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# Worldviews, Term Circles, Linked Data

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# Worldviews, Term Circles, Linked Data

"*There is a permanent tension between the formal and the empirical, the local and the situated, and attempts to represent information across localities. It is this tension itself which is underexplored and undertheorized*."

Bowker and Star, Sorting Things Out.

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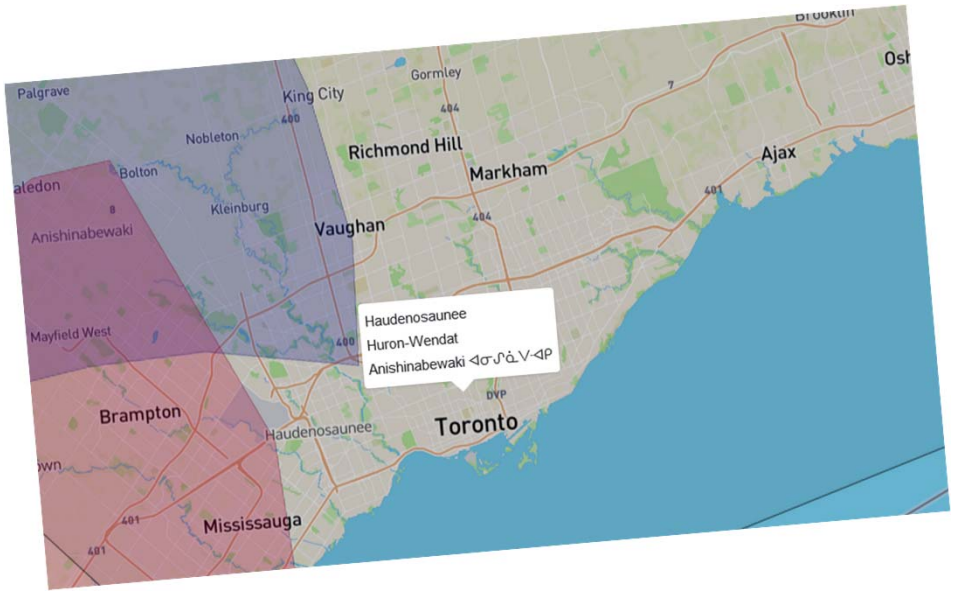
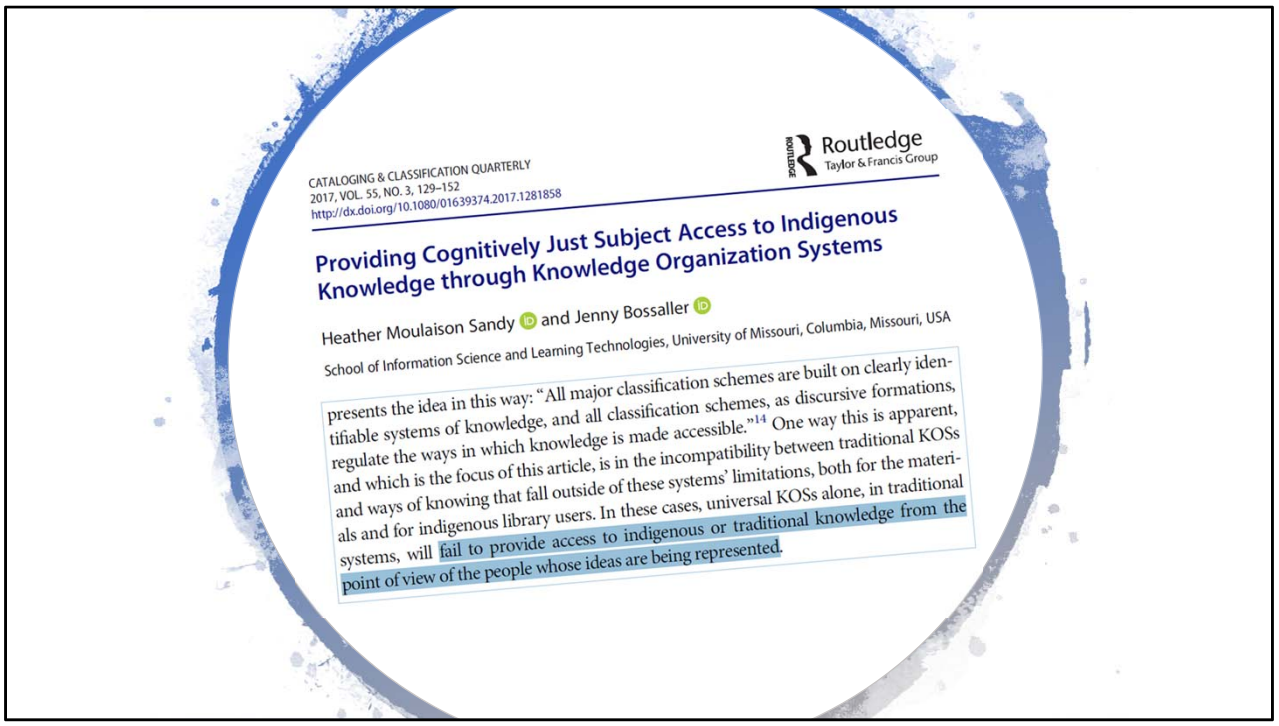



Native Land :: https://native-land.ca

I'd like to start today by acknowledging that I've had the privilege and opportunity to be a guest on the lands of many Indigenous people. I've lived and worked for most of my life here in Toronto. This area, also known as Tkaronto, has been cared for by the Anishinabek Nation (especially the Mississaugas of the Credit First Nation), the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. This territory is subject to the Dish With One Spoon Wampum Belt Covenant, an agreement that directs us all to peaceably share and care for the Great Lakes region.



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**Providing Cognitively Just Subject Access to Indigenous Knowledge through Knowledge Organization Systems**

Heather Moulaison Sandy and Jenny Bossaller

School of Information Science and Learning Technologies, University of Missouri, Columbia, Missouri, USA

presents the idea in this way: "All major classification schemes are built on clearly identifiable systems of knowledge, and all classification schemes, as discursive formations, regulate the ways in which knowledge is made accessible."[14] One way this is apparent, and which is the focus of this article, is in the incompatibility between traditional KOSs and ways of knowing that fall outside of these systems' limitations, both for the materials and for indigenous library users. In these cases, universal KOSs alone, in traditional systems, will fail to provide access to indigenous or traditional knowledge from the point of view of the people whose ideas are being represented.

I delivered a presentation in Edmonton last May to the Canadian Association of Law Libraries. In it I talked about the Western worldview that underlies the organization of library information and how it differs from approaches to knowledge found in many Indigenous cultures. I concluded that linked data might be one way to bridge these differences and today I will explore this idea a little further.

I was inspired in part by Heather Moulaison Sandy and Jenny Bossaller's 2017 article on subject access and Indigenous knowledge. One thing that particularly resonated with me was their statement that "*[library information systems] fail to provide access to indigenous or traditional knowledge from the point of view of the people whose ideas are being represented*." One reason for this failure might be attributed to how different worldviews can interact with each other in the information space.

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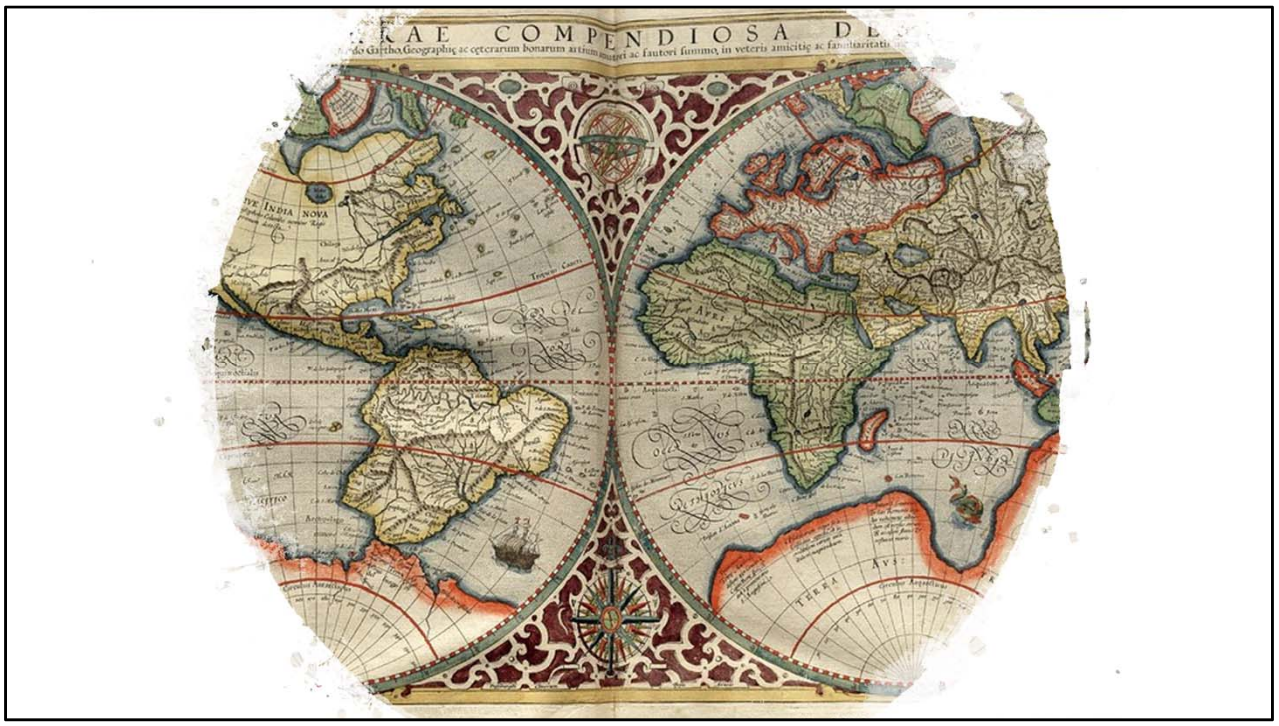
Heather Moulaison Sandy and Jenny Bossaller. 2017. "Providing Cognitively Just Subject Access to Indigenous Knowledge through Knowledge Organization Systems." C&CQ 55 (3), p. 131.




