

User Assistance for Collaborative Knowledge Construction

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Kolflow Project

How to convert data into knowledge?

- Automated Reasoning
- Collective Intelligence

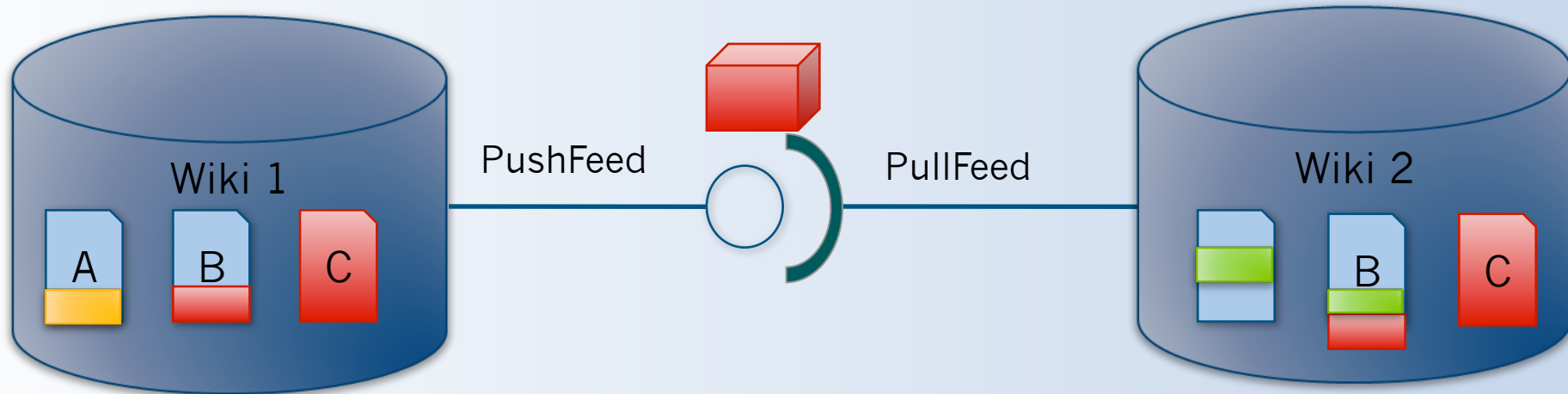
A social semantic space to facilitate collaboration:

- Between humans
- Between humans and artificial agents
- Between artificial agents

What is DSMW ?

- DSMW: Distributed Semantic MediaWiki
- Wiki: website writable by users
- Semantic Wiki : wiki with semantics in the pages
 - Typed relations between pages
 - Formal description of the content
- Distributed Semantic Wiki : network of semantics wikis exchanging content

