



Capturing the aesthetic experience and structuring human engagement with art, music and literature

MITE Research Seminar

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Knowledge Graphs · the Semantic Web · Digital Humanities ·
Intangible Cultural Heritage · Data Cataloguing & Integration

Early work: lifecycle of ontologies and
Linked data in content management
(domain-independent)



Learning Analytics



Digital Humanities



(funding bid)



(Linked Irish Traditional Music)

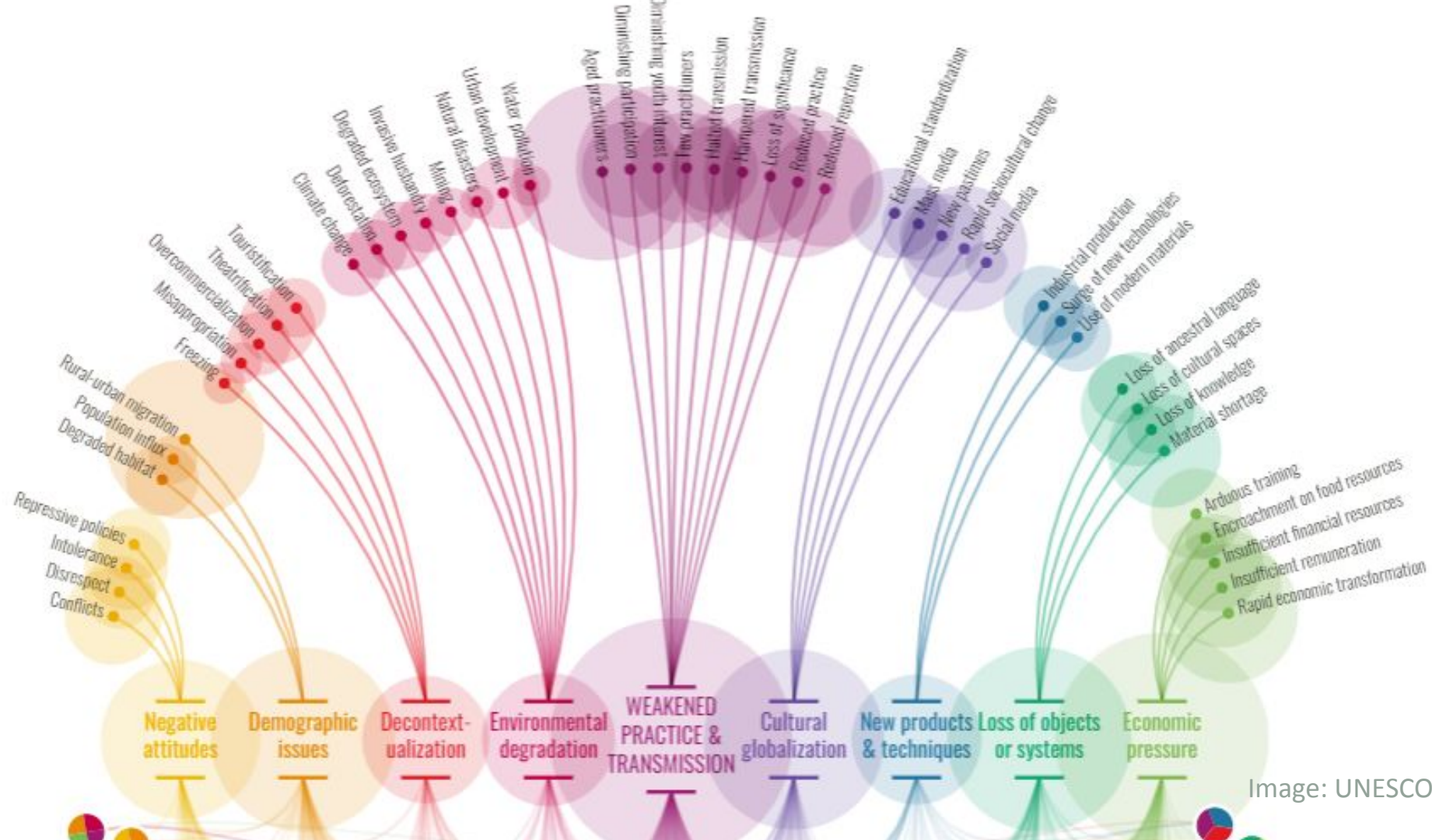
LITMUS

Smart Cities & Industry



(funding bid)





Dimensions of (im)materiality in ICH

EPISTEMIC



The knowledge that makes an engagement culturally relevant

Knowledge and practices

Experience

Semiotics

Styles, Techniques

(hence norms: also of social significance)

AESTHETIC



That whose fruition triggers a culturally relevant response

Performances

Proprioception

(e.g. kinesthesia)

Multi/sensory engagement

Rituals (again, social)

SOCIAL



That which concerns the transmission of culture

Oral history

Folklore, Tradition

Cultural influence

Role stereotypes

Structuring aesthetic phenomenology

- Goal: to represent [inner] events, responses, perceptions etc. in a Knowledge Graph framework.
- Linked Data have proven useful mainly for capturing named and “cataloguable” entities.
- Intangibility is only part of the reason why modelling experiences in data is so difficult.
- Choice between treating an experience as a phenomenon or as another perdurant being.



