

# The Scrolls of Oumroum

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## BREAKING NEWS: Major breakthrough in archeology

Archeologists have discovered that the recently recovered fragments from the Scrolls of Oumroum in Egypt may contain the answer to Life, the Universe and Everything. This is indicated by some of the words on the fragments that have been translated out of Koine Greek. The reconstruction of the scrolls is of great importance.

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The fragments have already been digitally processed with an automatic analysis system in order to match them. Unfortunately, it turned out that there are many ways in which you can combine the fragments, and the scientists have also observed that most matches are just physical and not logical. The reconstruction has failed until now.

As a last effort to unveil the secrets of Oumroum, the scientists requested a collaborative system in which other scientists and passionate people can join forces to solve this puzzle.



# Basic requirements

What is needed to support the reconstruction of the scrolls is a system that allows scientists from all over the world to log in, propose ways in which fragments can be combined and see suggestions from other scientists. This needs to include:

- ▶ an interface for browsing and combining fragments
- ▶ support for collaborative work
- ▶ revision history
- ▶ user registration/authentication
- ▶ rights management.

# Assumptions

The input of this system is the output produced by the automatic analysis system. For each fragment it contains links to other fragments which have a high chance to match, together with their relative positions and rotations.

The links can be used as hints in the system.

# Data model: Representation

- ▶ The original fragments are called *atomic fragments*.
- ▶ These can be combined to form *compound fragments*.
- ▶ The system must keep track of all compound fragments.
  - ▶ The compound fragments are not thrown away after combining.
  - ▶ Different compound fragments can evolve in parallel.

# Data model: Operations

- ▶ *Combine* fragments: takes two fragments and creates a new fragment.
  - ▶ A warning is given in case pieces overlap.
- ▶ *Modify* fragment: takes one compound fragment and create a new compound fragment with some of the atomic fragments (re)moved.

# Client interface

- ▶ Secure login
- ▶ Display of fragments
- ▶ Functionality:
  - ▶ Bind/unbind
  - ▶ Rotate
  - ▶ Zoom
  - ▶ Hints from the automatic analysis
  - ▶ History of a fragment
  - ▶ Where the fragment is used (“What links here”)
  - ▶ Which parts of the fragment have been updated
  - ▶ Communication between clients