1 Credit Course Challenge

Teaching Students When There Is No Homework

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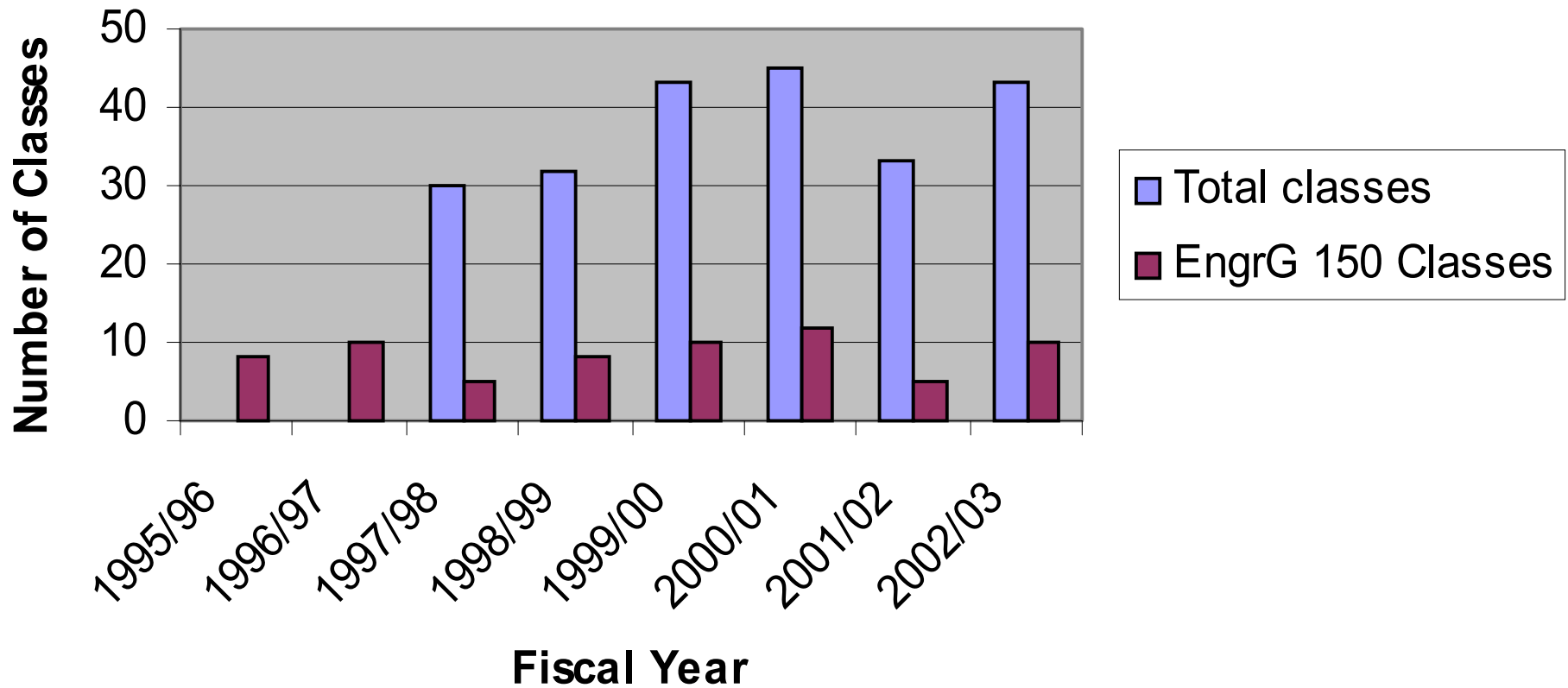
Engineering Library, Cornell University

Outline

- Experiences teaching Engineering General 150 since 1994
- Challenges
- Improvements

Engineering General 150

- Freshman advising course
- Purpose
- Field trips
- Usually no homework

Instruction Statistics

Too Many Choices

- Increased Competition:
  - Lake Source Cooling
  - Hydroelectric Power Plant
  - CAVE (virtual reality)
  - Digital Library, Rare Books in Main Library
  - Alumni engineers
  - Ethics

Sample Schedule

- Week 1   Get Acquainted
- Week 2, 3, 4   Tours and Sessions
- Week 5, 6   Ethics
- Week 7   Pre-registration
- Week 8   Lunch/party

Cornell University Engineering and Computer Science Library

Engineering 150: Introduction to the Library and Research in the Hidden Web*

http://www.englib.cornell.edu/instruction/engr150.html

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Outline
* What's the Hidden Web?
1. Introduction to ACCEL
2. Engineering Library Services
3. LC and Dewey , How to Read Call Numbers
4. Think Fast and Library Squares- test your knowledge of libraries and the web

5. Cornell Library Catalog and Gateway
   E-Journals and E-Books
6. Scholarly versus Popular
7. Periodical Databases
8. Quiz - test your knowledge of Engineering Resouces
9. Resources

* The Hidden Web is content that resides in searchable databases, the results from which can only be discovered by a direct query. It is not on static web pages and hence not retrievable by free search engines such as Google and Yahoo.