Orest Kiprensky, "Readers of newspapers in Naples" 1831. Tretyakov Gallery, Moscow



UK Reading Experience Database

- Pioneering research project in the crowdsourced cataloguing of evidence of reading in literature.
- Still active after 15+ years
- Custom data model
- No linking other than guesswork over DBpedia entities

<https://www.open.ac.uk/Arts/reading/UK/>

Record Number: 10372

Reading Experience:

Evidence:

"Alphonsine" did not do. We were disgusted in twenty pages, as, independent of a bad translation, it has indications which disgrace a pen littered so pure; and we changed it for the "Femine Quotidie", which now makes our evening amusement; for me a very high one, as I find the work quite equal to what I remembered it; Mrs F.A., to whom it is new, enjoys it as one could wish; the other Mary, I believe, has little pleasure from that or any other book."

Century: 1800-1849

Date: Between 7 Jan 1807 and 8 Jan 1807

Country: England

Time: evening

Place: City: Southampton

Type of Experience (Reader): silent aloud ~~unknown~~
solitary in company ~~unknown~~
single serial ~~unknown~~

Type of Experience (Listener): solitary in company ~~unknown~~
single serial ~~unknown~~

Reader / Listener / Reading Group:

Reading Group: Austen family

Age: Adult (18-100+)

Gender: Female

Date of Birth: n/a

Socio-Economic Group: Gentry

Occupation: various

Religion: Anglican

Country of Origin: England

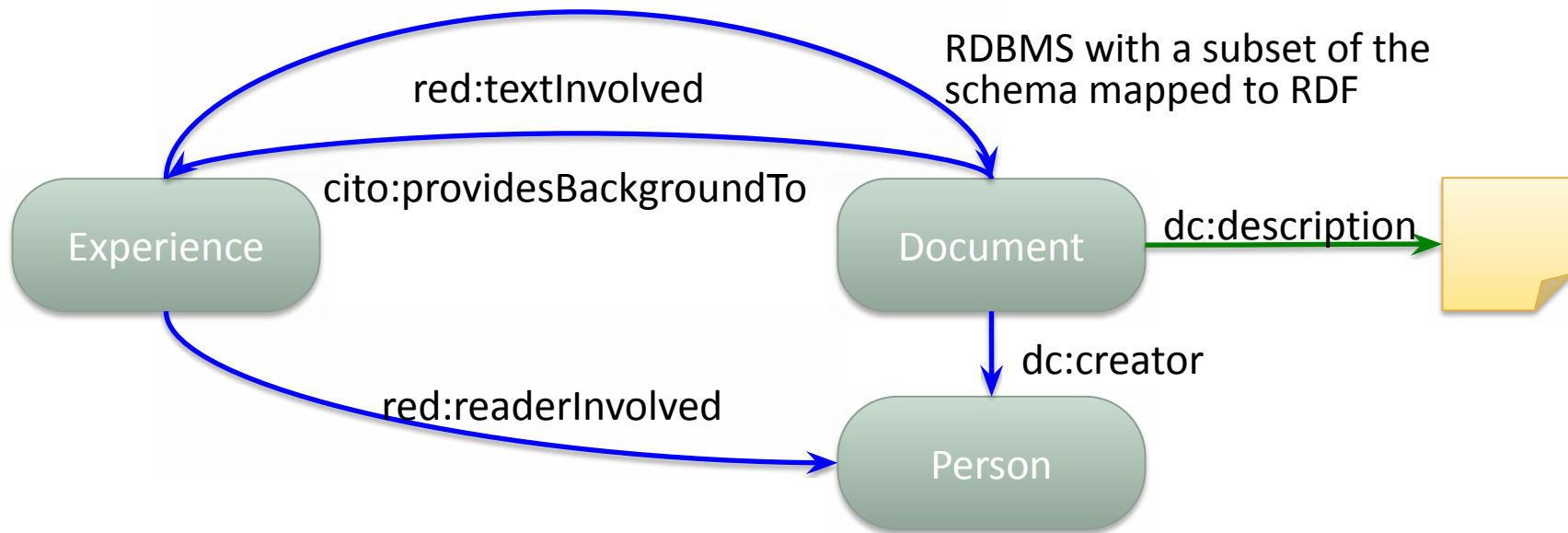
Country of Experience: England

Listeners present if any: n/a
e.g. family, servants, friends





RED Data Model



	Reader	Listener
silent aloud	X	
solitary in company	X	X
single serial	X	X

} Not captured in RDF schema
(no reification of n-ary relations such
as agent roles)

Standard ontologies for events

- LinkedEvents, <http://linkedevents.org/ontology/> (superseded)
- <http://purl.org/NET/c4dm/event.owl>
- `dul:Event` and `dul:Situation` in DOLCE, <http://www.ontologydesignpatterns.org/ont/dul/DUL.owl> (a Situation is a view on an Event)
- `schema:Event`
- E5 Event in CIDOC-CRM (subsumes E4 Period)



Henri Fantin-Latour, "Autour du piano", 1885. Musée d'Orsay, Paris.



Listening Experience Database

- <http://led.kmi.open.ac.uk>, <http://listeningexperience.org>
- AHRC-funded in 2 grants, 2013-2018
- Capturing and storing crowdsourced experiences of listening to sound and music, *natively as Linked Data*
 - Entire data schema already in RDF
 - SPARQL query service
 - Use of ontologies (Bibo, Music Ontology, DBpedia-OWL)
 - Linking with external sources (e.g. DBpedia, British National Bibliography, MusicBrainz)

Igor Stravinsky in Lausanne - 28 September, 1918



from **Igor Stravinsky: An Autobiography**, pages 74-77:

After a great many rehearsals for the actors, for the musicians, and for the Princess' dances, which Mme Pitoëff and I evolved together, we reached the moment to which we had so eagerly looked forward, and on September 28, 1918, the first performance was given – at the Lausanne Theatre. / I had always been a sincere admirer of René Auberjonois' drawings and painting, but I had not expected that he would give proof of such subtle imagination and such complete mastery as he did in the scenery and costumes and the whole artistry of his setting. Among our other collaborators I had had the ... [more >>](#)

cite as

Igor Stravinsky, *Igor Stravinsky: An Autobiography* (1936), p. 74–77. <https://led.kmi.open.ac.uk/entity/lexp/1434627147427> accessed: 5 December, 2019



location of experience: **Lausanne**

Listeners



Igor Stravinsky

[...] Composer,
Conducting, Musician, Pianist
1882–1971

Listening to

'L'Histoire du soldat'

written by **Igor Stravinsky**

performed by **Ernest Ansermet**

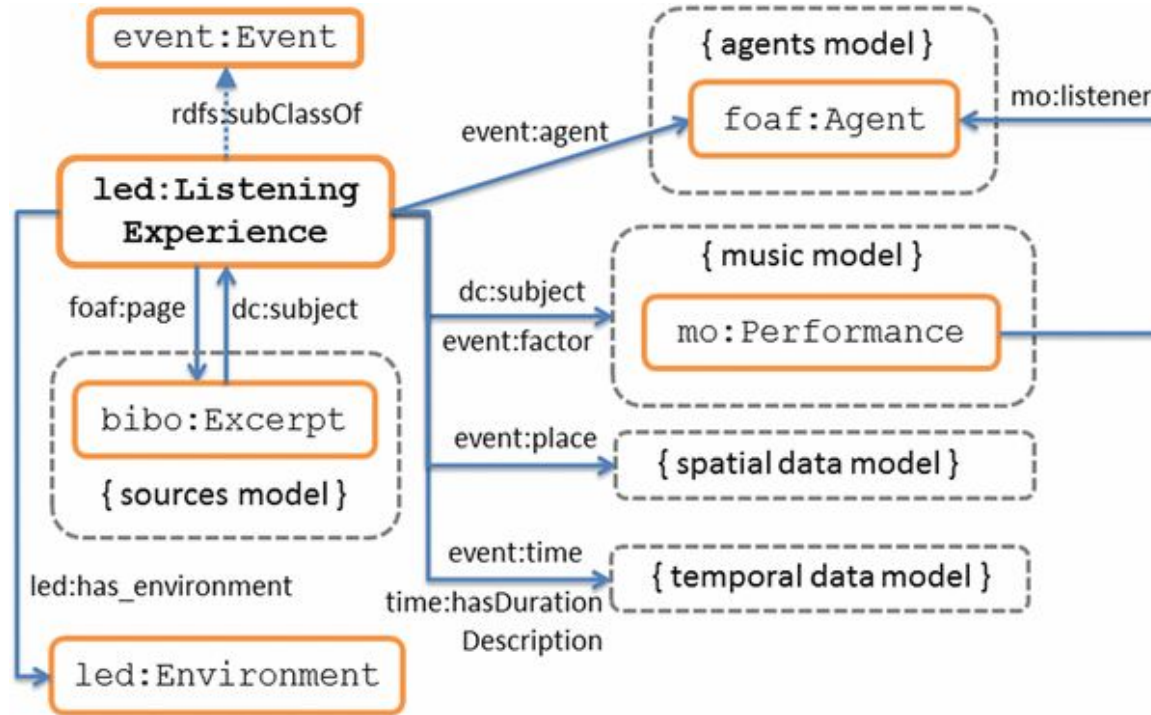
[hide composers](#)

