
- Selected paintings: Paris, 1904–1917
- After Paris
- The cutouts
- Legacy
- Partial list of works
- Portrayal in media and literature
 - Film dramatizations
- Books/Essays
- See also
- Notes
- Resources



Photo of Henri Matisse by Carl Van Vechten, 1933

Birth name	Henri-Émile-Benoît Matisse
Born	31 December 1869 <div>Le Cateau-Cambrésis, Nord</div>
Died	3 November 1954 (aged 84) <div>Nice, Alpes-Maritimes</div>
Nationality	French
Field	Painting, printmaking, sculpture, drawing, collage
Training	Académie Julian, William-Adolphe Bouguereau, Gustave ..

Intermezzo:

Knowledge democracy

- From a human-rights point of view the Web is a leap forward
- Possibility for “everyone” to access knowledge
 - the empowered citizen
- But history will tell whether this remains true

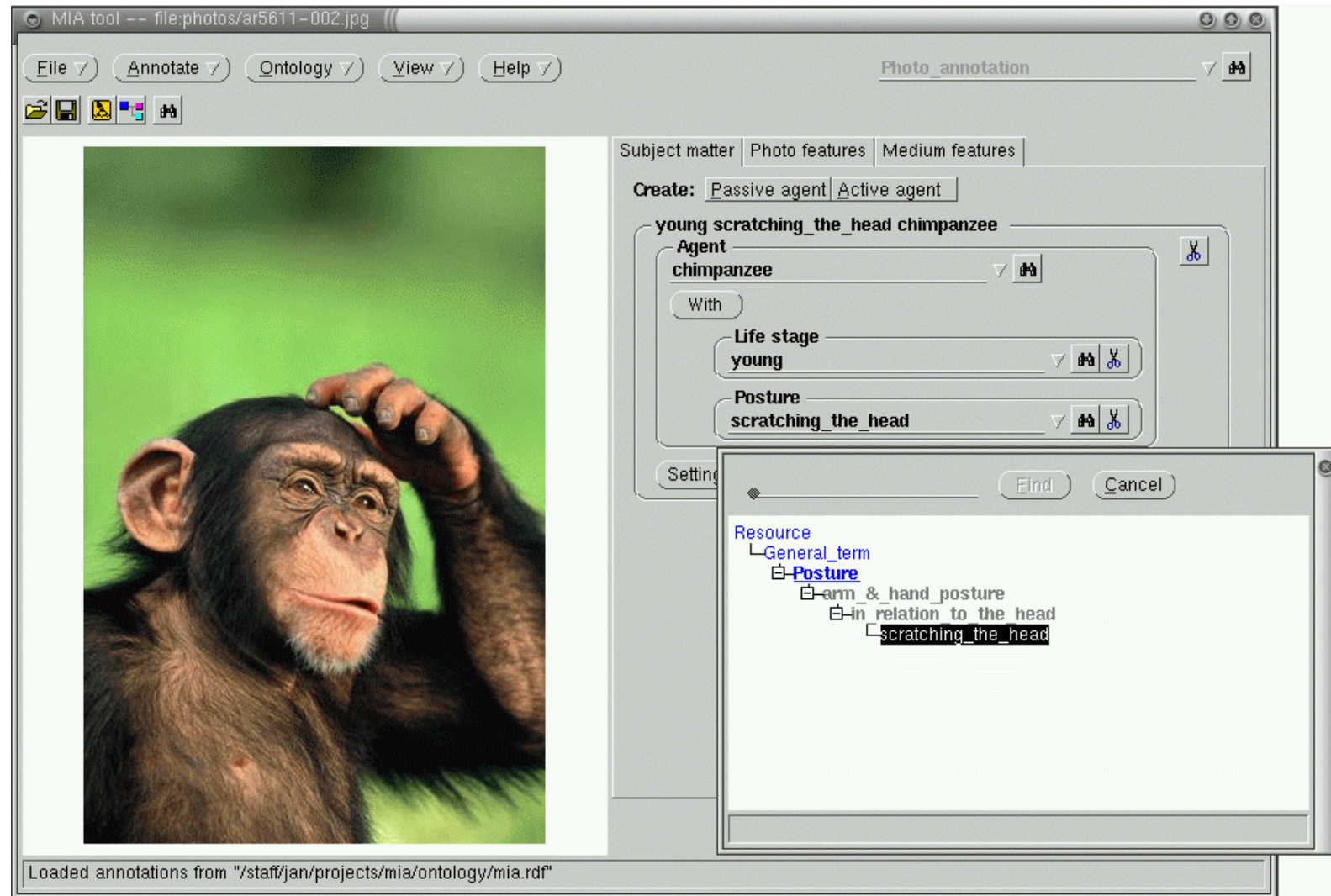
Web KE builds on a long tradition of vocabulary construction