Cornell Library Catalog

Below are some examples of how to search.

Search Options	Examples
Basic Search - use for **title**, author, subject, call number, **journal title**, command keyword, relevance keyword	science (try as title, then as journal title) semiconductor science and technology (journal title)
author	Steinmetz Armin IEEE International
subject	Java (as subject heading, see cross references)
call number	T47 .M12 1988; also thesis TK
command keyword	(c++ OR java) AND (introduction OR primer)
relevance keyword "" for phrases, + for important ? for truncation, ! means not	"remote sensing" +weather engineering +polymer? +composite? java !indonesia
Guided Keyword	c++ fortran java (any of these) introduction primer (all of these) may restrict to one of 12 fields

Engineering 150: Library Research on the Web - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help

Back   Forward   Stop   Refresh   Home   Search   Favorites   Media   History   Mail   Print   Edit   Discuss   Dell Home   Real.com

Address   http://www.englib.cornell.edu/instruction/engr150.html

Google   Search Web   Search Site   News   New!   PageRank   Page Info   Up   Highlight

7. Periodical Databases - can be accessed via the Library Catalog, e-Reference Collection, or the Engineering Library Home Page)

A variety of databases contain citations to periodical articles. Use these subscription databases for research rather than relying exclusively on Internet search engines, such as Yahoo or Google. A Summary of recommended databases by subject is available.

1. **Applied Science & Technology Index** indexes 350 journals, 1983 to present. Link to Cornell holdings; can mark and email records. Recommend advanced search. *Example: genetically modified foods*
2. IEEE Xplore - IEEE Xplore provides full-text access to IEEE transactions, journals, magazines and conference proceedings published since 1988. Available at http://ieeexplore.ieee.org/ *Examples: nanotubes; natural language processing and voice recognition*
3. **INSPEC,** 1969 to present. Index to computing, electronics, and physics literature. Contains abstracts. Recommend advanced search - *Example: GPS and safety. Show Digital Avionics Conf; how to find in catalog.*
4. **Engineering Index Compendex Web**, 1980 to present. http://www.ei.org/ev2/ev2.home Covers all engineering fields *Example: soil liquefaction; hydropower. Help; author/serial title search from list.* Can mark and email records.
5. **Proquest Direct** - full-text international business database of 800 professional and trade magazines. Lexis/Nexis has trade magazines, government regulations, and newspapers. Articles can be viewed and printed with Adobe Acrobat Reader. *Example: e-commerce*
6. **NTIS** - National Technical Information Service - index to technical reports emanating from NASA, EPA, Department of Energy, Department of Defense, and other recipients of federally-sponsored research. *Example: bioremediation or (natural attenuation)*

Feedback

- "Hard to catch up if you got lost"
- "Covers too many databases in too short a time"
- "It was informative"
- "Too specific, be more general, games are fun but unnecessary"
- "I liked the group work (databases)"
- "Better games"
- "I was distracted and a tad uninterested. It should be more entertaining so learning is fun.
- Do back flips"

Strategies for Improvement

- Update class descriptions

- Include more interactivity – quizzes, games, group presentations

- Include feedback question in their online quiz, to increase return rate to 80%

Experiences with Strategies for Improvement

- Group presentations
- Added to content of class
  - "Create a Web Page" class in addition to "Library Research in the Hidden Web"

