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Intersections

The Third Half

The title is in fond remembrance of the great Tom Magliozzi, who was either Click or Clack on Car Talk. But it also refers to the longest section of this multipart essay, which is indeed the "third half" of the two-part essay that appeared in the October/November 2014 and December 2014 issues (which, in turn, continue an essay in the July 2014 issue). We begin with two themes I originally planned to include in the December 2014 issue, continue with a third item, then that third half, followed by an additional little discussion.

If you haven't already done so, you really should read the July 2014, October/November 2014 and December 2014 issues. To some extent, this essay—except, perhaps, for the first three portions—assumes that you have done so.

The New *DOAJ* Requirements

Beginning in March 2014, the *Directory of Open Access Journals* tightened its requirements for new and renewed listings. DOAJ's site (doaj.org) includes a detailed FAQ and documents (including a spreadsheet) that detail and support the new requirements.

Inside This Issue

A very good thing

The new set of requirements is a very good thing. It makes *DOAJ* the standard starting point when evaluating an open access (OA) journal as a place to submit a paper or as a useful journal to read or include in a library's catalog.

It can only make *DOAJ* more relevant. The requirements are lucid, transparent and generally worthwhile. They don't rely on one librarian's view of what's right and wrong.

I think that's important to state right up front: the new requirements are positive, they make *DOAJ* more important, and if you're a publisher or library you might consider joining or contributing to *DOAJ*.

Not a whitelist and not perfect

These requirements will *not* make *DOAJ* a whitelist; nor, I believe, are they intended to. I'm not sure a whitelist is either feasible or desirable. I am sure it would be phenomenally expensive and intrusive, as it would require third-party validation of peer review processes and results *for every article*.

Neither are the requirements perfect. I'm going to mention some especially strong points—but I'm also going to pick a few nits.

Some of the strong points

Going through the items in the application, I think it's worth highlighting these requirements:

- Information on a journal's digital archiving policy and the policy in use.
- Text-crawling permission.
- Download statistics and where they are.
- Explicit requirement of an editorial board with at least five "clearly identifiable members and affiliation" *or* an editor.
- Form of peer review (drop-down menu).
- Plagiarism screening (and where described).
- Average weeks between submission and publication.
- Whether CC licenses are embedded—and what CC license is the default.
- Deposit policy directory used.
- Who holds copyright.
- Author publishing rights.
- An explicit statement of whether there's an author processing charge and, if so, how much. This appears to disallow the awful practice of saying "we'll let you know how much you must pay" or simply being silent on the issue of APCs.

Ones I wonder about

There are three areas where I have minor qualms:

- All content must be immediately available: On one hand, this is good because it doesn't allow for an embargo. It also rules out "hybrid" OA journals, and I think that's a good thing. But it doesn't allow for a magazine-style journal, where all refereed articles are OA but there are things such as news, analysis and feature articles (not refereed scholarship) that are reserved for paying sub-

scribers. That's unfortunate. While there aren't that many Gold OA journals that work this way, there are *some*—and that's fully in keeping with the principles of OA, as far as I can tell.

- Minimum of five articles per year. For most hard sciences and medicine, this is a reasonable requirement: it filters out "journals" that barely exist. But it also eliminates a fair number of journals in the humanities and social sciences that serve such narrow fields that a volume of three or four articles a year is entirely appropriate. I counted 211 such journals; you'll find examples on page 11 of the December 2014 issue. Is there a need for a *Directory of Very Small OA Journals*?
- Registration requirement allowed. This one isn't on the application as such, but shows up in *DOAJ*'s FAQ: "User registration online is acceptable on the condition that the journal has a proper Privacy Policy in place and abides by global Data Protection rules. That is to say: user data will never be distributed without the explicit permission of the user; upon request, a user's email address is removed from mailing lists; all data held about the user will be made available to the user upon request." I believe this is a case where *DOAJ* is too generous. OA isn't truly open access if you are required to identify yourself in order to read a paper. No matter how good the assurances about distribution, explicit personal identification is a barrier when working with controversial information.

I believe *DOAJ* could usefully fix the first and third, including a few additional journal/magazine hybrids by modifying the first (that is, all *peer-reviewed or edited scholarly articles* must be immediately available) and encouraging a few dozen journals to eliminate their registration requirements. (Note that in my analyses of OA journals, I count such journals as non-OA.)

As for the second, that one's tough. A provision that drops failing journals is good; one that rules out niche journals is not so good.

The DOAJ Seal

Once all journals have been through the new *DOAJ* process, even with the three qualms mentioned above, *DOAJ* will be the obvious starting point to evaluate OA journals. If it's not in *DOAJ*, you need to know a *lot* about the journal to proceed.

Then there's the second level, the DOAJ Seal. It's assigned by *DOAJ* (publishers can't apply for it) and it explicitly has nothing to do with the quality of papers: it's all about permanence, openness, discoverability and findability. It involves six requirements:

- The journal must have an archival arrangement in place with an external party.
- The journal must provide a permanent identifier for each paper.

- The journal must provide article-level metadata to *DOAJ*.
- The journal must embed machine-readable CC licensing in article-level metadata.
- The journal must allow reuse and remixing of its content: the license must be either CC BY or CC BY-NC.
- The journal must have a deposit policy registered in a deposit policy directory such as Sherpa/Romeo.

I see no issues with any of these, although some of them may be too much for very small OA journals. Then again, such journals probably don't feel the need for the DOAJ seal.

All in all, these are big steps forward. That I could do some nitpicking does not negate the usefulness of the new criteria.

(dis)Economy of Scale?

Is bigger always better? In the world of gold OA publishing, I'm not sure that's true—and, for that matter, there are other instances in which economies of scale don't always work.

Quick refresher definition: gold OA journals are those that provide all refereed scholarly articles for free online in some full-text form, immediately on publication. Some gold OA journals charge fees of various sorts to authors or grand-funding agencies; those fees tend be lumped together (here and elsewhere) as Article Processing Charges (APCs), even though they can be as varied as submission charges or requirements that corresponding authors be subscribers to a journal or members of the sponsoring organization. Other gold OA journals do *not* charge author-side fees of any sort, including the majority of gold OA journals in most subject areas.

On one hand, there's a clear correlation between subject area and presence of APCs, and that's not surprising: it's easier to charge APCs (and large ones) when authors tend to have substantial grant funding, especially if funders explicitly allow for APCs. You'd expect the vast majority of gold OA journals in the humanities and social sciences to be free of APCs, and you'd expect a majority of journals in medicine, biomed and biology to *have* APCs (you'd be right in both cases)—with other fields somewhere in the middle.

But there may be something else going on: economy of scale, or lack thereof.

Specifically, a journal that publishes a reasonably small number of articles each year doesn't have anywhere near the overhead of one that publishes many articles—and may be far more able to absorb that overhead within a library or departmental budget, or as part of an association's functions. That's especially true if the journal is purely electronic, with no print subscriptions to handle. No APC means no billing depart-

ment *at all*, and essentially no revenue handling. That's just one example; there are other areas in which a small volume can probably be handled by a graduate student or as part of a staff member's duties, where a large volume would require dedicated staff.

Livermore-area wineries

Before discussing the experiment and the results, I thought I'd mention another case where there are apparently diseconomies of scale (I'd guess there are many other cases in various fields). To wit, wineries in and around Livermore, California, where I now live.

For those who don't know, the Livermore valley is one of California's older wine countries, even though it's a lot less well known than some others. Two Livermore wineries have legitimate "oldest" claims (both began in 1883): Concannon, now owned by The Wine Group, is California's oldest continuously operating winery—while Wente, still family-owned, is the *nation's* oldest continuously-operating *family-owned* winery. (I have previously suggested that both claims refer to America, but apparently there's a much older winery in New York that, like these, produced sacramental wine during prohibition, thus maintaining continuity.)

If you go to a supermarket or wine store with a good selection, chances are you'll find some Wente and Concannon wines. Your chances of finding any *other* Livermore wines are much more slender, even though there are more than 50 wineries in and around town. (By the way, wines that say they're bottled in Livermore or Ripon probably don't count: That's The Wine Group, which produces a lot of different wines in Concannon's facilities, few of them having any real relationship to Livermore.)

We were tasting wine at a very small winery—hundreds of cases per year—that shares a tasting room with a slightly larger winery (thousands of cases per year). We asked why there didn't seem to be any Livermore wineries producing 20,000 or 40,000 or 60,000 cases of wine: Just the two biggies (each in the six-digit range) and all the rest (normally with fewer than 10,000 cases per year). (How did we know this? The local free weekly paper does a monthly full-color magazine; the issue closest to Livermore's annual harvest festival has a page devoted to each winery, including notes about its production.)

The answer was simple: It's really tough to make a profit or even stay afloat if you're producing more than 10,000 and less than 100,000 cases, unless you're charging the ambitious prices of some Napa Cabernets (i.e., $100 and up per bottle).

If you produce a few thousand cases, you can sell them to wine club members, at your tasting room, in local restaurants and in local supermarkets and wine stores (Safeway in particular features local wines).

If you produce substantial quantities of wine, you have marketing and distribution people—who work with distributors and do the things

required to make national or regional distribution work and market the wine. But those marketing and distribution people need to be paid, and you usually can't hire one-third of a distribution expert. So the numbers don't add up very well for wineries in the middle: too much production for the local market, not enough for the national market.

The situation with gold OA journals is different, but not entirely. Journals with *lots* of articles (and publishers with lots of journals) have requirements that mean extra staffing devoted to the journal(s); journals with relatively few can have much less overhead.

The dataset

I started with four spreadsheets of journals, combining Grades A-D from each spreadsheet into a single spreadsheet. (Only Grades A-D have counted articles; without counted articles, it doesn't matter whether there's an author-side fee.) After eliminating a handful of apparent duplicates (with different publisher names but the same data pattern—and literally "a handful," four in all), I had a set of 9,098 journals, the set used for the next essay and possibly some future analyses.

But to look at possible ongoing economies or diseconomies of scale, it made sense to cut that back in several ways:

- I only wanted journals that have been around for a few years, showing at least a little sustainability, so I eliminated journals that began publishing later than 2011. (Note that this eliminates a *lot* of the Beall set, what I think of as the "gold rush journals": more than two thousand of them began in 2012 or later. It also eliminated about one-third of the OASPA set, but relatively few of the DOAJ sets.)
- As a second sign of sustainability, I restricted the set to journals that had at least one article in 2011, at least one in 2012 and at least one in 2013. (Annuals and twice-yearly journals might reasonably not have any articles in the first half of 2014.)

The result is a set of 5,125 journals that published around 327 thousand articles in 2013, 303 thousand in 2012 and 241 thousand in 2011—and around 174 thousand in the first half of 2014. (Compare that to the overall set for 2013 and 2012 in the next essay, and note that these 5,125 journals had maximum potential revenue of $225.3 million in 2013 and $189.7 million in 2012.)

The experiment

I wanted to look at the number and percentage of fee and no-fee journals based on number of articles published in 2013, the largest numbers available. With a little manipulation, that became a crosstab—oh, sorry, PivotTable—and was easy enough that it also made sense to do one for

each of the three "journal worlds": Medicine & biology, STEM other than biology, and humanities and social sciences.

The pivot tables showed obvious patterns but, with one row for each number of articles, too much detail to be useful. So I simplified and aggregated, resulting in the four tables below.

An overall explanation: the numbers in the "Articles" columns are rounded *up* to the nearest 10, 50 or 100—thus, "10" means "1 to 10" and "300" means "251 to 300." You will find that Free and APC don't always add up to Total; that's because unknown APCs (journals where it seems probable that they have an APC—or they explicitly say they do—but they never say what that APC is) are included in the data but omitted from the tables. Thus, the %Free is Free divided by Total, not Free divided by the sum of Free plus APC. Aggregations were based on data patterns within the pivot tables and differ for each table.

Articles	Free	APC	Total	%Free
10	669	476	1,243	54%
20	711	283	1,048	68%
30	407	276	717	57%
40	228	209	459	50%
50-90	419	490	960	44%
100-250	171	292	498	34%
300-600	14	118	144	10%
601+	1	49	56	2%
Total	2,620	2,201	5,125	51%

Table 1. Articles and fee status, full set

The overall pattern: a majority of journals with 40 articles or fewer in 2013 are free of charges; a growing majority *have* charges as the number of articles rises—but relatively few journals published more than 90 articles and *very* few published more than 250. More than two-thirds of the journals published 40 articles or fewer; all of those seem to fall into the range where small may be beautiful.

But that's an overall picture. The three different worlds should show sharper delineations.

Articles	Free	APC	Total	%Free
10	413	71	496	83%
20	362	34	400	91%
30	156	35	195	80%
40	58	32	92	63%
50	37	24	61	61%
60	18	12	33	55%
70-150	34	41	79	43%
200+	3	21	24	13%
Total	1,081	270	1,380	78%

Table 2. Articles and fee status, HSS

The pattern is *much* clearer for journals in the humanities and social sciences, including those in the Beall set and from OASPA. Almost all of them publish relatively few articles (only 14% published 41 or more articles and nearly 80% published 30 or fewer), making almost all of them good candidates for no-APC publication.

