Using Superimposed and Context Information to Find and Re-find Sub-documents

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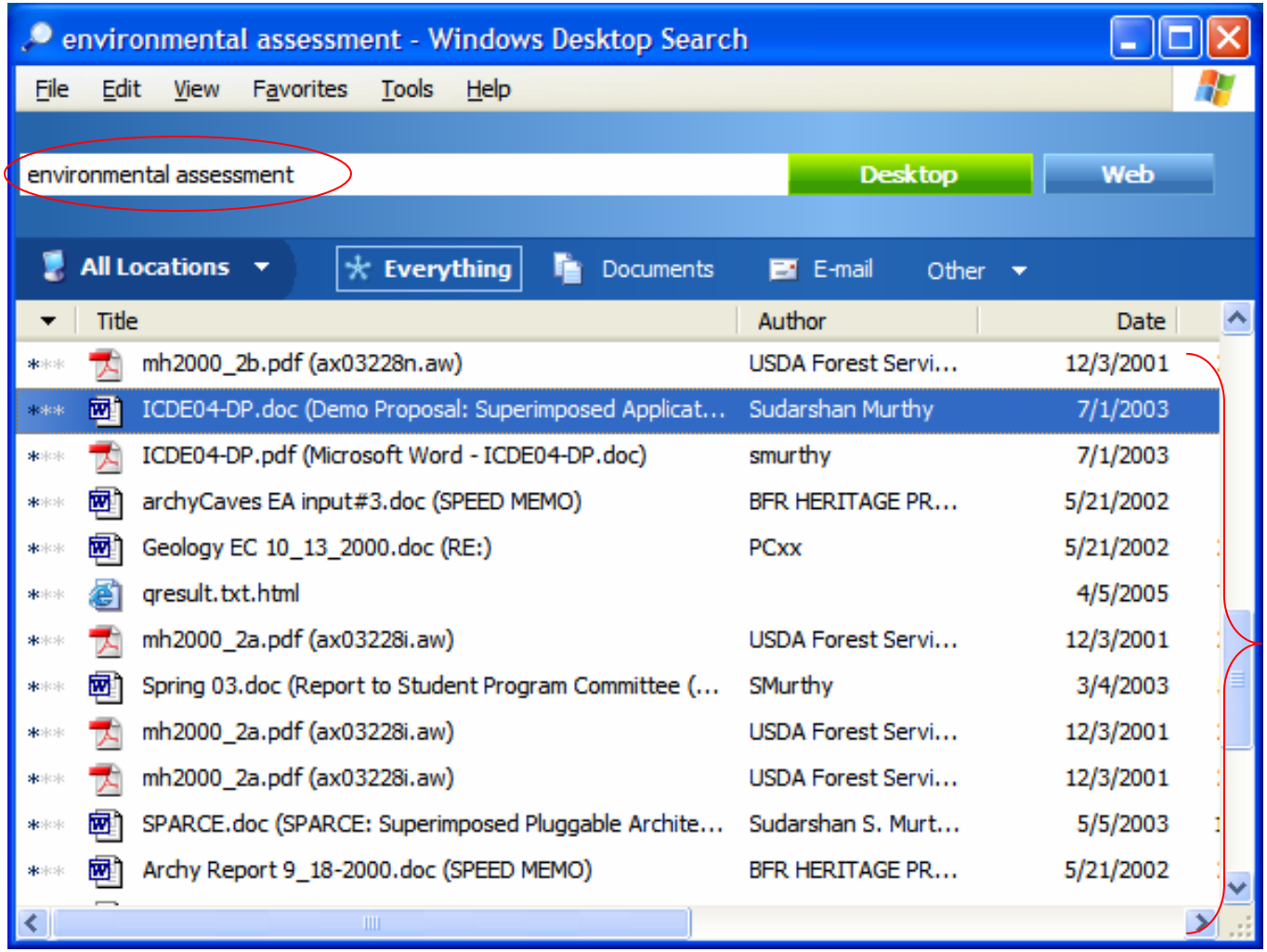
Sub-document Search

- Users frequently search for sub-documents, but search engines tend to return list of documents
  - Not much indication of why the returned documents are relevant, and which parts of a document are relevant
- Some search engines include *snippets*, but provide no assistance to identify sub-documents within a document
  - Users routinely open documents and search *intra-document* for relevant sub-documents
- Finding effort is often repeated when re-finding

