The Troubling Prevalence of Apple's Eye of Sauron at Open Education Meetings

Jonathan A. Poritz

jonathan@poritz.net
www.poritz.net/jonathan
Center for Teaching and Learning and
Department of Mathematics and Physics
Colorado State University-Pueblo

28 November 2019



This work is released under a Creative Commons Attribution-ShareAlike 4.0 International license.

These slides can be found at https://poritz.net/j/share/EoSOEG19

Teach the controversy: #thatpanel

On an earlier version of the *Keynote Speakers* page for #OpenEd19:

> "**Future of Learning Materials Panel**
>
> *This panel brings together publishers of both OER and proprietary materials with a range of business models, including representatives from OpenStax, Lumen, Cengage, Macmillan, and McGraw-Hill. Each has accepted an invitation to answer your questions about how learning materials will be created, maintained, improved, licensed, sustained, and distributed in the future. ... Is there a topic you'd like to hear the panel discuss? Submit a question for the panel! ... the Program Committee will review and organize the questions ahead of the conference."*

Much Twitterishness ensued, after which `#thatpanel` was canceled.[1]

[1] Rajiv Jhangiani has written a thoughtful, nuanced piece of many issues around this panel and the twittering it brought on: read it, and search Twitter for `#thatpanel`, if you are interested in that sort of thing.

Fallout from #thatpanel?

Open Ed was canceled, too. As **Inside Higher Ed** put it:

> "**Open Education... Is Closed**
>
> *This year's Open Education Conference had more attendees than ever before. Why is it ending after 16 years, and what does its demise mean for the cause?*
>
> *Last weekend, at the Open Education Conference in Phoenix, David Wiley, chief academic officer of Lumen Learning and the conference's organizer for 16 years, announced that this would be its last gathering..."*

This is of course nonsense: there will absolutely be an **Open Ed** conference next year, albeit run by different folks and perhaps looking a little different. [Or so I have heard, from people I think should know.]

#thatpanel echoes OSSNA'17 keynote controversy

The #thatpanel debacle was an odd echo of an event at the Open Source Summit North America 2017 in Los Angeles:

At the opening keynote, Jim Zemlin, Executive Director of the Linux Foundation, declared 2017 to be the year of 'Linux on the Desktop.'

It was noticed during his keynote that **he was using an Apple device running MacOS to make this declaration**.

The Linux Foundation is a non-profit which provides a home base for Linux Torvalds, the original author of the Linux kernel and its long-time *benevolent dictator*. It is funded by its corporate members, including AT&T, IBM, Intel, Microsoft, NEC, *etc.*

Much Twitterishness ensued.



Linus Torvalds and Jim Zemlin [R & L], by the Linux Foundation. Released under a Creative Commons Attribution 2.0 Generic license.

The prehistory of FLOSS

The School of Athens by Raffaello Sanzio



Image in the public domain: Raffaello died in 1520. Original in the *Stanza della Segnatura* in the Vatican. This version: https://commons.wikimedia.org/wiki/File:%22The_School_of_Athens%22_by_Raffaello_Sanzio_da_Urbino.jpg.

Pythagoras: Keeping knowledge secret on pain of death



He didn't prove or originate "his" theorem.
The *Pythagoreans* were not unlike a *cult*, with odd dietary restrictions, belief in their leader's magical powers (talking to animals, *etc.*), divided as:

- *mathematikoi* ["learners"] who lived apart and knew hidden mysteries (*e.g.*, that $\sqrt{2}$ is irrational[2]); and
- *akousmatikoi* ["listeners"] who lived with their families and only aspired to greater secrets.

Hippasus of Metapontum, a renegade mathematikos, was tracked down and executed for the crime of revealing to the public that $\sqrt{2}$ is irrational.

[Pythagoras himself was killed when unwilling to step into a bean field despite being pursued by an angry mob.]

[2] meaning that there do not exist whole numbers p and q such that $\sqrt{2} = p/q$

Euclid's radical openness

He was a librarian. [in Ptolemaic Alexandria]
His *Elements of Geometry* had more editions and influence than any other book [in the West; other than the Christian Bible].
The Elements was loved by Galileo, Newton, Hobbes, Spinoza, Descartes, Abraham Lincoln, Albert Einstein ... and many, many others[3]
For hundreds of years [in the west] it was considered a right of passage in the education of [yes, male and elite] young people to master *The Elements*.