DSMW simple architecture



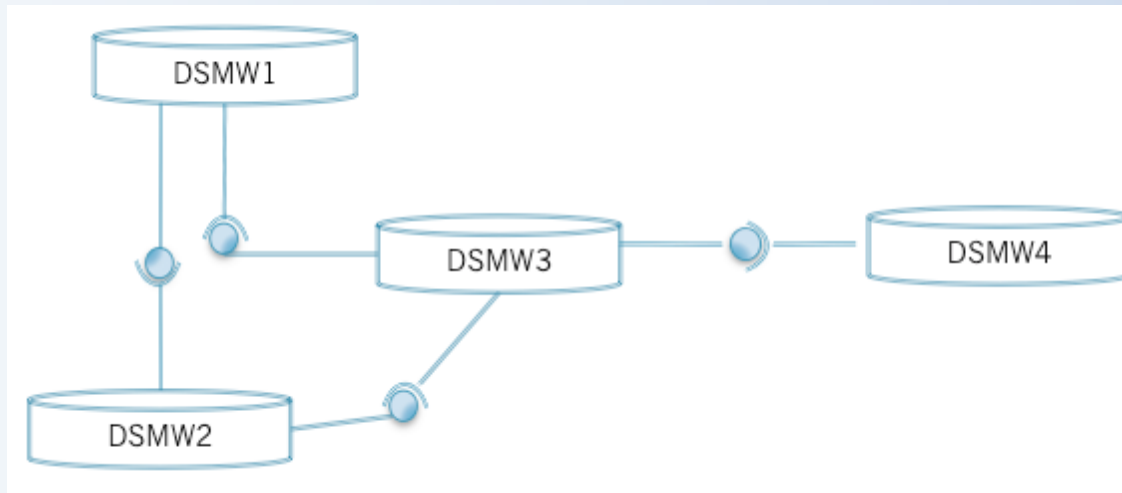
- Individuals actions

- Edit
- Create
-

- Sharing Actions

- CreatePushFeed
- Push
- CreatePullFeed
- Pull

DSMW Network



Taaable

Taaable

dessert_dish rice fig

Find recipes!

Clear

Dietary practices: Vegetarian Nut-free No alcohol Low cholesterol Gout Diet

[Adapt a specific recipe...](#)

[Customize your dietary practices...](#)

Example. If you want an apple pie without cinnamon, enter "apple pie_dish -cinnamon".

[Learn more about advanced queries...](#)

Your request is: **dessert_dish fig rice**

The request used for adaptation is: **dessert_dish fig rice**

#	Original recipe name (click to open recipe)	Adaptation overview (click to see the details)
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1	Glutinous_rice_with_mangoes	Replace: Mango by Fig
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Results 1 - 1 on 1 | Processing time: 0.6189 seconds

Taaable

Category:Berry

Description

The botanical definition of a berry is a fleshy fruit produced from a single ovary.

Read the whole article on [Wikipedia](#) [↗](#)



Lexical variants

- English: berry
- Français: baie
- Deutsch: Beere
- Español: Baya

Recipes using Berry

- Cran-raspberry relish
- Spicy cranberry chutney

Subcategories

- | | | |
|---|---|--|
| B | C cont. | K |
| <ul style="list-style-type: none"> ■ [+] Baby kiwifruit (0) ■ [+] Blackberry (0) ■ [+] Blueberry (0) | <ul style="list-style-type: none"> ■ [+] Currant (0) | <ul style="list-style-type: none"> ■ [+] Kiwi fruit (0) |
| C | F | R |
| <ul style="list-style-type: none"> ■ [+] Cranberry (0) | <ul style="list-style-type: none"> ■ [+] Fraise des bois (0) | <ul style="list-style-type: none"> ■ [+] Raspberry (0) |
| | G | S |
| | <ul style="list-style-type: none"> ■ [+] Grape (3) | <ul style="list-style-type: none"> ■ [+] Strawberry (0) |