Windows Desktop Search

Search term



Documents returned

Google Desktop

Search term

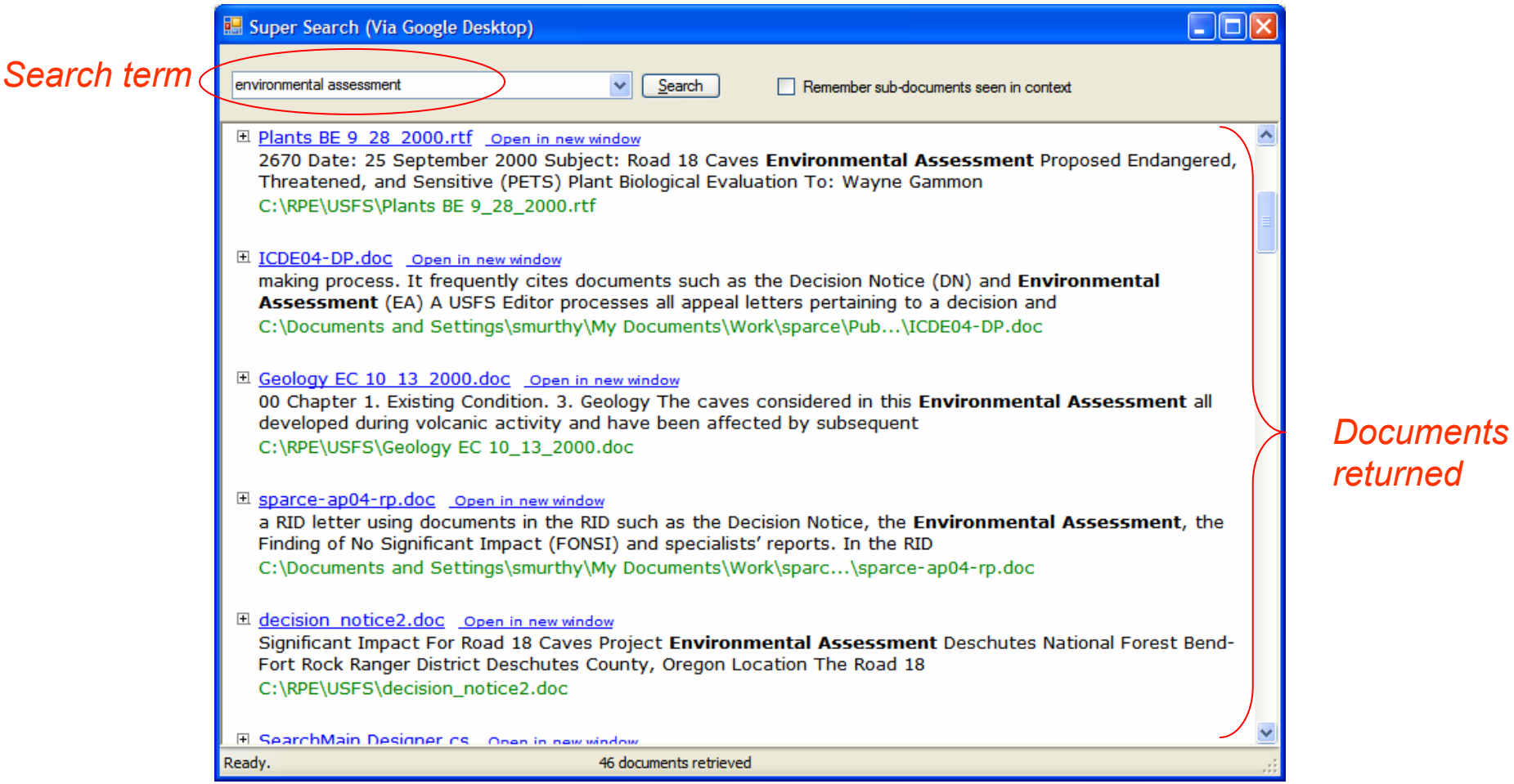
Documents returned

An Alternative: *Super Search*

- See list of documents and sub-documents along with detailed context information for sub-documents
  - Content: Sentence, paragraph, row, column, …
  - Location: Page number, line number, sheet name, …
- See sub-documents in context: Takes users *directly* to sub-documents; does not require authors to identify sub-document units
- Alternatively, browse context information without clicking through to sub-documents