Experience Information

Date/Time **28 September, 1918**

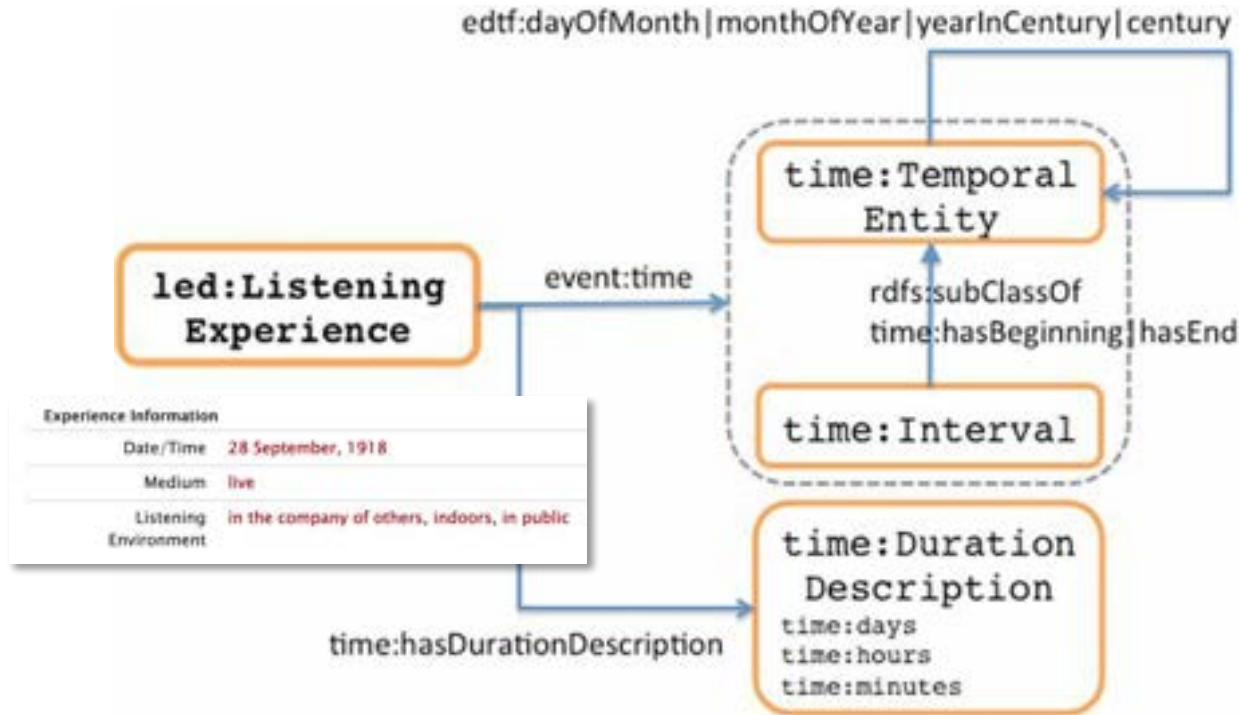
Medium **live**

LED model



[2] [A. Adamou](#), S. Brown, H. Barlow, C. Allocca, M. d'Aquin. “**Crowdsourcing Linked Data on listening experiences through reuse and enhancement of library data**”. International Journal on Digital Libraries (2019) 20:61–79

LED model



[2] [A. Adamou](#), S. Brown, H. Barlow, C. Allocca, M. d'Aquin. “**Crowdsourcing Linked Data on listening experiences through reuse and enhancement of library data**”. International Journal on Digital Libraries (2019) 20:61–79

LED model in action

FindLer

Detects traces of listening experiences in texts

<https://led.kmi.open.ac.uk/discovery/findler>

- Started as simple evaluation of relevant terms in LEs (TF/IDF)
- Became full NLP tool (Stanford CoreNLP word embeddings) and Random Forest-based machine classifier [3]
- Uses entities present in the LED knowledge graph plus others extracted using DBpedia Spotlight.

Source: The Canterville Ghost

2 traces of listening experiences found.

AS LIST IN TEXT FIRST

Phèdre and The Beloved Vagabond alone would satisfy him. White was for ever full of musical schemes and tunes ; he was discovered alone in his room, with a full score of the Fifth Symphony on the mantelpiece, conducting with the poker an imaginary orchestra, which was reproduced by every manner of sound. 6 Shrewsbury 9 o- 9 Y On Saturday evenings he played sonatas on the violin at which he was expert Southwell accompanying him on the piano ; Bach Beethoven and Corelli would usurp meal- times ; and on Sunday afternoons the folding-doors between a sitting-room and the dining-room were opened and on one occasion as many as forty boys came to tea, and lay about

2 FEEDBACK: [icons]

[3] E. Daga, E. Motta: **Capturing Themed Evidence, a Hybrid Approach**. K-CAP 2019: 93-100

LED model in action

FindLEr

- Evaluated over a gold standard of 1k samples from 17 books that LED and UK RED are sourced from
- Encouraging results...
 - F1-score of .875 on LED and on .822 on UK RED
 - Mainly very high recall on both: *“generally harder to avoid false positives than false negatives”* [3]
- ...however...
 - *“failed to classify 131 samples of which only 45 were correctly classified by any of the other methods”* [3]
 - entity boost identified as the main cause of false positives
 - Model of listening experience in LED was not too helpful





Reading Europe Advanced Data Investigation Tool

- <https://readit-project.eu/>
- JPI-CH funded project, 2018-20
- Capturing and **annotating** experiences of reading throughout **European** literature **and art**
- Focus is no longer on reader-listener relationship
- Usage of FRBR and CIDOC-CRM



Phenomenology of reading

Oh yes, oh, *I remember Jane Eyre.*

How old were you when you read Jane Eyre?

Well, I think *I must have been about twelve.* I, I have a very hazy memory of ages.

It's a long time ago.

But, ah, everything seems to either be at the age of eight or the age of twelve, but I'm pretty certain it would have been *about twelve* because *I read Jane Eyre* on the train coming back from staying with my godmother in, just outside Oxford, and I remember it was my mother's *two volume edition* and we'd covered it in brown paper, and I think she'd covered it in brown paper really to sort of make me feel better about reading rather, what seemed to me rather an old fashioned book. It didn't have a cover with pictures on it. It was bound, I think in, white vellum or so, it was, but it was a particular edition, and I remember, I just was swallowed up by it. I, I still remember the red room, just the, the fact, and the first meeting with Rochester, who, despite all the feminist arguments, and yes, I can well, I can see exactly how the, that the viewpoints, but one did fall in love with Rochester [laughter]. Why, why, I don't know, but, but one did.