Searching the new Iconclass Browser using these keywords - *lifting* and *hat* - will find us the concept shown here in its hierarchical context.

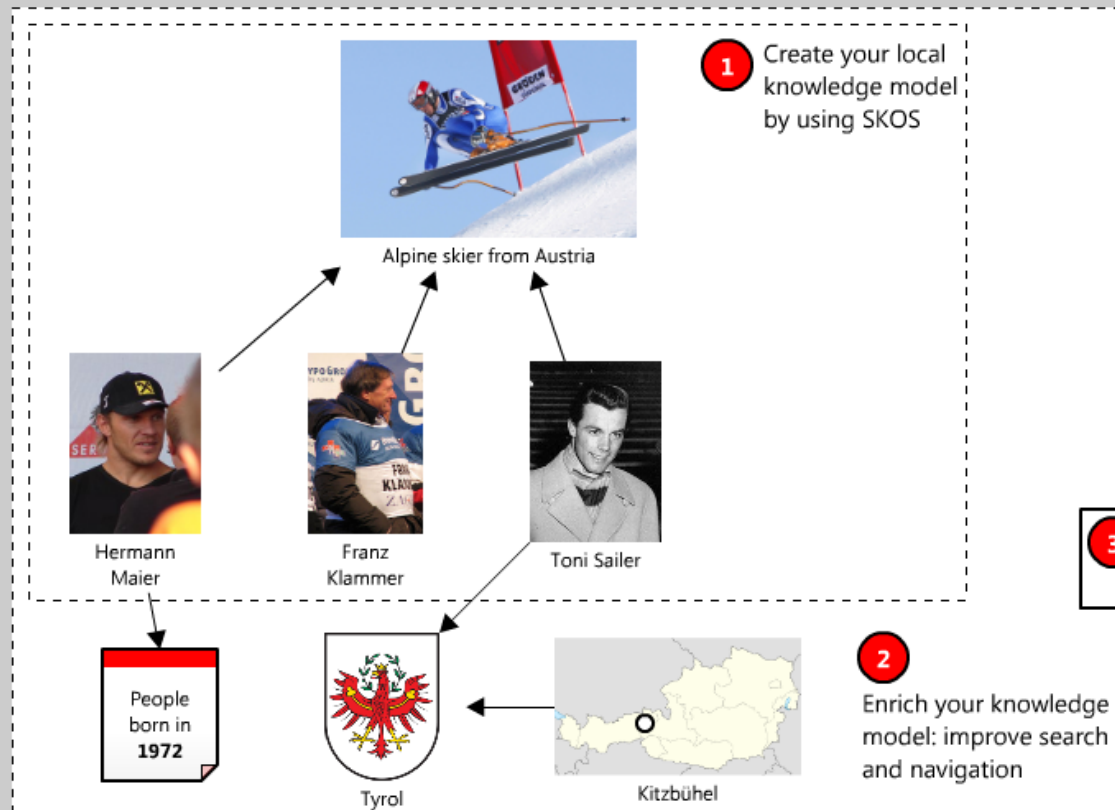
- 0 Abstract, Non-representational Art
- 1 Religion and Magic
- 2 Nature
- 3 Human Being, Man in General
- 33 relations between individual persons
- 33A non-aggressive relationships
- 33A1 saluting

Semantic annotation is now feasible



Associative reasoning: following Semantic Web links

Create Linked Data Applications around Simple SKOS thesauri



3 publish linked data,
use network effects



The popularity of “ontology” alignment

- Creating the (missing) links the the Linked Open Data Cloud
- Multitude of alignment techniques available
- Large evaluation initiative
 - OAEI
- But will our alignment methods stand the test of time? Are the results good enough?