Your worldview shapes how you think about and perceive the world. It's also something so ingrained and natural to you that you are generally unaware that it is affecting and colouring the way you relate to the world. As University of Manitoba professor Michael Anthony Hart wrote in 2010, worldviews are "*usually unconsciously and uncritically taken for granted as the way things are*."

As my research progressed, I began to realize that the problems presenting themselves as part of the "decolonizing description" initiative requires more than deciding which term might be the most appropriate one to use. It goes much deeper than that. The Euro-Canadian or Western view of the world is, in many ways, fundamentally different from how Indigenous peoples relate to the world.

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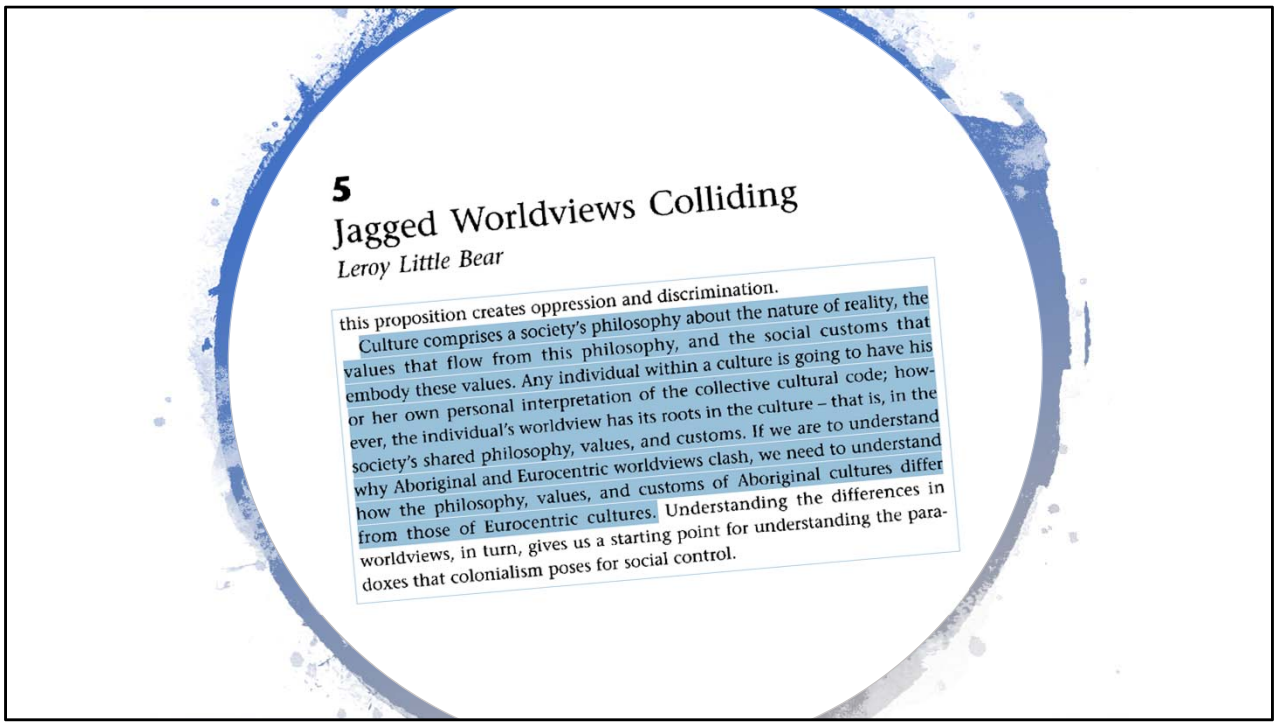
Michael Anthony Hart. 2010. "Indigenous Worldviews, Knowledge, and Research: The Development of an Indigenous Research Paradigm."
Journal of Indigenous Voices in Social Work 1 (1), p. 2.



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Jagged Worldviews Colliding

*Leroy Little Bear*

this proposition creates oppression and discrimination.

Culture comprises a society's philosophy about the nature of reality, the values that flow from this philosophy, and the social customs that embody these values. Any individual within a culture is going to have his or her own personal interpretation of the collective cultural code; however, the individual's worldview has its roots in the culture – that is, in the society's shared philosophy, values, and customs. If we are to understand why Aboriginal and Eurocentric worldviews clash, we need to understand how the philosophy, values, and customs of Aboriginal cultures differ from those of Eurocentric cultures. Understanding the differences in worldviews, in turn, gives us a starting point for understanding the paradoxes that colonialism poses for social control.

Leroy Little Bear, a member of the Blood tribe of the Blackfoot Confederacy and a professor at the University of Lethbridge in Alberta, described these cultural differences in his paper, "Jagged Worldviews Colliding":

> "*Culture comprises a society's philosophy about the nature of reality, the values that flow from this philosophy, and the social customs that embody these values. Any individual within a culture is going to have his or her own personal interpretation of the collective cultural code; however, the individual's worldview has its roots in the culture—that is, in the society's shared philosophy, values, and customs. If we are to understand why Aboriginal and Eurocentric worldviews clash, we need to understand how the philosophy, values, and customs of Aboriginal cultures differ from those of Eurocentric cultures*."

I touched on some of these differences in my earlier paper but won't have time for details here.

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Leroy Little Bear. 2000. "Jagged Worldviews Colliding." In Reclaiming Indigenous Voice and Vision, Vancouver: UBC Press, p. 77.


Instead, I will use a table created by Angayuqaq Oscar Kawagley and Ray Barnhardt provided in their 1999 paper, “Education Indigenous to Place.” There are a few copies available in the room. The authors adapted this table from information provided in Peter Knudtson and David Suzuki’s book, “Wisdom of the Elders.” The authors compare some characteristics of Indigenous worldviews with the Western worldview. For my purposes today, I’ve extracted those characteristics that one might reasonably apply when thinking about knowledge expressed in a linked data or graph-based information space.

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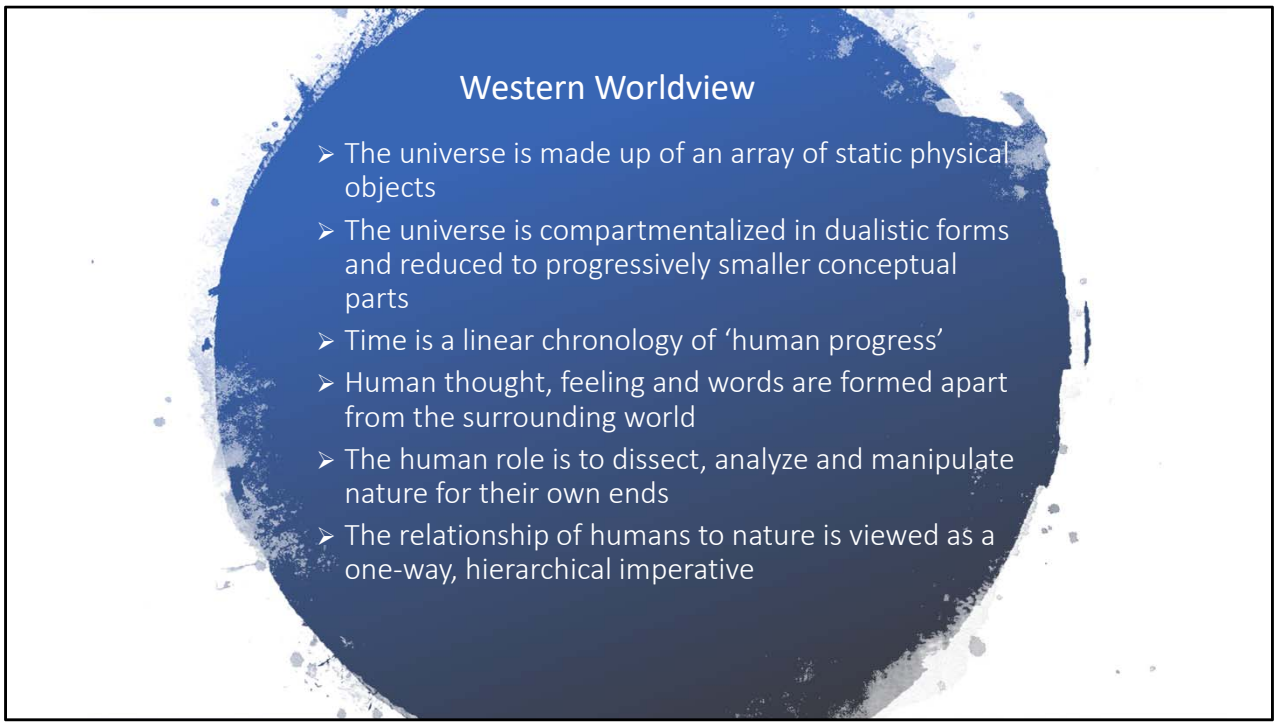
Angayuqaq Oscar Kawagley and Ray Barnhardt. ‘Education Indigenous to Place’. In *Ecological Education in Action*, 117–40. New York, N.Y.: SUNY Press, 1999. http://ankn.uaf.edu/Curriculum/Articles/BarnhardtKawagley/EIP.html.