* Document results obtained using Google Desktop; can also use Windows Desktop Search

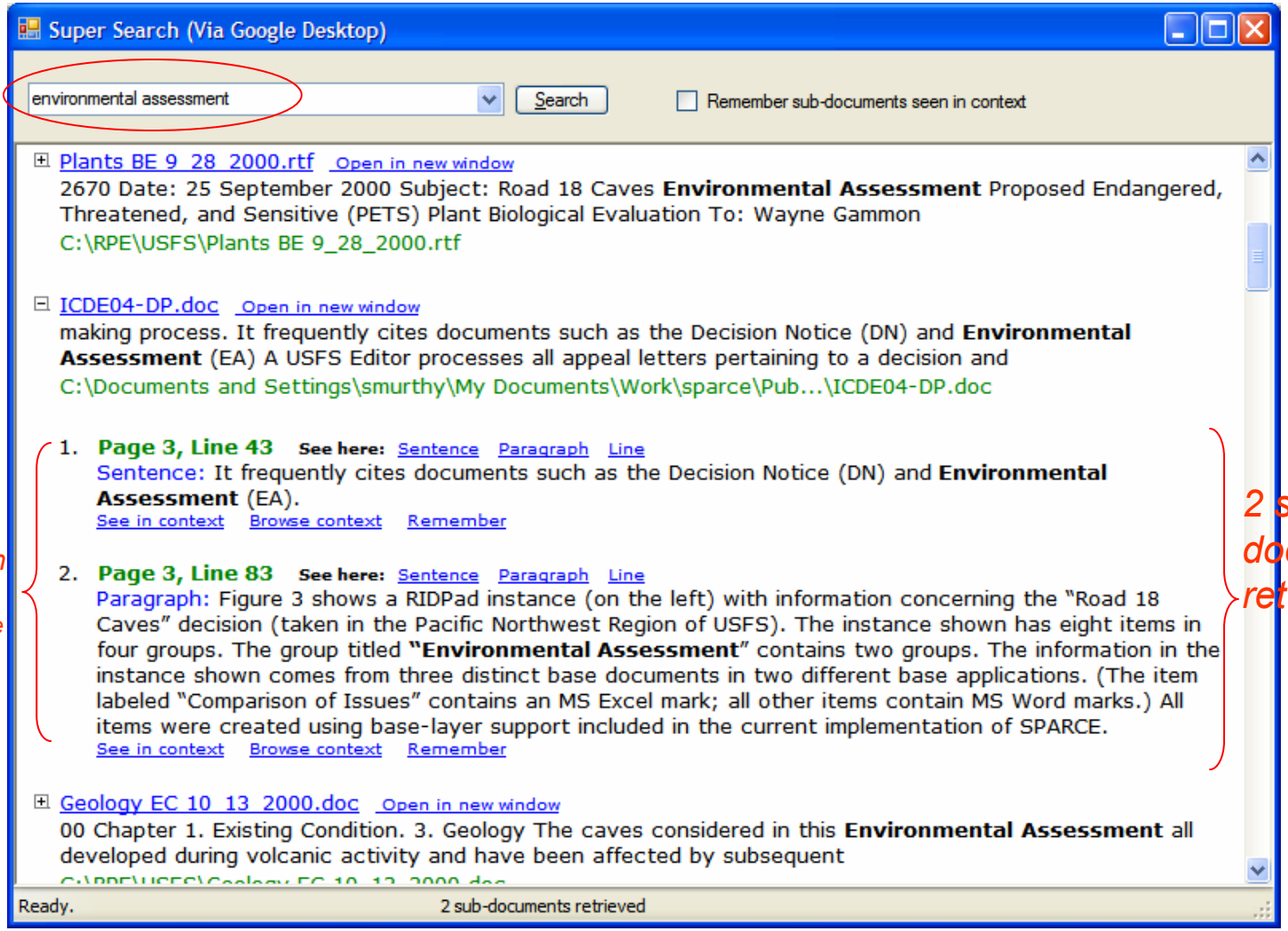
Document Results*



* Sub-document results obtained using mark harvesters; context information obtained using the SPARCE context mechanism