Articles	Free	APC	Total	%Free
10	85	248	363	23%
20	121	132	266	45%
30	111	130	254	44%
40	80	99	188	43%
50-90	165	247	431	38%
100-250	71	158	244	29%
300-600	5	56	67	7%
601+	1	16	20	5%
Total	640	1,086	1,833	35%

Table 3. Articles and fee status, med/bio

Medicine, biomed and biology represent the other extreme: more journals with lots of articles—and much lower percentages of free journals, even among low-activity journals. Maybe that's not surprising: this is where the money is, after all. That more than one-third of these journals *don't* charge fees may be more interesting, as is the fact that for journals publishing 11 to 40 articles (the 20, 30 and 40 rows) it's not too much less than half.

Articles	Free	APC	Total	%Free
10	163	151	369	44%
20	219	117	373	59%
30	138	110	265	52%
40	89	77	177	50%
50	71	53	127	56%
60-90	106	136	257	41%
100-200	75	90	179	42%
250-600	14	68	91	15%
601+		29	31	0%
Total	875	831	1,869	47%

Table 4. Articles and fee status, STEM other than bio

In the middle: science (other than biology), technology, engineering and math. As with med/bio, there's the anomalous situation that *very* low-frequency journals seem to have a higher APC-charging percentage than do journals publishing 11 to 49 articles in 2013, where consistently more than half of the journals are free. (That range includes almost exactly half of the journals.) Indeed, the percentage of free journals doesn't drop below 40% until you reach highly active journals, those publishing at least 250 articles in 2013.

So there it is. It *should* be easier for an association, a university department, an institute or a library to publish a relatively small electronic-only OA journal without special funding and without charging fees—and apparently it is.

What's the magic number at which a reasonable charge (whatever that means!) yields enough revenue for a robust publishing operation? That must also vary by field and by what's considered publishing (that is, which tasks the publisher takes on as opposed to those left to the authors). I haven't the vaguest idea, but instinct suggests that it's in the hundreds of articles per year, at least for a group of journals and at least if "reasonable" means a few hundred dollars (or less) rather than a few thousand dollars.

It's all about the Greenbacks?

This section is an updated, slightly expanded and corrected, and lightly edited version of "The Size of the Open Access Market (and an admission)," posted November 14, 2014 on *Walt at Random*. Some numbers may have changed because I'm now using a deduped data set, eliminating four apparent duplicate journals (out of more than 9,000) from the original combination of four spreadsheets.

On October 29, 2014, Joseph Esposito posted "The Size of the Open Access Market" at *the scholarly kitchen*. In it, he discusses a Simba Infor-

mation report, "Open Access Journal Publishing 2014-2017." (I'm not copying the link because it's just to the blurb page, not to any of the info that Esposito provides.) The 61-page Simba report costs a cool $2,500 (and up), so I can't give you any detail on the report itself other than what Esposito passes along.

The key portion of what he passes along, quoting Esposito directly:

> Simba notes that the primary form of monetization for OA journals is the article processing charge or APC. In 2013 these fees came to about $242.2 million out of a total STM journals market of $10.5 billion. I thought that latter figure was a bit high, and I'm never sure when people are quoting figures for STM alone or for all journals; but even so, if the number for the total market is high, it's not far off. That means that OA is approximately 2.3% of the total journals market (or is that just STM . . . ?)....

And, quoting from one of the comments (it's a fascinating comment stream, including some comments that made me want to scream, but...):

> If those numbers are roughly right, then 2.3% of the scholarly publishing revenue equates to something like 22% of all published papers.

That comment is by Mike Taylor, who's active in this comment stream.

I had no idea whether the Simba numbers made any sense and what magic Simba performed to get numbers from the more than two thousand Gold OA publishers (my own casual estimate based on DOAJ publisher names), but hey, that's why Simba can get $2,500 for 61 pages...

The admission

There turned out to be a mistake or, if you will, a lie in the December 2014 *Cites & Insights*, on the very last page, top of the second column, the parenthetical comment. When I wrote that, I fully intended to sample perhaps 10%-20% of the 1,200+ bioloogy, biomed and medical DOAJ journals not in the OASPA or Beall sets to get a sense of what they were like...

...and in the process realized what I should already have known: the journals are far too heterogeneous for sampling to mean much of anything. Once I'd whittled things down, 1,200+ wasn't all that bad. Long story short: I just finished looking at those journals (in the end, 1,211 of them--of the original 1,222, a few disappeared either because they turned out to be ones already studied or, more frequently, because there was not enough English in the interface for me to look at them sensibly).

Which means that I've now checked—as in visited and recorded key figures from—essentially all of the DOAJ journals (as of May 7, 2014) that have English as the first language code, in addition to thousands of Beall-set journals and hundreds of OASPA journals that weren't in DOAJ at that point.

Which means that I could do some very rough estimates of what a very large portion of the Gold OA journal field actually looks like.

Which means I could, gasp, second-guess Simba. Sort of. For $0 rather than $2,500.

Caveats

The numbers I'm about to provide are based on my own checking of an absurdly large number of supposed Gold OA journals and "journals," yielding more than 9,000 journals that actually published articles between January 1, 2011 and June 30, 2014. The following caveats (and maybe more) apply:

- A few thousand Gold OA journals in DOAJ that did not have English as the first language code in the downloaded database aren't here. Neither are some that *did* have English as the first language code but did not, in fact, have enough English in the interface for me to check them properly.
- So-called "hybrid" OA journals aren't here. Period.
- Journals that appeared to be conference proceedings were omitted, as were journals that require readers to register in order to read papers, journals that impose embargoes, journals that don't appear to have scholarly research papers and a few similar categories.
- Some journals aren't included because I was unable or unwilling to jump through enough hoops to actually count the number of articles. (See the October/November and December issues for more details; including the additional DOAJ bio/biomed/medical set, it comes to about 560 journals in all, most of them in the Beall set.)
- I used a variety of shortcuts for some of the article counts, as discussed in the earlier essays.
- Maximum potential revenue numbers are based on the assumptions that (a) all counted articles are in the original-article category, (b) there were no waivers of any sort, (c) the APC stated in the summer of 2014 is the APC in use at all times.

All of which means: while these numbers are approximate—the potential revenue figures more so than the article-count figures, I think, since quite a few fee-charging journals automatically reduce APCs for developing nations (as one example). On the other hand, some of the differences mean that I'm likely to be undercounting (the first four bullets) while the last bullet certainly means I'm overstating. Do they balance out? Who knows?

Second-guessing Simba

OK, here it goes:

Given all those caveats, I come up with the following for 2013:

- Maximum revenue for Gold OA journals with no waivers: $249.9 million
- Approximate number of articles published: 403 thousand
- Maximum revenue per article: $620.

Let's look at two earlier years as well. For 2012:

- Maximum revenue for Gold OA journals with no waivers: $200.2 million.
- Approximate number of articles published: 331 thousand.
- Maximum revenue per article: $604.

And for 2011, before the gold rush really took off:

- Maximum revenue for Gold OA journals with no waivers: $147.7 million.
- Approximate number of articles published: 247 thousand.
- Maximum revenue per article: $597.

Here's what's remarkable: that maximum revenue of $249.9 million for 2013, which is almost certainly too high but which also leaves out "hybrid" journals and a bunch of others, is all of 3.2% higher than Simba's number. Which I find astonishingly close, especially given the factors and number of players involved (and Simba's presumed access to inside information, which I wholly lack).

(The 22% of all published papers? Given that I'm missing lots of non-English journals, and given uncertainties as to how many published articles there actually *were* in 2013, I'll just say "close enough.")

Incidentally, 33 journals account for the first $100 million of that 2013 figure, including one that's in the social sciences if you consider psychology to be a social science. Not to take away too much from what may appear elsewhere eventually, but if you sort by three major lumps, you get this:

- Science (except for biology), technology, engineering and mathematics (around 3,500 journals): $66.0 million maximum potential revenue in 2013 for around 170 thousand articles, or around $388 per article. For 2012, $54.3 million maximum potential revenue for around 138 thousand articles, or around $394 per article. For 2011, $38.7 million maximum potential revenue for around 100 thousand articles, or around $389 per particle.
- Medicine and biology (around 3,100 journals): $174.5 million maximum potential revenue in 2013 for around 178 thousand articles, or around $981 per article. For 2012, $139 million maximum potential revenue for around 148 thousand articles, or around $936 per article. For 2011, $104.1 million maximum potential revenue for around 114 thousand articles, or around $916 per article.

- Humanities and social sciences (including psychology) (around 2,400 journals): $9.4 million maximum potential revenue for around 55 thousand articles, or around $170 per article. For 2012, $6.9 million maximum potential revenue for around 45 thousand articles, or around $153 per article. For 2011, $4.9 million maximum potential revenue for around 34 thousand articles, or around $142 per article.

Those are very raw approximate numbers, but I'd guess the overall ratios are about right. The gold rush is in medicine and biosciences: is anybody surprised? An average of $981 per article is a *whole* lot more interesting than an average of $170 or even $388, if all that matters is the greenbacks.

To many OA supporters, it's *not* all about the greenbacks. That 55 thousand gold OA articles were published in 2013 in the humanities and social sciences on the thinnest of shoestrings: that's impressive. Not as impressive as the 170 thousand articles in STEM or the 178 thousand in bio/medicine, but nonetheless impressive.

Projections? I don't do projections. I can say that, if the second half of 2014 equals the first half, there would be about 12% more Gold OA articles this year than last. I believe the Great OA Gold Rush of 2011-2013 is settling down...and that's probably a good thing.

Remaining Journals and "Journals": Biology and Medicine

I won't rehash the background for this project in general; once again, read the October/November and December 2014 *Cites & Insights* to get all that background. When I prepared the "DOAJ not in Beall or OASPA" set of journals discussed in December 2014, I deliberately excluded journals in subjects that appeared to be related to biology, biomed and human medicine—partly to reduce the size of the task but also because journals in those fields represent a majority of OASPA journals and a sizable chunk of Beall journals, and seem to behave differently than other journals.

Reducing the size of the task turned out to be a mirage. What I thought would be several thousand DOAJ journals in biology and medicine turned out to be a little more than 1,200, once journals from OASPA or the Beall lists were accounted for (and non-English journals were removed).

So, after a sample of 10% of those remaining journals demonstrated the uselessness of sampling them, I did the 1,200+ as well. What appears here is the equivalent of pages 2-13 of the December issue, but for the DOAJ journals not already covered. For those wishing to make direct comparisons, I'm numbering tables in this discussion beginning with 3.1. Let's call the remaining DOAJ journals "DOAJ2" for convenience.

Overall figures

Group	Count	%All	%A-E
A: Apparently good	691	57.1%	64.2%
B: May need investigation	185	15.3%	17.2%
C: Highly questionable	63	5.2%	5.8%
D: Dormant or diminutive	136	11.2%	12.6%
E: Empty	2	0.2%	0.2%
N: Not OA peer-reviewed	31	2.6%	
O: Opaque or obscure	56	4.6%	
X: Unreachable	47	3.9%	
Total	1,211		1,077

Table 3.1. Journals in DOAJ2

The most useful comparison is probably to Table 2.1 in the December 2014 issue. A much higher percentage of DOAJ2 falls into Group B, mostly because these journals are much more likely to have APCs of $1,000 or more—and apparently a higher percentage either do or should have APCs but don't disclose them (almost the only reason one of these would be assigned C). The dormant or diminutive percentage is somewhat lower than for other DOAJ journals and other groups are fairly comparable. As in Table 2.1, there are no "hybrid" journals: DOAJ doesn't allow them.

Note, however, comparing Table 3.1 to Tables 7 and 29 (in the October/November issue), that the B group is smaller than for the Beall set and *much* smaller than for OASPA journals—and the C group is much smaller than for the Beall set.

N: Not an OA peer-reviewed article journal

Note the full definition of N as I'm using it: not *peer-reviewed articles*—or not fully readable without registration or other barriers.

What's included here? Seven of the journals appear to be primarily magazines, with either no scholarly articles or too few to bother with. Five consist of official reports (government or NGO), not scholarly research. Six appear to be entirely commissioned or invited material. Four appear to consist entirely of conference proceedings. Six require either accounts or registration in order to read articles. One simply isn't OA at all. One has an embargo (which really makes *two* that aren't gold OA at all). And one appears to be primarily a one-sided political "journal," with nothing I could find that had the look of scholarly research.

Except for the last three, I'm not putting any of these down as either non-open-access or not valuable: several of them are *enormously* valuable. They just don't seem to be primarily or substantively made up of refereed scholarly articles.

