

APPENDIX C

Guided Interviews Data

This appendix contains selections from two interviews conducted with participants in Z39.50 standards work. The first contains the transcription from a recorded interview. The second contains the researcher's notes and summaries written up after the interview when the interviewee did not want the conversation recorded. An important value of the recorded interviews was having access to exact words spoken by the interviewee. Names people have been changed to protect the confidentiality of the interviewee.

Example Transcription of Recorded Interview (Selections)

BM: If there is a way of parceling out of the areas I'd like to talk about -- and I have some questions to guide me, but it's more in the area of how you view the work of that committee, and your organizational affiliation and the expectations of your organization's involvement in standards development, and how you remember that process unfolding, and getting to the points of 1984 and the failure of the ballot then, and then leading to the balloting of 1988 and the success of that and the disbanding of committee. Kind of that period of time if you can shake some memories out of that, or your own interpretation of those things at this point after years of being away from it.

So how do you remember getting involved with that work?

DW: Well, the first thing, if you go way back to the historical antecedents, there was the NCLIS/NBS protocol. I was only tangentially involved with that. [HB?] was the one at RLG that was involved in that work. But I was some around the edges of that. And then, LH [?] and the folks in Norway, picked that up and did an implementation, and she did, she spent a couple of stints at RLG. Her husband would go away on sabbatical to UC Berkeley -- he was a mathematician. And she'd come down and work with RLG. She and I had talked about a lot of the aspects of that. This was outside the formal standards process.

Then RLG and WLN and the Council on Library Resources came up with this notion of the Linked Systems Project, and that was the beginning of my direct involvement in this. And so we started up that activity with, initially LC was not a part of that, but that had to do with the fact that certain people on the board of CLR had an aversion of giving charitable money to the government. But that all sorted itself out, and of course, HA was a major player in all of this.

The first step, once we got into this, and TB and I would talk about things, and it quickly became clear to us that we needed to be involved in the Subcommittee D work, which DH from the Network Development Office was the chair of the committee. And he initially was reluctant to have us join because I think he thought it would upset the balance of the committee. He had somebody from OCLC on that committee, and someone from CLSI, and folks from various areas and various disciplines. HA helped DH understand the wisdom of having RLG and WLN involved in this as far as the Linked Systems Project was concerned, and so we joined that group.

The initial group -- I don't know how long it had been going at that point.

BM: Do you remember when, when you say "at that point?"

DW: It's 1979. My first SC D meeting that I went to was 1979.

BM: Okay. Because it was formed in 1979.

DW: Okay, then, it was formed early, and the probably hadn't had more than a meeting or two before we got involved. And I know DH was trying to develop a query record in the MARC format, was the approach that he was taking. And somebody who had an influence on this -- JD, who at that point was with Motorola, I believe. But he -- I don't know if you have ever met JD...

BM: No, I've just run across the name.

DW: Very dynamic individual. He was involved in some of the OSI work, and he had taken DH aside and talked a lot about OSI. SO there was some thinking about OSI at that point. And a lot of that got worked out in the Local Systems Project [Linked?] because we had gotten to the point where it was clear that NCLIS/NBS had solved the lower layer problem, but they hadn't really solved the application problem. And of course the solution that [unclear] the lower layers had been passed by over time. SO we kind of picked up where they left off, but built on a new basis. And WLN wanted to implement over SNA. RLG and LC were not as enthusiastic about that. It wasn't any particular advantage to us because we weren't SNA shops to start with, which WLN was. But also, we thought we needed something that was independent of any proprietary vendor or approach. And so we ended up there with OSI, and I think that helped make it clearer exactly what an application protocol was supposed to be.

BM: Having it in the framework of the OSI model?

DW: Now that the same time that, or soon after that it became clear that we wanted to go in the OSI direction, then I also started participating in various of the OSI committees. But that's kind of another stream. We probably worked two or three years in SC D and basically we weren't making much progress, and the notion -- I'm not sure who thought of it first, but there were some discussions that ended up involving the Council, of hiring a consultant to draft an initial protocol document, on the assumption that -- based on past experience -- that the committee was not going to be able to do it. That no one was able to devote a large enough amount of time to it to really get together a critical mass.

An so the Council agreed to fund that activity, and so then the process became trying to find someone, a consultant to do the work. That proved difficult, and what they finally did was to make a contract with Dr. Aagaard at Northwestern, and his requirement was that RLG would make me available so he could subcontract 50% of the work to RLG. He was not willing to do it on his own. So he said, "I'll take it on if..."