Important Suggestion

"Add more structure"
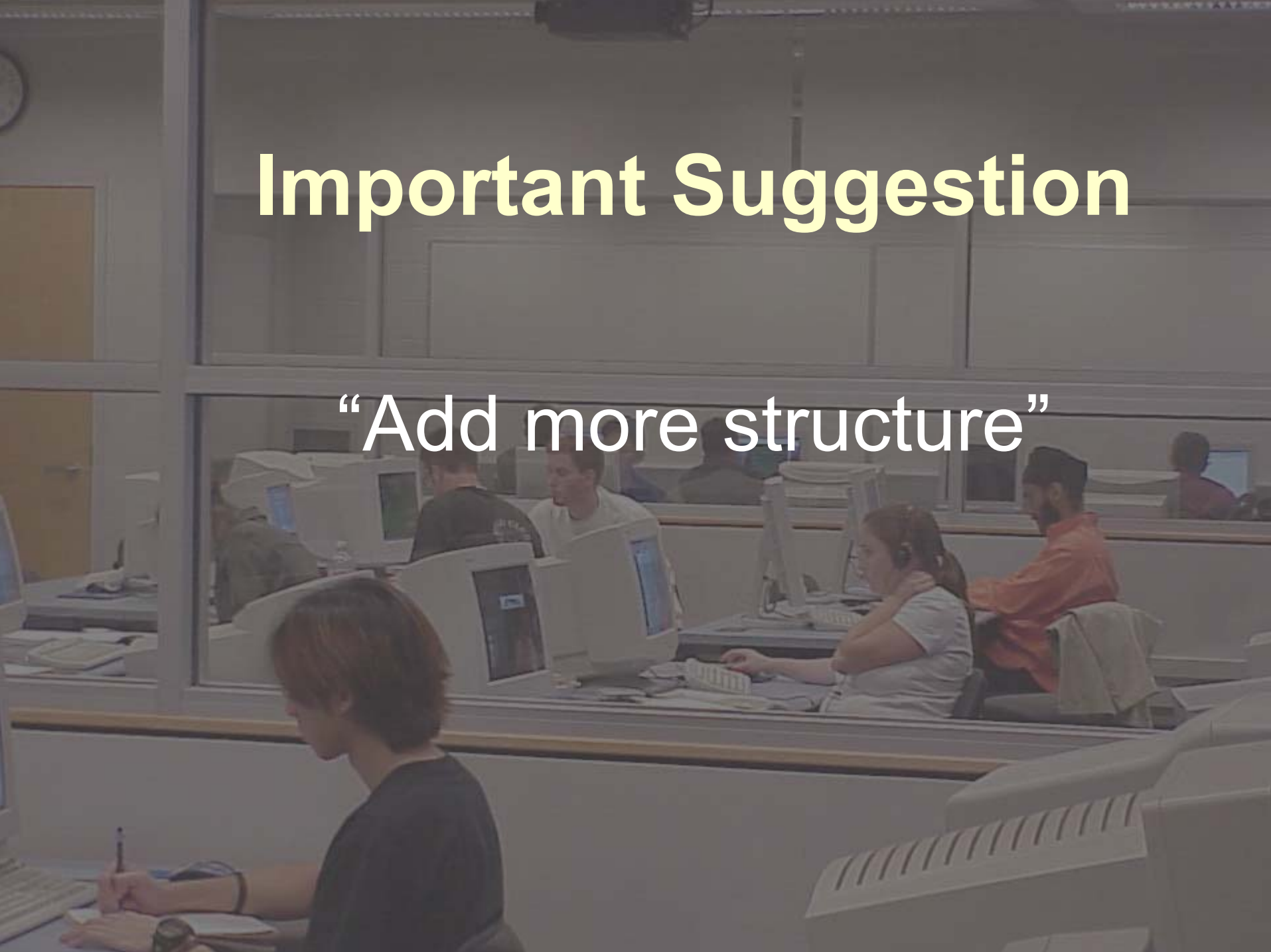
Engineering General 150 – Library Research in the Hidden Web*

Engineering Information Competencies

We will cover the following 5 competencies, which are necessary for all engineering students to become skilled in library research. Number 6 is an online quiz, which will test your knowledge from today's class.

1. Find books in the online catalog (http://catalog.library.cornell.edu).
   - *A Primer of Biomechanics* by George Lucas, 1999 (basic search)
   - Halliday and Resnick's *Fundamentals of Physics,* 2001 (guided keyword)
   - *CRC Handbook of Tables for Applied Engineering Science,* 1973 (handbooks, encyclopedias, etc.)

2. Find journals in the online catalog and/or e-Journal Titles list (see URL above).
   - *IEEE Transactions on Biomedical Engineering*

3. Determine which online database to use for a project after consulting the database shortlist at http://www.englib.cornell.edu/erg/shortlist.html (the full list of databases is available from http://campusgw.library.cornell.edu).

4. Use an online database (such as Applied Science and Technology Index, INSPEC) to find appropriate articles.

5. Locate the full text of an article found from an technical database (in #4 above).

6. Test your Research Knowledge - Take an Online Quiz on Finding Engineering Information

1st 5 minutes

- 1st 5 minutes are the most important.
- Interactive Activity
  - ◆ Write a few words describing habits when choosing courses each semester.
  - ◆ Ask for volunteers to share responses
  - ◆ Draw analogy to library research

Competencies

Five competencies - engineering students need to become skilled in library research.

Number 6 is an online quiz

Competency #1

Find books in the online catalog (http://catalog.library.cornell.edu).

- *A Primer of Biomechanics* by George Lucas, 1999 (basic search)

- Halliday and Resnick's *Fundamentals of Physics,* 2001 (guided keyword)

- *CRC Handbook of Tables for Applied Engineering Science,* 1973 (handbooks, encyclopedias, etc.)

Competency #2

Find journals in the online catalog and/or e-Journal Titles list.