O: Opaque or obscure

It's sad that 56 journals fall into this category, although the percentage is certainly in line with other DOAJ journals. About a dozen of these have undated archives (where no date shows at either the volume or issue level). About a dozen have archives consisting entirely of whole-issue PDFs, with no separate tables of contents, or have ToC PDFs that were too slow or clumsy to deal with.

The rest either have archive problems (the archives seem to be random or just don't work or are too slow to deal with) or, in one case, such aggressive pop-up ad behavior that I gave up (that is, popping up a new ad window—despite my setting Firefox to block popups—with *every action taken* at the journal's site).

APC	Journals	Percent
$1,000-$1,999	4	7%
$600-$999	12	22%
$300-$599	1	2%
$200-$299	1	2%
$100-$199	0	0%
$50-$99	3	5%
$1-$49	0	0%
None	18	33%
Unknown	16	29%
Total	55	

Table 3.2. APCs for DOAJ2 journals in group O

Table 3.2 shows APCs for these journals, using the ranges used throughout these reports. As elsewhere, "Unknown" means one of two things:

- The journal explicitly says it *does* have an APC but won't say that that APC is (which automatically puts the journal in group C if it's not in group O).
- The journal doesn't say anything about charges, and it's published by an apparently commercial publisher, not a university, institute, society or library.

Comparing this to Table 2.2, you see what I'd expect from bio/medical journals: much higher fees, although none of these hit $2,000 or more, and somewhat of an inversion: where 71% of other DOAJ journals *don't* charge APCs, 67% of these either do or don't say. The sweet spot is clearly $600-$999, about what you'd expect.

X: Unreachable or unworkable

Noting that a fair number of the group O journals could equally well go here—if the archive's not workable, the journal's basically not workable—these 47 are more extreme cases.

Thirteen yielded 404 errors when I attempted to reach them. Eighteen were simply unreachable when tried at least two times on different days. Half a dozen had turned into parking pages or dummy pages or, in one case, a nonroman blog. The other ten were incompetent in one way or another—so incompetent I couldn't plausibly continue.

My usual comment about it being a shame if any of these X journals ever had worthwhile articles stands here as well.

That's the cruft. There are two empty journals, not enough to make much difference (one of which had such an interesting title that I found it sad that there haven't been any articles). Come to think of it, since there's really not much to say about those two, I'll cover them before going on to the rest:

E: Empty

Two journals, both established by universities, neither with a processing charge, simply haven't had any articles as of June 30, 2014 (or November 2014, for that matter). They didn't have any articles before 2011 either—those journals would be in Group D.

Now, on with analysis of the rest (groups A-D) and individual groups.

Peak article count, DOAJ2 groups A-D

Peak	Journal	Percent	Volume	Percent
1,000+	3	0.3%	8,872	4.5%
600-999	3	0.3%	6,297	3.2%
300-599	19	1.8%	20,752	10.6%
100-299	163	15.2%	70,542	36.1%
75-99	80	7.4%	19,489	10.0%
50-74	155	14.4%	26,595	13.6%
35-49	163	15.2%	18,365	9.4%
20-34	237	22.0%	16,795	8.6%
10-19	175	16.3%	6,296	3.2%
5-9	61	5.7%	1,112	0.6%
1-4	11	1.0%	57	0.0%
None	5	0.5%	0	0.0%
Total	1,075		195,172	

Table 3.3. Peak articles in DOAJ2 journals, groups A-D

Table 3.3 groups journals by the number of articles in each journal's peak year (2011-2014), including five with no articles (in group D rather than E because they were explicitly closed or merged). It also shows total article volume—that is, the total articles from 2011 through June 2014 published by those journals. The percentage columns relate directly to the columns to their left—that is, percentage of all journals and percentage of all articles respectively.

While this group has relatively few *very* prolific journals, like the rest of DOAJ (excluding OASPA and Beall), it has quite a few reasonably prolific journals—and markedly fewer journals with very few articles. (Journals with fewer than 20 articles in their peak years make up less than a quarter of this group, compared to more than 40% of the other DOAJ journals.) This group includes 38% as many journals as the rest of DOAJ—but roughly 55% as many articles.

None of the three journals peaking over 1,000 articles exceeds 1,250, and none achieves 3,700 in the 3.5-year period. The percentage of articles coming from journals publishing more than 100 articles per year, 54.5%, is not much higher than that for the rest of DOAJ (and *much* lower than the Beall and OASPA sets).

Article Processing Charges, DOAJ2 groups A-D

APC	Journals	%	Volume	%
$2,000+	31	2.9%	9,964	5.1%
$1,000-$1,999	140	13.0%	22,487	11.5%
$600-$999	38	3.5%	8,097	4.1%
$450-$599	17	1.6%	2,672	1.4%
$300-$449	30	2.8%	7,844	4.0%
$200-$299	21	2.0%	5,074	2.6%
$100-$199	43	4.0%	8,942	4.6%
$50-$99	26	2.4%	5,896	3.0%
$1-$49	23	2.1%	5,685	2.9%
None	634	59.0%	101,481	52.0%
Unknown	72	6.7%	17,030	8.7%
Total	1,075		195,172	

Table 3.4. APCs for DOAJ2 journals, groups A-D

Nearly three out of five of these journals do *not* charge fees of any sort, and those journals published a majority of the articles during the 3.5-year period. While the percentage of no-fee journals and articles is lower than for other DOAJ journals, it's considerably higher than for OASPA journals and *much* higher than for the Beall set. (These percentages surprised me: I expected that most bio/med journals would have fees.)

On the other hand, whereas almost none of the other DOAJ journals charge more than $2,000, quite a few of these do, including 15 that charge $3,000 or more (with one at a breathtaking $5,000). Of those 15, all but two come from Elsevier, Nature Publishing Group (NPG) or Springer Healthcare. Of the other 16 (charging $2,000 to $2,999—or, actually, $2,050 to $2,600) all but three come from Springer or Dove Medical Press.

Where the only fee/APC level for other DOAJ journals with more than 100 journals is the third lowest level, $100-$199, for these journals it's the second *highest*, $1,000-$1,999. In both cases, that level includes the most articles.

You can't add the Unknown 6.7% to the None 59.0% to get "almost two-thirds don't clearly charge fees," because 32 of the 72 unknowns clearly *do* charge fees—the journal sites say so—but won't say what those fees are.

Maximum revenue, DOAJ2 groups A-D

The usual caveats apply: these revenue figures assume that all items counted were full original articles (or whatever else carries the highest fee), that there were no waivers whatsoever, and that the current APC was used consistently—oh, and that all articles are 10 pages long. They're almost certainly too high.

Revenue	Journals	%	Volume	%
$1 million +	4	1.1%	6,106	8.0%
$250K-$999K	24	6.5%	13,826	18.0%
$100K-$249K	38	10.3%	13,415	17.5%
$50K-$99K	43	11.7%	10,088	13.2%
$25K-$49K	65	17.6%	10,465	13.7%
$15K-$24K	61	16.5%	5,780	7.5%
$10K-$14K	40	10.8%	5,105	6.7%
$5K-$9K	36	9.8%	6,245	8.1%
$2,500-$4,999	22	6.0%	2,641	3.4%
$1,000-$2,499	25	6.8%	2,615	3.4%
$1-$999	11	3.0%	375	0.5%
Subtotal	369		76,661	

Table 3.5. Maximum annual revenue, DOAJ2 A-D

One journal exceeded $2 million. Otherwise, there's not a lot to say here, except that it's once again the case that very few publishers are getting rich from Gold OA.

Article and journal distribution by year

	2014	2013	2012	2011
Articles/APC	14,942	25,473	20,237	15,739
Journals/APC	350	367	350	305
Art./Jrnl./APC	42.7	69.4	57.8	51.6
Articles/Free	15,168	31,321	28,955	26,037
Journals/Free	555	609	591	543
Art./Jrnl.	27.3	51.4	49.0	48.0
Free Articles	50.4%	55.1%	58.9%	62.3%
Free Journals	61.3%	62.4%	62.8%	64.0%

Table 3.6. Article and journal distribution, DOAJ2

Table 3.6 isn't directly comparable to some others because "unknown" journals are omitted entirely and because it looks at each year or half-year independently. It's interesting that no-fee journals are more than 60% of all journals (excluding unknowns) every year and account for more than half of all articles each year. That there are more fee journals publishing more articles in years later than 2011 is in keeping with other groups, but the growth rate of fee-charging journals is slower for this group.

DOAJ2 Group A: Apparently good

APC	Journals	Peak	Volume	Percent
$600-$999	33	2,690	7,648	5.9%
$450-$599	16	941	2,563	2.0%
$300-$449	28	2,826	7,659	5.9%
$200-$299	17	772	2,230	1.7%
$100-$199	33	2,768	7,241	5.6%
$50-$99	16	1,427	3,365	2.6%
$1-$49	19	1,565	4,550	3.5%
None	529	32,949	95,117	73.0%
Total	691	45,938	130,373	

Table 3.7. DOAJ2 A, journals and articles by APC

The percentage in this case is percentage of total article volume for this group, and it's noteworthy that 73% of all the articles from group A journals are from journals with no fees. Note the missing top and bottom rows: journals charging $1,000 or more automatically drop to group B and those with unknown fees automatically drop to group C.

This group has twin hot spots—$600 to $999 and $100 to $199—with very similar volume in those two rows *and* from the smaller number

of journals charging $450 to $599. The lowest actual fee among these journals is $8.

Revenue	Journals	Peak	Volume	Percent
$100K-$249K	8	1,886	5,168	4.0%
$50K-$99K	17	2,551	6,957	5.3%
$25K-$49K	22	2,031	5,611	4.3%
$15K-$24K	27	1,583	4,376	3.4%
$10K-$14K	19	1,643	3,888	3.0%
$5K-$9K	26	1,724	4,707	3.6%
$2,500-$4,999	15	632	1,981	1.5%
$1,000-$2,499	21	825	2,273	1.7%
$1-$999	7	114	295	0.2%
$0	529	32,949	95,117	73.0%
Total	691	45,938	130,373	

Table 3.8. DOAJ2 A, journals and articles by revenue

Note that *no* journal could have yielded even $250,000 in its peak year, actually fewer than the other DOAJ journals, and only 25 could have earned even $50,000.

Peak	Jrnls	2014	2013	2012	2011
1,000+	1	450	1,145	589	568
600-999	1	232	568	600	500
300-599	9	1,787	2,935	2,209	2,347
100-299	117	8,343	16,010	14,017	12,197
75-99	58	2,355	4,579	4,112	3,767
50-74	118	3,134	6,346	5,991	5,339
35-49	123	2,247	4,544	4,078	3,481
20-34	163	1,929	3,831	3,448	2,904
10-19	87	591	1,101	979	848
5-9	14	69	94	58	51
Total	691	21,137	41,153	36,081	32,002

Table 3.9. DOAJ2 A journals, article distribution by peak

Very few of these journals are *very* prolific.

	2014	2013	2012	2011
Articles/APC	6,385	11,571	9,192	8,108
Journals/APC	160	162	155	133
Art./Jrnl./APC	39.9	71.4	59.3	61.0
Articles/Free	14,752	29,582	26,889	23,894
Journals/Free	507	528	501	454
Art./Jrnl.	29.1	56.0	53.7	52.6
Free Articles	69.8%	71.9%	74.5%	74.7%
Free Journals	76.0%	76.5%	76.4%	77.3%

Table 3.10. Article and journal distribution, DOAJ2

Table 3.10 also omits journals with unknown APCs. It's interesting that fee-free journals are consistently more than three-quarters of group A journals publishing articles in each year—and only drop below 70% in articles (and barely that) in the first half of 2014. It's also interesting that the apparent gold rush in biology and medical fee-charging journals, apparent in OASPA and especially the Beall set, isn't all that major here, with only 29 more fee-charging journals publishing articles in 2013 than in 2011—a higher *percentage* growth than among free journals, but a lower actual growth.

DOAJ2 Group B: May need investigation

APC	Journals	Peak	Volume	Percent
$2,000+	29	3,931	9,993	23.7%
$1,000-$1,999	114	7,979	21,791	51.7%
$600-$999	1	72	223	0.5%
$450-$599				0.0%
$300-$449	1	49	153	0.4%
$200-$299	1	800	2,389	5.7%
$100-$199	8	787	1,602	3.8%
$50-$99	9	1,037	2,507	6.0%
$1-$49	3	430	1,121	2.7%
None	19	986	2,353	5.6%
Total	185	16,071	42,132	

Table 3.11. DOAJ2 B, journals and articles by APC

What Table 3.11 mostly says is that very few journals were downgraded to group B except for high fees—only 42 of the 185 total. Those 42 suffered from various issues—questionable impact factors, sloppy language, misleading use of "British" or "American" or a German name

for journals pretty clearly not from those countries and the like. There are very few free group B journals; that's no great surprise, given the nature of group B.