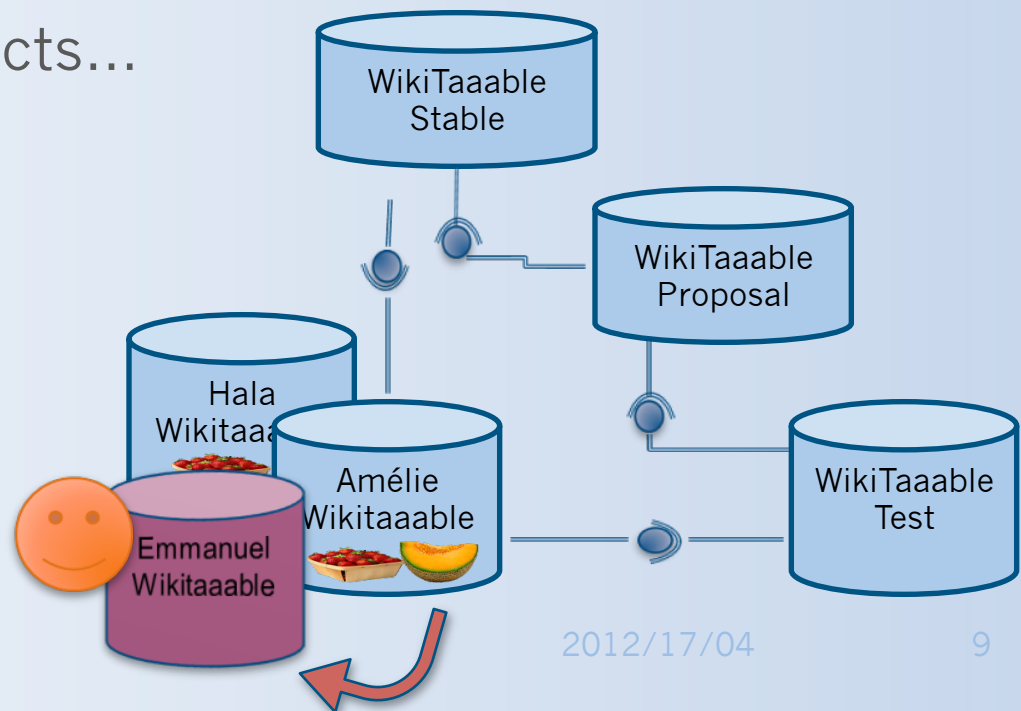
WikiTaaable in SMW

Our goal

- Assisting users in
 - sharing knowledge
 - negotiating meaning
 - capitalizing experiences
- Scenarios
 - Individual fusion
 - Collaborative fusion
 - Community fusion

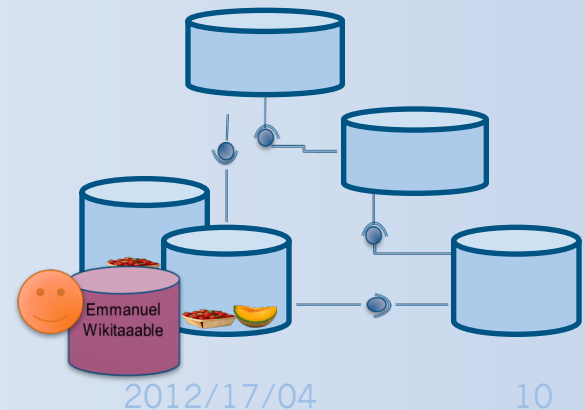
Scenario 1: Personal fusion (1/2)

- Context:
 - Emmanuel gets the “Melon pie” recipe of Amélie in order to integrate it in his instance of WikiTaaable
- Main problems:
 - There are some conflicts...
 - Another recipe with the same name
 - Where is Melon in the ingredient ontology?



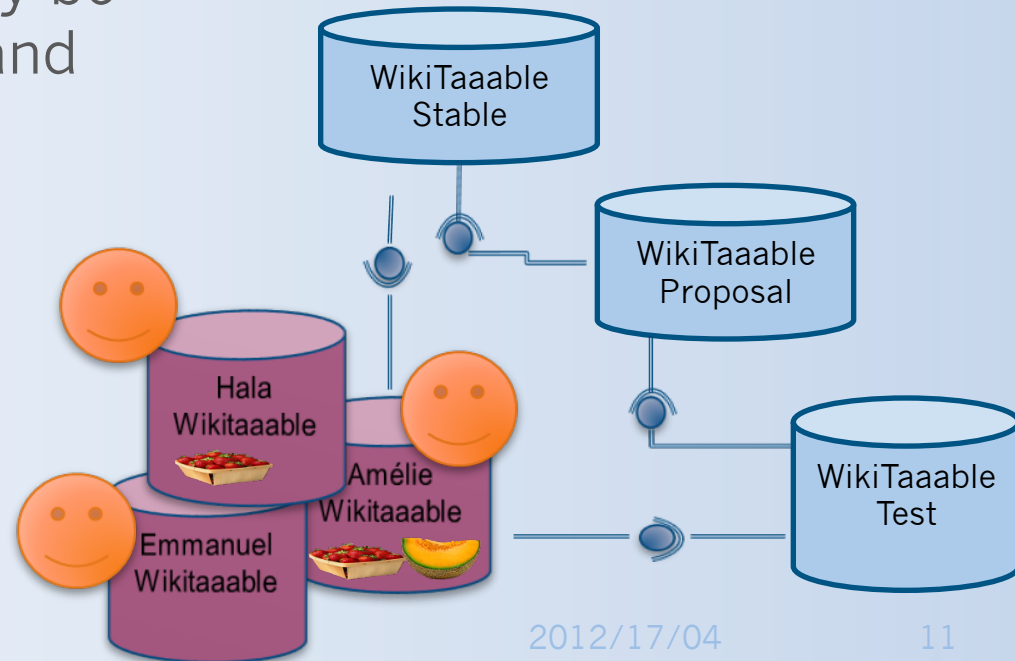
Scenario 1: Personal fusion (2/2)