This is when I became a frequent flyer [laughter]. So KA [sp?] who worked with JA, was on JAs staff, so KA, JA, and I were the ones that did the initial work. It started out with some of the approaches of NIST -- it wasn't NIST at that time -- NBS of doing a requirements document and surveying things and so forth. We tried to put together a requirements document and then survey some of the basic information retrieval systems that were around then, and of course, I brought the, primarily the Spires, RLG background, was the contribution that I made to that. And so we went through and developed a service document, and we developed a protocol document. What we tried to do then was to take all of the different kinds of features that we were aware existed in modern information retrieval systems, and there were various review steps, and the Council every so often would have reviewers also of the Linked Systems Project. This activity and the LSP was very closely tied at that point.

I actually drafted most of that document on American Airlines Flight #47 that left Chicago at 9:30 at night, you know. I'd fly back and we'd meet for two days and ... One of the things that we did also was - - NBS was very really in ESTELLE [?] at that point. ESTELLE was an extended state transition formal description language. And JA wrote a formal description of the protocol using the ESTELLE language. That was the part that he did specifically.

So over the course of about a year -- because I remember I saw the whole seasons at Northwestern, and watch the crocus bloom and -- spent a whole year there. And we finished the initial draft and it went then to SC D. Now it was sometime around then that OCLC participation changed and HT and MM started attending and they became much more active. And it was around this time too that OCLC decided to become part of the LSP. And my sense -- and talking fairly frankly -- but when the document went to the committee and what the committee did was to pare things down. Let's start with a smaller [unclear] functionality -- take out [unclear, but the intention here was that SC D began to strip out some of the things in the specification].

And that was certainly a time when there were some really divergent views about what ought to be there. Probably in part due to implementation approaches that people were taking, but it was also during that time that DH left and went to MITRE. Also, I guess it was even before DH left that the Library of Congress started to hire BR as a consultant. And he brought some different perspective -- but then he was a real practical consultant. And then RD came in to the group [SC D].

I guess another thing that happened there for a while was that Howard did some more formal description techniques. He'd actually did the description in Pascal -- ESTELLE was rather like Pascal. We had some compilable formal descriptions. At this point, all of this was based on the tag-length-value (TLV) encoding that JA and KA and I had put together. Which was the basic approach. And near the time that the document went out for its first ballot, a number of us began thinking that we really needed to come to terms with ASN.1.

BM: As early as that in 1984 then?

DW: Yes. And I don't remember exactly how this -- but of course I had become very heavily involved both in the US and also internationally in the upper layer work. I was the rappatuer of the CASE group for awhile. And from our standpoint organizationally, we saw the session layer isn't done, the presentation layer isn't done, and we can't succeed building on this model unless that work gets done. So the motivation for my being involved in the OSI work was to get those pieces put in place, so we'd have them to put the Z39.50 stuff on top of.

BM: Was that TC 97 that was working in that then, or a subgroup of that?

DW: It was that and of course during the process it changed to JTC1. But it was SC16 in TC 97, it was WG 5, I think. And then I became convener of WG 5, and then when they reorganized things into JTC1, that became WG 8, and I was convener of that until, I guess, last spring or the spring before -- it was sometime in the last year and a half that I stepped down from that. All of the things that we needed to accomplish had gotten accomplished.

But yes, coming aware of ASN.1. And of course the Canadians and the ILL activity, they had much more of a CCITT bent because telecommunications organizations are much stronger than computer manufacturers in Canada. But certain parts of the committee were very resistant to making to any of these changes.

And so the thing went out ballot. Primarily what happened in the ballot was that all of the things that had been taken out -- the standard was voted down because it didn't have all of these things that were in systems. So the ballots demanded that they be put in. And so we went around that process of putting pieces back in -- obviously in somewhat different fashion.

BM: Let me just get a couple of things straight in my own mind. There was some idea of doing information retrieval and a record transfer standard at some point. I mean thinking how things got pared back.

DW: Well, the record transfer was actually something that was separate from the information retrieval protocol.

BM: Right, but the work of SC D when it first started, my understanding was that it was going to look at a broad range of things related to...