Revenue	Journals	Peak	Volume
$1 million +	4	2,493	6,106
$250K-$999K	24	5,030	13,826
$100K-$249K	30	3,018	8,247
$50K-$99K	25	1,081	2,979
$25K-$49K	38	1,589	4,240
$15K-$24K	20	417	982
$10K-$14K	9	431	993
$5K-$9K	6	562	1,374
$2,500-$4,999	5	295	625
$1,000-$2,499	3	159	305
$1-$999	2	30	42
$0	19	986	2,353
Total	185	16,091	42,072

Table 3.12. DOAJ2 B, journals and articles by revenue

The first two rows of Table 3.12 represent the same journals as in the first two rows of Table 3.5; that means that no high-revenue journals fell into groups C or D.

Peak	Journals	2014	2013	2012	2011
1,000+	1	600	1,011	664	151
600-999	1	600	800	522	467
300-599	9	2,367	3,409	2,685	1,809
100-299	28	2,385	4,393	3,414	2,622
75-99	18	803	1,356	1,000	809
50-74	25	753	1,409	1,122	788
35-49	16	354	612	479	393
20-34	41	520	940	758	503
10-19	35	282	393	347	308
5-9	11	60	64	69	51
Total	185	8,724	14,387	11,060	7,901

Table 3.13. DOAJ2 B, article distribution by peak

Given that 2014 only includes half a year, it appears that the two most active journals continue to grow, which is not the case with the two in group A.

	2014	2013	2012	2011
Articles/APC	8,457	13,707	10,395	7,160
Journals/APC	165	166	154	133
Art./Jrnl./APC	51.3	82.6	67.5	53.8
Articles/Free	267	680	665	741
Journals/Free	18	19	15	14
Art./Jrnl.	14.8	35.8	44.3	52.9
Free Articles	3.1%	4.7%	6.0%	9.4%
Free Journals	9.8%	10.3%	8.9%	9.5%

Table 3.14. Article and journal distribution, DOAJ2 B

A significant growth in journals with very high fees in 2012 and a smaller growth in 2013: that's the picture here.

DOAJ2 Group C: Highly questionable

APC	Journals	Peak	Volume	Percent
$1,000-$1,999	1	41	152	0.9%
None	1	48	113	0.7%
Unknown	61	6,452	16,526	98.4%
Total	63	6,541	16,791	

Table 3.15. DOAJ2 C, journals and articles by APC

All but two of the journals in this group are here because they either do or probably do have APCs but don't say what they are. That leaves one expensive and one free case where so much else was wrong with the journal that it dropped into group C. The single fee-based journal shows peak revenue of $250,000 to $300,000; the table for journals and articles by revenue is omitted, since that's the only new information it would have.

Peak	Journals	2014	2013	2012	2011
1,000+	1	330	1,243	1,076	1,045
600-999	1	327	436	765	480
300-599	1	104	250	350	500
100-299	15	877	1,780	1,827	1,687
75-99	1	28	77	83	
50-74	8	183	414	359	324
35-49	12	234	456	263	172
20-34	11	107	233	262	165
10-19	10	56	110	88	52
5-9	3	8	17	11	12
Total	63	2254	5016	5084	4437

Table 3.16. DOAJ2 C journals, article dist. by peak

Most of these journals either published 100-299 articles or published 10-49 in peak years. It's mildly interesting that the peak year for two of the three most prolific journals was *not* 2013, but not terribly meaningful.

Since group C includes only one journal with a known APC and one journal known to be free, there's little point in providing the journal and article distribution by year. For what it's worth, the APC-charging journal had 31, 41, 40, and 40 articles in 2014 (first half), 2013, 2012 and 2011 respectively; the free one had 20, 48, 45 and none: it didn't publish in 2011.

DOAJ2 Group D: Dormant, diminutive, dying, dead

Category	Jrnls	%	Peak	Sum	%
C: Ceased	31	23%	553	1,077	18%
D: Dying	17	13%	453	848	14%
E: Erratic	24	18%	329	691	12%
H: Hiatus	28	21%	1,247	2,773	47%
N: New	5	4%	58	59	1%
S: Small	31	23%	207	488	8%
Total	136		2847	5936	

Table 3.17. DOAJ2 D journals by category

The only thing these journals have in common is that they failed to publish at least five articles per year in a year other than the starting year or at least two articles in the first half of 2014 (the latter not enforced for issue-oriented journals that only publish one or two articles per year). Except that's not quite true: a journal could be in category C even though it's active enough, if the publisher has said that it's ended or ending—as is the case with four of these journals.

Quick notes on each category:

- Ceased: 14 of these are formally canceled, ceased, replaced, merged into other journals or, in one case, not accepting submissions. (That includes cases where the closure hasn't yet happened.) The others have no articles in 2013 or 2014.
- Dying: Based on pattern of article count; most of these had either no articles or one article in 2014, typically with far fewer in 2013 than in 2012 and 2011. In two cases, it's possible that the journal has really bad publishing delays (i.e., having no 2014 articles as of early November 2014!), but in both cases the 2013 article count is down *sharply* from earlier years—half in one case, one-third in the other. In all, the 17 journals published 386 articles in 2011, 341 in 2012, but only 115 in 2013 and *six* in the first half of 2014.
- Erratic: A few of these may belong in category S, but mostly the article numbers are all over the place.
- Hiatus: None of these has at least two articles in the first half of 2014, but they have publication patterns that suggest they haven't simply died off. It's a judgment call, of course, except in one case where a new editor for 2015 has already been announced, presumably to end a three-year hiatus.
- New: These journals all began in 2013, but—with one exception publishing one article in the first half of 2014—none of them have published any 2014 articles. They could, of course, be one-year wonders.
- Small: Journals that never show more than ten articles in a year but don't appear to be dying. Some are niche journals; others have content other than scholarly articles. It may be worth noting that 14 of the 31 come from a single publisher and have very high fees ($1,695 across the board).

APC	Journals	Peak	Volume	Percent
$2,000+	2	13	31	0.5%
$1,000-$1,999	25	253	544	9.2%
$600-$999	4	96	226	3.8%
$450-$599	1	40	109	1.8%
$300-$449	1	15	32	0.5%
$200-$299	3	266	455	7.7%
$100-$199	2	75	99	1.7%
$50-$99	1	10	24	0.4%
$1-$49	1	6	14	0.2%
None	86	1,841	3,903	65.8%
Unknown	10	232	499	8.4%
Total	136	2,847	5,936	

Table 3.18. DOAJ2 D, journals and articles by APC

The two over-$2,000 journals both come from Springer Healthcare; all but two of the $1,000-$1,999 journals come from Dove Medical Press. Notably, almost all of the others are free. (It's possible that one or both of the Unknowns that are ceased have APCs buried somewhere on the sites.)

Revenue	Journals	Peak	Volume	Percent
$25K-$49K	5	303	614	11.3%
$15K-$24K	14	184	422	7.8%
$10K-$14K	12	105	224	4.1%
$5K-$9K	4	118	164	3.0%
$2,500-$4,999	2	26	35	0.6%
$1,000-$2,499	1	22	37	0.7%
$1-$999	2	16	38	0.7%
$0	86	1,841	3,903	71.8%
Subtotal	126	2,615	5,437	

Table 3.19. DOAJ2 D journals and articles by revenue

No high earners here, and that's not surprising.

Peak	Journals	2014	2013	2012	2011
100-299	3		346	410	234
75-99	3		183	149	188
50-74	4		97	139	197
35-49	12	10	284	439	319
20-34	22	26	257	442	470
10-19	43	101	242	399	399
5-9	34	69	131	164	189
0-4	15		18	15	19
Total	136	206	1,558	2,157	2,015

Table 3.20. DOAJ2 D journals, article dist. by peak

There just aren't any really prolific journals in this group, and very few with even moderately large numbers of articles.

	2014	2013	2012	2011
Articles/APC	69	424	610	431
Journals/APC	24	38	40	38
Art./Jrnl./APC	2.9	11.2	15.3	11.3
Articles/Free	133	1,012	1,356	1,402
Journals/Free	30	62	74	75
Art./Jrnl.	4.4	16.3	18.3	18.7
Free Articles	65.8%	70.5%	69.0%	76.5%
Free Journals	55.6%	62.0%	64.9%	66.4%

Table 3.21. Article and journal distribution, DOAJ2 D

This is such an odd group of journals that reading too much into Table 3.21 is probably a mistake.

Starting Date

Year	DOAJ2	D2%
Pre-1980	39	3.9%
1980-1989	24	2.4%
1990-1994	21	2.1%
1995-1999	78	7.8%
2000	30	3.0%
2001	25	2.5%
2002	36	3.6%
2003	40	4.0%
2004	23	2.3%
2005	37	3.7%
2006	45	4.5%
2007	47	4.7%
2008	76	7.6%
2009	106	10.6%
2010	104	10.4%
2011	121	12.1%
2012	93	9.3%
2013	52	5.2%
2014	1	0.1%

Table 3.22. Starting dates for DOAJ2 journals

Table 3.22 shows the starting date for journals in this group—where starting date can either be the date as reported on the site or, more commonly, the first year in the online archive.

Figure 3.1 shows the second column of Table 3.22, split into free and APC-charging journals. Note that the free line has very nearly the same shape as in Figure 2.1, albeit at a different height—while the APC line takes a sudden upturn in 2009, much more drastic than the 2012 uptick in 2012 for Figure 2.1.

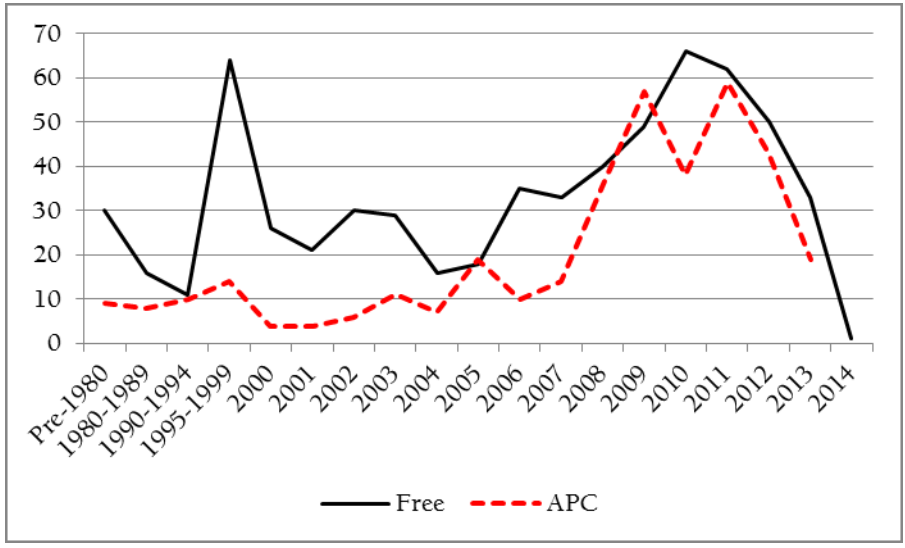

Figure 3.1. DOAJ2 journals by starting year

Let's look at free-vs.-APC article distribution by starting dates, using the same date groupings used for Tables 2.26a-e.

To 1989	2014	2013	2012	2011
Articles/APC	869	1,716	1,583	1,450
Journals/APC	17	17	17	17
Art./Jrnl./APC	51.1	100.9	93.1	85.3
Articles/Free	1,774	3,350	3,584	3,478
Journals/Free	45	47	48	48
Art./Jrnl.	39.4	71.3	74.7	72.5
Free Articles	67.1%	66.1%	69.4%	70.6%
Free Journals	72.6%	73.4%	73.8%	73.8%

Table 3.23. Article and journal dist., DOAJ2 to 1989

As with the rest of DOAJ, the vast majority of Gold OA journals that predate 1990 do not charge fees.

1990-1999	2014	2013	2012	2011
Articles/APC	1,077	2,131	2,191	2,107
Journals/APC	23	24	24	24
Art./Jrnl./APC	46.8	88.8	91.3	87.8
Articles/Free	2,747	5,567	5,480	5,219
Journals/Free	70	74	74	74
Art./Jrnl.	39.2	75.2	74.1	70.5
Free Articles	71.8%	72.3%	71.4%	71.2%
Free Journals	75.3%	75.5%	75.5%	75.5%

Table 3.24. Article and journal dist., DOAJ2 1990-1999

Three-quarters of the journals founded during the 1990s do not charge APCs—and those journals published more than seven out of ten articles, actually a higher percentage than for older journals.

2000-2004	2014	2013	2012	2011
Articles/APC	1,198	2,467	2,199	2,130
Journals/APC	29	31	32	32
Art./Jrnl./APC	41.3	79.6	68.7	66.6
Articles/Free	4,044	8,691	7,833	7,436
Journals/Free	108	115	120	120
Art./Jrnl.	37.4	75.6	65.3	62.0
Free Articles	77.1%	77.9%	78.1%	77.7%
Free Journals	78.8%	78.8%	78.9%	78.9%

Table 3.25 Article and journal dist., DOAJ2 2000-2004

Once again, both the percentage of newly-formed journals that are free and the percentage of articles published by those journals are slightly up.

