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Three Myths of XML

By Kendall Grant Clark

A new form of Web content that is meaningful to computers will unleash *a revolution of new possibilities* -- Tim Berners-Lee, James Hendler, Ora Lassila, "[The Semantic Web](#)," Scientific American, May 2001 (emphasis added).

...[A]pplying XML to the process of crafting legislation [has] ... the potential at least of *transforming the basic relationship* between citizens and their elected representatives. -- Alan Kotok, "[Can XML Help Write the Law?](#)" XML.com, May 9, 2001 (emphasis added).

Thinking clearly about the social implications of computer technology always repays the investment it requires, especially when the computer technology in question is the Internet and the Web, both of which have been called revolutionary by their boosters. And it always pays to be skeptical of words like "revolution" and "revolutionary" -- words that can be said far more easily than they can be meant.

Technology is always already embedded in particular social and historical contexts, most often ones in which radical social change is unlikely. After all, technology doesn't fall, as if a gift of the gods, from the sky. The possibilities of social change brought about by technology are limited as much by the social and historical contexts within which technology comes into existence as they are by intrinsic features of the technology itself.

This general point is perhaps never so true as when it's applied to two specific areas of computer technology, both of which concern XML.com readers directly: the [Semantic Web](#) and, of course, [XML](#). In what follows I debunk three myths of XML, each of which in some way bears on the question of the role of technology in social change:

- The [first myth](#) rests on a confusion about the meanings of words like "free" and "open" when they are applied to XML-encoded information.
- The [second myth](#) is that XML is magical, that it has some unique properties that makes impossible things possible.
- [The third](#) is that technology, including XML, is more determinative of social relations and institutions than they are of it.

1. XML Information is Open and Free

The first myth is that information encoded in XML is necessarily open and free. Many people who have been exposed to XML are prone to forgetting and, hence, obscuring the most basic fact -- XML is a tool for making data formats. I'm tempted to say it's *just* a data format, it's *merely* a data format. As the wider world goes, computer data formats aren't all that interesting or significant, nor are the tools for making them. Of course, XML is enmeshed in a range of assumptions, social practices, economic arrangements, and so on. But it's still just a tool for making data formats.

What words like "open" and "free" can mean when applied to a computer data format and what they can mean when applied to a social practice or political institution have very little in common. This first myth isn't true for any public, ordinary meaning of "open" and "free". But it arises precisely from the mistaken belief that the really interesting, political meanings of "open" and "free" apply to XML and to its uses.

When XML advocates, like those at the [W3C](#), say that XML is "open" they mean, approximately, that it isn't a proprietary tool. In that sense XML (the specification plus its associated, standardized technologies) is open. But the

openness of XML isn't, one might say, viral; it necessarily transfers neither to the data formats or information systems XML makes possible nor to the information that it encodes, each of which can be as proprietary and, hence, closed as anything can be.

XML's openness, in the first sense, means you can process XML created by Corporation A's tools with Corporation B, C, or D's tools. Or you can process your XML-encoded information with the tools written by an independent, free software developer who's written some nifty Perl XML libraries.

In this limited, technical sense -- the sense in which XML is just one computer tool among many, and one nearly identical (in relevant parts) to SGML -- XML is "open" and "free," and rather a decent evolutionary step toward interoperable information systems (which are the only sort worth having).

Calling public institutions, social practices, and economic arrangements "open" and "free" is akin to calling them democratic, egalitarian, and just. Whether or not any chunk of the world is democratic, egalitarian, and just can never simply be a matter of whether XML is used there. Adding XML to an undemocratic, inequalitarian, or unjust chunk of the world will never make the crucial difference.

To assume that because the government or some corporation uses XML makes that government or corporation democratic or egalitarian or just is to assume mistakenly either that, first, "open" and "free" can mean the same thing when applied to social, political, and economic chunks of the world as they mean when applied to computer tools; or, second, that the chief impediment to some government or corporation becoming (or becoming more) democratic, egalitarian, or just is that some of its data is encoded in a proprietary way. The first assumption is a conceptual error; the second is or rests on a factual one.

All of which is to say far too little about the fact that the US federal government uses SGML extensively, has used it for at least 20 years, and no one believes that such use has made a political difference.