- *IEEE Transactions on Biomedical Engineering*

Competency #3

Determine which online database to use for a project after consulting the short list at http://www.englib.cornell.edu/erg/shortlist.html

(Complete list is at http://campusgw.library.cornell.edu)

Short List of Engineering Databases

The databases below are intended to get you quickly started with your research in the various engineering disciplines. These recommended databases index journal articles, conference papers, and technical reports. Descriptions and the most up-to-date links are in the Cornell Library Catalog. For a more complete listing of engineering resources, see our Engineering Research Guides and the e-Reference collection. E-journals are located at the e-Journal Title List. Help is available at engrref@cornell.edu and 5-5935. You can also view this list alphabetically by database.

Engineering Field	Recommended Database
Applied and Engineering Physics	INSPEC
Automotive and Transportation Engineering	TRIS, Tranport, and SAE MovePlus on CD
Biological and Environmental Engineering	Agricola, Engineering Village 2
Biological Engineering and Biotechnology	Engineering Village 2 , Medline, Biosis
Chemical and Biomolecular Engineering	EiCompendex, SciFinder Scholar
Civil and Environmental Engineering	Engineering Village 2 , TRIS, Transport, NTIS, Water Resources Abstracts
Computer Science	INSPEC, IEEExplore
Earth and Atmospheric Sciences	Georef
Electrical and Computer Engineering	INSPEC, IEEExplore
Energy	NTIS, DOE Information Bridge, Engineering Village 2
General Science Indices	Applied Science and Technology Index (300 journals),Web of Science
Materials Science and Engineering	INSPEC (also Cambridge Scientific Databases)
Mechanical and Aerospace Engineering	Engineering Village 2 , Aerospace Database, AIAA Meeting Papers Index
Operations Research and Industrial Engineering	Engineering Village 2 , Transport
Theoretical and Applied Mechanics	Engineering Village 2 , MathSciNet

Competencies #4 and #5

Use an online database (such as Applied Science and Technology Index, INSPEC) to find appropriate articles.

Locate the full text of an article found from an technical database (in #4 above).

6 - Test Your Research Knowledge

Take an **Online** <u>**Quiz**</u> on Finding Engineering Information

■ http://quiz.4teachers.org

The Quiz

[01] You have to write a comprehensive and scholarly research paper on personal digital assistants. Which database is the BEST one to use?
- A ○ : Google
- B ○ : Aerospace Database
- C ○ : INSPEC

[02] You need to locate a book called "The Structure and Rheology of Complex Fluids" by Ronald Larson, Oxford University Press, 1999. How do you search for it in the library's online catalog?
- A ○ : The Structure and Rheology of Complex Fluids
- B ○ : Structure and Rheology of Complex Fluids
- C ○ : Oxford University Press

[03] How would you find this reference? Psiaki, M. L. "Rapid Energy Dissipation in Yo-Yo-Type Wire Boom Deployment System," *Journal of Guidance, Control*, and Dynamics, 23 (3) 483-490, 2000.
- A ○ : Search the Library Catalog by Psiaki
- B ○ : Search the Library Catalog by Journal of Guidance Control and Dynamics
- C ○ : Search the Library Catalog by "Rapid Energy..."

[04] What is distinctive about a popular journal?
- A ○ : It is peer-reviewed.
- B ○ : It has references (bibliography) at the end of the article.
- C ○ : It has a lot of pictures and advertisements.
- D ○ : The articles tend to be long.

[05]   What is distinctive about scholarly journals?

    A ○ : Articles are written for the general public.
    B ○ : They have many pictures and advertisements.
    C ○ : The articles tend to be short.
    D ○ : The articles are peer-reviewed and contain lengthy bibliographies (references).

[06]   What did you like/not like about today's class? How could we make it better? (This question is not graded.)

> ● **Submit Your Quiz**
>
> When you have finished your quiz, click the link below.
>
> Please keep in mind that you **CANNOT** return to this screen to make changes.
>
> Submit Quiz ➜

Feedback After Info Competencies

- "Very informative!"
- "I liked the intro to the elite engineering databases"
- "Faster computers with flat panel displays"
- "Great"
- "I liked being showed the databases. I didn't like being showed the library catalog because I already know how to search it."
- "Spend more time going through the catalogs and online journals"

Summary

- Feedback/Evaluations
- Know how your class is described
- Know competition and students' needs
- Less is more
- Interactive exercise

References

- Nerz, Honora and Weiner, Suzanne," Information Competencies: A Strategic Approach," 2001 ASEE Annual Conference Proceedings. [Best Conference Paper 2001]
- North Carolina State University Information Competencies, at the Textiles Library
    - http://www.lib.ncsu.edu/textiles/instruction
- Davies, Kimberly (SUNY Geneseo). "Becoming Teacher Designers," WNY/Ontario ACRL Fall Conference, October 11, 2002

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Presentation at
http://www.englib.cornell.edu/eld/conf/03/
nashville03.html