DW: As I remember it, the only reason that SC D thought about looking at a record transfer protocol was because we developed a record transfer protocol for the LSP. And then some people said, okay, we ought to standardize this. And we looked at it and looked at what was happening out in the world, and the rise of both the FTP and FTAM, we said we don't need to standardize record transfer -- this is just going to be an interim step [in LSP] before we move on to much broader standards. There's nothing specific about libraries here. And so that idea was kind of born and died in a relatively short time. I don't think it was part of the original charge of the committee.

BM: My reading of that original charge was that it was fairly broad, and I wonder how much it was a matter of trying to identify what the work item or work items would be. But by the time you got there, or when you got there -- which was fairly early on -- it was pretty clear that you were going to do an IR.

DW: The information retrieval, that was what the people that were going there needed, that didn't exist. So it was obviously top priority. There was always some interest in interlibrary loan issues, since National Library of Canada was so interested in that, we were fairly willing to let them work that side and we'll work this side. And we'll agree to make things fit together. I can't remember how early it was, but it was probably when we were still drafting the protocol was the first time that JA and I went up to Toronto and met with DM and another fellow he was working with from the University who didn't stay around much longer. But that was when some of the cross fertilization started. Their initial approach was to look at everything as a file transfer protocol and they were going to do information retrieval as a file transfer as a filter. And JA and I thought that you probably could that way, but you shouldn't --- that's the wrong way to look at it.

You mentioned the ASN.1 -- of course I was aware of that, and eventually I became responsible for it in JTC1. So again, we went through the ballot process. Some people, well -- there's lots of feelings on something like that as hard as they did for as long as they did. RLG was one of the ones that voted against it. At that point, given the state of the world, if that protocol had gone through in its original form, nothing much would have happened to it.

BM: Was that a lack of -- I guess one of the questions was what sorts of pressures were coming to bear on the committee in making some of those decisions early on. Or was it a lack of political strategizing of how to get something through a standards process? How do you see that?

DW: Part of it would be that there was a certain amount of perhaps a certain amount of naivete. A number of people involved in that activity hadn't had much standards experience before. And secondly, the way that ran -- it's hard to get people to participate in NISO committee. Because the community doesn't have very much money. When you go into the computer, and you have IBM and AT&T, you have a lot of people and there's an economic stake for them. So they find the resources to be involved in the things that affect them. That isn't necessarily true in the not-for-profit world. And the folks from the for-profit sector at this point were not interested in something that was out on the edge like that. I can remember we tried to get people from DIALOG, from BRS, to come because we very much wanted something that was not "bibliographic centered." But I remember [going out to DIALG?] it was the day of the Challenger disaster, and I found a couple of people there who said that they would like to work on this but they couldn't get any management support at all. Management simply said they wouldn't support their spending time doing this sort of thing. It simply wasn't germane to their business at that point.

So you had a situation there where there was not a cross section, not a representative sample of opinion in the development of what went out for ballot. I think JA and I had tried pretty much to do a survey and say, "these are the things that exist in contemporary information retrieval systems, and so we will put them in."

BM: Beyond bibliographic?

DW: Neither of us had a lot of experience with bibliographic [?], but we always tried to do things in such a way that it was not centered on being bibliographic. And this was part of that process of saying that we have a mechanism for talking about searches that you could plug in, in effect, different kinds of search languages. And also that you had a mechanism for dealing with result sets, but that it should be independent of what kind of data or information you have in those results sets. As long as you can think of it as a database with records in it, and the basic concepts were that you did a search, you had an abstract concept called a result set, and you had something that could look like a database with records in it -- we tried to work at a fairly high level of abstraction. I got a lot of exposure to that in the OSI work, and I think that was one of the strong things of that work was getting people to think of things at a high enough level of abstraction. Rather than thinking of things in terms of , trying to define your

requirements on the basis of implementation -- which people love to do because it's easy to think of things that are concrete. You know, gee I could build something like this. We were trying to be more general and more far-reaching. And I couldn't really say how successful we were in the initial draft. I mean, most of them, when we got down to the details -- what do you plug into the search argument, what do you plug in -- it was primarily bibliographic and the search structure was reverse polish, you know pretty standard.

And the issues of doing free text searching, well people weren't doing that kind of thinking at the time. So we hadn't included that. Myself, as I look to see how the standard has been able to encompass other kinds of data, I have been quite pleased at it.