1a. XML Information Systems are Democratic

A variation of the first myth maintains that information systems that use XML are thereby more fitting in a democratic society, or that they are thereby themselves democratic. In the best of cases, this myth arises from the conceptual or factual errors above. In the worst, it arises from intentional obfuscation.

1b. XML means Universal Access

Another variation is that XML's "openness" means that the information encoded by it is universally accessible in a socially helpful way. One may fall for this myth only by being ignorant of XML and computer technology generally; or by forgetting that in the US the most serious impediments to universal access to information are, first, the quickening of privatization of the US's information infrastructure and, second, the digital divide.

Several variants of this myth appear in Alan Kotok's recent XML.com piece, "[Can XML Help Write the Law?](#)", a report of a meeting which considered the use of XML in the information systems of the US Congress and the various information management agencies associated with Congress and the executive branch.

Kotok reports that, according to the head of the [LegalXML](#) effort,

...[b]efore the Web the average citizen had little or no access to laws and legislation, now much of that information is available for free or low cost. Lawyers may still use the Lexis and WestLaw databases for legal research, but legal resource sites and forums provide citizens with more legal information than ever. Publishers like National Journal and Congressional Quarterly also provide low-cost clipping and bill-tracking services with information that used to be the monopoly of lobbyists.

For many, perhaps most, citizens, access to laws and legislation continues to be, even in the age of the Web, exactly what it's been since the early 20th century: a matter of a visit to the local library. XML can do nothing to change that since many, if not most, people still have as their most reliable point of access to the Web the same local public library. Putting legal information in XML cannot do a single thing to remedy the problems of digital access in the US (and around the world).

Paralleling the problem of individual access to digital information is the contraction of collective access or privatization. There's simply nothing that any computer data format can do to prevent or ameliorate it. What's worse, many government XML initiatives will be avenues for the further privatization of public information systems, which many observers find threatening to the health of American democracy.

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2. Schemas are Magical

XML and schemas, in particular, are often the subject of magical thinking, which is precisely what causes the second myth about XML: "If we can just create the right XML vocabulary or schema, then a vast range of problems will be solved." (I discussed [the politics of schemas](#) and the Semantic Web in a two-part essay for XML.com earlier this year, which I invite interested readers to read.)

Magical thinking about XML is rife, and comes in two forms.

1. The use of XML per se imparts any number of wonderful, often unsayable, benefits.
2. The use of XML per se makes some things possible that otherwise cannot be done at all.

Magical thinking about XML occurs most often in the brains of programmers working with XML, and their technical managers and marketers -- that is, people who stand to gain most if XML is magical or, perhaps just as well, if it's thought to be by enough of the right kind of people. Hence, one may understand the otherwise strange phenomenon of technical experts able to believe three absurd things before lunch about XML's capabilities and virtues.

Kotok reported interest -- especially on the part of Patrice McDermott, head of [OMB Watch](#) -- in how the US federal government might use XML, which gives us a fine example of magical thinking:

McDermott ... envisioned a standard government-wide XML vocabulary that would link legislative activities with government databases. This XML vocabulary would enable the public to see the relationship between legislative actions on one hand, with the actual results of those actions as expressed in government records, an idea that generated more than a little nervous laughter among the meeting participants.

... McDermott said that a standard legislative vocabulary would enable the public to link these statistics to legislators' committee or floor votes, as well as election-campaign contribution databases. That kind of machine-readable information would give the public much more power and add accountability to the political process.

Let's set aside the almost unimaginable scope of the project McDermott implies when she suggests that one could use XML to link legislative activity to its subsequent results in federal government databases and information systems. Let's also set aside the fact that if such a project could be accomplished, it could be accomplished without the use of XML. (Recall the second form of magical thinking about XML claims that things hitherto impossible became practical with it.)

I want to focus attention on the idea that there could be, as Kotok reports McDermott to have suggested, "a standard government-wide XML vocabulary". That I should have to remind the head of OMB Watch that the US federal government may be the most staggeringly complex human institution in the history of staggeringly complex human institutions is, well, staggering. The federal government's scope is massive.



Been a victim of "magical thinking" about XML? Or do you think that XML really can change the world for better? Comment in our forum.

