

COM6655 Professional Issues Autumn 2021

Tutorial for week 9 (22nd November): Can a knowledge-based system know everything?

Scenario

The **Sticky Stamps Company** of Rotherham is the second largest company in the world that caters to the needs of philatelists, or stamp collectors. It sells stamps, albums, catalogues, and every kind of accessory any collector could want. It has a reputation for fairly pricing its rare stamps, taking into consideration their condition and authenticating them as genuine when there is any doubt. **Alex Black and Joan Andrews** are two experts at Sticky Stamp who are often called upon to judge the value and authenticity of especially rare stamps.

Scan-Do Ltd announced its **Model 720 high-resolution flatbed colour scanner** last year. It won rave reviews from every critic. Although its cost exceeds £17,000, it is unique in the marketplace. Unfortunately, it hasn't been a big seller, in part because no one has developed a need for its high-quality features. **Monica Burke's** job is to change that. **She is a consultant, a knowledge engineer** whose assignment is to develop the software for the expert system called **PhilaTeller, an automated postage-stamp evaluator**.

Monica is in Rotherham to meet with Alex and Joan of Sticky Stamps and to work with them for two months. She is there to develop a computerized questionnaire that Alex and Joan, and any other philatelic expert, can answer to build the knowledge base for PhilaTeller. PhilaTeller **currently contains just part of the British Specialized Stamp Catalogue**. If PhilaTeller works for that, the Scan-Do experts think it can work for all other countries' stamps and for other stamp companies.

Because Monica is a stamp collector as well as a knowledge engineer, she feels confident that she can produce the questionnaire in less than the allowed time. For three weeks, Monica asks about dimensions and printing; perforation; colour transfer; types; and gross and fine errors, from cracked plates to missing frame lines. Her questionnaire is developing nicely, but **she begins to sense a reticence on the part of Alex and Joan. They occasionally seem vague in their answers**.

"What can I ask about the paper? Thickness? Colour? Kind?" Joan hesitates, then says, "I'm not sure I can word a question for you on that. Sometimes the paper just feels right, and sometimes I know it's wrong. It's not thickness, or transparency, or colour, or anything like that. It's almost like ... a feeling, something I just know."

"What about you, Alex? Can you be more specific so that we can put it into question form?"

"Unfortunately, I agree with Joan. Oh, sure, some details are easy to measure, like thickness and colour. But I seem to sense some qualities that I can only attribute to experience. For example, I can't tell exactly why I can differentiate parchment types from rag paper or thick paper types. I guess that's why Joan and I get big money for our judgments."

Monica frowns. She makes a few more attempts to get more information, then moves on to the next area. **She feels that she can fill in the gaps herself**.

Two years later, several large companies and dealers use PhilaTeller as a trusted tool in judging incoming stamps from collections. One day the following news story appears:

Dallas Register (IP) — Computer Fails to Spot Rare Stamp. **Hortense Gneiss of Hopewell**, Texas, is suing the **Bondurance Stamp and Coin Company** for \$1,000,000 for failure to perform professionally and misrepresentation of expertise. Gneiss alleges that an expert system called PhilaTeller did not correctly identify a Danish West Indies stamp she sold to Bondurance in a collection. Although Gneiss did not know it at the time of the sale, the stamp was what collectors call a Three Palms Blue on Parchment. The stamp is supposedly worth in excess of \$750,000.

The collection, which she sold to Bondurance for \$120,000, was later sold to the Sticky Stamps Company of Rotherham, England. The Three Palms Blue was discovered by Alex Black, who was working as a private consultant for the Sticky Stamps Company. Black was helping to divide the collection into small job lots for easier sale.

The expert system, which is a program designed to act like an expert when fed the right questions, was developed by Scan-Do Ltd of London. Representatives of Scan-Do could not be reached for comment.

Adapted from Kallmam & Grillo, Ethical Decision Making and Information Technology, McGraw Hill.

In your breakout groups

- One member of your breakout group should be given the role of rapporteur – they should take notes and be prepared to speak on behalf of the group at the end of the tutorial.

Discussion points

- What are the key facts in this scenario?
- Who are the key stakeholders?
- Which sections of the [BCS code of Conduct](#) apply here?
- What are the legal issues here?