The Elements was so influential because it was completely open, laying out all of its Theorems **with proofs** [including one that $\sqrt{2} \notin \mathbb{Q}$].

Proofs are like like the source code if a theorem were a program: Yes, Euclid was doing FLOSS [free/libre/open-source software] more than 2K years before the invention of the computer!

[3] *E.g., Moby Dick* says that the difficulty of whales mentally putting together the two images perceived by their widely separated eyes must be as if a human were "simultaneously to go through the demonstrations of two distinct problems in Euclid."

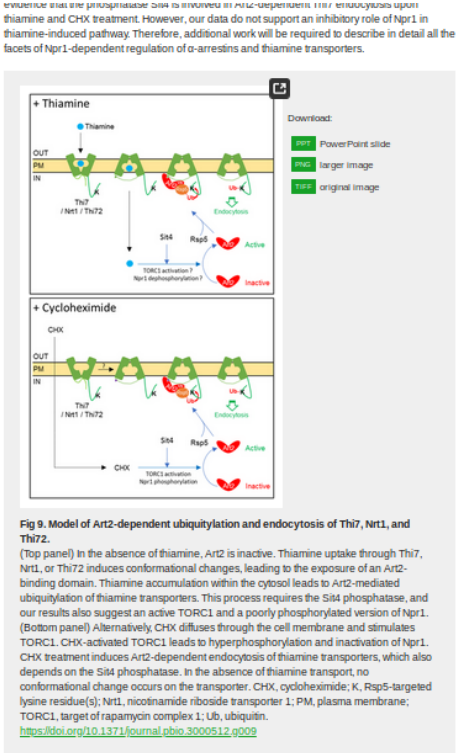
When FLOSS became FLOSS

Euclid's radical openness is the foundation of modern mathematics, science, and the whole Academy. *E.g.*, a modern scientific paper has a standard format, including sections for **Methods** and **Results**... that's pretty open.

This is what Richard Stallman describes when he talks about founding the GNU Project and the Free Software Movement in the 1980s: while at MIT, he wanted to improve a printer driver and he expected the manufacturer would share it's source code with him, the way scientists share methods which each other. His frustration when they wouldn't lead him to start down the GNU path.



This image GNU head, by Aurelio Heckert is released under a Creative Commons Attribution-ShareAlike 2.0 License.



thiamine and CHX treatment. However, our data do not support an inhibitory role of Npr1 in thiamine-induced pathway. Therefore, additional work will be required to describe in detail all the facets of Npr1-dependent regulation of α-arrestins and thiamine transporters.

Fig 9. Model of Art2-dependent ubiquitylation and endocytosis of Thi7, Nrt1, and Thi72.
(Top panel) In the absence of thiamine, Art2 is inactive. Thiamine uptake through Thi7, Nrt1, or Thi72 induces conformational changes, leading to the exposure of an Art2-binding domain. Thiamine accumulation within the cytosol leads to Art2-mediated ubiquitylation of thiamine transporters. This process requires the Sit4 phosphatase, and our results also suggest an active TORC1 and a poorly phosphorylated version of Npr1. (Bottom panel) Alternatively, CHX diffuses through the cell membrane and stimulates TORC1. CHX-activated TORC1 leads to hyperphosphorylation and inactivation of Npr1. CHX treatment induces Art2-dependent endocytosis of thiamine transporters, which also depends on the Sit4 phosphatase. In the absence of thiamine transport, no conformational change occurs on the transporter. CHX, cycloheximide; K, Rsp5-targeted lysine residue(s); Nrt1, nicotinamide riboside transporter 1; PM, plasma membrane; TORC1, target of rapamycin complex 1; Ub, ubiquitin.
https://doi.org/10.1371/journal.pbio.3000512.g009