Peter Knudtson, and David T. Suzuki. *Wisdom of the Elders*. Toronto, ON: Stoddart, 1992.


I settled on these characteristics used to describe aspects of Indigenous worldviews:

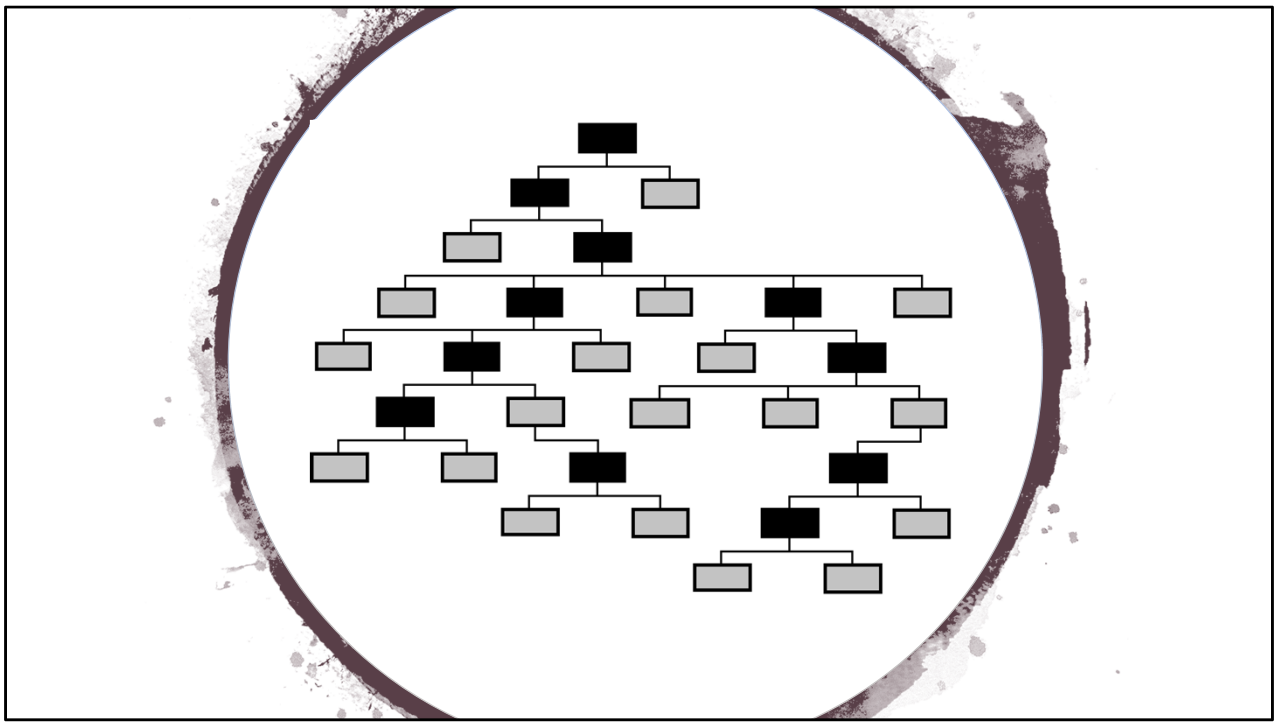
- The universe is made up of dynamic, everchanging natural forces
- The universe is viewed as a holistic, integrative system with a unifying life force
- Time is circular with natural cycles that sustain all life
- Human thought, feelings and words are inextricably bound to all other aspects of the universe
- The human role is to participate in the orderly designs of nature
- The proper human relationship with nature is viewed as a continuous two-way, transactional dialogue



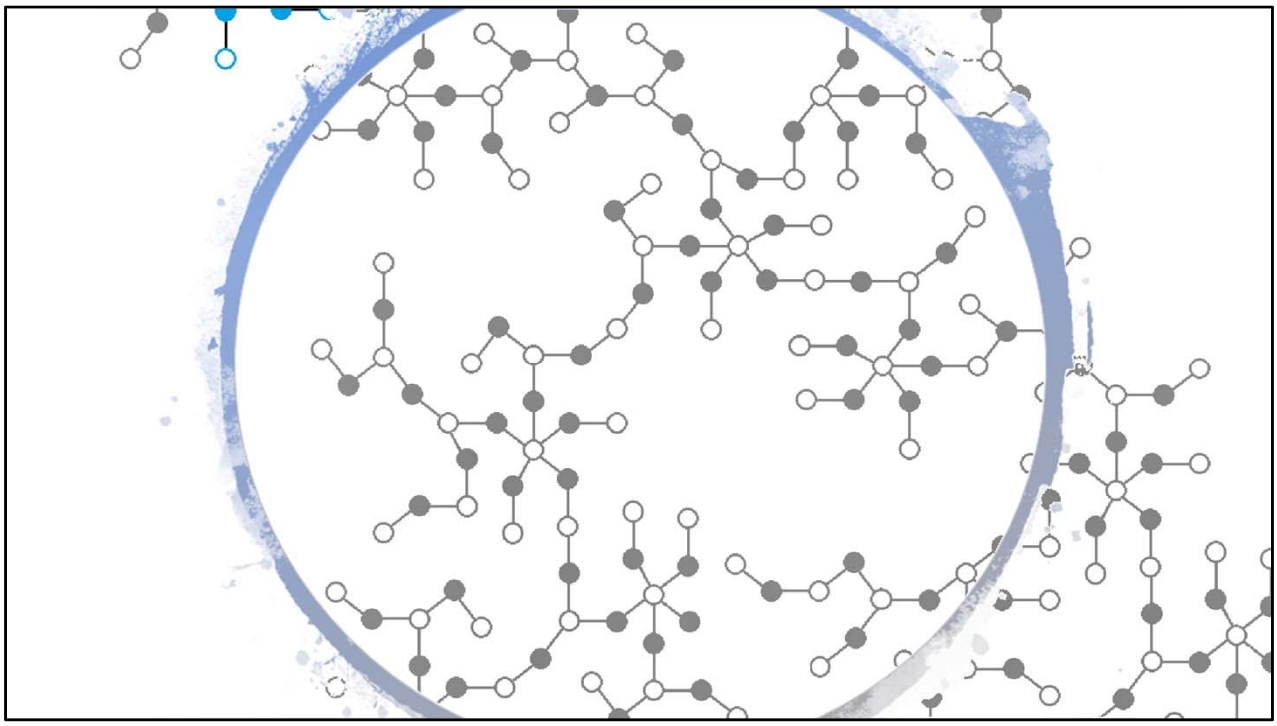

The comparable characteristics of the Western worldview are described like this:

- The universe is made up of an array of static physical objects
- The universe is compartmentalized in dualistic forms and reduced to progressively smaller conceptual parts
- Time is a linear chronology of 'human progress'
- Human thought, feeling and words are formed apart from the surrounding world
- The human role is to dissect, analyze and manipulate nature for their own ends
- The relationship of humans to nature is viewed as a one-way, hierarchical imperative

In contrast to the previous characteristics describing Indigenous worldviews, these statements seem better suited to describe a hierarchical view of data typically found in library databases.

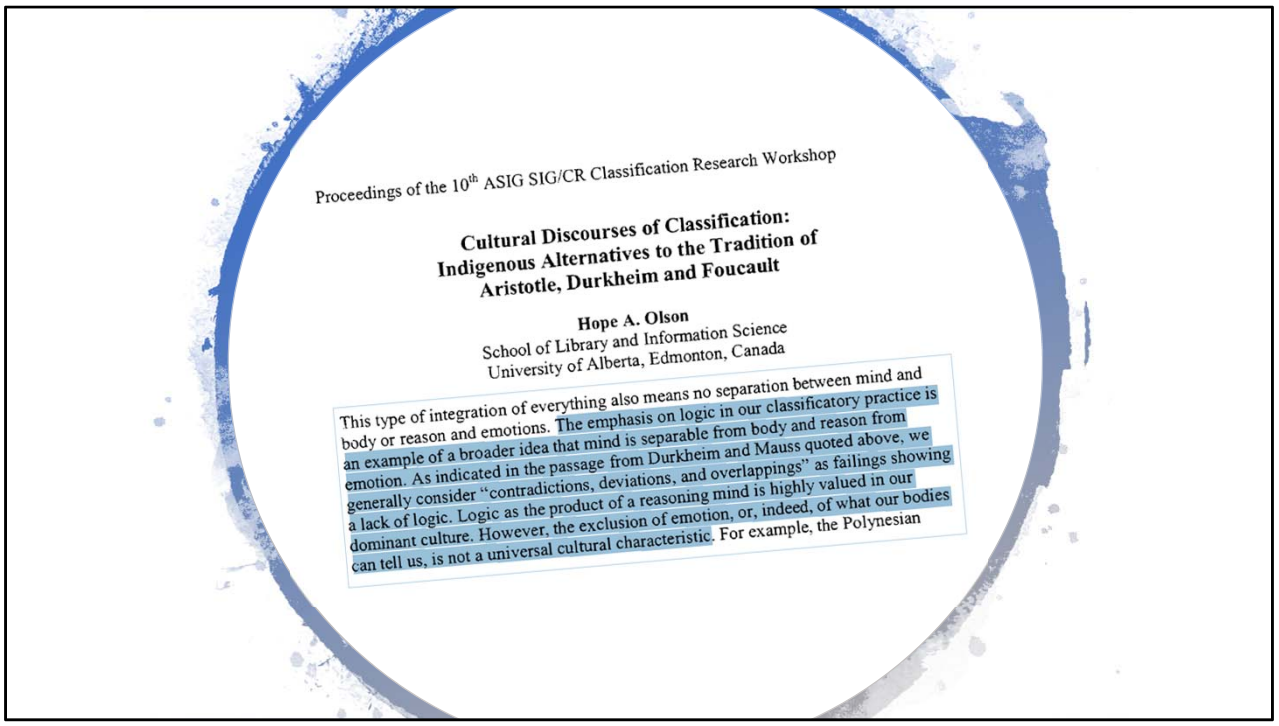


Bibliographic data, traditionally managed in relational databases, is consequently represented in a static, linear, and compartmentalized way. And, despite the many advantages found with web-based technologies, bibliographic data remains siloed and unconnected.



