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The Future Perfect Repository: An Unsuccessful Proposal

Paul Royster

University of Nebraska-Lincoln, proyster@unl.edu

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The Future Perfect Repository

Some day, in 5 or 25 years, someone probably attending the Open Repositories 2015 meeting will have participated in developing the future perfect or near-perfect repository. Spoiler alert: It will not be me. I am far too technically challenged, having last studied computer science in 1970, when we programmed on punch cards in the newest language—Fortran IV.

Still, I believe I can comment productively on what the future perfect repository will look like and how it will behave. I have managed a successful institutional repository for more than 10 years, and I have visited, browsed, searched, downloaded from, and crash-landed on most of the existing scholarly and other resource repository platforms. I have monitored activity, studied usage patterns, and compared various platforms for friendliness and human-interface issues. I am prepared to offer some informed speculations concerning the shape and character of the future—if not perfect, then successful—repository.

Who will build it?

What will be its features?

What will be its contents?

Who will be its users?

Who will be its depositors?

What will be its “business plan”?

What are some promising models?

Is there a software design pattern?

First will be a discussion of systems and innovation in general, of Clarke’s 3rd Law, Gall’s Law, renormalization groups, and dimensionality, and an exploration of the grounds of what we know, what we do not know, and what we cannot know, regarding homologies of time, space, matter, and information. Unknown and unforeseeable events will contribute heavily to the evolution of this future information system, but we must admit there are natural laws that apply to information, just as there are laws that apply to matter. More than 95% of the universe is composed of dark matter and dark energy—of which we have no understanding— and this is a useful reminder of the humility needed to attempt foretelling the future, particularly as it is dependent on human action.

I propose that the future perfect repository be judged on the basis of 1. maximum content, 2. maximum usage, and 3. maximized ease of use. Indeed, the elements of this triad of content-usage-ease are intimately interrelated in ways that are fascinating to consider.

The future perfect repository:

- It will include or “house”: documents, data sets, source code, audio, video, and web content.
- It will not be built by publishers, and will not be commercial.
- It will be “open” access – at least its contents will be free and unrestricted to see, read, hear, view, download, save, and manipulate – deferring, for now, the issue of redistribution and re-postings.
- It will support all licenses – from traditional copyright to Creative Commons.
- It will promote and advocate “fair use” in an expansive sense.
- It will be abstractable and abstracted.
- Its metadata will be free and open.
- Its analytics will be public or private, according to depositors’ options.
- It will be undivided: there will be no 2 classes of service.
- It will be extractable, and will promote standards for “machine-readable”
- It will not watermark, stamp, or disfigure the content (cover sheets – OK)
- It will provide direct access to the content, not derivatives generated “on the fly”
- It will be undefended, to the greatest extent possible.
- It will require registration or log-in only to edit or deposit.
- It will have human or human-level quality control.
- It will include ancillary services (scanning, harvesting, file prep, ...)
- It will interact seamlessly with all other similar or equivalent repositories
- It will host original publishing activities
- It will become the default mode of scholarly communication

Existing models to be considered include:

- publisher repositories: JSTOR, IEEE Library, ScienceDirect, Readex, EEBO, ECCO, itunes, ...
- commercial repositories: YouTube, Ziddu, ScribD, GitHub
- non-commercial repositories: arXiv, Wikimedia Commons, most IR’s, Internet Archive
- government repositories: NIH GenBank, PubMed Central
- membership repositories: HathiTrust

Some questions remain open, such as:

How robot-friendly should it be?

What will be proper level of user interconnection? (Surely not Amazon-level accounting – we would not want your SSN or credit card info.)

What order of magnitude is the potential size? How will technological progress affect performance?

Can there be an information equivalent of a black hole – where content is packed so densely that nothing can escape?

This will be a lively, speculative, and free-ranging presentation, combining a critical analysis of the existing repository models with an optimistic but prescriptive view of the proper path to improvement, if not all the way to perfection. It is intended for a wide or general audience – of repositorians.

Paul Royster

University of Nebraska–Lincoln

February 6, 2015

April 10, 2015

Dear Paul Royster,

Many thanks for your submission to Open Repositories 2015. We received an unprecedented number of submissions this year and unfortunately your proposal was unsuccessful.

CONTRIBUTION DETAILS

ID: 23

Title: The Perfect Repository Will Become the Backbone of Scholarly Publishing and Communications

Feedback and comments from the reviewers are provided below.

We hope however that you will still be able to attend OR2015 and look forward to seeing you in Indianapolis.