2005-2009	2014	2013	2012	2011
Articles/APC	5,870	9,371	7,913	7,202
Journals/APC	129	135	135	135
Art./Jrnl./APC	45.5	69.4	58.6	53.3
Articles/Free	3,258	7,022	6,707	6,155
Journals/Free	148	167	174	175
Art./Jrnl.	22.0	42.0	38.5	35.2
Free Articles	35.7%	42.8%	45.9%	46.1%
Free Journals	53.4%	55.3%	56.3%	56.5%

Table 3.26 Article and journal dist., DOAJ2 2005-2009

This period shows a fairly startling change, the beginning of serious commercialization of gold OA in biology and medicine, with many *more*

APC-charging journals starting up. What's most interesting about the past few years (Table 3.27) is what is *not* there: even more commercialization.

2010-2014	2014	2013	2012	2011
Articles/APC	5,928	10,058	6,346	2,829
Journals/APC	152	160	141	96
Art./Jrnl./APC	39.0	62.9	45.0	29.5
Articles/Free	3,345	6,691	5,351	3,749
Journals/Free	184	206	175	126
Art./Jrnl.	18.2	32.5	30.6	29.8
Free Articles	36.1%	39.9%	45.7%	57.0%
Free Journals	54.8%	56.3%	55.4%	56.8%

Table 3.27 Article and journal dist., DOAJ2 2010-2014

Journals by topic

Subject	Beall	OAS	DOAJ
Agriculture	286	39	168
Anthropology	9	9	82
Arts & Architecture	34	7	80
Biology	251	146	162
Chemistry	110	52	73
Computer Science	314	36	207
Earth Sciences	99	27	106
Ecology	161	23	95
Economics	306	17	203
Education	106	16	234
Engineering	262	60	151
History	17	12	91
Language and Literature	48	8	165
Law	22	10	55
Library Science	13	4	53
Mathematics	116	44	167
Media & Communications	18	5	56
Medicine	1,086	625	912
Miscellany	24	28	40
Philosophy	8	2	72
Physics	153	55	68
Political Science	29	10	83
Psychology	31	6	48
Religion	3	4	45
Science	91	13	88
Sociology	84	17	189
Technology	131	9	106
Zoology	64	24	118
Total	3,876	1,308	3,917
Total without Bio, Med	2,539	537	2,843

Table 3.28. Journals by (rough) topic

Table 3.28 is a direct replacement for Table 2.29, but including numbers for Biology and Medicine in the DOAJ column. Notes on the topics appear in the December 2014 *Cites & Insights*.

Biology

APC	Journals	Percent	Volume	Percent
$1,000+	29	19.7%	6,658	25.2%
$500-$999	9	6.1%	1,226	4.6%
$200-$499	17	11.6%	2,164	8.2%
$1-$199	14	9.5%	3,532	13.4%
None	78	53.1%	12,843	48.6%
Subtotal	147		26,423	

Table 3.29. Biology articles and journals, DOAJ2

While the percentage of free journals in biology is lower than any of the 25 subjects covered previously, it's still more than 50%—and nearly half of the articles were published in free journals.

	2014	2013	2012	2011
Articles/APC	2,625	4,315	3,914	2,726
Journals/APC	61	69	65	54
Art./Jrnl./APC	43.0	62.5	60.2	50.5
Articles/Free	1,992	4,065	3,496	3,290
Journals/Free	65	74	75	69
Art./Jrnl.	30.6	54.9	46.6	47.7
Free Articles	43.1%	48.5%	47.2%	54.7%
Free Journals	51.6%	51.7%	53.6%	56.1%

Table 3.30. Biology distribution, DOAJ2

Table 3.30 shows how thing change over time—and, other than the significant but not huge increase in APC-charging journals in 2012 and 2013, there's not a lot new here.

Medicine

APC	Journals	Percent	Volume	Percent
$1,000+	142	16.6%	25,793	17.0%
$500-$999	37	4.3%	8,275	5.5%
$200-$499	42	4.9%	11,996	7.9%
$1-$199	78	9.1%	16,991	11.2%
None	556	65.0%	88,638	58.4%
Subtotal	855		151,693	

Table 3.31. Medicine articles and journals

By far the largest group of journals and articles, and—perhaps surprisingly—it's *still* the case that most journals (nearly two-thirds) are free, publishing a significant majority of the articles. It's probably worth

noting that OASPA journals—most of them in DOAJ but not included here—include 595 in medicine publishing more than 206,000 articles, and only 29% of the journals are free, publishing only 5% of the articles. (Beall-set journals, most of them *not* in DOAJ, add another 981 in medicine but only around 59,000 articles; some 3% of the journals are free, publishing 1.5% of the articles.)

	2014	2013	2012	2011
Articles/APC	12,317	21,428	16,318	12,992
Journals/APC	289	298	284	250
Art./Jrnl./APC	42.6	71.9	57.5	52.0
Articles/Free	13,176	27,256	25,459	22,747
Journals/Free	490	535	516	474
Art./Jrnl.	26.9	50.9	49.3	48.0
Free Articles	51.7%	56.0%	60.9%	63.6%
Free Journals	62.9%	64.2%	64.5%	65.5%

Table 3.32. Medicine distribution, DOAJ2

Table 3.32 expands on Table 3.31.

Cost per article by topic

Subject	$/article	Articles
Physics	$941.36	24,024
Biology	$622.26	27,879
Science	$537.29	21,828
Medicine	$359.10	167,293
Chemistry	$299.53	23,346
Miscellany	$248.66	2,849
Computer science	$231.92	38,135
Ecology	$212.25	14,960
Mathematics	$176.16	19,899
Technology	$170.09	19,812
Engineering	$163.80	29,780
Zoology	$142.54	19,553
Agriculture	$140.82	25,876
Earth Sciences	$134.89	10,704
Media & Communications	$124.40	3,518
Anthropology	$85.43	4,903
Language and literature	$80.14	10,795
Sociology	$66.57	13,526
Psychology	$59.44	3,049
Economics	$46.37	17,062
Education	$30.63	14,672
History	$21.62	4,857
Philosophy	$18.52	3,004
Arts & Architecture	$13.31	3,727
Library Science	$8.64	3,331
Religion	$5.75	1,877
Political Science	$3.05	4,383
Law	$0.00	2,997

Table 3.33. Average cost per article, DOAJ and DOAJ2

Table 3.33 directly replaces Table 2.66a—and answers a question I asked in that issue: "Would medicine's average cost per article be higher than physics?" The answer, to my surprise, is No—indeed, it's not much more than one-third the very high price for Physics, with Biology in the middle. (Note: These are all estimated and almost certainly high prices, as they assume no full or partial waivers.)

Subject	$/article	Articles
Medicine	$359.10	167,293
Computer science	$231.92	38,135
Engineering	$163.80	29,780
Biology	$622.26	27,879
Agriculture	$140.82	25,876
Physics	$941.36	24,024
Chemistry	$299.53	23,346
Science	$537.29	21,828
Mathematics	$176.16	19,899
Technology	$170.09	19,812
Zoology	$142.54	19,553
Economics	$46.37	17,062
Ecology	$212.25	14,960
Education	$30.63	14,672
Sociology	$66.57	13,526
Language and literature	$80.14	10,795
Earth Sciences	$134.89	10,704
Anthropology	$85.43	4,903
History	$21.62	4,857
Political Science	$3.05	4,383
Arts & Architecture	$13.31	3,727
Media & Communications	$124.40	3,518
Library Science	$8.64	3,331
Psychology	$59.44	3,049
Philosophy	$18.52	3,004
Law	$0.00	2,997
Miscellany	$248.66	2,849
Religion	$5.75	1,877

Table 3.34. Topics by number of articles, DOAJ/DOAJ2

Table 3.34 directly replaces Table 2.67a in the December 2014 issue, adding lines for Medicine and Biology. That medicine has more than *four times* as many articles as the next largest topic comes as no surprise (for OASPA, the ratio's even larger); that biology comes in fourth rather than second may be slightly more surprising.

Maybe It's Four, Not Three?

I was reasonably happy with the idea that there are, in effect, three open access marketplaces: medicine and biology, STEM other than biology, and the humanities and social sciences. But I wasn't wholly satisfied with that, looking at the data.

There's a fourth marketplace, I think: megajournals. I'll define megajournals as journals *very* broadly defined (all of science, all of medicine) and as having reached at least 1,000 articles in 2013 or at least 500 in the first half of 2014.

Additionally, the more I looked at the data—especially with that fourth group—the more I felt as though it made sense to treat *all* of DOAJ as a single group, including journals that are on the Beall lists but also in DOAJ (around 600 of them) and those that are published by OASPA members and in DOAJ (around 930 of them). That leaves a small group of non-DOAJ OASPA journals (around 440, of which fewer than 300 appear to be active) and a huge group of non-DOAJ Beall "journals" and journals (around 7,000 names, including around 2,500 active journals). The DOAJ set is currently around 5,800 journals (around 5,000 currently active), but there are more to be added.

When I took the DOAJ set, tagged what appear to be megajournals as being in a fourth group (there are four of them, obviously including *PLOS One*), and looked at actual patterns for the last 3.5 years, I came up with the five tables below: one covering all of the DOAJ group in groups A-D (including some that haven't published articles but have explicitly ceased), four more covering each of the four subgroups (and omitting miscellaneous journals). I believe they provide real added value, showing what's actually happening in mainstream Gold OA publishing at this point. The short version: in HSS, non-fee (free) journals continue to dominate both in number of journals and in articles published; in STEM, most journals are free but most articles come from the growing minority of fee-charging journals; in medicine and biology, a slight majority of journals charge fees and those journals publish most articles; and a handful of megajournals—all of them with fairly high fees—publish an enormous number of articles.

(If you add up the 2013 numbers and don't get 403,000, that's because the remaining Beall journals account for more than 80,000 articles and the remaining OASPA journals account for more than 7,000 articles.)

	2014	2013	2012	2011
Articles/APC	119,299	202,277	169,068	122,163
Journals/APC	1,740	1,855	1,747	1,534
Art./Jrnl./APC	68.6	109.0	96.8	79.6
Articles/Free	50,587	106,844	99,681	88,075
Journals/Free	2,614	3,186	3,085	2,810
Art./Jrnl.	19.4	33.5	32.3	31.3
Free Articles	29.8%	34.6%	37.1%	41.9%
Free Journals	60.0%	63.2%	63.8%	64.7%

Table 3.35. Article and journal distribution, DOAJ

It's not that there are fewer free journals—there aren't. It's that there are a growing number of APC-charging journals and that those journals publish more articles. But this is too broad a view.

	2014	2013	2012	2011
Articles/APC	21,168	36,673	26,512	15,523
Journals/APC	4	4	4	4
Art./Jrnl./APC	5,292.0	9,168.3	6,628.0	3,880.8
Journals/Free	0	0	0	0

Table 3.36. Distribution, megajournals in DOAJ

Table 3.36 deletes some irrelevant rows, since all journals have APCs.

	2014	2013	2012	2011
Articles/APC	45,064	74,028	62,966	50,803
Journals/APC	880	919	878	805
Art./Jrnl./APC	51.2	80.6	71.7	63.1
Articles/Free	17,804	36,493	34,992	30,883
Journals/Free	721	777	733	665
Art./Jrnl.	24.7	47.0	47.7	46.4
Free Articles	28.3%	33.0%	35.7%	37.8%
Free Journals	45.0%	45.8%	45.5%	45.2%

Table 3.37. Distribution, DOAJ bio/medical

It's interesting that the percentage of free journals is nearly unchanged from 2011 to 2014: while there are 114 more APC-charging journals actually publishing articles in 2013 than in 2011, there are also 112 more free journals over that period. But the average articles per journal, which stays almost precisely steady for free journals, grew rapidly between 2011 and 2013 for APC-charging journals.

	2014	2013	2012	2011
Articles/APC	44,457	77,919	67,626	47,822
Journals/APC	646	700	656	560
Art./Jrnl./APC	68.8	111.3	103.1	85.4
Articles/Free	21,423	44,913	40,191	35,965
Journals/Free	938	1,102	1,048	953
Art./Jrnl.	22.8	40.8	38.4	37.7
Free Articles	32.5%	36.6%	37.3%	42.9%
Free Journals	59.2%	61.2%	61.5%	63.0%

Table 3.38. Distribution, DOAJ STEM

Here (science other than biology, technology, engineering and mathematics), more than six out of ten journals continue to be free—but APC-charging journals publish a *lot* more articles. Indeed, the average number of articles per journal is actually higher than for bio/med.