That of course in a sense happened as part of -- we got to a point in the process of working on the standards, where I really started saying, this is outside of the scope of the standard. Because I had this feeling, two feelings. One was that if we tried to include all of the details, including all of the attributes, all of the record structure, and all of this stuff in the standard, that it was going to take years more to reach agreement. So I tried to solidify those architectural parts where we could get agreement, and since I was confident that some of this detail could be plugged in, I could separate agreeing on that detail -- which was contentious -- from getting the agreement on the basic architecture. I think that worked. That hunch paid off.

Example of Reconstruction and Notes from a Non-Recorded Interview (Selections)

I prefaced the interview by telling her what I am doing for my research, and that I was interested in talking with her as a person who represents an organization with a particular stake in Z39.50. She asked if I had a set of questions I was asking various people, and I briefly explained that I'm doing qualitative research and how using the approach of grounded theory I can do purposeful sampling of people who I think have interesting or important perspectives on the topic of standards development, the ZIG, and Z39.50. I mentioned that her comments in the meeting and the message that she posted to the list prompted me to want to discuss with her some of her concerns.

FT began by saying that after the discussion in the ZIG and some of the decisions made by the ZIG makes her feel a bit better about what might happen. The ZIG decided to focus meeting dates on Version 3 issues (e.g., the interoperability testbed) as well as Version 4 proposals. She felt that there was an acknowledgement that the issues of interoperability as raised by her and JM were something that the ZIG has to deal with in some way. The interoperability testbed is one good indication of the ZIG's interest and response.

She was also concerned about the growing size of the ZIG membership and its ability to build consensus. FT suggested that there is a tendency in the ZIG for the "squeaky wheel to get the oil" and that those with the loudest voices to shape the consensus. This has led to including in the standard specific services that serve individual requirements rather than a broader set of requirements.

I asked her if there could be a problem with a dominance of vendors in the ZIG, and thus call into question whether it was abiding by the "balance of interest" requirements of ANSI. She didn't think that NISO could be criticized for this. The way things work in the ZIG is that nothing usually gets pushed through but instead it gets discussed and often modified for the sake of abiding by the model of the standard. She thinks that actual processes within the ZIG do allow a balance of interests.

FT compared the ZIG with her experience in ISO TC46/Working Group 4 that has dealt with the ISO Search and Retrieve. In that group, there are about 10 people (and that is usually a high number) who are national representatives to the international standards working group. The makeup of the membership is much different than in the ZIG. In WG4, except for JZ, RD, and possibly DW most of the working group participants are from higher levels of their organizations (primarily national libraries) and are not necessarily technically inclined. This leads to a quite different quality of conversation. One the one hand, these participants may be able to discuss and know what the "service requirements" for the standard are, but they are unable to craft technical solutions for such requirements at the meetings. They must go back to their technical people, and this slows the process down. This may also be a "shortcoming" to the WG. Also, since JZ, RD, and DW have some technical knowledge of the standard (as well as

the experience with actual implementation with Z39.50) often the conversation is between Canada and the US when the discussion turns to technical details of how something might be done.

The ZIG, on the other hand, comprises a roomful of technical experts who can craft solutions through the discussions during the meetings. The bulk of the people in a ZIG meeting are actual systems people, implementors who have the technical knowledge of what is and isn't possible. [She says later in the interview that many of these people are more comfortable discussing bits and bytes rather than larger or broader questions of how the systems work together.]

FT said that standards are not finished when they are approved. She has a hard time convincing her organization that even though a standard is approved, attending meetings is still essential. This is particularly true of communications protocols where there is much complexity. The technology continues to change, and thus there is a need to continue to work on the standard. As an example, the fact of the Internet brought the requirement of the URL for Z39.50, something that could not have been anticipated previously. Thus as the technology changes, there will be new requirements. Similarly people continue to come up with new requirements, and thus the standard's development must continue.

I asked her if she thought that this implied that the standards process was technology-driven or whether it was users discovering new needs and put the technology to use that drove the standards process -- was it six of one and a half dozen of another? She suggested it might be a chicken or egg question.

I mentioned the notion of anticipatory standards that comes out of the OSI model where a model is developed and standards are developed prior to implementations or a market. She said that OSI has not succeeded while the Internet has. The Internet has people who have an idea and [she pretends to type on a keyboard on the table] come up with a way of doing something. But she suggested there might need to be more of a balance. When I asked her what she meant about a balance, she suggested that there was a need for a "good premise," a "foundation." You need a model, and the "model helps to maintain the integrity of the original concept."