- Assistance requirements:
 - Actually importing things from another wiki
⇒ Traces of using DSMW
 - Solving conflicts
⇒ Detecting conflicts (formal, informal)
⇒ Traces of solving previous conflicts
⇒ Traces of using the knowledge
⇒ Traces of the reasoner
⇒ Traces of the other user?



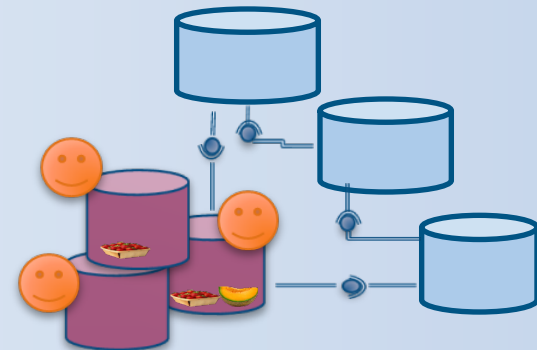
Scenario 2: Collaborative fusion (1/3)

- Context:
 - Emmanuel, Amélie and Hala want to gather all their recipes related to chocolate in a stable instance of WikiTaaable.
 - Some conflicts can only be solved by negotiating and finding an agreement among the three users.



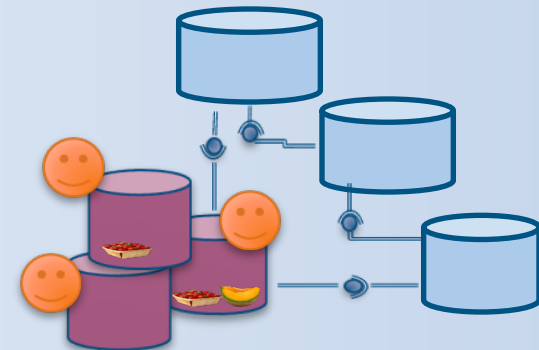
Scenario 2: Collaborative fusion (2/3)

- Assistance requirements
 - All of the previous ones, plus...
 - Negotiating a conflict, reaching a consensus
- ⇒ Traces of the use of the resources involved
- ⇒ Traces of previous negotiations



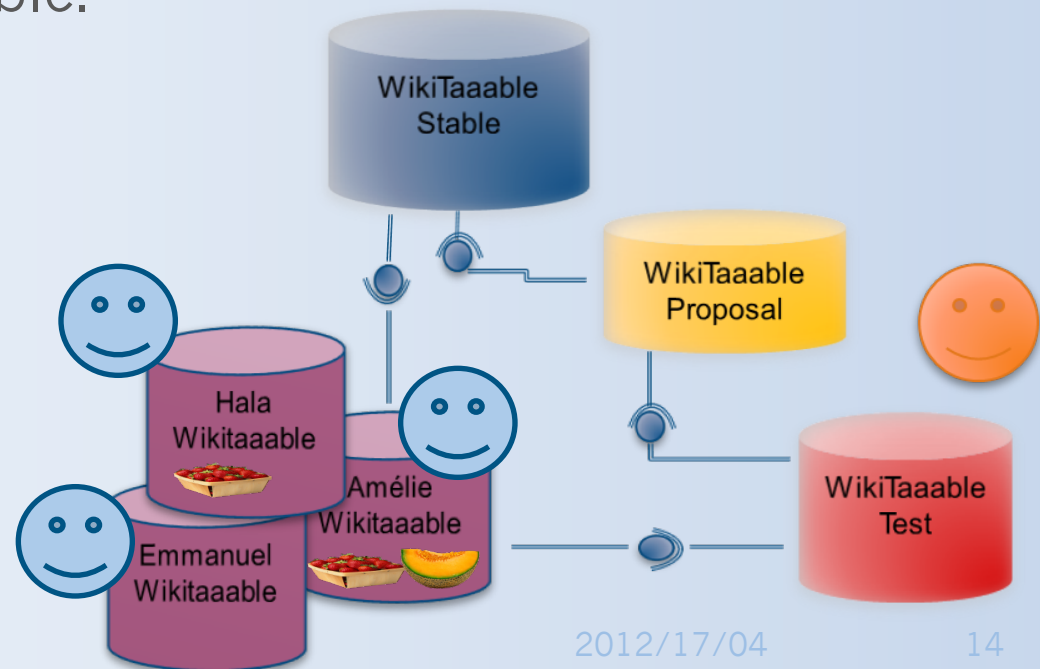
Scenario 2: Collaborative fusion (3/3)