	2014	2013	2012	2011
Articles/APC	6,719	11,651	10,587	7,601
Journals/APC	193	213	191	153
Art./Jrnl./APC	34.8	54.7	55.4	49.7
Articles/Free	10,089	23,696	23,897	20,844
Journals/Free	932	1,274	1,277	1,170
Art./Jrnl.	10.8	18.6	18.7	17.8
Free Articles	60.0%	67.0%	69.3%	73.3%
Free Journals	82.8%	85.7%	87.0%	88.4%

Table 3.39. Distribution, DOAJ HSS

At least in 2013, there are actually *more* free HSS journals than in STEM, and there are very few APC-charging journals—but the free journals publish relatively few articles each. Still, except for the first half of 2014, more than two-thirds of the articles appeared in free journals.

That's it for this version; taken together with the earlier essays, it provides a reasonably complete picture of the gold OA scene (excluding non-English journals with no English interface) in 2011 through mid-2014. I trust you'll find it worthwhile.

Want More?

The section "Maybe It's Four, Not Three?" is a small portion of what I'd do if I did a paperback (print-on-demand) version of *Journals and "Journals": A Look at Gold OA*. Such a book would use a very large subset of *DOAJ* as it existed in May 2014 as the basis for examining gold OA—with sidebars for the rest of Beall (most of which is "journals" rather than

journals) and the rest of OASPA (which doesn't amount to much). It would assume a four-part model for some of the discussion (megajournals, bio/med, STEM other than biology, and HSS).

But it would also add some additional DOAJ journals, drawn from around 2,000 that have English as one language but not the first one (and a few hundred that were somehow missed in the latest pass). Based on a sampling of 30 or so, I'd guess that this would yield 500 to 1,000 more journals (that are reachable, actually OA, and have enough English for me to verify the APC, if any, and cope with the archives), possibly fewer, possibly more.

The paperback might also include the three existing pieces of JOURNALS AND "JOURNALS," depending on the length and final nature of the new portion. If so, the old material would follow the new. The paperback would cost $45 (I think), and a PDF ebook would be the same price.

Since curiosity hasn't quite killed me off yet, I may do this in any case, but it would be a lot more likely if I thought that a few people (or libraries or institutions or groups involved with OA) would actually buy it. If you're interested—without making a commitment—drop me a line at waltcrawford@gmail.com saying so (or leave a comment on the *Walt at Random* post I'll do in December 2014).

Of course, if some group wanted this to be freely available in electronic form, I'd be delighted, for the price of one *PLOS One* accepted article without waivers: $1,350. With that funding, I'd also reduce the paperback price to Lulu production cost plus $2.

If some group was *really* interested in an updated look at all this—including full-year 2014 numbers for DOAJ and the rest of OASPA (but not the rest of Beall: life really is too short)—I'd be willing to consider doing that, which would be a *lot* more work, possibly for, say, the amount of the APC for *Cell Reports*: $5,000. I don't plan to hold my breath for either offer, although the first doesn't seem entirely out of the question.

You know where to find me.

Looking at the "Bad Guys"

After determining that the bulk of Jeffrey Beall's "predatory publishers" aren't publishers at all and that thousands of his questionable journals don't exist, I began to wonder about the cases he builds before slamming publishers onto his list, which far too many people still apparently take seriously.

So I thought I'd look at some of the cases—specifically, a few dozen publishers that seem to have more journals I'd consider either OK (group A) or plausible (group B) than they do really sketchy journals (group C) or "journals" (groups E-X). Basically, I took each publisher's name and searched Beall's blog to see what he had to say about them. Here's what I found—or in many cases didn't find:

Academia Publishing: No case made.

Academic Journals: One of this publisher's many journals appears to publish plagiarized papers. There does seem to be at least some case here.

Academy & Industry Research Collaboration Center (AIRCC): A fairly strong case.

Aizeon Publishers: No case made.

Ashdin Publishing: While Beall makes a case for plagiarism, it's not clear why the publisher's head being Egyptian seems so important to Beall.

Bowen Publishing: No case made.

Centre For Info Bio Technology (CIBTech): An oddity. In 2012, Beall makes a minimal case (there's some less-than-ideal wording on the journal's site); in 2014, he says it's on his backlist for evaluation.

Columbia International Publishing: No case made.

CSCanada: While I regard both the "operating out of an apartment complex" and logo-suggesting-Islam points as bogus, Beall makes a strong case.

Econjournals: No case made.

Elmer Press: This publisher was apparently the *victim* of plagiarism, but I didn't find any case.

Engineering and Technology Publishing: No case made.

European-American Journals: No case made.

ExcelingTech Publishing Company, Ltd.: No case made.

Herbert Open Access Journals: No case made.

Hikari Ltd.: Not sure why "Bulgaria-based" is meaningful, but there's at least a case against one journal.

Horizon Research Publishing: There's a case, although it's not a slam-dunk (and contains some of Beall's typical gossipy assumptions).

IBIMA Publishing: The case is similar to Horizon: starting a lot of journals at once and sending out lots of email to attract editorial board members (and authors). Unlike Horizon, most of IBIMA's journals have yet to attract any articles.

Infinity Press: No case made.

International Institute for Science, Technology and Education (IISTE): No case made.

International Institute of Scientific & Industrial Research: No case made.

International Invention Journals: No case made.

International Research Journals (Lagos, Nigeria): Reasonable case for spamming.

ISPACS (International Scientific Publications and Consulting Services): No case made.

Kindi Publication: No case made.

KY Publications: Strong case made.

Literati Scientific and Publishers (Literati Publishers): No case made.

Macrothink Institute: The only "case" is that this publisher calls itself an institute and Beall calls it a vanity press. No case made.

Narain Publishers Pvt. Ltd (NPPL): No case made.

Natural Sciences Publishing Corporation: Although portions of Beall's case are nonsensical (e.g., there's nothing wrong with publishing both X and X Letters), the case is fairly strong.

Net Journals: No case made.

New Ground Research Journals: No case made.

Nexus Academic Publishers (NAP): No case made.

OA Publishing London: Reasonably strong case made.

Pak Publishing Group: If there's a case, I couldn't find it.

Pinnacle Journal Publication: No case made.

Prime Journals: No case made.

Quest Journals: No case made.

Research Publisher: Very weak case made. Having the same people on several editorial boards—really? Would Elsevier pass that test?

Scholar Science Journals: No case made.

Sciedu Press: The case appears to be that he doesn't like the name of one journal, that there are relations to other publishers he doesn't like, and this rather astonishing statement: "It uses the Open Journal Systems software as its platform, making it look more professional than it really is." Wow. Who ever thought using OJS would be a sign of being deceptive? Or is it "too professional"?

Science & Knowledge Publishing Corporation Limited: No case made.

Science Publishing Group: While there's a lot of innuendo and "I think" in Beall's case, there's a case here.

Science Target: The primary case seems to be that the publisher uses a mail drop—and Beall *claims* to have found plagiarism. Weak case.

Scienpress Ltd.: No case made.

Scientific & Academic Publishing: No case made.

Scientific Online Publishing: No case made.

Scientific Research Publishing (SCIRP): Strong case made.

Sciknow: No case made.

Society for Science and Education United Kingdom (SSE-UK): No case made.

Spring Journals: No case made.

Standard Research Journals: No case made.

Symbiosis (Symbiosis Online Publishing): No case made.

The Standard International Journals: No case made.

Trans Stellar (Transstellar): No case made.

Unique Research Journals: No case made.

Wireilla Scientific Publications: No case made.

World Academic Publishing: No case made.

World Scholars: No case made.

World Science Research Journals (WSR Journals): Strong case.

What's going on here?

Of 60 publishers checked, there are 45 cases in which Beall either says *nothing* (other than adding the publisher's name to his list) or makes a "case" that's so weak I don't consider it credible.

For what it's worth: those 45 publishers offer a total of 114 journals I put in group A, 543 in group B, 29 in group C, 218 in group D, 122 in group E, one in group O, 19 in group X—for a total of 1,046.

Are these 45 publishers reputable? I honestly don't know. Maybe they send out tons of spam email. Maybe they publish papers without proper peer review. Or maybe they just rub Jeffrey Beall the wrong way.

For that matter, maybe Beall made ironclad cases against these publishers back when he used Posterous. I don't know: Posterous disappeared, and Beall chose not to copy his Posterous posts over to the new blog. That's a shame; at some point, before Beall became the Grand Inquisitor of Gold OA, he may have done valuable work, and it's disappeared. Sort of like a journal without archiving arrangements. If Beall expects to have any credibility at all, he needs to do two things:

- Admit that most gold OA journals are reputable and that most gold OA journals don't charge APCs.
- Either restore all the missing posts or add a second link to each publisher and journal on his list that offers the case for the publisher or journal being questionable. Otherwise, readers are entirely dependent on the unsupported word of one librarian who's already made it clear that he has an axe to grind.

The chances of either happening? Pretty much nil, since he seems to have a devoted band of followers who take his word as gospel.

My conclusion? If Beall's rants against all supporters of open access and his other habits (like dismissing any criticism of his work with thoughtful arguments such as "bilge") weren't enough, this helps to convince me that, at this point, Beall's hobbyhorse is actively injurious. To use his style: I recommend that authors and librarians ignore Beall's lists and use *DOAJ* and their own common sense to determine which journals deserve support.

The Back

In the single-essay December 2014 *Cites & Insights*, I promised that there would be "some non-OA content" in this issue. I didn't promise there would be either a *lot* of non-OA content or that it would be a coherent or significant essay or roundup.

That's probably just as well. Once I decided to include the *whole* "third half" discussion and started pondering the possibility of a print-on-demand paperback on journals and "journals," and with Thanksgiving (which we host for our immediate family) coming up as I write this, a big essay or roundup just didn't look plausible at the moment. So instead you get another mess of little snarky essays on various topics, some picking up from items tagged over the past, some based on current magazines—including the 2014 installment of "how much does an audiophile-approved stereo system cost—and how much *could* you pay?"

Enjoy. Or not. No promises about content for the next issue, or schedule either.

Drones for Everyone!

My current pick for the stupidest universal projection I've seen in some time: Quoted in "Dudes with Drones," David Rose's piece on drones in the November 2014 *The Atlantic,* is this from Jordi Muñoz, a partner in 3D Robotics along with Chris Anderson of *Wired* fame (not the TED one).

"In developed countries, I think it will be one drone per person."

I had to read that twice. Just before it is Rose's comment that many drone makers see "a future in which drones could become as transformational—and as popular—as the personal computer." That's pretty extreme, but credit Muñoz with taking it one absurd step further. There's the future: 320 million drones in the U.S. alone—or, after the first week's worth of crashes, 50 million drones.

Fun with Prices

This isn't the "how much?" discussion—this is just a few more examples of how odd audio pricing can sometimes get. The usual caveat applies: what people spend for art, the rare, the valuable or the obscure is entirely their business (if no laws are being broken and they can afford it), but it's still amusing at times.

The August 2014 *Stereophile* includes full reviews for two preamplifiers, a category where prices for "A"-rated units start at around $3,500 ($1,100 for "B"-rated) and go way, way up. How far up? Well, the Dan D'Agostino Master Audio Systems Momentum goes for a cool $32,000—but it's a *line* preamp (which means it doesn't really "pre"amp anything, as in phono cartridges—you'd still need a *phono* preamp, for $2,100 to, gulp, $60,000 for class A, $19.95 to $7,000 for lesser ratings, if you plan to play vinyl). What does a line preamp actually do? It provides multiple inputs with switching and provides the volume control and—sometimes—tone controls for your separate amplifier. (Mere mortals might use integrated amplifiers or receivers, but in the stratosphere that's heresy.) The D'Agostino has a cool meter on the front and does have tone

controls, and the review is favorable—but, of course, you have to pair the preamp with expensive cables.

A little later in the same issue, there's a review of Lamm Industries LL1 Signature Dual-Mono Line Preamplifier, which comes in *four separate boxes*—two each for the two channels of preamplification, two for the separate power supplies. That's just for a preamp which, once again, *doesn't preamplify* (note "Line" in the name), but you do get more than 100 pounds of gear in four black aluminum cases (no snazzy meters, though). This one's a cool $42,790 (an oddly specific price). It's actually not the most expensive line preamp on the market—there are units going for at least $66,000—but it's getting up there. You don't get tone controls and I guess you have to adjust the volume on each channel separately. Oh, and it inverts phase, an issue for some folks. But, oh look, it has *tubes*! It's also apparently a great performer, and yields excellent measurements despite being tube-based.

But hey, as the reviewer says, "Once you're soaring in the ionosphere of price, you go for the type of sound you want, cost be damned. After all, someone who spends $257,000 on a Ferrari 458 Spyder probably isn't settling for a Ferrari because he can't afford the extra $142,000 for a Rolls-Royce Phantom. He wants a Ferrari!"

A still small voice in my head says "Could *any* non-reviewer distinguish the sound of the $30,000 or $42,000 preamp from, say, a decent $1,100 preamp if the units weren't visible?" but I know better than to ask that question. These units sell as much on the basis of scarcity and looks (although I find neither one particularly attractive) as on performance, and there's nothing especially wrong with that.