reading



reader

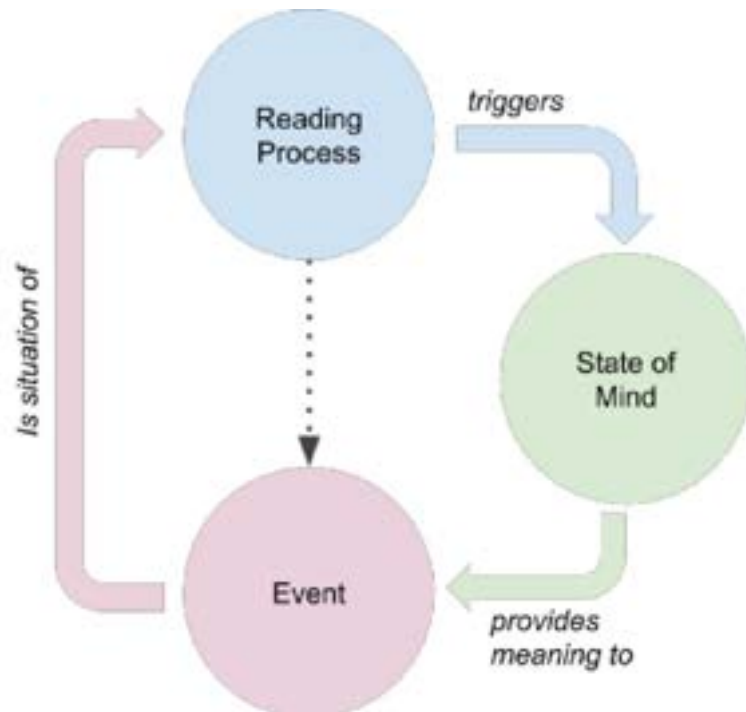


state of mind / outcome



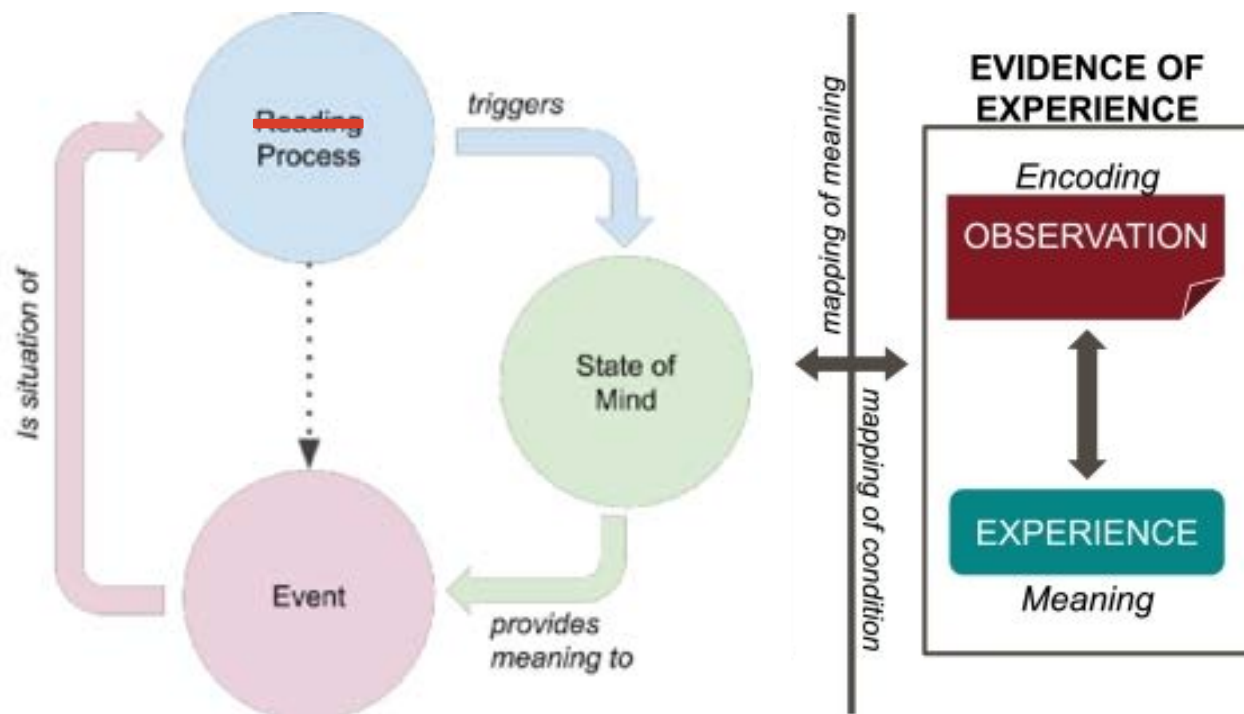
content / medium / alteration

Ontology of reading

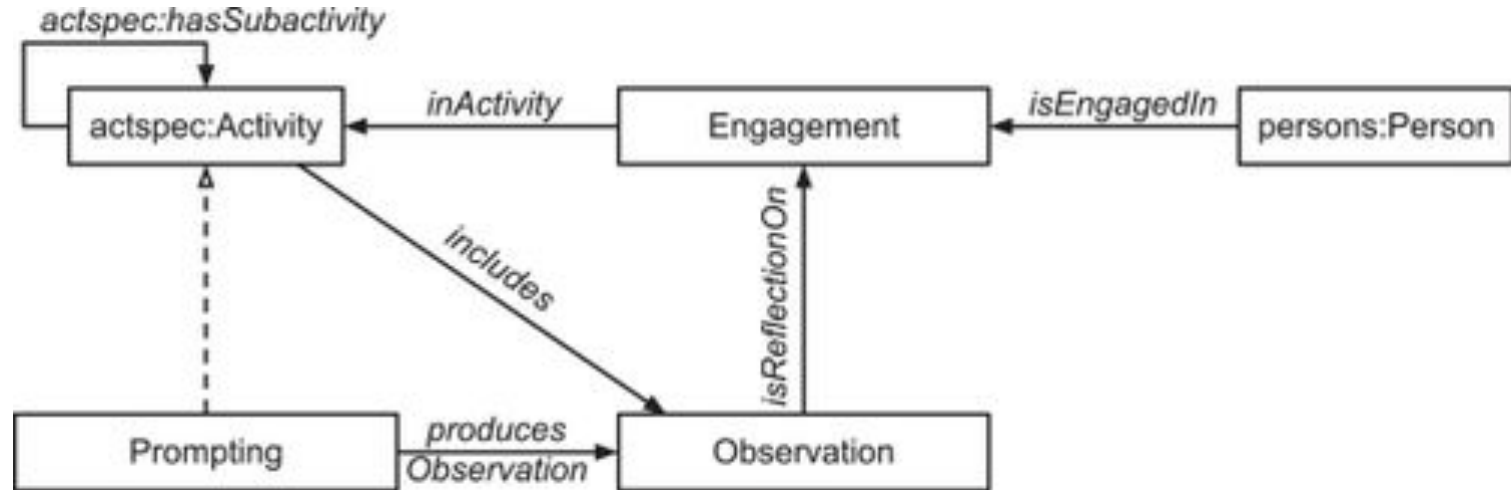


[4] F. Vignale, G. Gravier, B. Ouvry-Vial, A. Antonini. **"The Model of Reading: Modelling principles, Definitions, Schema, Alignments"**. HAL technical report, 2019.

