

# Analysing activity traces in order to assess online resources.

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# SUMMARY

- I. Three way for assessing online resources
- II. A trace base system, concepts
- III. A trace base system for assessing online resources
- IV. Conclusion : future development

# Three way for assessing online resources

- Analysing logs
- Analysing retrieval activity
- Combining the two approaches with activities traces

# Analysing logs

- Analysis of datas from system logs (heart of the *web log analysis* project), a powerful way
- Low-cost nformations from **server-side**
- Advantage of **quantitative** data processing [Boudroux 08]
- Problem of **standardization** of analysis [Boukacem 05]

# Analysing retrieval activity

- Studies about uses of electronic journals:
  - point of view of **readers**
  - point of view of **writers**
- Feedback to standardization of interfaces [Lompré 07]
- Studies on modeling of information retrieval [Tricot 98]

# Combining the two approaches with activities traces

- Conciliate the **flexibility** of the statistical analysis
- with the **precision** of activity analysis;
- get the information on the **client side**;
- implicate the **user as an actor** of analysis.

# Issues

- **Share** of resources assessment processus.
- Enhanced **autonomy** in libraries from data provided by editors.
- Better **knowledge** of the real activity of information retrieval.
- **Costs** reduction or optimization.

## II. A Trace Base System, concepts

1. Trace Based Management System
2. Observed
3. Collection
4. Interaction modeled traces
5. Documentarized traces
6. Traces transformations
7. Interactive trace visualization

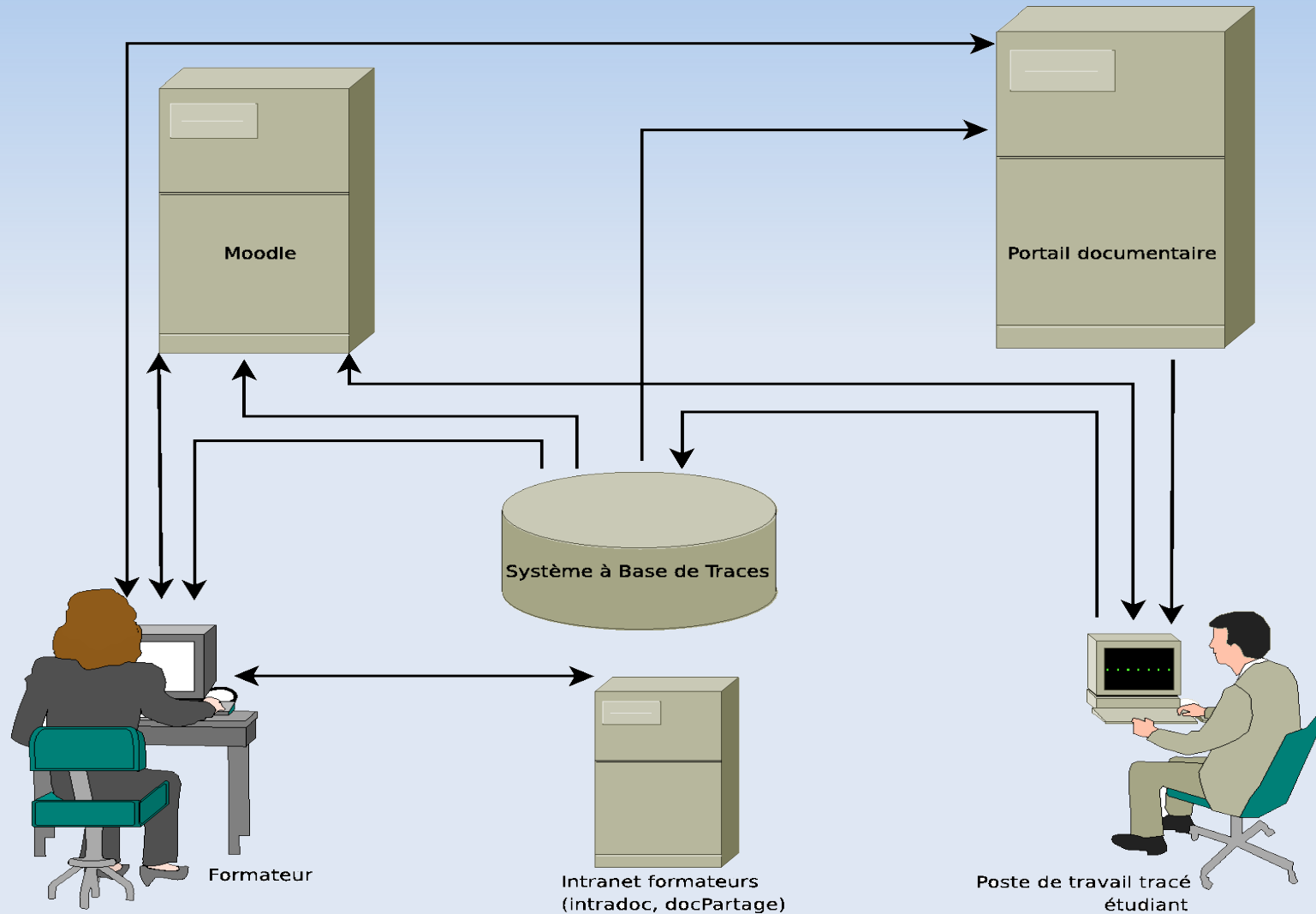
[Champin 03, Clauzel 09, Mille & Prié 06, Laflaquière 06, Ollagnier-Beldame 06, Settouti 06].