- Specific research issues:
 - Building and presenting a relevant history of the resources involved in a conflict
 - aggregating and filtering several traces
 - Negotiation may happen outside the wiki
How to keep track of as much of them ?
 - Documenting a decision with the knowledge produced during negotiation
 - for the users
 - for the assistant



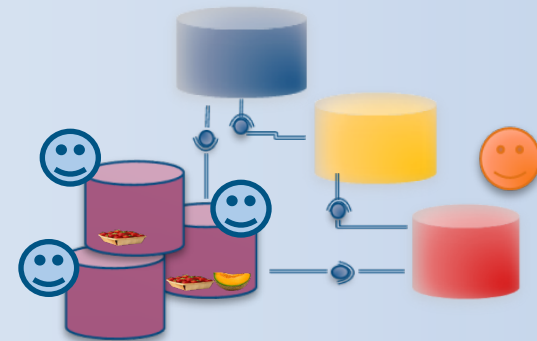
Scenario 3: Community fusion (1/3)

- Context:
 - Hector is the moderator of a community of people interested in chocolate recipes.
 - He integrates all the users' suggestions in a stable instance of WikiTaaable.



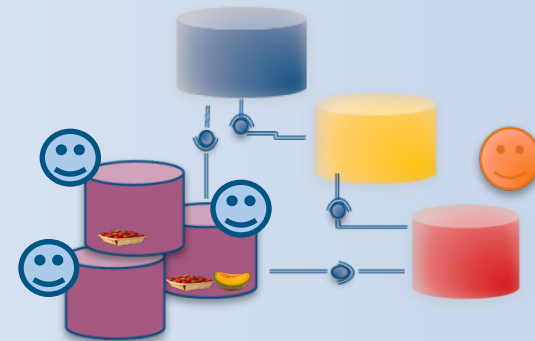
Scenario 3: Community fusion (2/3)

- Assistance requirements:
 - Having a synthetic view of the community activity
 - Solving a conflict
 - Identifying which user can solve the conflict
- Specific research issues:
 - Which information to present to the moderator on a community management dashboard?
 - Warnings when there are conflicts.
Information on who has imported which resource, how many people agree on it, which users are “expert” on a subject, etc.



Scenario 3: Community fusion (3/3)

- Specific research issues:
 - Aggregating traces into a synthetic dashboard
 - that the moderator can fine-tune to their needs
 - Trust in users
 - Declared level of expertise?
 - Vote or rate (explicit or based on use traces)?
 - Trust in content
 - Majority?
 - Expertise of the author?
 - Automated reasoning?



Where we are now

- Capturing activity traces
 - Trace storage/transformation engine: kTBS
 - Trace collecting plugin: Collectra
- Using activity traces
 - Transformation (aggregation, filters, ...)
 - Preliminary trace visualization
- In progress
 - DSMW step-by-step tutorials (based on traces)
 - Better visualizations
 - To be continued