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The very idea that there could be a single XML schema covering every institutional information requirement of the US federal government is a perfect example of the second form of magical thinking about XML, namely, that XML makes possible things otherwise impossible. It does not. It cannot. And it never will.

To understand why this is magical thinking, indulge the following thought experiment. Try to write in plain English prose -- or in any language of your choosing -- a nontrivial, interesting vocabulary for describing the information encoding requirements of the US federal government. Or, to make things easier, how about doing that for just the executive branch? Or, again easier, just the Justice Department. Take care that your head doesn't explode in the process.

Of course even if such a schema existed, it's hard to see how it could help make government more accountable or transparent -- two improvements people ordinarily see as immensely difficult. I stress ordinarily because, except in the thrall of magical thinking, it's plain that McDermott's project faces numerous insuperable obstacles, most of which are strictly social in nature, some of which are technical in the sense that we just don't understand large-scale social systems, their relations, their causal connections, in any appreciably sufficient way. There is something indictably wrong with the marketing and evangelism of XML if or when it induces in otherwise rational people the kind of magical thinking on display here.

In fact McDermott's only rival as the canonical instance of the myth that XML is magically powerful is the HumanML effort. (And McDermott's suggestion isn't actually a rival since it's a suggestion and not a full-blown project, as is the case with HumanML.) I cannot bring myself to call HumanML an actual *development* effort, given its absurd set of goals. As its founders and participants claim, HumanML

...has a goal of "enriching human communications and reducing human misunderstanding" through explicit mechanisms to represent paralinguistic features of human communication.

The HumanML specification will be built on top of current endeavors. Our focus will be to embed root human characteristics in our messages, and *help bring humanity towards universal empathy*. It will be a very interesting world in the future, where we finally begin to work together, with both universal knowledge, and universal empathy.

These are no longer flowery far-off aspirations. *These are finally concrete attainable endeavors, now possible through XML* (emphasis added)

Which desperately bespeaks the ancient human dream, as old as the first stirrings of civilization, of the perfect language, now rebirthed of technophilic parents. I'd suggest a careful reading of Umberto Eco's *The Search for the Perfect Language* if I thought it would help.

But, in short, one wonders what the HumanML folks think XML does that SGML (or any number of other, more powerful representational schemes) cannot do such that XML now, "finally", makes "universal knowledge and universal empathy ... concrete attainable endeavors"?

Magical indeed.

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3. XML is the Dog, Not the Tail

[M]achine-readable information would give the public much more power and add accountability to the political process. -- Alan Kotok, "[Can XML Help Write the Law?](#)"

The last myth I want to discuss applies to every kind of technology, including XML. The myth is that institutional and social structures reflect, or are determined by, the possibilities of computer technology, so that a radical change in the latter will mean a radical change in the former.

Computer technology reflects institutional and social structures far more often than it changes them. Technology is only possible within the context of the social and political practices that create, maintain, and extend it; including social and political relations that dictate public funding of, and private profit-taking from, technology. The social and political practices that constitute social institutions are the limits within which technology can mean or be anything at all.

The relationship is actually more reciprocal and dynamic than that. Technology can give rise to new social practices, but only to those that the larger social framework can accommodate. Technology alone cannot make a revolution.

Taking technology to be independent or determinative of the social context within which it always already operates is to misjudge its possible, practical alliances and uses. The powers-that-be *always* have the newest, best, fastest, most powerful stuff, and they always have *more* of it than anyone else. Notwithstanding an even sharing of technology by all sides, any tool can be used to impede social change as well as to foster it. Even if XML had some property especially conducive of citizen empowerment and social change, as propounders of the first two myths suggest, the forces that oppose such empowerment and change are free to use it too. Technology often amounts to a draw in social struggle. Like every other human tool, XML isn't immune to abuse; it can be a hurt and a harm.

Most enthusiastic proponents of XML have the cart before the horse or, to mix metaphors, they have the tail, XML, wagging the dog, society and social possibility. Empowering citizens or reforming a wayward, corrupt political process will always be less about the technology in question and more about real-world political and social organizing and the creation and maintenance of truly democratic social practices and institutions. Those have always been and will continue to be the real engine of liberating social change.

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