Semantic search types

- DISAMBIGUATE: Can you give me alternative interpretations of term T?
- DESCRIBE: Can you give me more information about concept C or Individual I?
- QUESTION ANSWERING: does property P hold for object O?
- ANSWER QUESTIONING: Jeopardy!
- RELATION SEARCH: in what way(s) are object O1 and O2 related?

Use cases for semantic search

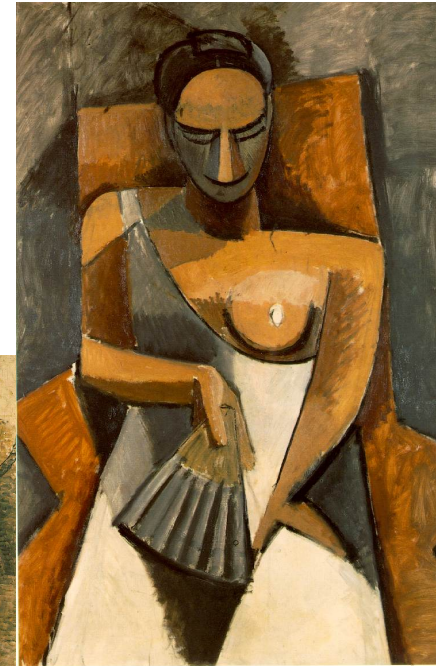
Picasso and Moulin de la Galette



Location-based:
relatively easy



How are Picasso and Matisse connected: Georges Braque



Style- and time-based
not trivial

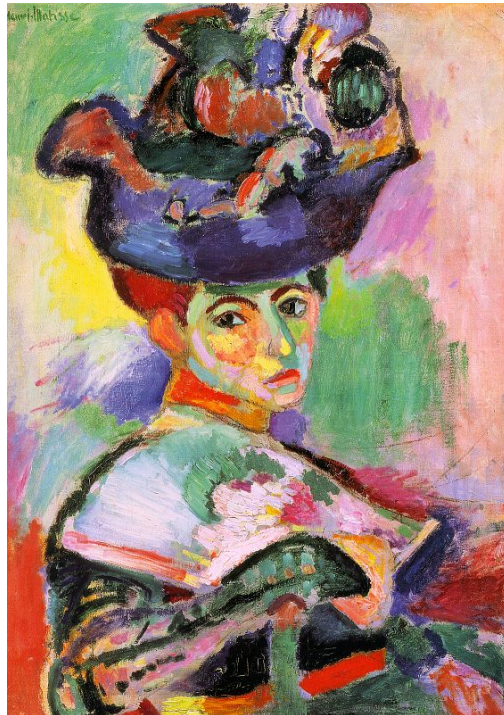
How are Picasso and Matisse connected: 1907



the changes in the art world in Paris anno 1907
difficult

Matisse and “les fauves”

Where does this term come from?