But bibliographic data can easily be represented using a fully implemented linked data system. Data in a space like this is expressed in a dynamic, integrative, continuous, and interconnected way adjectives that invite parallels to characteristics found when describing Indigenous worldviews. So it makes me wonder whether the flexibility afforded by a linked data information space might create data structures to better reflect Indigenous worldviews?

Lets consider further the relationship between information organization and worldviews.



Proceedings of the 10th ASIG SIG/CR Classification Research Workshop

**Cultural Discourses of Classification: Indigenous Alternatives to the Tradition of Aristotle, Durkheim and Foucault**

**Hope A. Olson**
School of Library and Information Science
University of Alberta, Edmonton, Canada

This type of integration of everything also means no separation between mind and body or reason and emotions. The emphasis on logic in our classificatory practice is an example of a broader idea that mind is separable from body and reason from emotion. As indicated in the passage from Durkheim and Mauss quoted above, we generally consider "contradictions, deviations, and overlappings" as failings showing a lack of logic. Logic as the product of a reasoning mind is highly valued in our dominant culture. However, the exclusion of emotion, or, indeed, of what our bodies can tell us, is not a universal cultural characteristic. For example, the Polynesian

Hope Olson, for example, talked about the Western emphasis on logic which affects how concepts in library classification practice have been developed. She considers logic to be "*an example of a broader idea that mind is separable from body and reason from emotion.*" She adds that

> "*… we generally consider 'contradictions, deviations, and overlappings' as failings [that show] a lack of logic. Logic as the product of a reasoning mind is highly valued in our dominant culture. However, the exclusion of emotion, or, indeed, of what our bodies can tell us, is not a universal cultural characteristic*."

Although we think we may have defined a "logical" hierarchical structure using a collection of mutually exclusive concepts we have actually only succeeded in representing one way of looking at the world.

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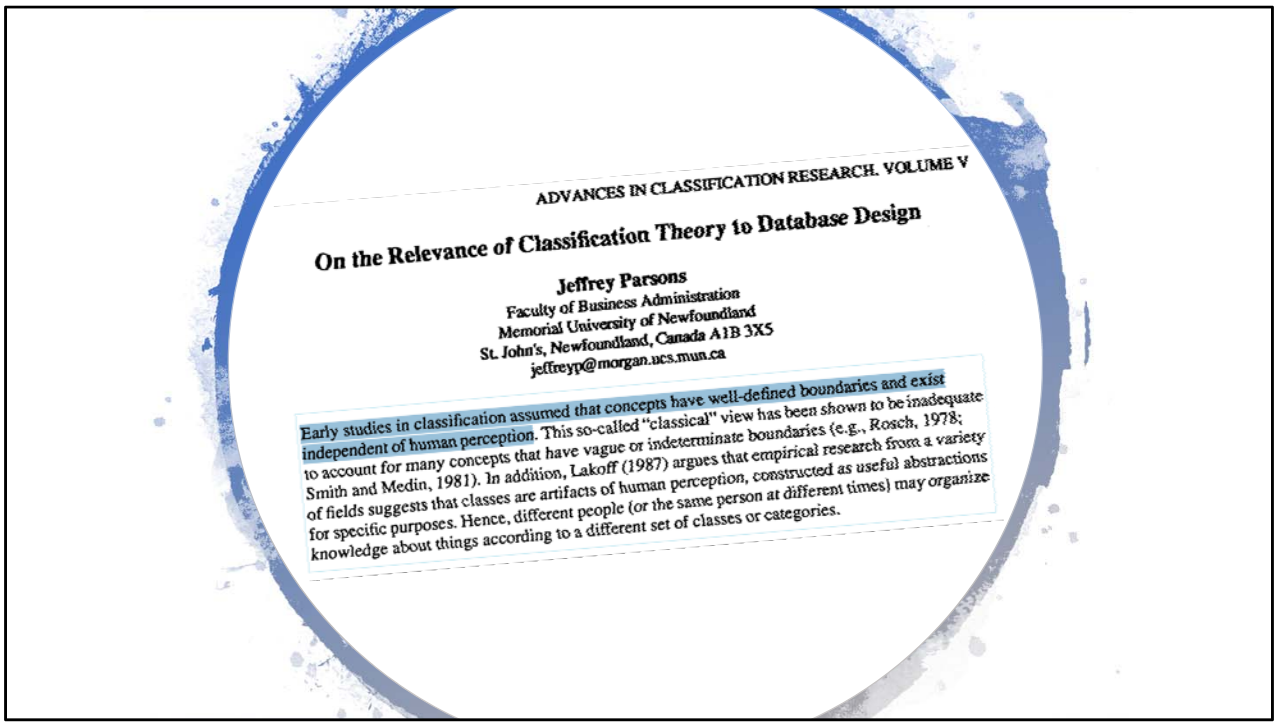
Olson, p. 115.



ADVANCES IN CLASSIFICATION RESEARCH. VOLUME V

**On the Relevance of Classification Theory to Database Design**

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Early studies in classification assumed that concepts have well-defined boundaries and exist independent of human perception. This so-called "classical" view has been shown to be inadequate to account for many concepts that have vague or indeterminate boundaries (e.g., Rosch, 1978; Smith and Medin, 1981). In addition, Lakoff (1987) argues that empirical research from a variety of fields suggests that classes are artifacts of human perception, constructed as useful abstractions for specific purposes. Hence, different people (or the same person at different times) may organize knowledge about things according to a different set of classes or categories.

In an article about classification theory and database design, Memorial University professor Jeffrey Parsons questions the underlying assumption that concepts *can* be both clearly defined and that they exist independent of human perception.

By understanding that a universal order to the world does not and cannot exist we can perhaps shift our attention to creating information systems that are flexible enough to recognize and accommodate differences in perspective.

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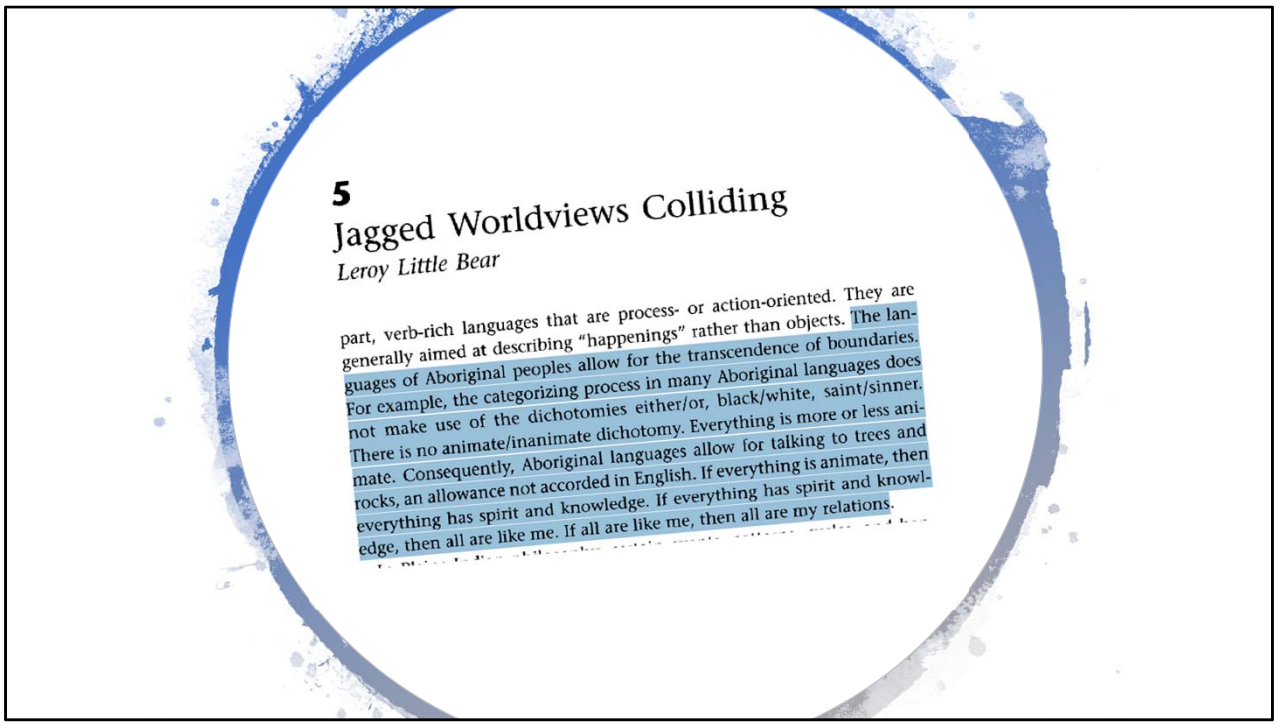
Jeffrey Parsons. 1996. "On the Relevance of Classification Theory to Database Design." In Advances in Classification Research: Proceedings of the 5th ASIS SIG/CR Classification Research Workshop, V. Advances in Classification Research. Medford N.J.: Information Today, p. 133



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Jagged Worldviews Colliding

*Leroy Little Bear*

part, verb-rich languages that are process- or action-oriented. They are generally aimed at describing "happenings" rather than objects. The languages of Aboriginal peoples allow for the transcendence of boundaries. For example, the categorizing process in many Aboriginal languages does not make use of the dichotomies either/or, black/white, saint/sinner. There is no animate/inanimate dichotomy. Everything is more or less animate. Consequently, Aboriginal languages allow for talking to trees and rocks, an allowance not accorded in English. If everything is animate, then everything has spirit and knowledge. If everything has spirit and knowledge, then all are like me. If all are like me, then all are my relations.