I asked her what she meant by model. It's one of those terms that one hears in the ZIG, along with terms like "profile" or "implementors agreement" and I'm not always sure if people understand the same thing by it. She thought for a minute about that. A model is at a high level of abstraction, such as "what is permissible actions between two systems, such as the notion of Request and Response." She implied that the Internet may be lacking such a model. And with the ZIG, there a number of people who have a background in OSI, such as RD, DW, JZ, and MH, and that balance out those who may be putting forward proposals without consideration of how it fits into the model that drives or organizes the standard.

We talked some more about the ZIG. Its success so far has depended on the mix of the people involved. And she implied as that mix changes so too might the success or capabilities of the ZIG. But there are a lot of people in the ZIG who are interested in getting something to work for their own needs, and get it into the standard. Often these are people who may be more oriented to the bits and bytes rather than the larger or broader service requirements.

As a librarian, "I want to know how to apply this in libraries, to make sure that these things work and address the service requirements. I'm less interested in whether we can get Sort or Scan or Item Order to work rather than seeing how these work together to solve problems of searching for information." She's worried about the precision of searching, and the work on Bib-1 is more of a librarian issue. These are the larger questions that she sees that the ZIG avoids discussing.

She's not alone in her concern. FT says that CL, JM, and others have expressed their concerns. But it's been hard to get the ZIG to address these issues. It's taken someone like JM to push the issue with his threatened NO vote on the ballot. (FT suggested though, that JM didn't really do his cause that much good by continuing to say that he had no solutions to offer.) She also said that she thinks he'll change his vote given the response of the ZIG at this meeting.

Doing interoperability testing is really important, and she is glad to see that the ZIG is considering this now. She mentioned the European's initiative to testing Explain, and was glad that they were doing that, and to have the money and resources to pursue that.

I asked if she thought that the internationalization of Z39.50 will have any impact on the ZIG. She talked about the decision to move Z39.50 forward as the international standard. At the March 1994 meeting of WG4, the suggestion was made by a European to adopt Z39.50 Version 3 as the international standard. She said it was very important that the recommendation came from a European. She said that SM would look into what were seen as two major issues -- intellectual property (NISO and ISO) and how to deal with the format of ISO standards into two parts where the US is in one. And there was a recognition that the ZIG would have to become open to responding to the requirements and needs of the Europeans. It was because of that decision that there were a number of Europeans at the April 1994 ZIG meeting, and why MD is at this meeting and the meeting is being arranged in the Netherlands for next year.

She again mentioned how the ZIG is characterized as dynamic and will change as the mix of people attending the ZIG changes. As new people come to the ZIG, its concerns may change as well. I asked if she thinks the Europeans will feel comfortable in the ZIG which may reflect the US or North American culture. "Of course it's American -- it's informal." And FT thinks the Europeans will welcome this informality.

There is an uninhibited discussion at the ZIG meetings where people raise their voices, argue, and so on. But it may change, since it is an evolving group. She said that although she wasn't at the first meetings of the ZIG, she is sure that it has evolved and will continue to evolve. It will all depend on who comes to the meetings. If there are regular meetings held in Europe or other places, that may mean that fewer Americans will attend. Similarly, Europeans may not be able to attend meetings in the US.

But she thinks that the Europeans will abide by the culture of the ZIG, and it won't change. But there is a possibility of the content of the meetings changing. Concerns that were expressed at this meeting are having an affect on future meetings already. Will there likely be vendors from Europe that will be attending the ZIG. FT said there is already one, ED [?]. And there may be more. It's the concerns that these new people will bring to the ZIG that may change the discussions within the ZIG. Already, the Europeans are bringing their concerns about character sets -- something the people in the US are less concerned or not concerned about.

But FT seems optimistic that the ZIG is going to respond to her concerns, and there may be some opportunity for conversations at the ZIG that have not happened in the past.

As we were wrapping up the conversation, I mentioned by sense that people are looking for making changes to the process and wonder if the ZIG is some possible model for standards development that addresses the criticisms. She mentioned the overhead of the ISO process where the two votes must be taken and how that slows the process down. In some ways, it may not be different that in the ZIG which will discuss something over several meetings. But in ISO, when it goes out for a vote, there is always a chance of a voting member who does not understand the standard to vote or comment negatively because of a lack of understanding.