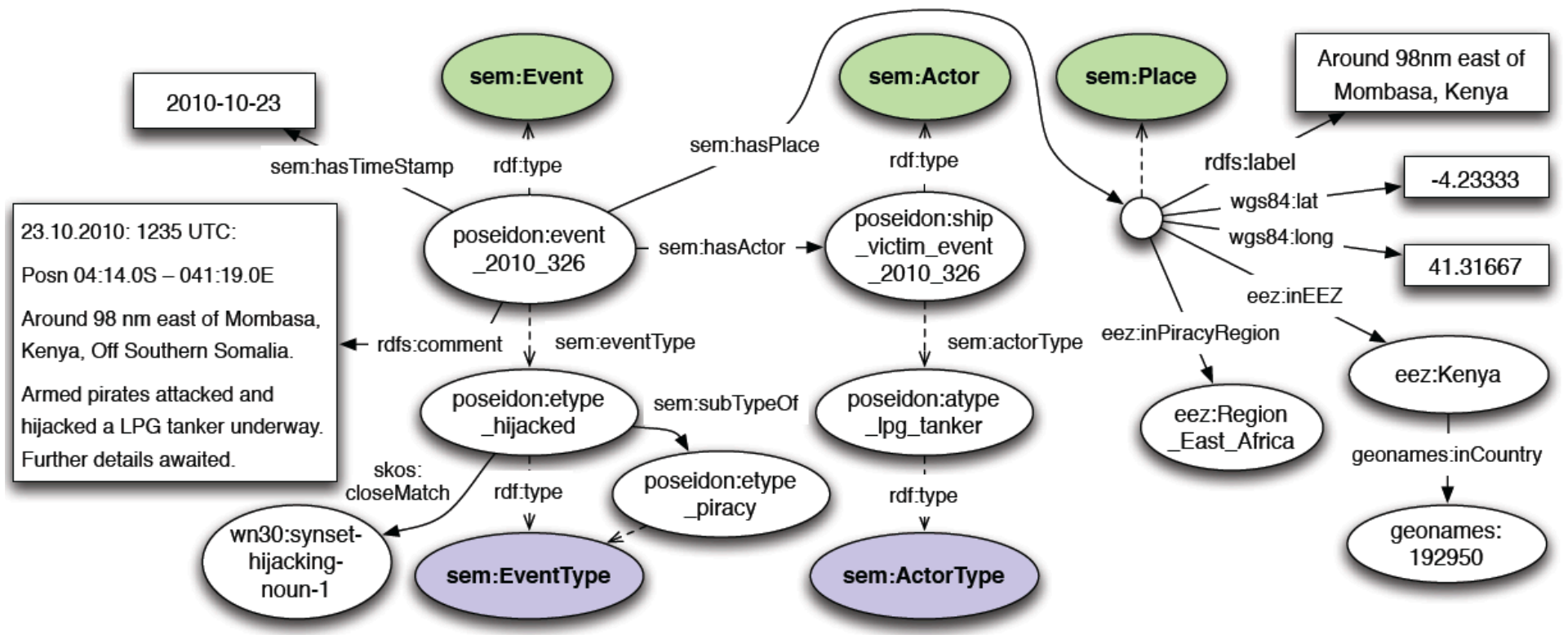


1905: the story of the critic
difficult

The importance of narratives

- Users like to get the “stories” behind the navigation paths in the graph
- For this we need to have some minimal “understanding” of the meaning of the paths
- Well-constructed minimal ontologies can provide such interpretations
 - **graph patterns**
- Example: an event ontology

Web mining of piracy events *from piracy reports & Web sources*



Problems in ontology alignment

- We have not agreed on an adequate alignment vocabulary
 - misuse of owl:sameAs
- We have no adequate methodology for evaluating alignments (Tordai et al., 2011)
- In particular, people do not agree on how different classes align
 - and this is not because they don't do it "right"

Beyond categories

- The set theory on which ontology languages are built is inadequate for modelling how people think about categories (Lakoff)
 - Category boundaries are not hard: cf. art styles
 - People think of prototypes; some examples are very prototypical, others less
- We also need to make meta-distinctions explicit
 - organizing class: “furniture”
 - base-level class: “chair”
 - domain-specific: “Windsor chair”

KE for the Web: the way forward?!

- We are only scratching the surface in semantic search
 - large-scale experimentation needed
 - small minimal ontologies acting as search patterns
- We need a revised alignment vocabulary
 - taking Lakoff's notions into account
- Attention for semantic detail matters
 - in search, in alignment, for story telling
 - and lay knowledge engineers are providing it!
- Combining this with statistical techniques is a powerful combination

Are Picasso and Herengracht 196 related?