All best wishes,

Holly Mercer, University of Tennessee
William J Nixon, University of Glasgow
Imma Subirats, FAO of the United Nations

OR2015 Program Committee Co-Chairs
contact: or15-program-chairs@googlegroups.com

Review 1

=====

Contribution of the submission

This is primarily one person's summary viewpoint from having managed a repository for 10 years.

Evaluation of the contribution

Quality of Content (20%): 4

Significance (10%): 4

Originality (10%): 2

Thematic Relevance (10%): 6

Overall Recommendation (50%): 4

Total points (out of 100) : 40

Comments for the authors

If this proposal made evident the analysis and benefit, it would be stronger and more aligned with the conference theme.

Review 2

=====

Contribution of the submission

The author will present his perspective on the future of open repositories, which he thinks will be highly interoperable, non-commercial, and made more useful/usable for all.

Evaluation of the contribution

Quality of Content (20%): 8

Significance (10%): 8

Originality (10%): 8

Thematic Relevance (10%): 10

Overall Recommendation (50%): 9

Total points (out of 100) : 87

Comments for the authors

This promises to be a very interesting talk! Would love to see some specific examples raised when talking about the future of repositories, and any examples you deem fit from other fields (by way of example, when talking about business models, you could explore whether or not the (misnamed) "sharing economy" model will ever come to IRs, etc). Be sure to ground what you have to say not only in your own experience but in the experiences/research of others, too. (As some like to say, "The plural of anecdote is not data.")

Review 3

=====

Contribution of the submission

A proposal on how the future perfect repository will look like

Evaluation of the contribution

Quality of Content (20%): 4

Significance (10%): 4

Originality (10%): 4

Thematic Relevance (10%): 6

Overall Recommendation (50%): 4

Total points (out of 100) : 42

Comments for the authors

I would not recommend this proposal as paper

Review 4

=====

Contribution of the submission

The author is always entertaining and isn't limited in thinking by current repository platform or ties to an open repository community. Ideas are grounded in theory.

Evaluation of the contribution

Quality of Content (20%): 6

Significance (10%): 6

Originality (10%): 8

Thematic Relevance (10%): 10

Overall Recommendation (50%): 8

Total points (out of 100) : 76

Comments for the authors

I am intrigued. I wish you had included a little detail to "First will be a discussion systems and innovation in general, of Clarke's 3rd Law, Gall's Law, renormalization groups, and dimensionality, and an exploration of the grounds of what we know, what we do not know, and what we cannot know, regarding homologies of time, space, matter, and information."

Author's Response

4/21/2015

I do not understand the objections or criticisms of Reviews #1 and #3.

I do appreciate the support from Reviewers #2 and #4.

There is a wide discrepancy in the scoring, and it appears the exceptionally low scores assigned by two reviewers effectively torpedoed the proposal.

The process reminds me how peer review often serves to punish the innovative and unconventional.

(Following are some preliminary introductory slides, unfinished and [now] unexplained.)

The Future Perfect Repository

(that we will have created, someday)

Gall's Law:

A complex system that works is invariably found to have evolved from a simple system that worked.

John Gall, *Systemantics* (1975)

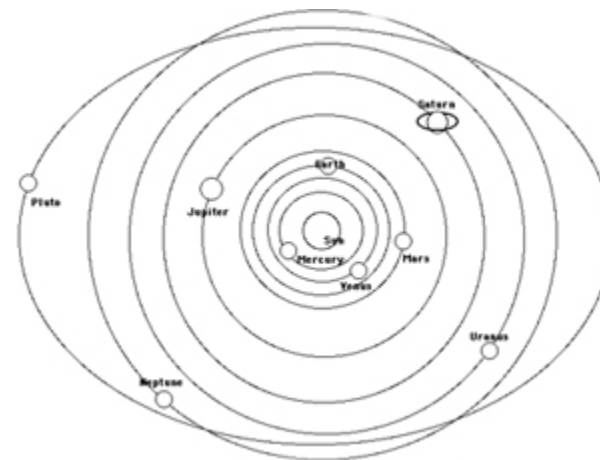
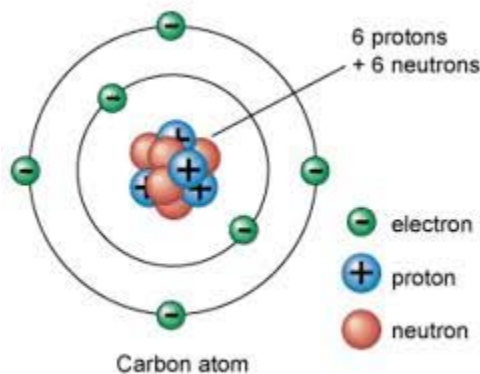
Clarke's Law (#3):

Any sufficiently advanced technology is indistinguishable from magic.