# 1. Trace base management system TBMS

- **Computer system**, with or without memory,
- manage a database of traces modeled through a **system observed**
- and providing **services** like semantic transformation, request, sharing ...

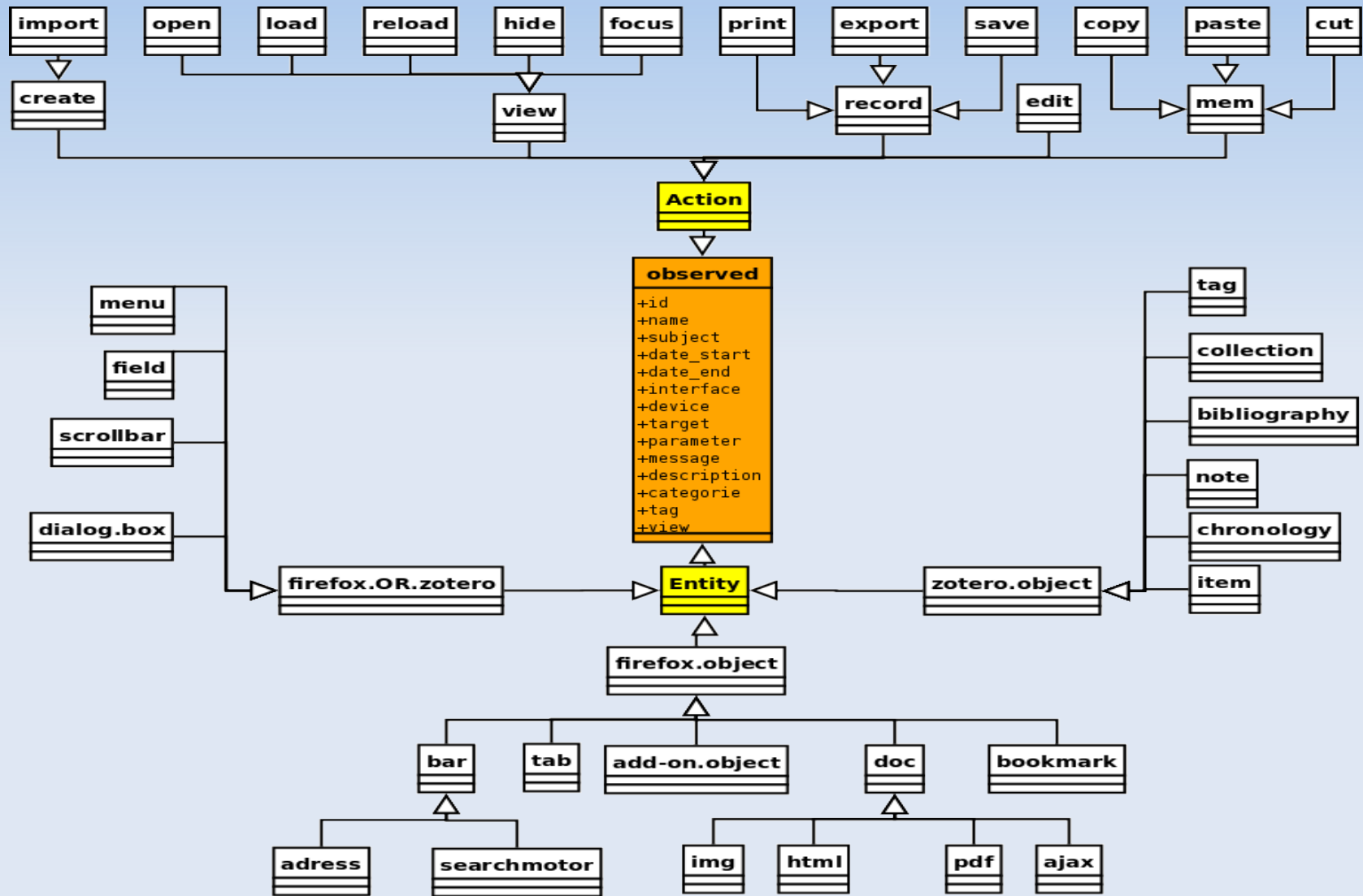
# Draft of a TBMS in library



## 2. Observed

- This is an element **temporally located** in a trace modeled
- It has a defined **type**
- It has a **subject**
- May be **related** to other observed

# Example: modeling observed



# 3. Collection

- **Collect source:** probes, system logs, audio and video records...
- **Collect:** creates a trace material in a database management traces

## 4. Interaction modeled traces

- **Modeled trace:** composition observed, organized according to a model trace: types, relationships, transformations...
- **First trace:** trace directly after collection, unprocessed.
- **Computed trace:** trace associated with automatic processing, related to views.

## 5. Documentarized traces

- Creating a document **exchanged** outside the BCMS,
- either derived from the **native** or empirical observation (video, audio ...),
- or derived from a documentarization **of observed** (text, tables, chronology ...).

## 6. Traces transformation

- **Operation** on one or more traces modeled first or computed
- in order to **produce** a new trace modeled;
- if it is described by a model transformation, it is called **automatic**;
- if it is the result of a specific intervention, it is called **manual**.



# 7. Interactive trace visualization

- **Consultation** by a user with a visual representation of a trace
- according to predefined **rules**.
- **Views** can be directly associated with different calculated traces.

# Example of presentation (ergodoc)

The screenshot displays the ergodoc software interface. On the left, a sidebar lists users: Yannick, Julien, and Leila. The main area shows a table of sessions with columns: Clé, Sujet, Date, Nom, Paramètre, Adresse, Relation, and Note. The table contains 35 rows of session data, mostly dated 'mar. 24 nov....' and involving 'firefox.unload'. Some rows show 'Google Documents' and 'Comptes Google' as parameters. At the bottom, a status bar indicates 'Nb. de traces : 3' and 'Nb. de nœuds : 2'.