Materials and methods

Yeast strains and growth conditions

Yeast strains used in this study (S3 Table) are derivatives of *Saccharomyces cerevisiae* auxotrophic strain BY4742. The *npi1–1* (*rsp5*) mutant strain, obtained by insertion of a selective marker in the *RSP5* promoter and resulting in an attenuated *RSP5* gene expression by a factor of 10, was provided by Pr. Bruno André (ULB, Belgium). The *art2Δart9Δ* strain was obtained by yeast crossing and tetrad dissection. The *end3Δart2Δ* strain was generated by homologous recombination using a *natNT2* deletion cassette on an *end3Δ* background. The strains lacking genes encoding the thiamine transporters Thi7, Nrt1, and Thi72 and the gene encoding the thiazole synthase Thi4 were received from Pr. Jürgen Stolz (TUM, Germany). For proteomic analysis, yeast strains were grown in YD medium (2% glucose and 2% KAT yeast extract). For Thi7 endocytosis experiments, transformed yeast strains were grown in selective thiamine-free

This paper Yeast -arrestin Art2 is the key regulator of ubiquitylation-dependent endocytosis of plasma membrane vitamin B1 transporters by Savocco *et al.* is released under a Creative Commons Attribution

A structural and #metoo *caveat*

Yes, access to knowledge has been (and continues to be) restricted by wealth and privilege and geography and power and *etc.*

But for hundreds of years **the fundamental logic of the scholarly life has been to share**.

A critical approach to the structures of education is required if we are to serve what I have been asserting is a large part of the fundamental ethic of the scholarly life. Read Paolo Freire, bell hooks, Pierre Bourdieu, and many others – please get back to me when you've figured out it all out.

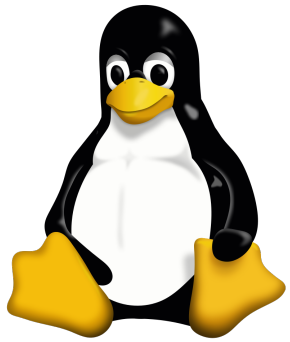


And of course there is #metoo. Richard Stallman's treatment of women throughout his career has been a vile contribution to the toxic culture towards women in IT.

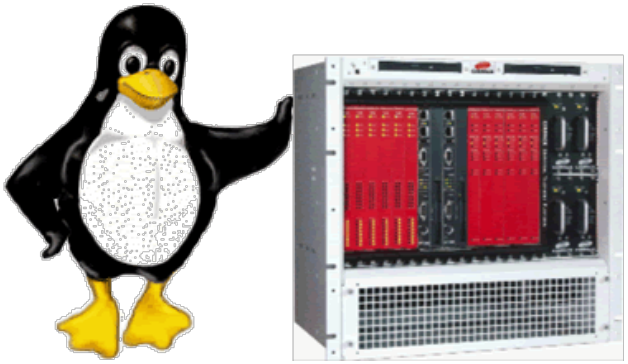
"Maha Bali" from Uncommon Women 2018 colouring book by Kelsey Merkley is released under a Creative Commons Attribution License.

FLOSS on the desktop and everywhere

RMS made GNU, and much of the machinery in the background of a full operating system. Then Finnish student Linux Torvalds wrote a kernel, and GNU/Linux[4] was born: suddenly, there was a home environment for the full FLOSS ecosystem.



This image is made available under the Creative Commons CC0 1.0 Universal Public Domain Dedication.



This work Cirpack_LINUX_tux_2.gif was released into the public domain by its author, "nlebihan."

And yet Linux runs the world: the majority of silicon CPUs on the planet run a variant of Linux: this includes the server farms of Amazon and Google, millions of micro-controled devices run "embedded Linux," *etc.* And open standards, implemented in FLOSSy software, run the infrastructure of the Internet.

[4] The better name for it than just "Linux" – at least until RMS's `#metoo` moment.

Another *caveat:* The Internet is a cesspool

Racism, misogyny, anti-vaxxers, global climate deniers, DDOS attacks on democracy), a digital panopticon, surveillance capitalism, social media-promoted genocide ... the Internet is a cesspool.



Image Big Brother in the public domain.

Maybe this should not come as a surprise: the Internet was born during the heady days of the post-war boom, but had its difficult adolescence during the rise of Reagan and Thatcher's neoliberal[5] revolution.

Various thinkers have suggested ways of getting this mess under control:

- Elizabeth Warren suggests we break up and/or regulate tech giants.[6]
- Cory Doctorow suggests we try *"adversarial inter-operability"* – open standards enforced by governments – and see if the open community can provide better tools and platforms.

[5] see Wendy Brown's magnificent *Undoing the demos: Neoliberalism's stealth revolution*, MIT Press, 2015

[6] Sasha Baron Cohen agreed in a magnificent prize-acceptance speech to the Anti-Defamation League.