Sub-document Results*

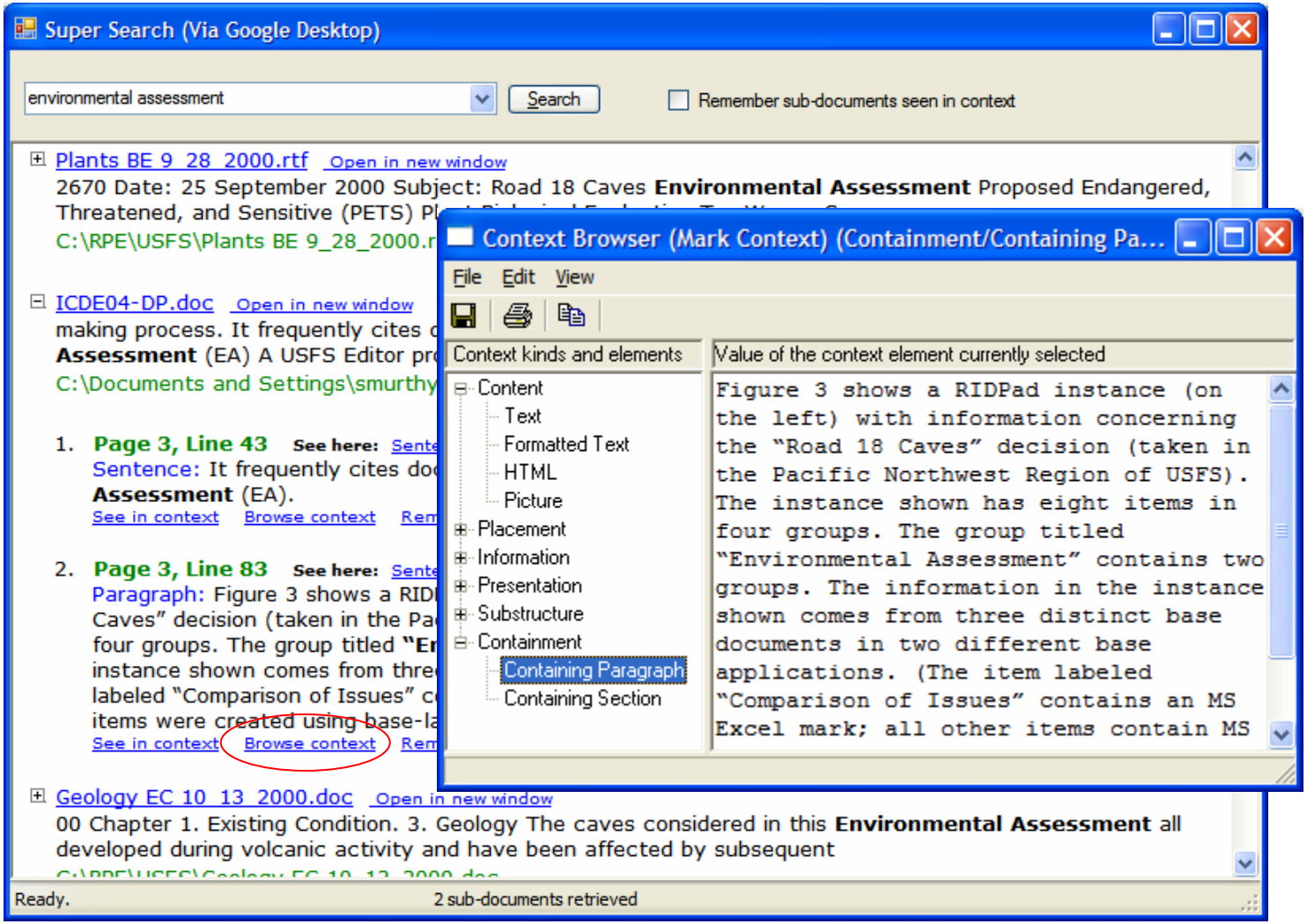
Search term



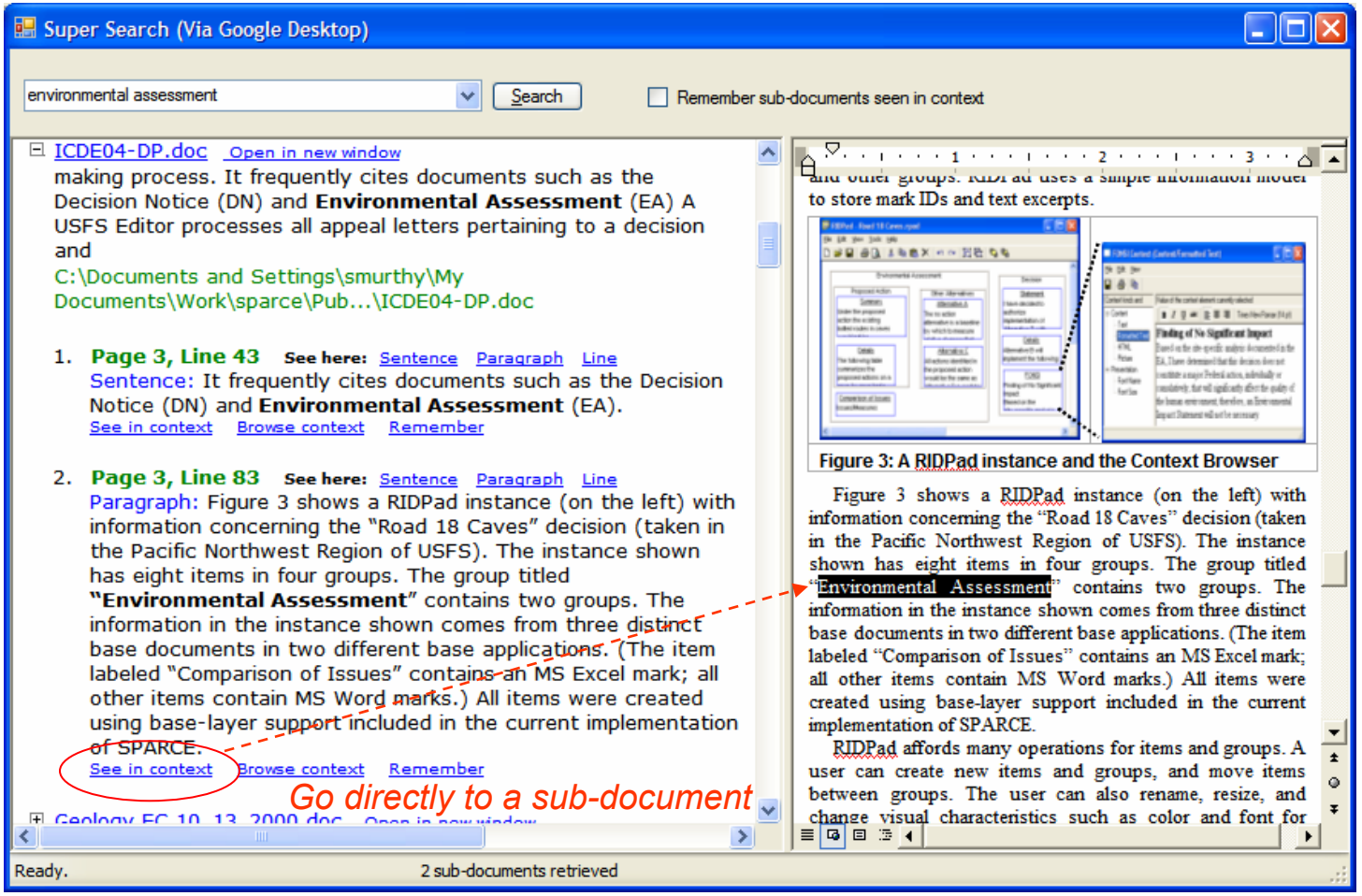
Some context Information shown
- Location info
- Containing sentence and containing paragraph