This echoes Little Bear when he talked about Indigenous languages transcending conceptual boundaries because they embody a different worldview:

> "*The languages of Aboriginal peoples allow for the transcendence of boundaries. For example, the categorizing process in many Aboriginal languages does not make use of the dichotomies either/or, black/white, saint/sinner. There is no animate/inanimate dichotomy. Everything is more or less animate. Consequently, Aboriginal languages allow for talking to trees and rocks, an allowance not accorded in English. If everything is animate, then everything has spirit and knowledge. If everything has spirit and knowledge, then all are like me. If all are like me, then all are my relations*."

So while Parsons notes the difficulties encountered when trying to draw firm conceptual boundaries around vague concepts, Little Bear demonstrates that since we belong to an everchanging existence, concepts will naturally be fluid and holistic by nature.

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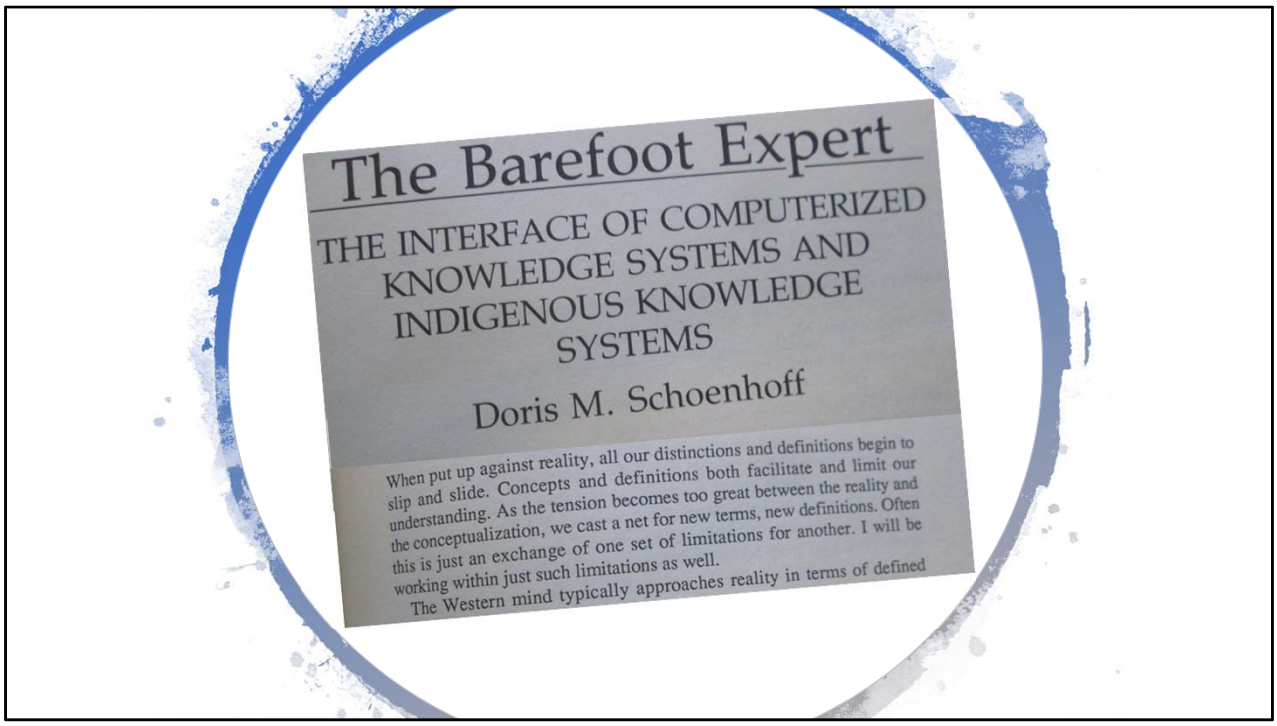
Little Bear, p. 78.




In 1993 Doris Schoenhoff wrote a wonderful book on the challenges faced when introducing expert systems into Third World countries. At one point she observed that Western conceptualization found classification systems can give the "*mistaken sense that we have snared reality in our definitions*." And she echoed similar points raised by Parsons and Olson when concepts are compared to reality:

> "*When put up against reality, all our distinctions and definitions begin to slip and slide. Concepts and definitions both facilitate and limit our understanding. As the tension becomes too great between the reality and the conceptualization, we cast a net for new terms, new definitions. Often this is just an exchange of one set of limitations for another*."

It is this "exchange of one set of limitations for another" that efforts to "decolonize description" seem to address. Perhaps a necessary first step, but it misses the fact that the underlying system might not be able to effectively reflect and incorporate characteristics found in Indigenous worldviews.

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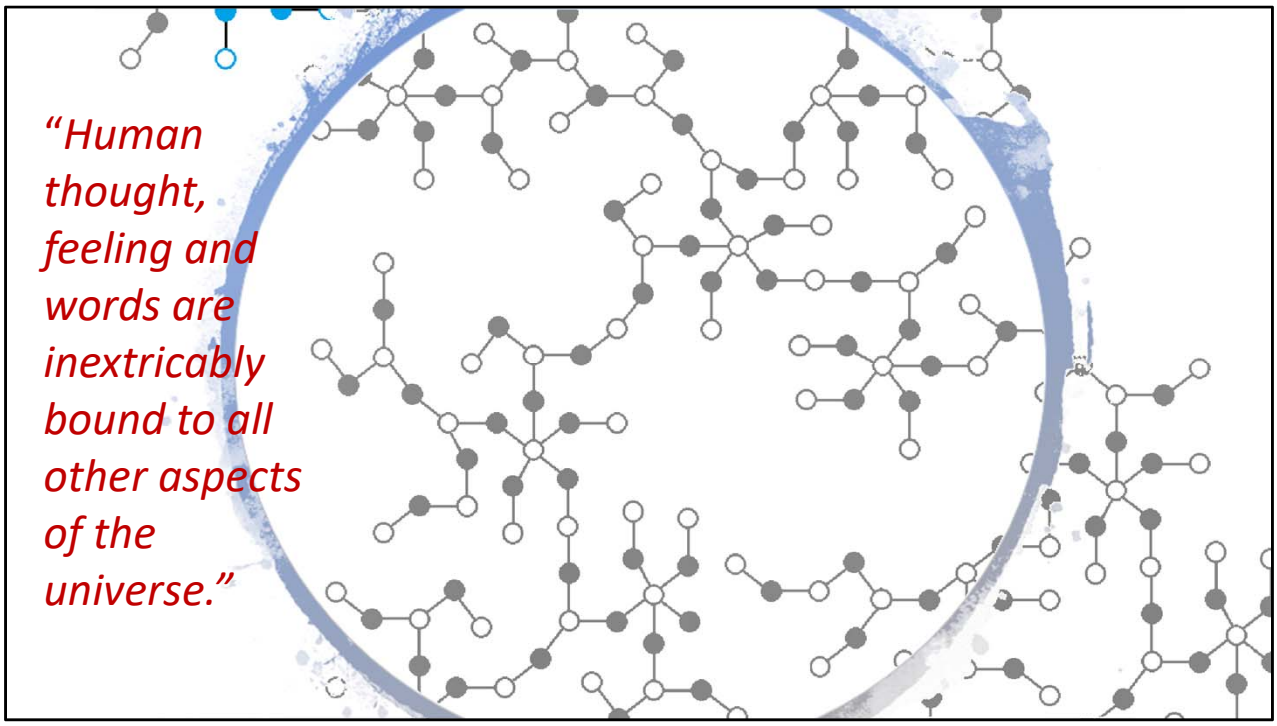
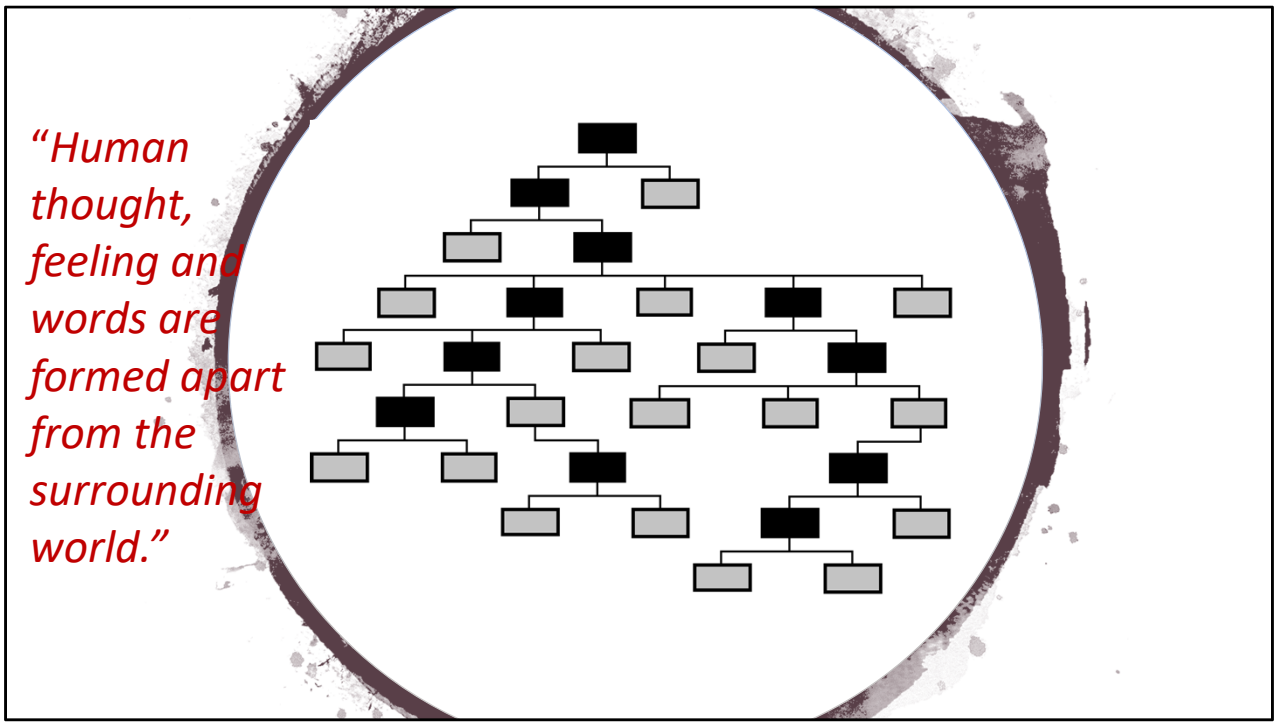
Doris M. Schoenhoff. 1993. The Barefoot Expert: The Interface of