Is Linux dominating the desktop?

Who in this room runs Linux on their desktop?

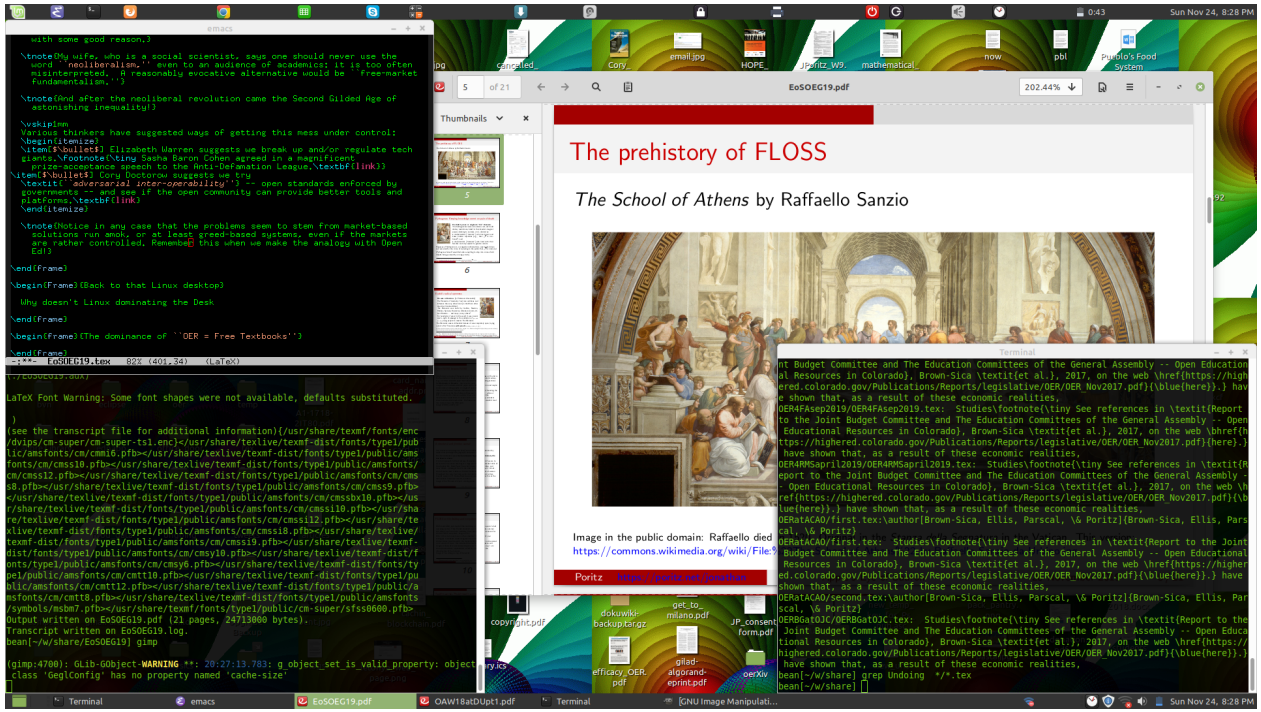
How many of your colleagues or students would recognize the word *Linux?*

This is what my desktop looks like:

UL: Emacs editor

LL: running LaTeX in terminal window

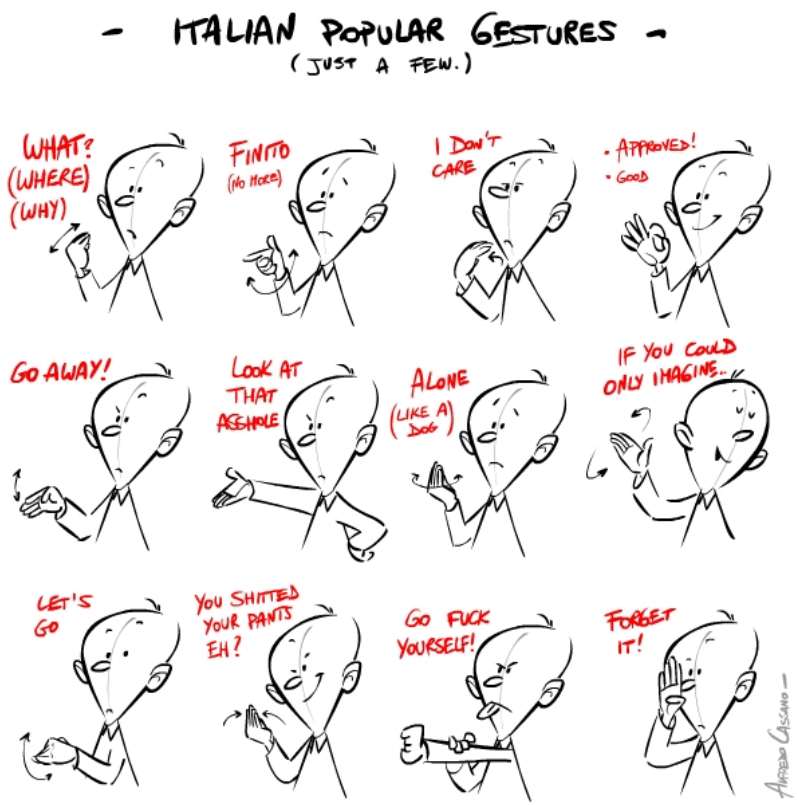
LR: searching files in terminal window



Emacs is an editor, not a word processor. LaTeX is a program that turns a plain text file in the LaTeX markup language into beautifully formatted scholarly papers and presentations. Both are FLOSS.

CLIs vs GUIs

Presumably part of what is terrifying about that image is the way those terminal windows use a *Command Line Interface* [CLI], a way of communicating with a computer with *words*, unlike point-and-click *Graphical User Interfaces* [GUIs].
But would you rather teach a physics or political science course with words, or with the lovely hand gestures used in Italy?
Likewise, if you are going to do anything more serious with you computer than play a video game, why wouldn't you tell it what to do with words?



Popular Italian Gestures by methodshop.com is released under a Creative Commons Attribution-ShareAlike 2.0 License.

GUIs over CLIs is like illiteracy over education

My discipline, mathematics, uses a lot of arcane symbols in obscure ways, so that perhaps has prepared ma a little.

But I believe every discipline in the Academy values and teaches clear, precise articulation of complex ideas. Surely we can all teach and employ that kind of verbal precision when communicating with a computer.

To give up on interacting in the more sophisticated CLI way with your computer is like a student who doesn't have the self-confidence to tackle the complexities of disciplinary rigor.

Arguments for open ed and OER

At this conference, surely we can all articulate a host of subtle and convincing arguments in favor of open education in general and OER in particular.

Three reasons we've heard many times here at OE Global are

- Agency [for both students and instructors!],
- Cost, and
- Social Justice

to which I would add

- Openness and sharing are fundamental to the ethos of the Academy and of all education. [Talk to Jim Luke about the interesting things he was World Caffeinating yesterday about [higher] ed as being structured largely like a commons, in an obscure economist's technical sense.]

Some of the resitance these arguments meet

Many of us use those arguments against stiff resitance, saying things like

- Why would you give up your agency as an instructor and deny your students the experience of agency in their own education, by using closed resources and pedagogy?
- The cost (especially in some particularly benighted countries) is not a small thing in students' lives, and while instructors do not set tuition, we do often have a very strong voice in the choice of materials and pedagogical strategies we use.
- We can apply OEP to approach the UN SDGs and use OER when the commercial alternatives are often little more than thinly disguised gateways into surveillance capitalism.

to which I would add

- When we get pushback because the open resources are perhaps not a highly polished as their commercial counterparts, and require more work for the instructor, we often say that even extra work is often worth it, for the agency, cost, and social justice gains.

Same arguments for FLOSS

I'm not even going to repeat them with some small wrinkle, because **exactly the same arguments apply to FLOSS**.