| Clé | Sujet | Date            | Nom             | Paramètre        | Adresse             | Relation | Note |
|-----|-------|-----------------|-----------------|------------------|---------------------|----------|------|
| 1   |       | mar. 24 nov.... | firefox.tabc... |                  | about:blank         |          |      |
| 2   |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 3   |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 4   |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 5   |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 6   |       | mar. 24 nov.... | firefox.unload  | Google Documents | https://docs.goo... |          |      |
| 7   |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 8   |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 9   |       | mar. 24 nov.... | firefox.unload  |                  | https://spreads...  |          |      |
| 10  |       | mar. 24 nov.... | firefox.unload  |                  | https://mail.goo... |          |      |
| 11  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 12  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 13  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 14  |       | mar. 24 nov.... | firefox.unload  | Comptes Google   | https://www.go...   |          |      |
| 15  |       | mar. 24 nov.... | firefox.unload  | Comptes Google   | https://www.go...   |          |      |
| 16  |       | mar. 24 nov.... | firefox.unload  | Google Documents | https://docs.goo... |          |      |
| 17  |       | mar. 24 nov.... | firefox.unload  |                  | https://spreads...  |          |      |
| 18  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 19  |       | mar. 24 nov.... | firefox.tabc... |                  | https://addons...   |          |      |