<https://hal-univ-lemans.archives-ouvertes.fr/hal-02301611>

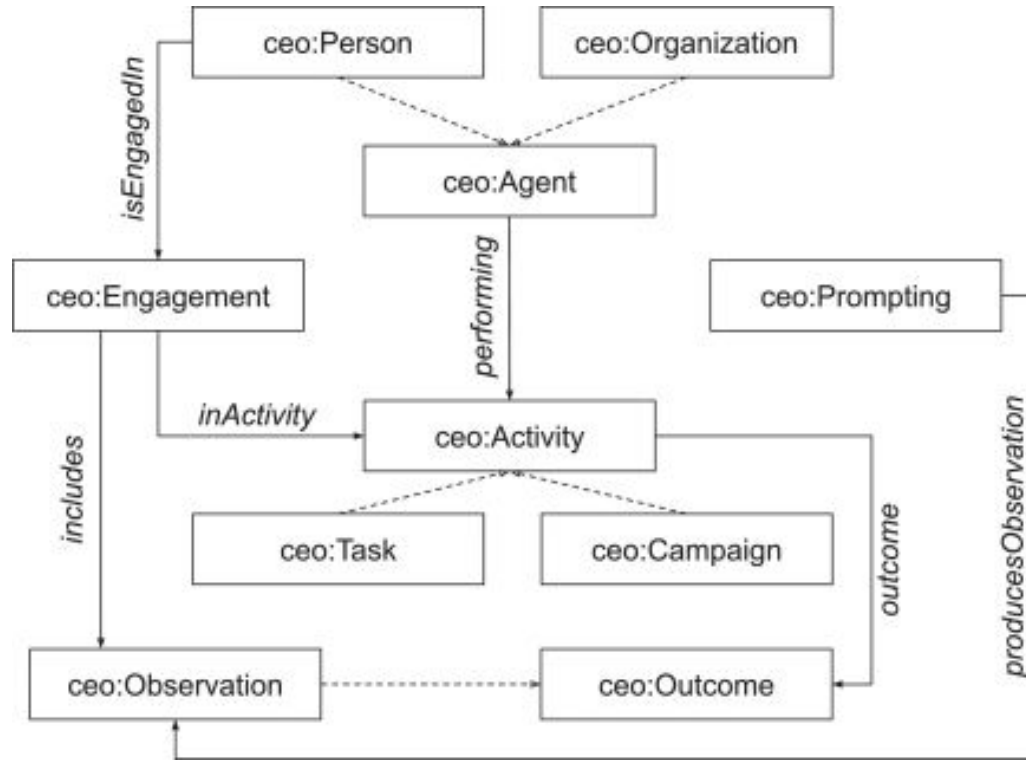


Design pattern: Experience and Observation

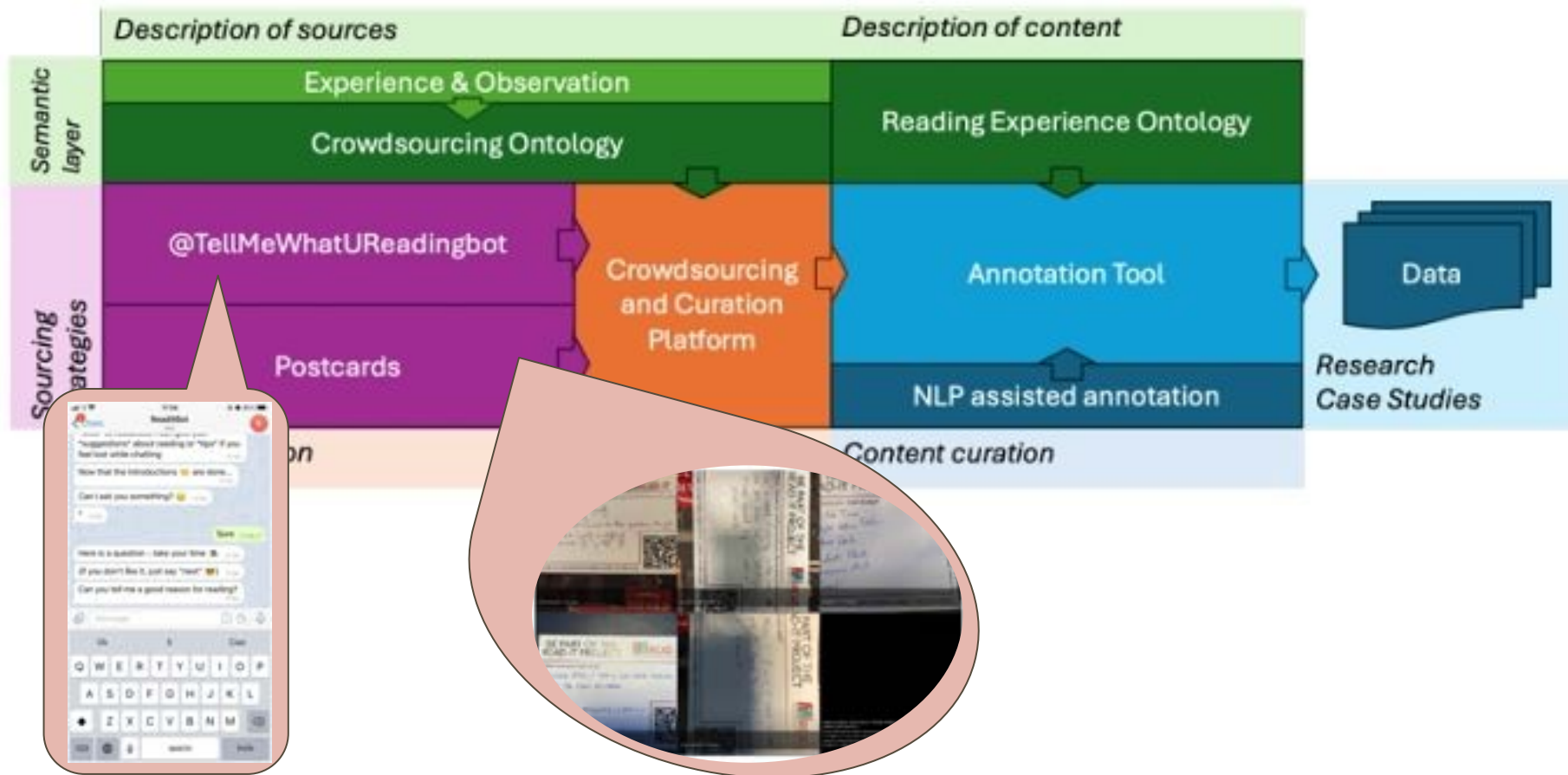


[6] A. Antonini, A. Adamou, M.C. Suárez-Figueroa, F. Benatti. “**Experiential