--Arthur C. Clarke,
“Hazards of Prophecy”
(1973)

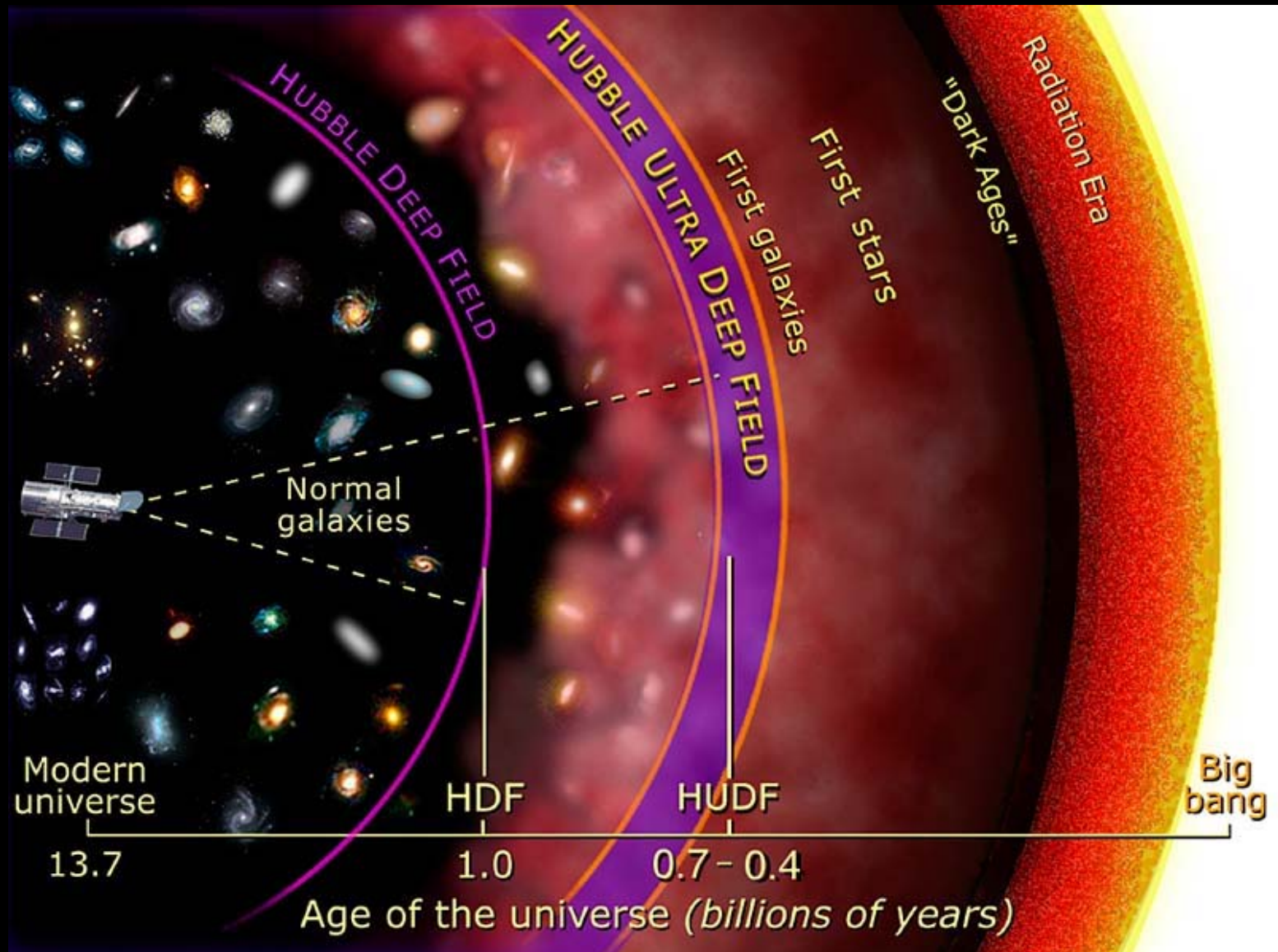
Renormalization group

“In so-called renormalizable theories, the system at one scale will generally be seen to consist of self-similar copies of itself when viewed at a smaller scale, with different parameters describing the components of the system.”