Another review—this time of a power amplifier, the kind of thing you'd use one of the above as a front end for—appears in the October 2014 issue and is mostly interesting as an example of the little dance the magazine's editor, who also does actual measurements and writes the measurements sidebars for most reviews, does when faced with an expensive device that the reviewer loved and that doesn't, well, measure up. In this case, it's the Siltech SAGA power amplifier, which comes in three chassis and costs a cool $75,000; the "voltage-gain" side uses tubes while the "current-gain" side is transistorized. There are some interesting aspects to the design apart from that one: the voltage amplifier runs on batteries—and there's that third chassis. What does it do? It's a "hermetically sealed box containing eye-searing, high-intensity LED shining on a solar panel that converts the light into current to power the amplifier's drive section."

Reading that the first time, I saw "power the amplifier's drive section" and said "that has to be *enormously* inefficient—even LEDs are nowhere near 100% efficient, and the best solar panels I know of are no more than 25% efficient." But as I read it again, the bizarre third box is really providing the audio input to the current amplifier. I think. It's hard to tell.

In any case, this $75,000 beast sounded great to Michael Fremer, but even he noted that it wasn't top-notch in all regards. But then there are the measurements. Which are less than ideal, especially for hugely expensive gear. Set aside the fact that the editor had to get *three* samples to get one that would consistently work (for a mere $75K, you don't really expect things to work first time, do you?) and that he was never able to run the usual conditioning test for amplifiers without having problems. He sums up the measured performance as "somewhat idiosyncratic," one of those phrases that is revealing in its concealment.

Killing the Singularity?

John Pavlus wrote "By Hiring Kurzweil, Google Just Killed the Singularity" on December 17, 2012 at *MIT Technology Review*. The two-word tease: "Thank God." The illustration shows one of *Time Magazine*'s sillier covers, "2045: The Year Man Becomes Immortal*" (with the * leading to a note about what you have to believe to believe that), with a big red R.I.P. stamped across it.

The piece is relatively brief, talking about Google's announcement that it had indeed hired Ray Kurzweil (who still works there) and saying that the hire "signs The Singularity's death warrant by putting its chief proselytizer to work doing what he does best: inventing better machines for the real world, not writing science fiction." The link is to singularity.com, and the problem here is that Kurzweil's book, *The Singularity is Near*, continues to be peddled as nonfiction.

If you're not familiar with Kurzweil, you should be: he's done remarkable things in his career, especially in assistive technology—pretty much developing the first workable print readers for the blind and going on to do pioneering work in optical character recognition, speech synthesis and voice recognition. He's apparently involved with Google's natural language recognition efforts.

But, as with Linus Pauling and others, being a genius in one area doesn't mean you're either right or bright about everything. Kurzweil believes in The Singularity—the point at technological improvement occurs at such a pace that ordinary human affairs become untenable. (Kurzweil has some other beliefs related to effective immortality; the two may be related.)

Pavlus' piece is relatively short. I've always regarded singularity notions as singularly silly, and long been convinced that immortality is not only improbable, it's probably undesirable. So I find this little piece refreshing. The comments are an interesting blend; those who disagree *really* disagree, occasionally in the "how can you doubt a Genius?" category.

High-End Handheld Sound

I really like my $60 8GB Sansa Fuze MP3 player, loaded with 860 of my favorite songs (all ripped at 320K, the highest possible rate); it, along with a pair of Sennheiser PX-100 II headphones (around $50, I think), is my stereo system at home (except when I'm vacuuming or mowing, in which case the surprisingly decent $36 Howard Leight ear-protection muffs with built-in headphones replace the Sennheisers).

That's not really the low end of handheld sound; for that, you'd go to no-name (Coby etc.) MP3 players playing 96K MP3s over the supplied earbuds. Lots of folks pay more for iPods, to be sure, and some of them care enough to insist on a bitrate that's at least semi-plausible and something better than the provided earbuds.

If you care a *lot* about your sound on the go, however, there are some higher-end choices, one of them discussed in the November 2014 *Stereophile*. To wit, the Astell&Kern AK240. It's bigger than a typical iPod ("roughly the size of a deck of cards") and a *lot* more expensive ($2,500)—but it's in a different realm. The case is "milled from a solid billet of aircraft-grade duralumin," it has both a balanced headphone output jack and a more typical jack that can also serve as a digital or analog output to a stereo system—and it comes with 256GB onboard RAM, as well as a microSD slot that can add another 128GB of storage.

And it's definitely a high-end audiophile unit, with high-end chips and the ability to play a wide variety of uncompressed music formats (including those at higher bitrates than CDs) as well as MP3s. It can also act as a streamer for other devices via WiFi, acting as a quality digital-to-analog converter. The review is very favorable. You'd want to pair this with a high-end pair of headphones, to be sure. Apparently, the 3.1" 480x800 touchscreen is logical and easy to use, and you get about 10 hours of play on a full battery charge.

In this case, I'm not suggesting $2,500 is outrageous. It's a specialized device—intended for music-lovers who can hear the difference between the best MP3 and CD-quality or between CD-quality and higher-resolution sound, and who want the best possible sound on a portable device. (I believe many, perhaps most, careful listeners can distinguish between the best MP3 and CD quality at least on some orchestral music, and that most listeners paying attention can distinguish between 128K MP3 and 320K MP3. I'm not willing to suggest that people with the best ears *can't* distinguish between CD-quality and higher-resolution music.) If you're going high-rez, 256GB is a plausible storage figure: 96/24 (not the highest resolution but close) would require at least one gigabyte for 50 minutes of music, if I'm calculating right, so even 256GB won't hold a very large music library.)

The Data Are…

Some of you already know where I stand on this one: in general usage, *data* is a mass noun like money or sand, taking the singular form, although when it's explicitly a scientific discussion of one datum and another datum and yet another datum, it's a plural noun.

This is a long-standing argument, and one unlikely to be resolved any time soon. Still, I recommend Geoff Nunberg's lovely January 1, 2013 essay at *Language Log:* "'The data are': How fetishism makes us stupid." He quotes a sentence from *The Economist:*

> Yet even as big data are helping banks, they are also throwing up new competitors from outside the industry.

He notes what almost certainly happened (if it's not just *The Economist*'s quirky ways with language): a copyeditor (Nunberg has that as two words) saw "data" followed by a singular pronoun and a singular form of *be* and just automatically "corrected" them to the plural form.

As Nunberg points out, this is nonsensical *even if you insist that data is plural*, because it's a noun phrase: for "big data" to be plural it would have to describe a collection of large things. (He offers an example: a big datum might be π written out to 60 places, as opposed to π > 3, a little bitty datum.) It's copyediting by rote rather than by good sense, *regardless* of whether your stylesheet says that data itself is always plural.

As to that discussion, Nunberg links to some "generally sensible discussions of the issues." His own view:

> My own view is that there are contexts where it's okay to treat *data* as a plural, but none in which you can't treat it as a singular—and that contrary to what many "reasonable" usage writers counsel, this isn't simply a matter of "style and personal preference." As the Economist example shows, there are times when treating *data* as a plural makes you sound not simply like a pedant but a fool.

That's all the start of an interesting discussion of "usage fetishism" in general. (Don't let the little tiny handle on the scroll bar bother you: Nunberg's essay isn't all that long, but it's followed by 76 comments from the kind of people who read *Language Log*. Worth reading as well, including one from someone who's stuck with a house style insisting that *data* is always plural, "which compels me to write around the situations where it oughtn't be." On the other hand, this is one of several commenters who believe *The Economist* is treating *Big Data* as a collective noun rather than a mass noun, and using the British "rule" that collective nouns and company names take the plural. There are, of course, a few who insist that *data* being always and only plural is a fact, period, end of discussion. Because Latin. And, apparently, to one commentator because The Language must not be allowed to change just because usage changes. Which, for French, is probably right.

Not Being Alone

I was so surprised by this refreshing statement, in the November 2014 *Stereophile* in Kalman Rubinson's "Music in the Round" column (which focuses on multichannel music and is distinctly different from much of the magazine), that I thought I'd include it. It's the first paragraph from a discussion of Rubinson's experience in setting up a Mac Mini to use as a music source for his weekend system:

> I use Apple Macs only when absolutely necessary because, despite what's commonly claimed, I do not find using them intuitive in any way. Undoubtedly, this is the result of my early imprinting on and continued experience with Windows machines, but even the sleek iMac in my office seems somewhat obtuse to me.

He's not alone.

The Borg Complex Case Files

That's the title of this lovely essay by Michael Sacasas on January 4, 2013 at *The Frailest Thing*. Sacasas is discussing something I've ranted about any number of times, possibly even using the Borg analogy once or twice: assertions about what will happen, including universalisms, that reject any possibility of resistance—in other words, "Resistance is futile."

This, Sacasas says, "is also what many tech gurus and pundits announce to their audiences as they dispense their tech-guru-ish wisdom. They don't quite use those words, of course, but they might as well." He offers "six tell-tale symptoms of a Borg Complex:"

1. Makes grandiose, but unsupported claims for technology
2. Uses the term Luddite a-historically and as a casual slur
3. Pays lip service to, but ultimately dismisses genuine concerns
4. Equates resistance or caution to reactionary nostalgia
5. Starkly and matter-of-factly frames the case for assimilation
6. Announces the bleak future for those who refuse to assimilate

Not that all six always occur, especially in shorter projections, but that's a pretty good list. He offers a few partial examples, such as a New York *Times* piece on Uber, AirBnB and the like that includes this: "But they're considerably less popular among city regulators, whose reactions recall Ned Ludd's response to the automated loom." Wow. (We, of course, know that Uber and all involved with it are at the pinnacle of human creativity and thoughtfulness. Don't we?)

Another example is pretty remarkable—a December 20, 2012 interview with Evernote CEO Phil Libin appearing at *Huffpost Tech*, in which Libin says of Google Glass:

> I've used it a little bit myself and—I'm making a firm prediction—in as little as three years from now I am not going to be looking out at the world with glasses that don't have augmented information on them. It's going to seem barbaric to not have that stuff. That's going to be the universal use case. It's going to be mainstream. People think it looks kind of dorky right now but the experience is so powerful that you feel stupid as soon as you take the glasses off… We're spending a good amount of time planning for and experimenting with those. (Emphasis added.)

So, according to Libin, by the end of 2015, anyone who's not using Google Glass or a competitor *all the time* will "seem barbaric." (In the same interview, Libin says "I would certainly fire somebody for buying IBM!"—but you need context that isn't there before calling that an idiotic remark.) Looking at context for the quoted paragraph, Libin really does seem to believe that "within a couple of years"—now we're back to, well, *now*—"we'll all have access to information super-imposed on top of our normal world." I guess since we're all wealthy enough to buy Google Glass and the infrastructure needed to use it/them (aren't we? it's not like there are any poor folks left anywhere in the world), then *have access* is enough of a qualifier to get off the sheer nonsense of supposing that we all *want* to have this stuff going on all the time.

Sacasas offers some other examples, including one from Kevin Kelly, not surprisingly, and offers this useful comment:

> A diagnosis of Borg Complex does not necessarily invalidate the claims being made. The Borg Complex is less about the accuracy of predictions and claims than about the psychological disposition that leads one to make such claims and the posture toward technology in the present that it engenders.

Read the whole essay. It's well-written and not all that long. Also some interesting comments. As for Google Glass, if you're one of those who believes not only that you should always be using them (at least when you're out and about) or, more impressively, that by 2016 you'll be seen as barbaric *not* to be doing so…well, you're probably not reading this anyway.

Message From the Future: The Fate of Google Glass

This seems like a natural followup to the previous piece: A February 27, 2013 essay at *The Interactivist* by Joel Hladecek (title above), written as the comments of a time traveler realizing he'd come back to just before Google Glass went to a public beta.

> Truth is, I'd actually forgotten about Google Glass until I read that they are about to launch it again. Which itself should tell you something about its impact on the future.
>
> So here's the deal on Google Glass. At least as far as I know—what with my being from the future and all.
>
> It flopped.
>
> Nobody bought it.

There is, of course, much more to the essay, including comments on those who *did* buy Google Glass: mostly "very specialized workers who typically operated in solitary and didn't have to interact with other humans" plus a few geeks and "silicon valley wannabes."

> Glass just smacked of the old I'm-an-important-technical-guy-armor syndrome. The 90's cellphone belt holster. The 00's blinky blue bluetooth headset that guys left in their ears blinking away even while not in use. And then Google Glass.

The heart of the article is the factors that Google apparently hasn't considered (if we assume Google actually expects mass adoption, an assumption I'm reluctant to make). These are "factors related to humanity and culture, real-world relationships, social settings and pressures, and unspoken etiquette." For the rest, you need to read the article (which suggests that augmented reality "is still indeed your future," but that the future won't look like Google Glass. At all).

The piece is illustrated with the photo of Sergey Brin looking cool sitting on "the subway" (more likely BART) wearing Google Glass…and Hladecek points out that, not only was the shot carefully orchestrated, if you actually look at it Brin "also looked alone, and sad."