| 20  |       | mar. 24 nov.... | firefox.tabc... |                  | https://addons...   |          |      |
| 21  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 22  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 23  |       | mar. 24 nov.... | firefox.unload  |                  | https://docs.goo... |          |      |
| 24  |       | mar. 24 nov.... | firefox.unload  |                  | https://docs.goo... |          |      |
| 25  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 26  |       | mar. 24 nov.... | firefox.unload  |                  | https://spreads...  |          |      |
| 27  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 28  |       | mar. 24 nov.... | firefox.unload  | Comptes Google   | https://www.go...   |          |      |
| 29  |       | mar. 24 nov.... | firefox.unload  |                  | about:blank         |          |      |
| 30  |       | mar. 24 nov.... | firefox.unload  |                  | https://mail.goo... |          |      |
| 31  |       | mar. 24 nov.... | firefox.unload  | Google Documents | https://spreads...  |          |      |
| 32  |       | mar. 24 nov.... | firefox.unload  |                  | https://mail.goo... |          |      |
| 33  |       | mar. 24 nov.... | firefox.unload  |                  | https://mail.goo... |          |      |
| 34  |       | mar. 24 nov.... | firefox.unload  |                  | https://mail.goo... |          |      |
| 35  |       | mar. 24 nov.... | firefox.unload  |                  | https://mail.goo... |          |      |

# III. A trace base system for assessing online resources

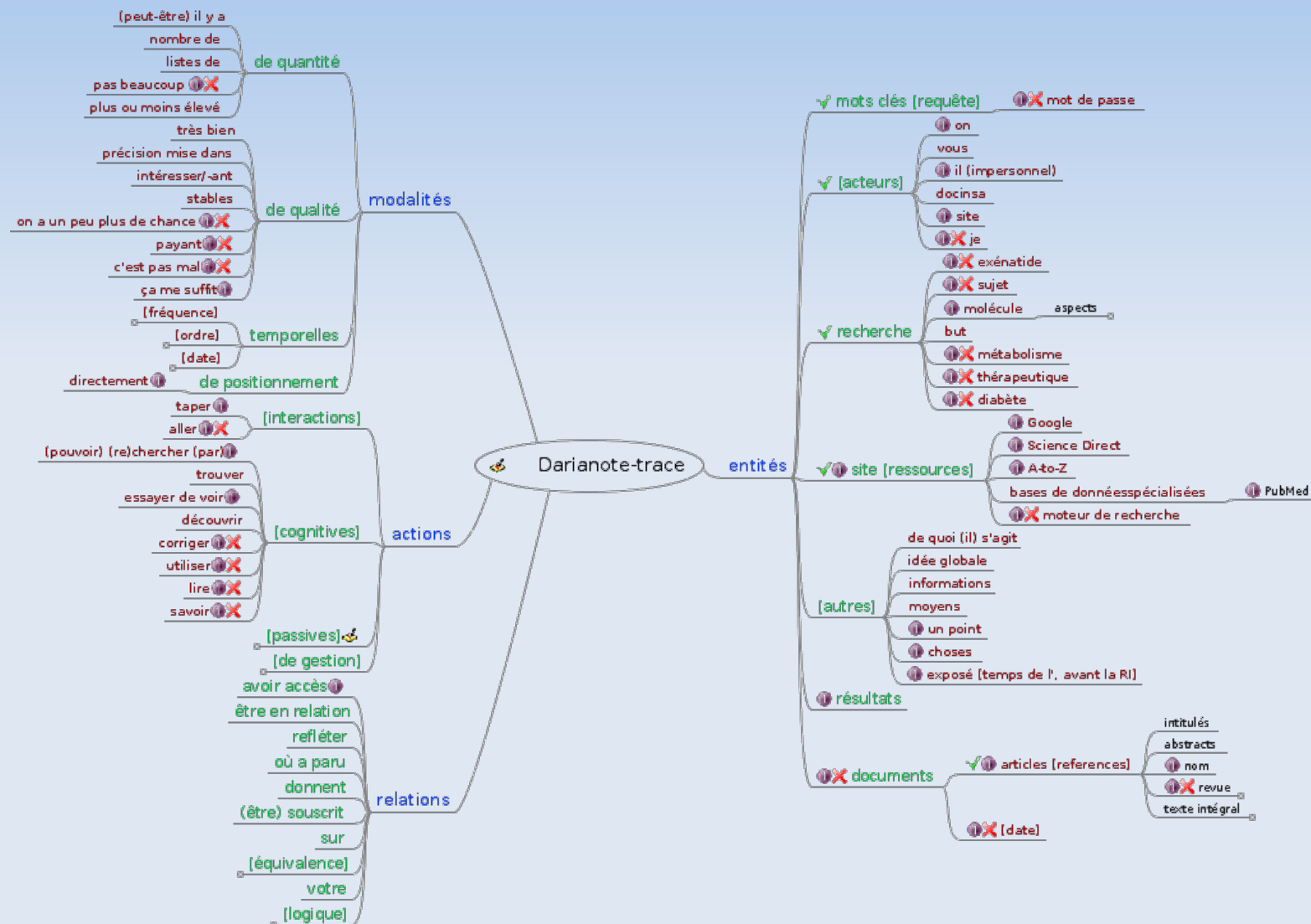
Designing a system of reflexivity involves steps [Jermann 01] that we adapt in this manner:

1. Data collection
2. Designing a model trace
3. Defining a profile evaluative
4. Representative traces
5. Creating a calculation engine traces
6. Classification of resources

# 1. Data collection

- Study the **ergonomics** of the interfaces
- Study the **semantics** of the retrieval activity
- Identify **user actions** relevant
- Choose **site implementations** in the code of systems observed

# Example: analyse the semantics of the user



## 2. Designing a modeled trace

- Define a model of observed as an object with **attributes**: id, description, dates ...
- Design a **hierarchy** of users actions that describe observed, giving a primary trace.
- Define **transformations** from the primary trace model to make it usable.

# Example: a hierarchic primary trace

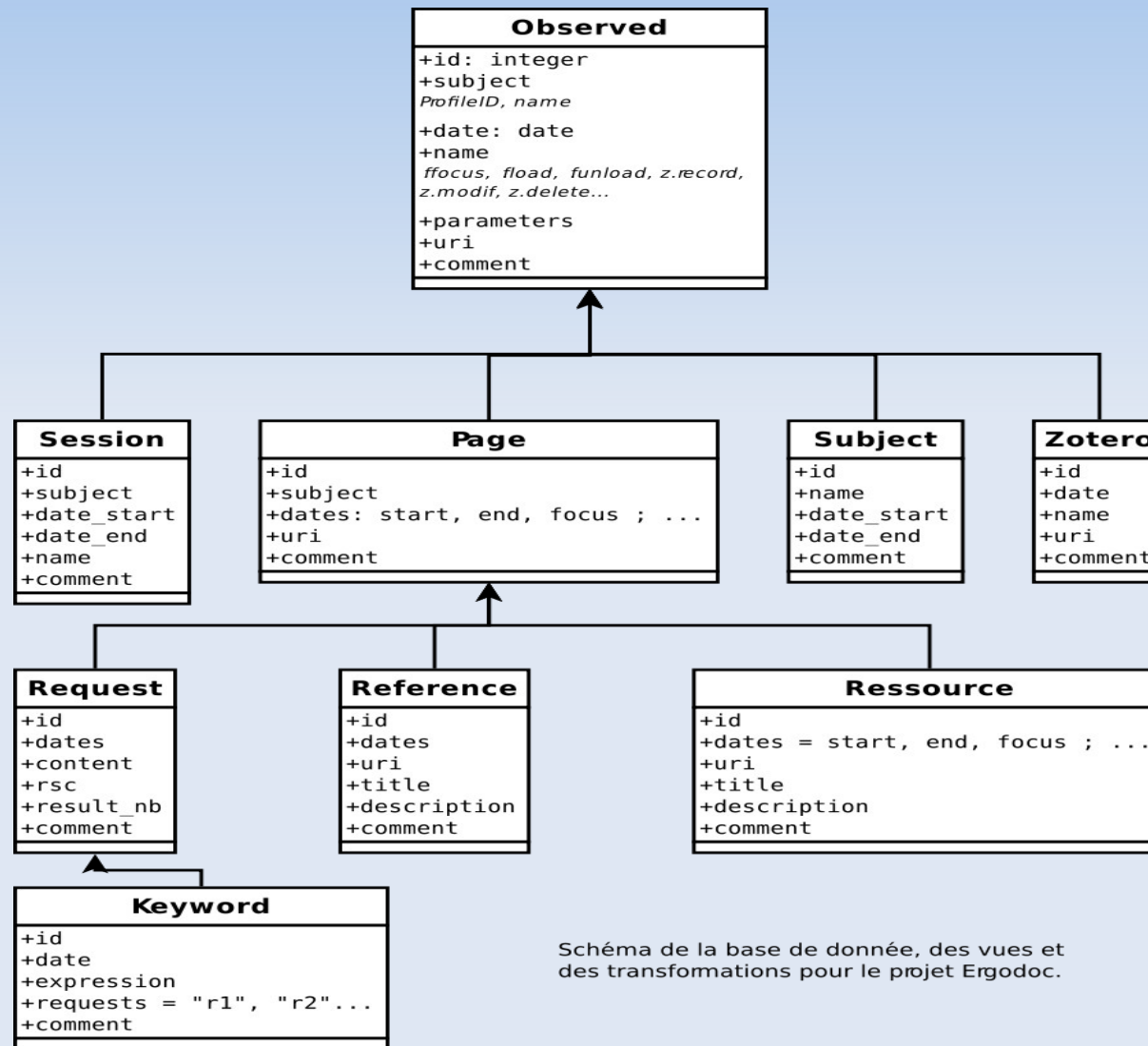


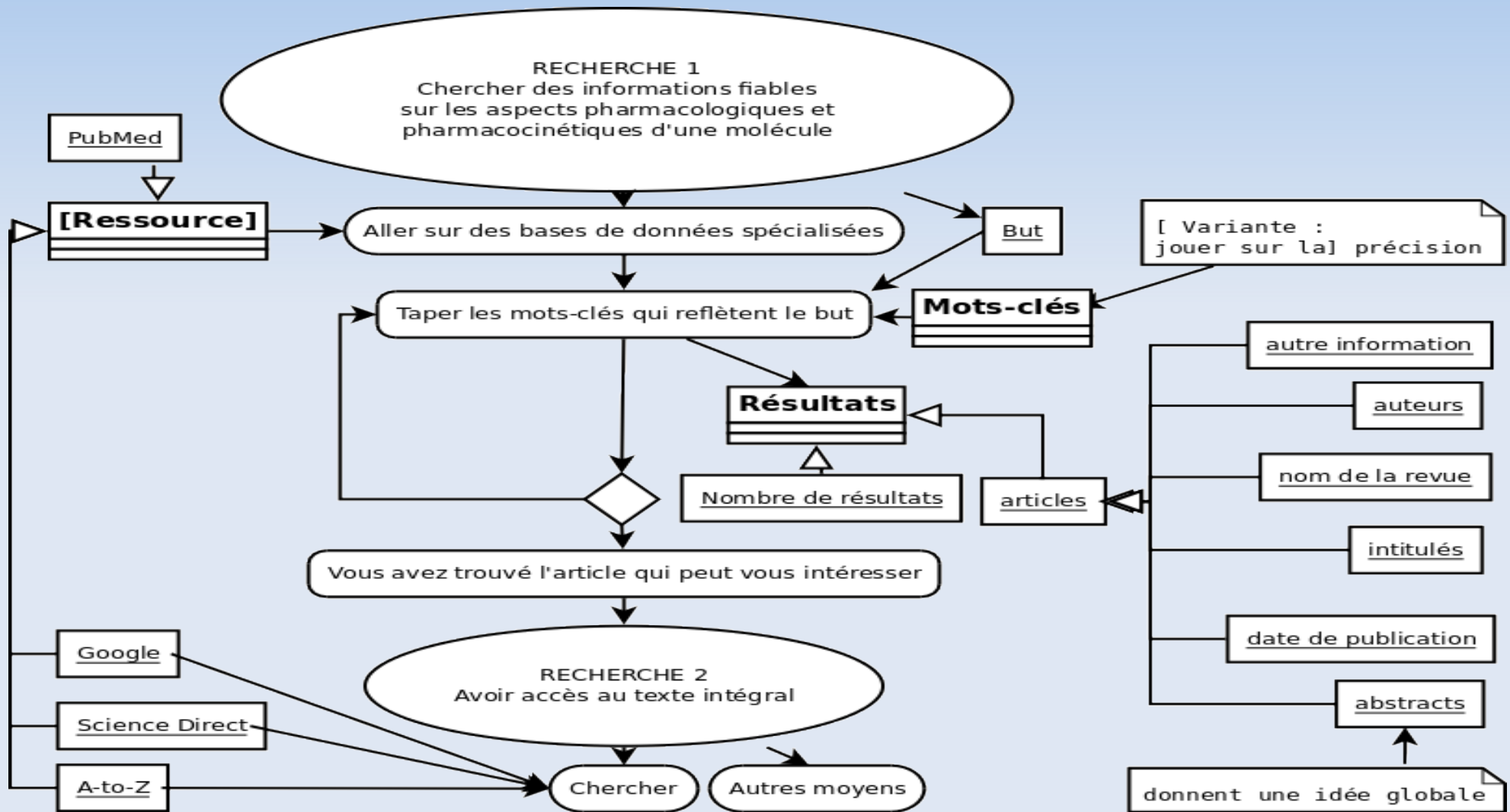
Schéma de la base de donnée, des vues et des transformations pour le projet Ergodoc.