Age of the Universe = 13.7 billion

(~96 billion in dog years)

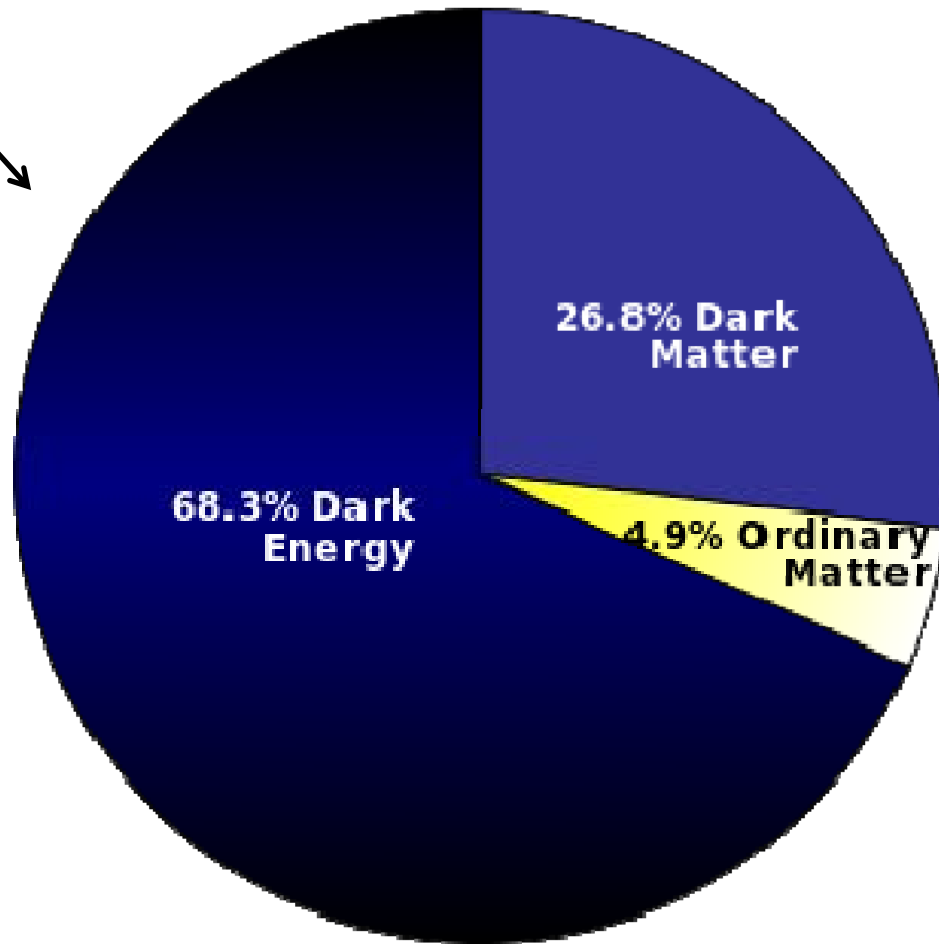


Note:
Not to scale.
Not for
navigational
purposes.

Model of the Universe

Unreal stuff we
cannot know:

“hoodoo”
superstition
emotion
fear
chance
luck
karma
magic
miracles
unexplainable
phenomena
transcendent
mysteries
suspicious &
malevolent forces
missing socks
Windows®



Real stuff
that we
don't know

What we know

Relativity theory

... means that if matter disappeared, space and time would cease to exist.

-- Albert Einstein

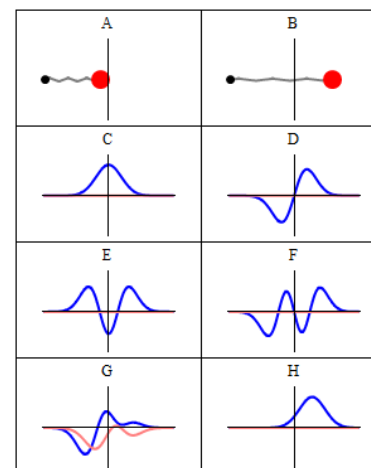
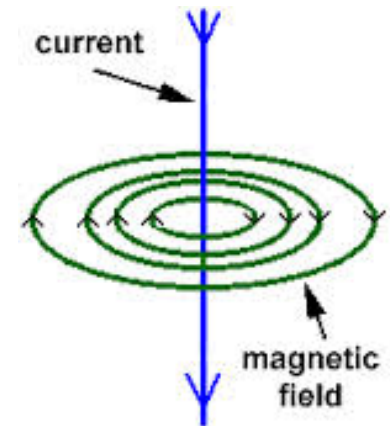