Action Items

Things you can do:

- Seize agency by using FLOSS!
- Use FLOSS on the desktop.
- Use FLOSSy tools and platforms (*e.g.*, DoOO instead of an LMS).
- Look for FLOSS tools to replace expensive, locked-down non-free tools (GIMP instead of Photoshop, Octave instead of Matlab, *etc.*

Change of perspective: *They Live*



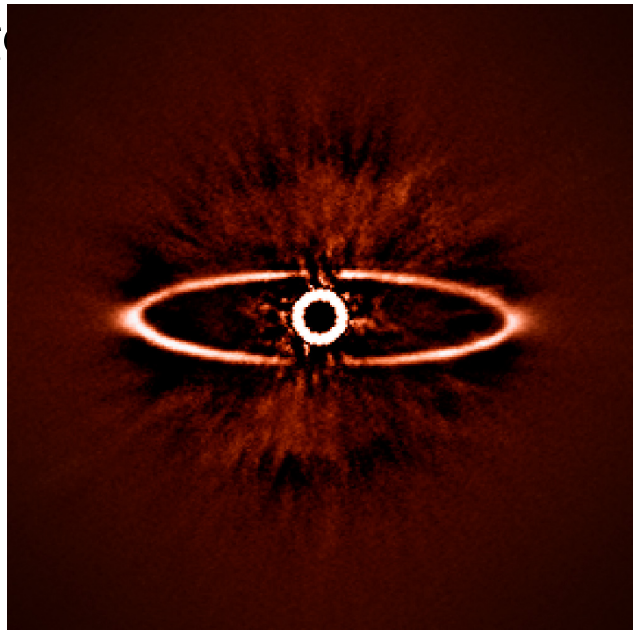
Still from John Carpenter's film *They Live* ©Universal Pictures, found at SLANT magazine, used under fair use/dealing.

The Eye of Sauron is all around us! 1

It helps to have a constant reminder before your eyes to stir you, eventually, I hope, to action.

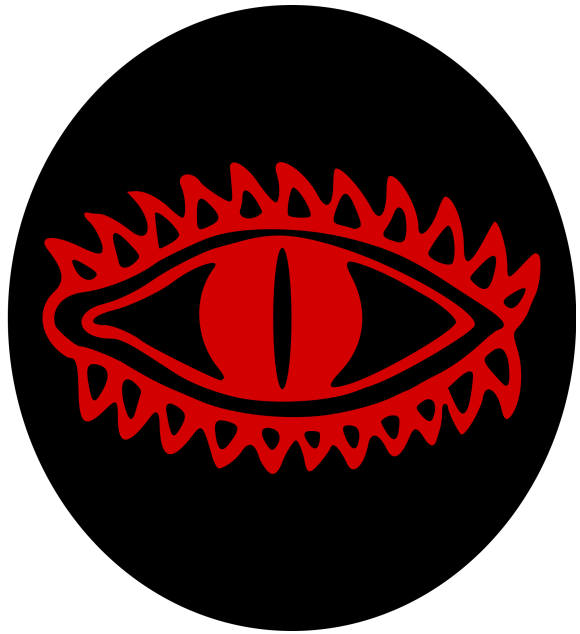
So look around the room and check out the glowing Apple symbols.

Because they glow, and because big tech is so extractive and self-interested, I tend to think of these symbols as **The Eye of Sauron** from *The Lord of the Rings* by J.R.R. Tolkein. If you've seen Peter Jackson's film version, you've seen an imag
The following is not one (Jackson is apparently very aggressive about his IP and I don't want to think through fair use/deal in all possible jurisdictions), but it might be evocative of that image:



The Eye of Sauron is all around us! 2

In the books of the *LotR*, the glowing eye appears when Frodo looks into Lady Galadriel's Mirror. But it appears much more widely as the symbol worn by Sauron's orcs (not Saruman's!), on all of the shield. JRR describes the symbol as being a *lidless eye, wreathed in flame, with a pupil like a cat's*. So imagine every around you with their Apple devices is really an orc, sporting the Lidless Eye symbol:



"Fictional coat of arms of Mordor, in Tolkien's Middle-earth." by Rondador was released under a Creative Commons Attribution-Share Alike 3.0 Unported license.

Contact. Getting slides [links!]

Questions? Comments?

Email (feel free!): jonathan@poritz.net ; Tweety-bird: @poritzj .

Get these slides at poritz.net/j/share/EoSOEG19.pdf and all files for remixing[7] at poritz.net/j/share/EoSOEG19/ .

If you don't want to write down that full URL, just remember
poritz.net/jonathan/share
or poritz.net/j/share
or poritz.net/jonathan [then click **Always SHARE**]
or poritz.net/j [then click **Always SHARE**]
or scan ⟶ [then click **Always SHARE**]

[7] subject to CC-BY-SA