**Definitions applied**

- **Demographics:** observable, measurable human characteristics (e.g., age, gender, education)
- **Types of knowledge:** general, domain, system, and information-seeking knowledge held at some level by every human.

These factors help predict users’ interest in and ability to use the information organization system.

These factors drive design decisions for the information organization system.

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**Definitions applied**

- **Attributes:** observable characteristics of information objects (features, properties; e.g., author, subject)

In user-centered information retrieval (IR) system design, we analyze users’ questions in order to identify attributes of information objects that can represent the objects in the system.

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**Definitions applied**

- **Precision:**
  - Assesses relevance of output; the ability of the system to retrieve only relevant objects.
  - Is exclusive: rejects nonrelevant objects.
  - Assumes that at least one relevant object exists in system.

The user’s view of precision is what the user desires or expects, as in:
- It is critical that I get only relevant objects.
- Give me exactly what I requested and nothing else.
- Don’t give me anything I wouldn’t check out of the library.

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**Definitions applied**

- **Recall:**
  - Assesses completeness of output; the ability of the system to retrieve all relevant items.
  - Is inclusive: demands everything available.
  - Assumes that more than one relevant object exists in system.

The user’s view of recall is what the user desires or expects, as in:
- It is critical that I get everything you have, even if I need a truck to haul the load home.
- I would even tolerate a few nonrelevant objects in that truckload.

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**Collection description (IOP 1.1)**

- **Name:** Denton SciFi Guild Library
- **Location:** Guild office in Denton, TX
- **Purpose:** To provide users with access to the best, most entertaining science fiction works in an expedient and efficient manner.
**Collection description**

- **Format:** books
- **Size:** 1,500
- **Topics and scope:**
  - Covers range of science fiction genres (values such as Aliens, Cyberpunk, Techno SciFi)
  - Does not cover fantasy
  - Includes classic works as well as current releases

**User group description (IOP 1.2)**

**Demographics**

- 286 members of the SciFi Guild
- Men and women
- Generally between ages 14 and 79
- Education dependent on age, but includes people with high school and college degrees

**User group description**

**Types of knowledge**

- Varying levels of general knowledge
- Usually high domain knowledge, but some low
- Moderate system knowledge
- Moderate information seeking knowledge

**User questions**

- For IOP purposes, we are summarizing the intent of the reference desk transaction
- Not trying to capture the patron’s actual words
- “Questions” must articulate what is needed and how much – must drive the users to the shelf!

**Users’ questions (IOP 1.3)**

1. I want a couple novels involving life on starships.
2. I need the books you have in the Ender series. I think there are three or four.
3. What other books did the author of The Vang write? I want to read another.
4. What was that book where a guy gets his brain put in a woman’s body?
5. I’d like one or two Star Trek books that are also movies with William Shatner as Captain Kirk.
6. I’d like to see some books with Hickman paintings on the cover.

**Find clues for representation**

Users’ questions give us clues for representing information objects in the organization system

For each user question, ask . . .

Which object attributes are explicitly suggested?

What are the user’s desires or expectations for precision and recall?
**Possible attributes**

*For science fiction books, how about...?*
- Title, Series Name, Reprint Edition
- Creator (or Author or Illustrator), Publisher
- Format, Length, Language
- Literary Form (values such as novel, anthology)
- Genre, Subject, Setting, Time Period
- Synopsis (or Abstract or Plot)
- Character Name, Character Feature
- Color, Cover Art, Content Warning
- Movie Connection, Computer Game Connection

**Questions**

**User question 1:** I want a couple novels involving life on starships.

*Object attributes:* Genre, Subject, Setting

*Desired precision:* moderate

*Desired recall:* low to moderate

**User question 2:** I need the books you have in the Ender series. I think there are three or four.

*Object attributes:* Series Name

*Format has only one value: book.*

*Title is not explicit in question.*

*Desired precision:* moderate

*Desired recall:* moderate

**User question 3:** What other books did the author of *The Vang* write? I want to read another.

*Object attributes:* Title, Creator (or Author)

*Desired precision:* moderate to high

*Desired recall:* low

**User question 4:** What was that book where a guy gets his brain put in a woman’s body?

*Object attributes:* Subject, Synopsis (or Abstract or Plot), Character Feature

*Desired precision:* high

*Desired recall:* low

**Precision and Recall**

- Desired = “what user wants”
- Precision: “How broad or specific do they desire the book to be?”
- Recall: “How many do they want?”
Questions

User question 5: I’d like one or two Star Trek books are also movies with William Shatner as Captain Kirk.

Object attributes: Title, Series Name, Character Name, Movie Connection
Desired precision: high
Desired recall: low

User question 6: I’d like to see some books with Hickman paintings on the cover.

Object attributes: Creator (or Illustrator), Cover Art
Desired precision: moderate - high
Desired recall: moderate - high

Choose 4 Q for IOP

- Real (or realistic) users’ questions
- Provide good test for the IR system in IOP 6.1
  - Contain real values (e.g., author’s name)
  - Not answerable with yes or no
  - Not answerable with a number
- Suggest a variety of attributes to represent

Which 4 questions are most suitable?

Question No-nos!

- Do not start your questions with:
  - Where are… (this is a directional question)
  - How many… (this is a counting question)
  - Is/Are there… (this is a yes/no question)
  - What/who/where is the… (this is a trivia question)

The accomplishments

We have analyzed realistic users’ questions
AND
Identified object attributes in users’ questions
AND
Determined desired precision and recall based on users’ questions.

Later in the IOP, you will . . .

- Add more attributes to represent information objects, based on your own knowledge (sec. 2)
- Translate attributes into metadata elements (sec. 2.2) and then into record fields (sec. 2.3)
- Employ users’ questions to test system effectiveness (sec. 6.1)
- Report results of system test from system’s view of precision and recall (sec. 6.1)