Kaluza-Klein

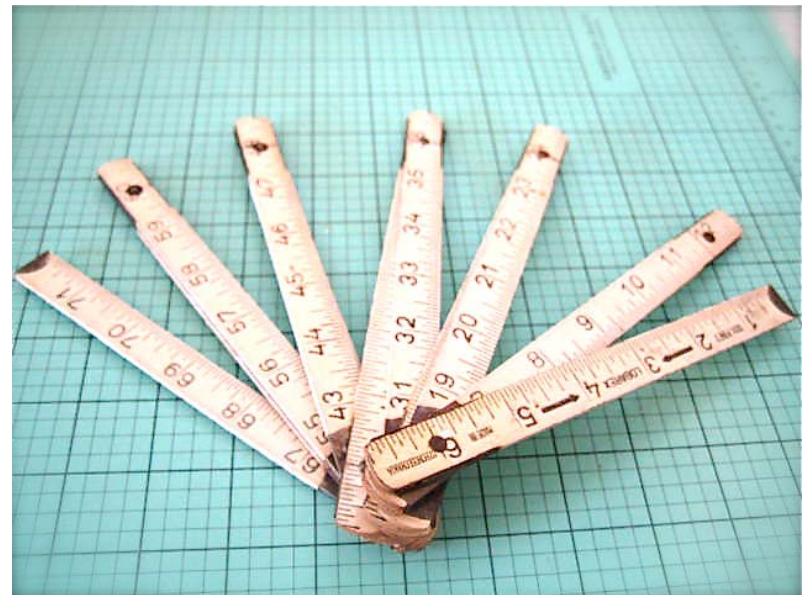


- In 1921 **Theodor Kaluza** extended Einstein's 4 dimensions of space+time to include a 5th, electromagnetism.
- This was given a quantum interpretation by **Oskar Klein** in 1926.



Higher dimensions

- Additional hypothetical dimensions are known and analyzed in mathematics.
- In physics, string theory requires 10 dimensions; “M-theory” takes 11.



♪ *“All the world over, so easy to see
People everywhere just wanna be free”*



The 5th Dimension, 1970

(from Felix Cavalieri)

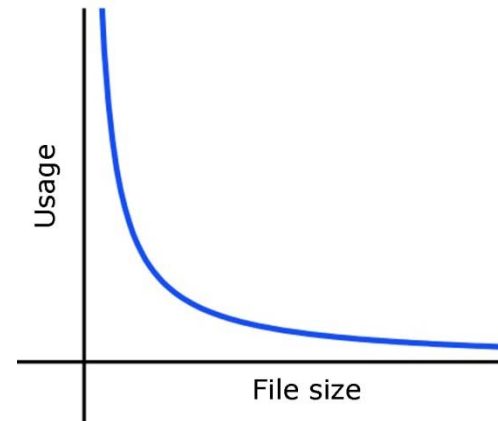
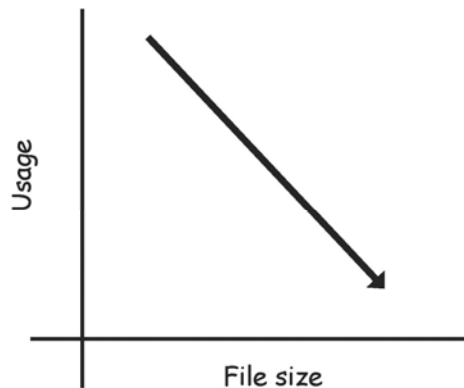
Information: The 6th Dimension

Repository must be

- open
- free
- non-commercial
- free of advertising
- undefended
- abstracted
- quantumized and quantumizable
- extractable
- undivided: no 2nd class access
- no watermarks (cover sheet OK)

Size matters ... because of space and time.

i.e., information is like matter, has properties, though on a different dimension.



WTF “machine-readable” ?

- Neupärtl, M., Meyer, C., Woll, I., Frohns, F., Kang, M., et al., 2008. Chlorellaviruses evoke a rapid release of K_p from host cells during the early phase of infection. *Virology* 372, 340–348.
Nieva, J. L., Madan, V., Carrasco, L., 2012. Viroporins: structure and biological functions. *Nat. Rev. Microbiol* 10, 563–574. Pagliuca, C., Goetze, T. A., Wagner, R., Thiel, G., Moroni, A., et al., 2007. Molecular properties of K_{cv}, a viral-encoded K_p channel. *Biochemistry* 46, 1079–1090. Plugge, B., Gazzarrini, S., Nelson, M., Cerana, R., Van Etten, J. L., et al., 2000. A potassium ion channel protein encoded by chlorellavirus PBCV-1. *Science* 287, 1641–1644
- The electrical properties of the putative viral channels in HEK293 cells were recorded as reported previously (Moroni et al., 2002). Currents were recorded with an EPC-9 Patch Clamp .

—From *Virology* (Elsevier)