Observations: An Ontology Pattern-Based Study on Capturing the Potential Content within Evidences of Experiences**”. Journal on Computing and Cultural Heritage 16(3):1-30 (2023)

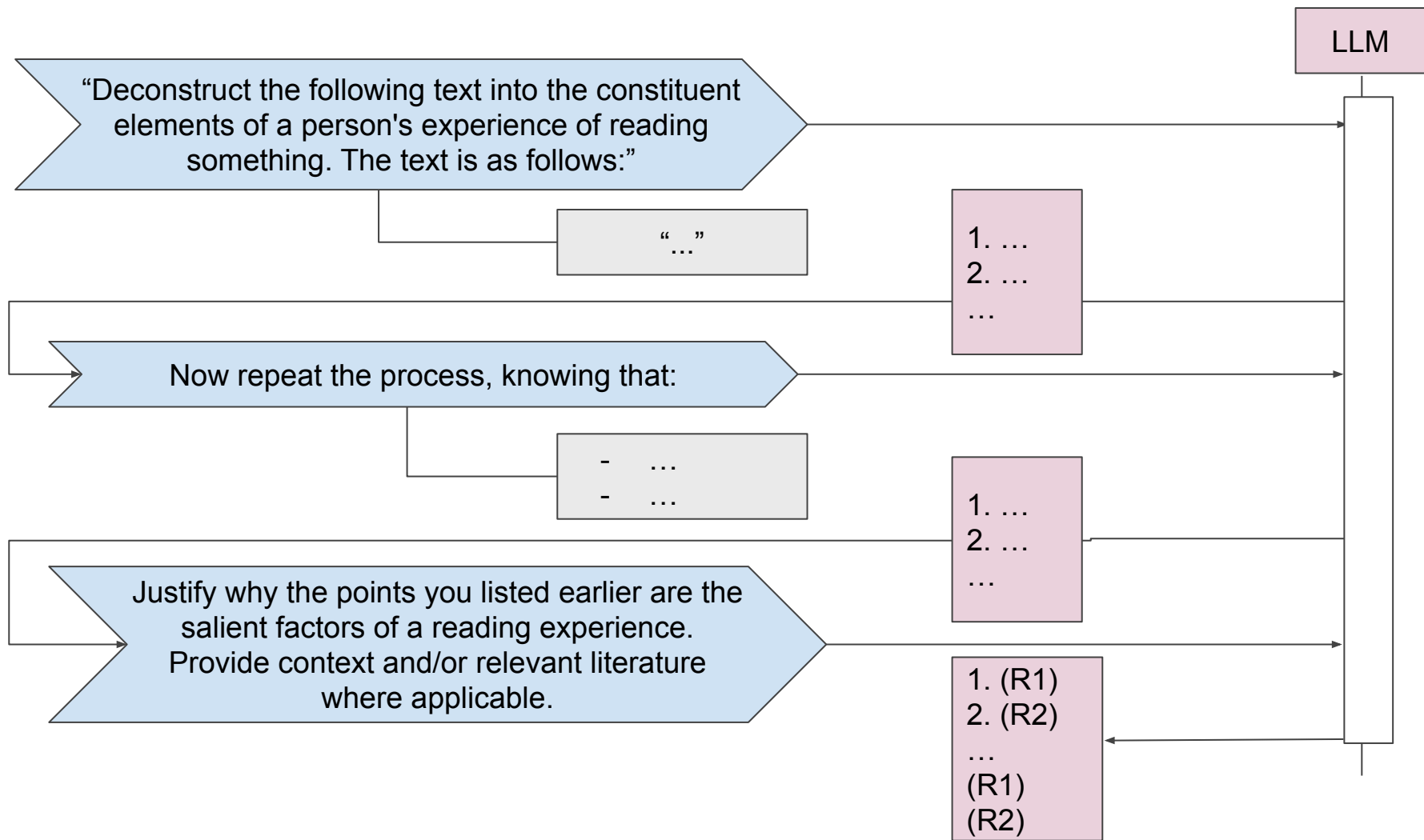
Implementation: Crowdsourcing Experience