Computerized Knowledge Systems and Indigenous Knowledge Systems. Contributions to the Study of Computer Science, No. 3. Westport, Conn: Greenwood Press, p. 160.
Schoenhoff, p. 39.

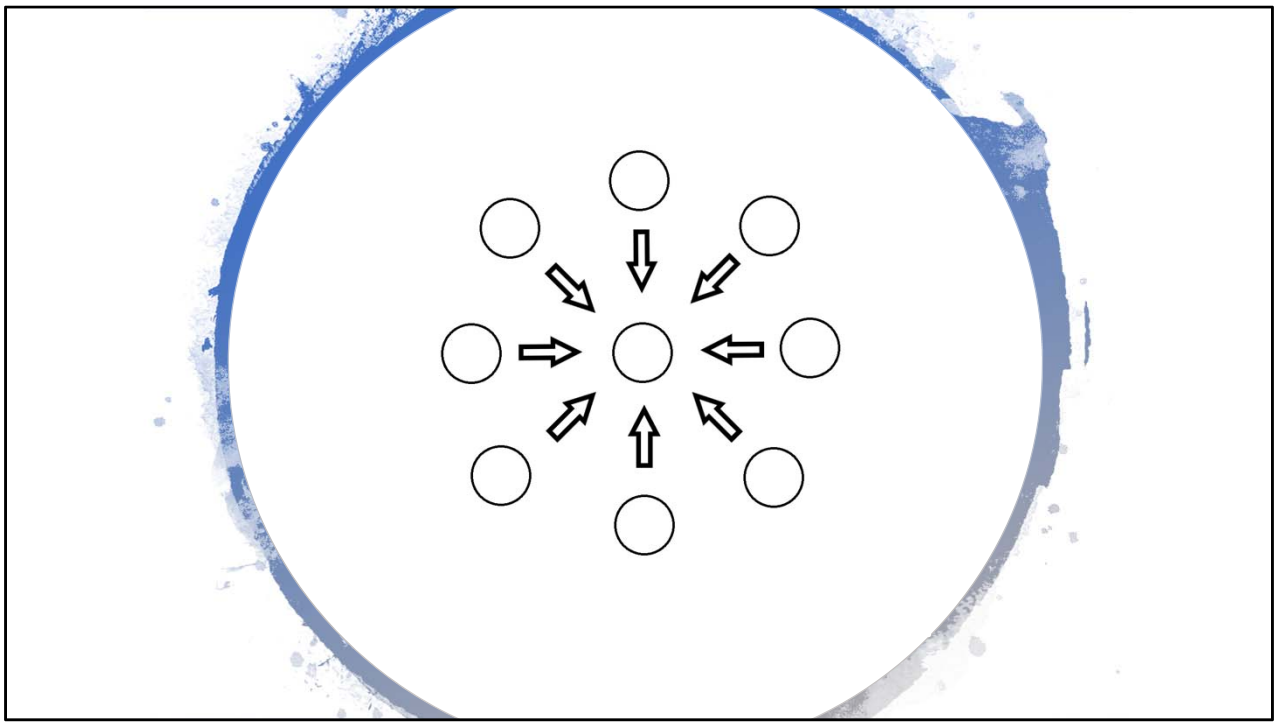



If we accept that one component of an Indigenous worldview is that "*Human thought, feelings and words are inextricably bound to all other aspects of the universe*," it might be difficult to express that perspective when confronted by a system that …




… considers "*Human thought, feeling and words [to be] formed apart from the surrounding world*."

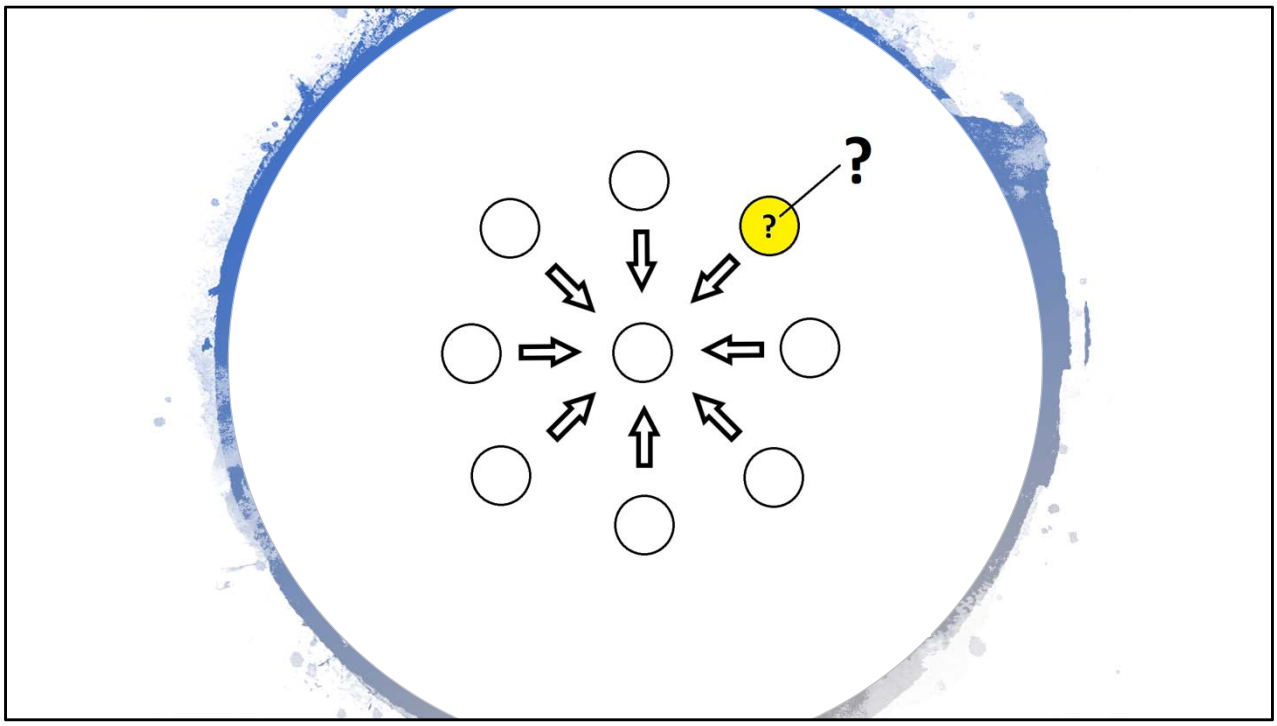
Let's look at an example.