2 sub-documents returned

See Detailed Context Information

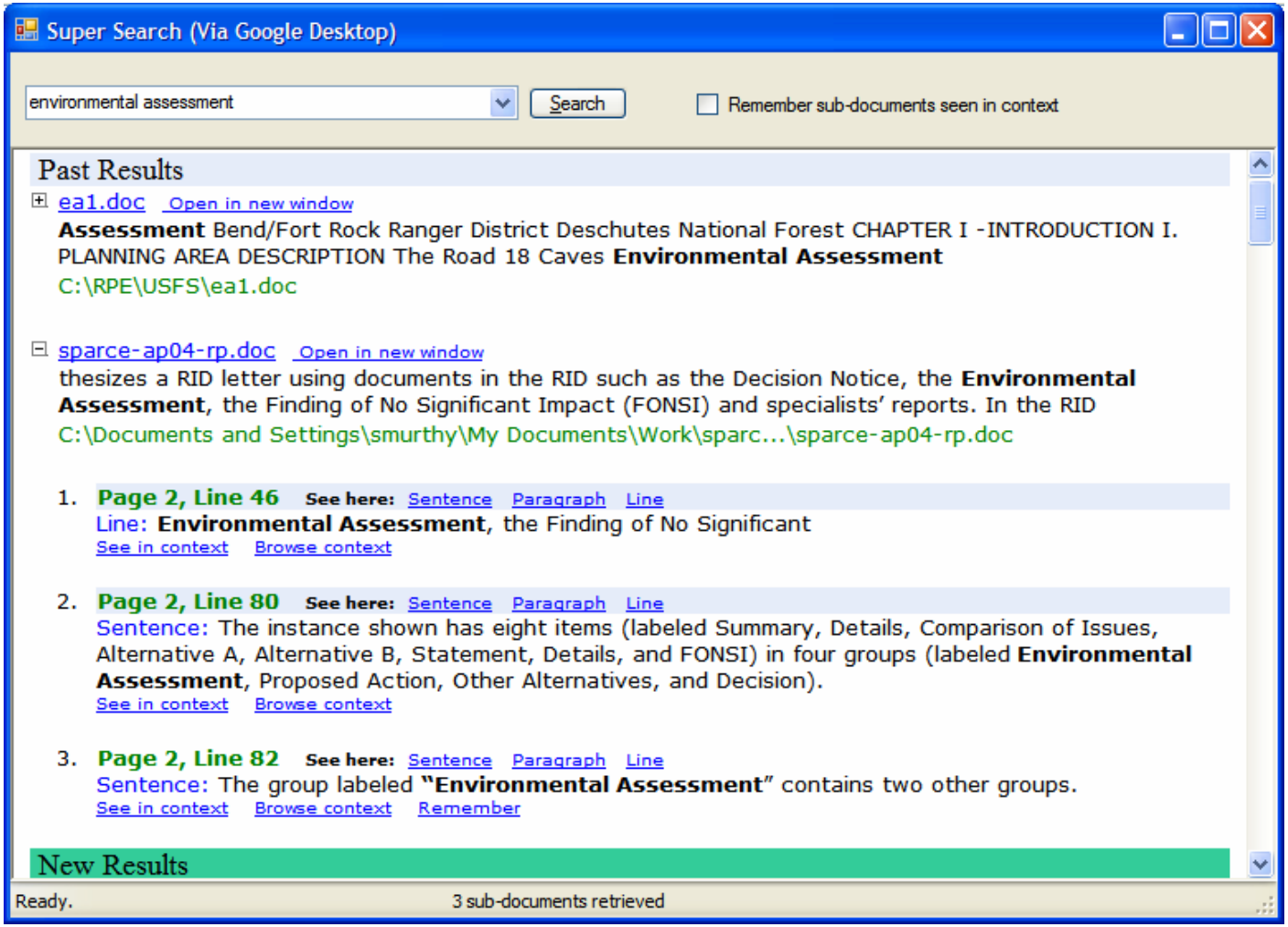


See a Sub-document in Context



Re-finding Sub-documents

Information "found" earlier is ranked higher



Context information can help re-find information

Super Search Benefits

- Judge relevance more easily
  - See sub-documents, not just documents
- Reduce user click-through operations
  - Context information provides insight into sub-documents
- Reduce effort to find sub-documents in context
  - No need for user to perform *intra-document* search
- Leverage finding effort to re-find
  - See found results first; easy to remember found info.

Discussion Points

- Current search engine techniques can be inefficient when supporting finding and re-finding of sub-documents in this manner
  - Heterogeneous information
  - Showing information in context
  - How much of context information can a traditional inverted index provide?
    - Need to distinguish paragraphs, lines, rows, columns, page, …