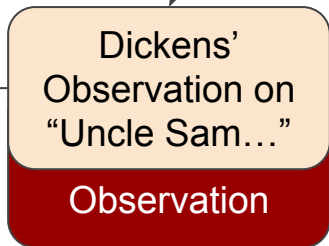
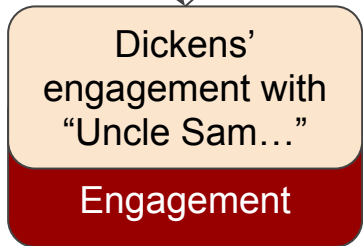
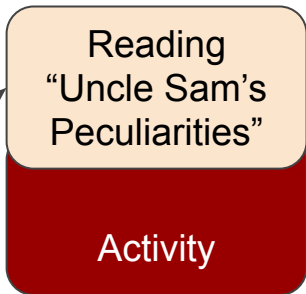
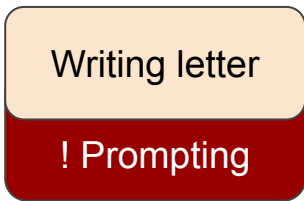
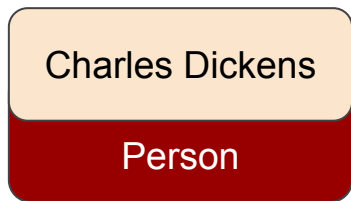
[6] A. Antonini, A. Adamou, M.C. Suárez-Figueroa, F. Benatti. **“Experiential Observations: An Ontology Pattern-Based Study on Capturing the Potential Content within Evidences of Experiences”**. Journal on Computing and Cultural Heritage 16(3):1-30 (2023)



[7] A. Antonini, S. Towheed, S. Blackburn-Daniels, F. Benatti. “@TellMeWhatUReadingbot: the Multi-modal Strategy of the READ-IT Project for Collecting Experiences of Reading”. HyperText '24 (2024)

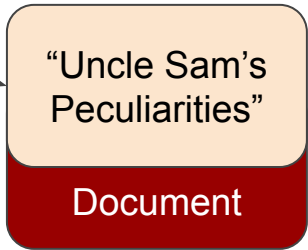


Llama 3.3 70B instruct	DeepSeek R1	GPT-4o	Mistral Large instruct
Initial Impression and Opinion Formation Content Evaluation Reading Strategy and Selection Emotional and Intellectual Response Literary and Cultural Context (e.g. why it is being evaluated) Empathy and Professional Courtesy Author-Editor Dynamics	Content Understanding Tone Perception Emotional Response Implications and Inferences Purpose Recognition Structure and Style Personal Reflection Historical and Scholarly Context (when provided with context)	Recognition Evaluation Content Analysis Purpose Consideration Judgment Clarification	Visual Perception Cognitive Processing Emotional Response Contextual Understanding Reflective Thoughts Behavioral Response
Bibliography provided, no DOIs or ISBNs	No literature provided, only topics	Only relevant scholars mentioned (e.g. Lloyd Bitzer, or Bloom's Taxonomy)	Bibliography provided, some DOIs hallucinatory



"My dear Sir, I have looked over Uncle Sam, and am still of the opinion I originally formed..."

"The manuscript 'Uncle Sam's Peculiarities' is not suitable for publication..."



is engaged in

in activity

produced
observation

is reflection on

dc:description

prov: was
derived from

The bottom line

- Leveraging a data model to learn to detect experiential evidence requires more than highlighting the actors.
- Linked data lay the ground but do not solve the problem.
 - Training or guiding a language model to fit a text is a research endeavour in and of itself
- Mining sentiment and critique
 - Still extrapolation of aesthetic acts?
 - Should it still specialise a robust response model?

1. M. Bradley, “**The Reading Experience Database**”, Journal of Victorian Culture 15, no. 1: 151–53 (2010).
2. A. Adamou, S. Brown, H. Barlow, C. Allocca, M. d’Aquin. “**Crowdsourcing Linked Data on listening experiences through reuse and enhancement of library data**”. International Journal on Digital Libraries 20:61–79 (2019).
3. E. Daga, E. Motta: **Capturing Themed Evidence, a Hybrid Approach**. K-CAP 2019: 93-100.
4. F. Vignale, G. Gravier, B. Ouvry-Vial, A. Antonini. “**The Model of Reading: Modelling principles, Definitions, Schema, Alignments**”. HAL technical report (2019).
<https://hal-univ-lemans.archives-ouvertes.fr/hal-02301611>
5. A. Antonini, M.C. Suárez-Figueroa, A. Adamou, F. Benatti, F. Vignale, G. Gravier, L. Lupi. “**Understanding the phenomenology of reading through modelling**”. Semantic Web 12(2):191-217 (2021).
6. A. Antonini, A. Adamou, M.C. Suárez-Figueroa, F. Benatti. “**Experiential Observations: An Ontology Pattern-Based Study on Capturing the Potential Content within Evidences of Experiences**”. J. Comput. Cult. Herit. 16(3):1-30 (2023).
7. A. Antonini, S. Towheed, S. Blackburn-Daniels, F. Benatti. “**@TellMeWhatUReadingbot: the Multi-modal Strategy of the READ-IT Project for Collecting Experiences of Reading**”. HyperText '24, Poznan, Poland (2024).

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