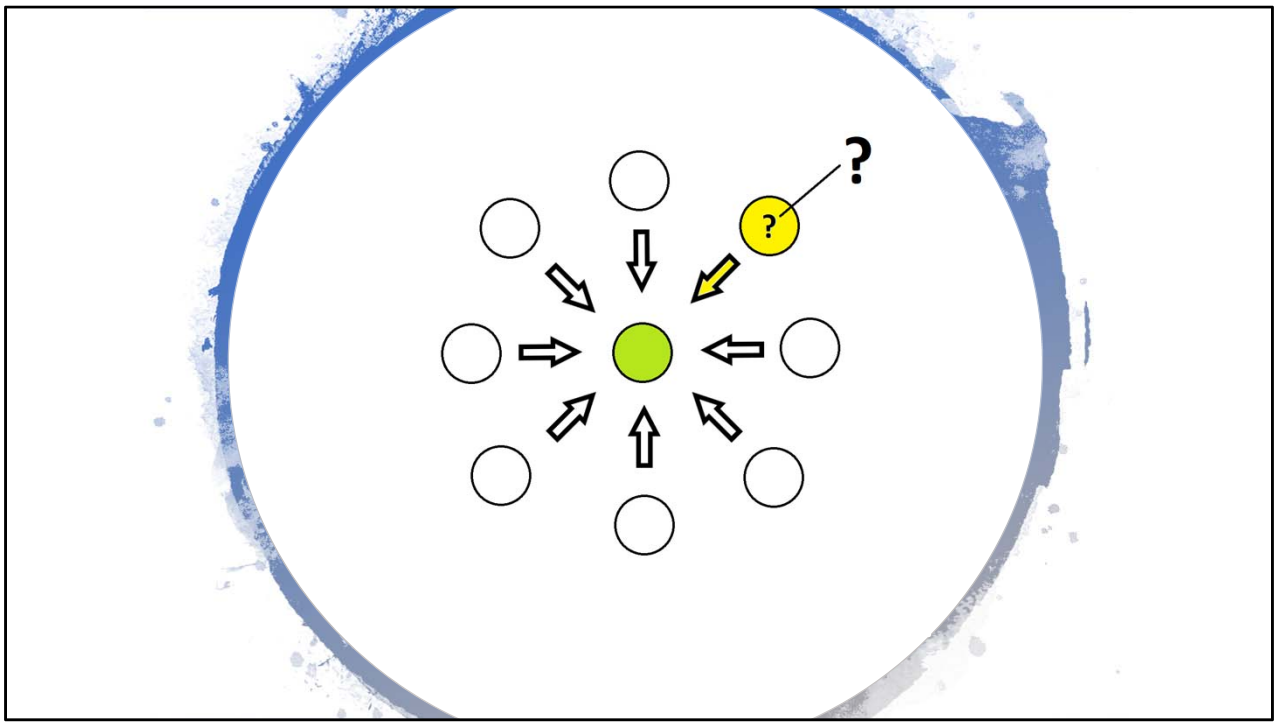
Pictured here is one way to illustrate the mutually exclusive relationship between terms in LC subject headings. In the centre is the “preferred term” and surrounding it are the so-called ‘used for’ terms.

The idea is that by providing only one term per subject or concept a more consistent, or “universal,” approach to information organization can be provided.


In this example '*Indigenous children*' is the preferred term used for '*Aboriginal children*' or '*Native children*.' As a cataloguer, if you're classifying something that covers some aspect of '*Aboriginal children*' you would place it exclusively under the heading '*Indigenous children*.'

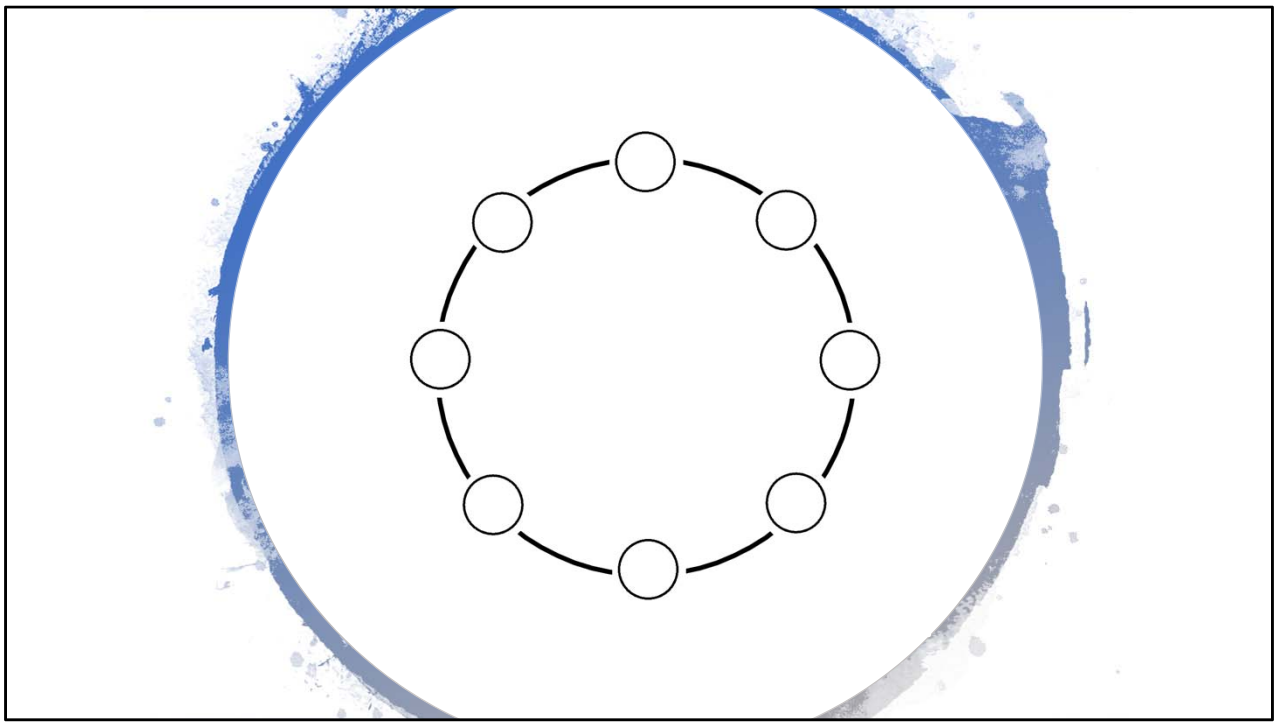



As a catalogue user, if you were looking for resources on '*Native children,*' …

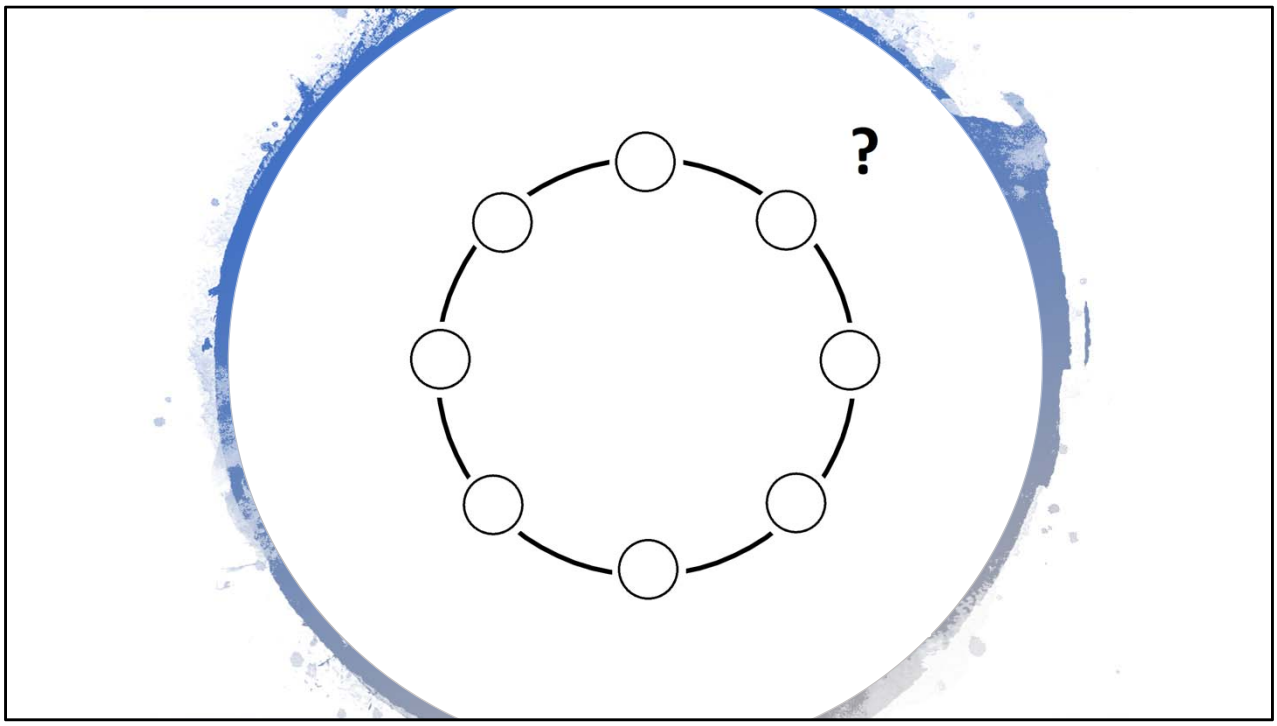



… the system would direct you to use the term '*Indigenous children*.' Or at least in theory, if our systems made proper use of authority records, that's the way it would happen.