### 3. Defining a profile evaluative

- The profile describe a **logic of use** and a **type of user**.
- The profile is related to a **model of transformation**.
- This avoids the simplicity of the model : such action = one point for the resource.
- Example: record a document in a bibliographic base and displays it for at least 2 minutes is more pertinent that just record it.



# Example of a logic of use



## 4. Visualization of traces

- Choice **modalities of representation**:
  - tabular form;
  - chronology form...
- Opportunity for user to **comment** his traces ("note" attribute).
- The analysis of these comments may lead to further evaluation using a **formalism appropriate**, eg. "Eval = too Wait" (is it subjective?).

## 5. Activating a calculation engine of traces for evaluation

- We define a **standard activity model** (eg. presence of steps with expected activity...)
- We **compare** this model with that described by the collector for real activity.
- We **regulate** and adjust on the activity model based on user profiles, observed constants, etc..

## 6. Classification of resources

- **Automatons compare and transform** real activity traces from patterns and constants.
- It is to **reduce** these traces evaluation indicators, which means to interpret the activity with reservations, which is a work of **humans**.

## IV. Conclusion

- So, we are trying to **combine** the advantages of qualitative analysis (ergonomic) and quantitative analysis (data mining).
- It **doesn't avoid the difficulties**: comparing actual activity with the activity or interpreting statistical datas.
- It offers a **rich background** from a semantic of the activity.
- **Other advantages**: best ownership by the user, sharing, collaboration, etc.

# Ergodoc project

## <https://addons.mozilla.org/fr/firefox/addon/51326/>

**mozilla**

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# Modules *pour* **Firefox**

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dans  

Avancé ▼

## Modules pour Firefox

 **ergodoc add-on 0.1**  
par [thibaud74](#)



Module pour augmenter la réflexivité de la recherche d'information par la visualisation des traces d'activités.

 **Ajouter à Firefox**  
expérimental

|                 |                           |
|-----------------|---------------------------|
| Version         | 0.1                       |
| Fonctionne avec | Firefox: 3.0 – 3.7a1pre   |
| Mis à jour      | novembre 24, 2009         |
| Développeur     | <a href="#">thibaud74</a> |

 [Partager ce module](#)

### Rencontrez le développeur

Learn why ergodoc add-on was created and find out what's next for this add-on.



[Rencontrez thibaud74](#)

[Afficher tous les modules](#)

Thank you!