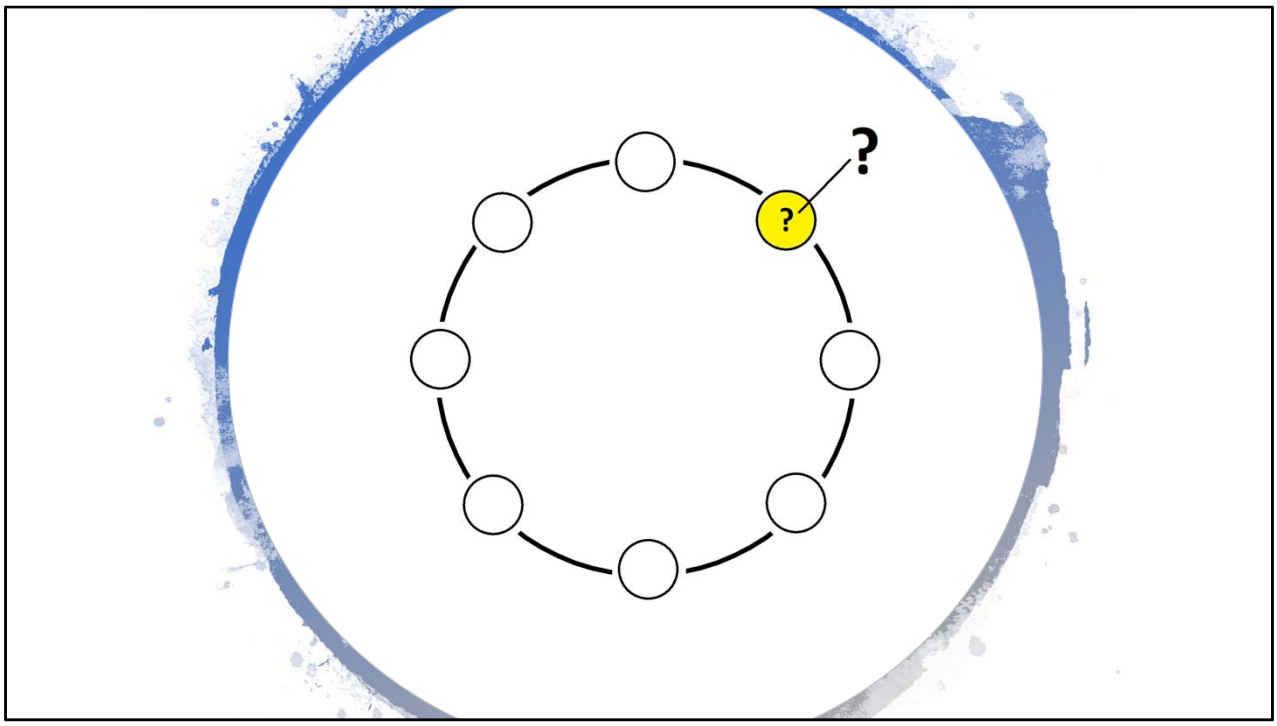
Here's another way to look at the process.



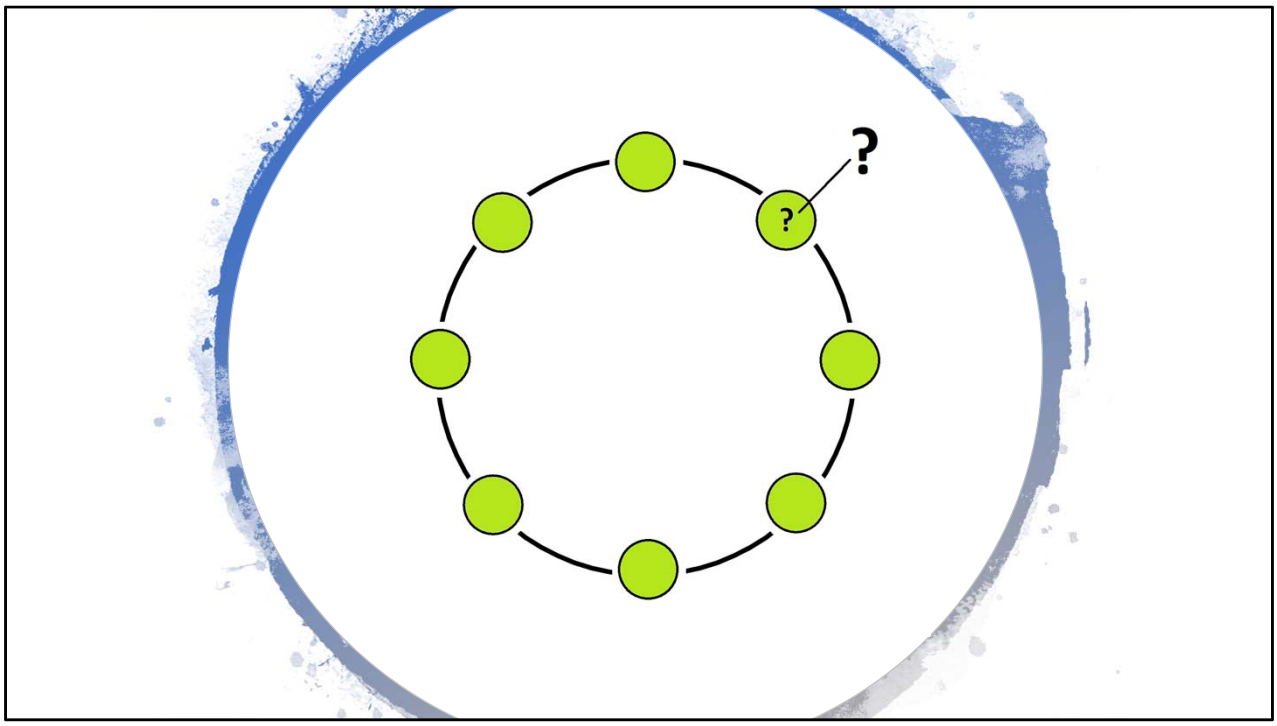
A number of terms are related to each other in some way; perhaps using relationships combining professional and user perspectives. I'm currently thinking of this as something like a "term circle" or perhaps a "preferred cluster" of terms.



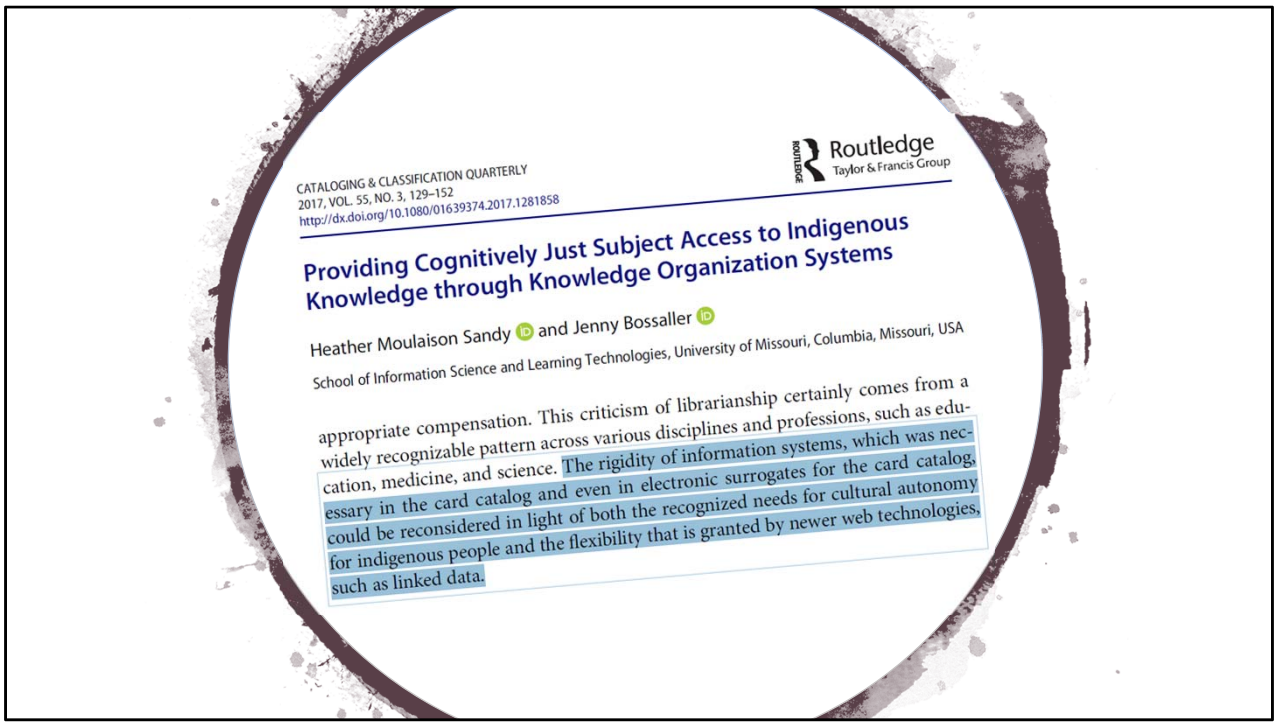

Here, when a catalogue user comes to the catalogue with a question or information need such as '*Native children*' …




… they might again match on a term that belongs to a term circle. But instead of directing the user to a single preferred term …




… it connects the user to *all* of the terms in the term circle. And the system then uses all of these terms to find relevant resources.



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Heather Moulaison Sandy and Jenny Bossaller

School of Information Science and Learning Technologies, University of Missouri, Columbia, Missouri, USA

appropriate compensation. This criticism of librarianship certainly comes from a widely recognizable pattern across various disciplines and professions, such as education, medicine, and science. The rigidity of information systems, which was necessary in the card catalog and even in electronic surrogates for the card catalog, could be reconsidered in light of both the recognized needs for cultural autonomy for indigenous people and the flexibility that is granted by newer web technologies, such as linked data.

Consider this comment from Sandy and Bossaller's article:

> "*The rigidity of information systems, which was necessary in the card catalog and even in electronic surrogates for the card catalog, could be reconsidered in light of both the recognized needs for cultural autonomy for indigenous people and the flexibility that is granted by newer web technologies, such as linked data*."

Indeed, linked data does appear to be the perfect tool for providing access to information in ways that are not only relevant to information needs of a particular moment, but it might also be able to present things to catalogue users in, as Sandy and Bossaller describe, a "cognitively just" way.

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Sandy and Bossaller, p. 132.


Classification schemes and subject headings are interfaces that attempt to connect library users to the information and resources they seek. However, if you are outside of what Olson refers to as the “*dominant culture*” that interface can quickly become a barrier that frustrates the way people interact with information. In that sense, perhaps what we need to provide is something that operates on the level of what Martin Nakata has described as the “cultural interface.”

Can linked data be used in this way? More research is needed but I believe that the inherent flexibility available in linked data and graphed based systems could be used to build better and more inclusive information systems.

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Thank you for your attention!

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