Realistic Expectations

Another odd bit from the November 2014 *Stereophile*, this time near the end of an interview with Norman Chesky, "the low-profile half of a hi-rez audio duo," the Chesky brothers who have built a leading source of higher-resolution-than-CD audio (HDtracks). When the interviewer asks "How big do you think the hi-rez market can ultimately get?" Chesky answers:

> I like to believe that hi-rez audio can become an industry worth several hundred million dollars…

He says more than that, but this is *so* refreshing. He's not projecting Billions and Billions; he's not suggesting that all music listeners will See the Light and move to high-resolution audio. He's offering a perfectly plausible goal for a medium-size business sector (although by corporate standards "several hundred million dollars" may barely be medium-size). Good for Chesky. I'm probably not a potential customer, but I hope he's right.

A farewell to bioinformatics

Here's one that struck me as inherently interesting—but also one where I don't know enough about the topic to make useful comments. The title appears above; the post is by Frederick J. Ross, and it appeared on March 26, 2012 at *madhadron*.

Ross has been a physicist, mathematician, microbiologist and programmer. According to his bio, he now "divides his time among writing, programming, cooking, howling at the moon, and playing with his child." He wrote this at the point where he was "leaving bioinformatics to go work at a software company with more technically ept people and for a lot more money."

He uses the occasion to set forth his "accumulated wisdom and thoughts on bioinformatics." His summary thoughts are profane, and he expands on that profanity, basically saying that molecular biologists striving to be "relevant to reality" looked to mathematicians and programmers to "magically extract science from their mountain of shitty results." There's more, but it all boils down to the difficulty of drawing good results out of bad data, no matter *how* much you massage the bad data. Is the load of molecular biology data that bad? That, of course, I don't know—can't even hazard a guess. (I've heard comments about the irreproducibility of most results in certain fields, but not precisely what those fields are.)

I find the rant interesting in its own right. Is it meaningful? Hard to say. Ross himself returned to it on January 29, 2013 in "Public comments considered harmful," in which he notes that a number of his former colleagues have been referring people to the post and that it was well-received by some people in the field…and badly received in a reddit subgroup.

The Low and the High

The update in March 2014 was only an update and used the October 2013 *Stereophile* "Recommended Components" list as source material. This time, I'll do the whole thing—but with a couple of changes. To wit, I'll try to include cables (one meter runs for interconnects, six-foot or two-meter runs for speaker cables) and headphones, since I think a decent pair of headphones makes sense in any serious audio system. (I'd try to add a digital music server, but I still can't make sense of that marketplace.)

As usual, there are eight configurations, the lowest within *Stereophile* grade ranges and the highest within those ranges for the following four systems:

- A CD-playing system with all components in grade A or A+
- A CD-playing system with all components in grade B or below.
- A system that also plays LPs, all components in grade A or A+.
- A system that also plays LPs, all components in grade B or below.

Source is the 62-page "500 Recommended Components" feature in the October 2014, using the "Recommended Components" section of the *Stereophile* website for cables, which don't appear in the feature itself. (The 62 pages include 36 editorial pages—but that's mostly 7-point type, so it's a *lot* of text.) The cables and interconnects aren't divided by grade—but you'll need more interconnects for the highest-priced system (and for any LP-playing system), so the prices differ. Also, some cables and interconnects are clearly included although they're not among the best, so I'll differentiate.

Note that everything in "Recommended Products" is a product the *Stereophile* editorial staff has found "to be truly excellent or that we feel represents good value for money"—even the lowest-grade units here are supposed to be audiophile quality.

CD only, A and A+, low price

CD player: the $499 Oppo BDP-103. (The "105" in the March 2014 feature is a typo—that's the $1,199 Oppo, which is a little more versatile.) Integrated amplifier: Bel Canto C7R, $2,999. Loudspeakers: KEF LS50 Anniversary Model, $1,500. If those prices and names seem familiar from a year previous, there's a reason: either A-rated "inexpensive" equipment doesn't change very rapidly or *Stereophile* doesn't review many affordable items.

Added this time around: Thinksound ON1 closed-back (over-the-ear) headphones, $299. AudioQuest Tower interconnect, $25/1m pair. (The $6.99 RadioShack appears to be too compromised for a class-A system.) Naim NACA5 speaker cable: $100/2m pair. (Again, the Radio Shack options--$19.50 or $29.50 for 50 feet—appear unsuited to a class-A system.)

Total price: $5,422. That's not cheap, but we're talking about a class-A system. If you want full low-end extension in your speakers, substitute the Revel Ultima Studio2, $15,998/pair, bringing the system price up to $19,992: that extra half-octave or so costs a *lot*.

CD-only, A and A+, high price

I won't say *highest* price (given options like "biamping," where you connect two amplifiers to each speaker, there's no such thing as a highest price). This is the high price for devices as I found them.

CD player: dCS Vivaldi: $108,496. This comes in three chassis, but I'll assume that it includes its own interconnects. At the high end, I assume you'll use a preamp and power amplifier (for an integrated amp, there's the Kondo Overture at $33,900). Preamp: Lamm Industries LL1 Signature, $42,790. Amplifier: darTZeel NHB-458, $155,700 at current exchange rates (that's down from last year). Speakers: Wilson Audio Specialties Alexandria XLF, $200,000/pair. (The high-cost equivalent to the KLF, lacking the bottom octave, would be Magico Q5 at $65,000/pair.)

Added this time: Audeze LCD-X headphones, $1,699. TARA Labs The Zero interconnect: $15,900/1m, but you'll need two (one from CD player to preamp, one from preamp to amp), so figure $31,800. *I am not making these things up*. Wireworld Platinum Eclipse 7 speaker cables: $24,400/2m pair.

Total price: $564,885. Cut that to $429,885 if you don't care about music below 40Hz or so, but once you're in this price range, why would you?

CD-only, B and below, low price

CD player: Sony Playstation 1, around $25—but I question the feasibility of this choice, so I'll say the NAD C 516BEE, $299. Integrated amplifier: Lepai LP7498E, $130. Speakers: Pioneer SP-8522-LR, $130/pair. (Technically, you could substitute the $40 Dayton Audio B652 for the Pioneers and the $150 Dayton Audio Sola Bluetooth Speaker—a self-powered single-box stereo speaker—for both the Lepai and the Pioneer, but maybe not.)

Headphones: Technically, the Howard Leight Sync Stereo Earmuffs at $36—which I own and use for vacuuming and mowing—are included, but I question using these when you don't need noise insulation, so I'd go for the Grado SR60i at $79. Same interconnects as for Grade A, since those aren't done by grade.

Total price: Theoretically, as low as $218 (the Sony, Dayton Audio Sola, Howard Leight and Radio Shack interconnects—with powered speakers, you don't need speaker cables). More realistically, $763—which is still pretty low for an audiophile-approved system.

CD-only, B and below, high price

CD player: Musical Fidelity M1CDT Transport, $999. Preamplifier: Parasound Halo P 7 $2,295 (there are only two preamps below A). Amplifier: Allnic A-5000 DHT Monoblock, $19,900/pair. Speakers: Spendor SP1000R2, $11,495/pair.

Headphones: PSB M4U 2: $399. Interconnects and cables: Total: $91,288. "But nobody would be stupid enough to spend $55,200 for interconnects and cables for a system that only costs $36,088 otherwise!" I hear somebody saying. In which case, let's go down to the *second*-most-expensive options: Stealth Sakra interconnects at $11,000/1m pair (you need two of these) and Stealth Dream V10 speaker cable, $12,400/2m pair. That cuts $20,800 from the price, bringing it down to a low, low $70,488. Which is, admittedly, a long way from $564,885.

Adding LP, A and above, low price

Turntable with tonearm: VPI Classic 3, $6,000. Cartridge: EMT TSD 15, $1,950. Phono preamp: Lehmann Decade 2099.

You need one more set of interconnects (phono preamp to integrated amp), but that's just $25, so this adds $7,975 to the CD system price, bringing it to $13,397—or $27,967 with full-range speakers. (I'm assuming throughout that the turntable/tonearm combo includes its own cables to the phono preamp.)

Adding LP, A and above, high price
Remarkably, the highest-price combination of turntable and tonearm in the Recommended list continues to be a combination (and it includes the stand!): The Continuum Audio Labs Caliburn at $200,000. Cartridge: Clearaudio Goldfinger Statement, $15,000. Phono preamp: Vitus Audio MP-P201 Masterpiece, $60,000. Add one more set of interconnects at $15,900 and this all adds $290,900 to the CD-only price, making it $855,785 for the complete system—not including component stands, of course.

Adding LP, B and below, low price
This one's easy: the Music Hall USB-1 costs $249 and includes a tonearm, a decent cartridge, a built-in preamp—and a USB output, for that matter. Add $25, and you're adding $284 to the system price for a total of $1,047.

Adding LP, B and below, high price
Turntable: Clearaudio Ovation (including tonearm), $6,500. Cartridge: Lyra Kleos, $2,995. Phono preamp: Nvo SPA-II, $7,000. Adding another $11,000 interconnect, that adds $27,495 to the total system cost, bringing it to $97,983 (with the second-from-the-top interconnects and speaker cables as described above).

If I won Lotto…
What would I buy, assuming we had a listening room (we like it quiet around the house when we're not watching TV) and this stuff sounded as good as it looks on paper?

Probably still the Oppo BDP-105 ($1,195), the Bel Canto ($2,995—and did I mention that it includes an FM tuner?), probably the GoldenEar Triton One ($5,000/pair) loudspeakers, maybe Sennheiser HD 800 headphones ($1,500), and probably some midrange interconnects and speaker cables—let's say the AudioQuest Big Sur at $109 for interconnects and, what the heck, AudioQuest Rocket 33 at $329/10 foot pair for speaker cables. That would come to $11,128…but, of course, I'd really want to listen to the GoldenEars and the Sennheisers before paying out the big bucks.

For now, the $50 Sennheisers and $60 (?) Sansa Fuze suit me pretty well.

One huge caveat here: Especially at the higher reaches, you need to *hear* this stuff—preferably as a full system—before buying, and if you're

laying out five or six digits for two-channel audio equipment, you're probably a serious enough listener that things like cables and different amplifiers may make a difference to you. (Speakers and headphone almost always have their own distinctive sound: "Perfection" is a questionable notion in either area.)

The laws of universality

This time I'm not griping about phony universality, the verbal shorthand that substitutes "we" for either "many of us" or "most of us" or, increasingly, "people who think/behave like me and are therefore superior people." This time, I'm pointing to an interesting article, posted by Terence Tao on September 14, 2010 at *What's new*: "A second draft of a non-technical article on universality."

A quick read posits the existence of "universal laws" of statistics—e.g., the bell curve. But it goes on to note that "universal" doesn't mean universal, because there are all sorts of phenomena that obey *different* "universal laws" (e.g., the power curve or Zipf's law). Maybe if I reread it more carefully I can determine whether Tao's claiming that there are ways of knowing whether or not a particular population of X follows one of these "universal" laws—which are, of course, the basis for projecting characteristics from a relatively small sample to the larger universe.

If I'm reading right (on a first pass), he's *not* saying that; he's actually saying that universal laws are universal except when they're not. Hard to argue with that. Easy to use that to poke at defective projections and faulty universalisms.

More on Google Glass

John Herrman posted "This Photo Of A Man Showering With Google Glass Will Haunt You For The Rest Of Your Life" at *Buzzfeed* on April 28, 2013. He's wrong, at least for some of us: the picture (of Robert Scoble, who else?) is pretty awful, but I barely remembered it two minutes after leaving the site.

The photo exists because Scoble, never one to undersell a new technology, said that he would "never take the headset off, except to let strangers try it." The photo is to show he wasn't kidding.

> Scoble is an indiscriminate evangelist; he embraces virtually any new technology with inhuman enthusiasm. This makes him useful as a sort of *reductio ad absurdum* product processor: he takes a new service or thing and gives himself to it, both testing it and inadvertently demonstrating the logical conclusion of its creators' visions.

The piece continues, mostly about Scoble; for *Buzzfeed* it's an unusually good piece—but I'm not quite ready to crown Scoble and his endless enthusiasms as the pinnacle of human evolution.

Neither, I'd guess, is Ian Bogost, who offered "Google Zombie: The Glass Wearers of Tomorrow" on May 20, 2013 at *The Atlantic*. The title may tell you all you need to know; if not, there's the tease: "The best metaphor for Google Glass? Not jerks or junkies, but the living dead."

Bogost discusses "Glassholes" as a term and its root term:

> the asshole is characterized by entitlement, by claiming special privileges that place him or her at the center of concern. Google Glass would seem to exemplify just such an attitude, a declaration that the material world is insufficient for the wearer, who retires into an alternative one online at whim.

But, he notes, that's not how it works out in practice: "Glass wearers…just zone out." There's apparently even a name for it: glassed out.

> According to its designers, Google Glass is supposed to "bring technology closer to your senses," allowing us "to more quickly get information and connect with other people." Wearable designs are meant to "get out of your way when you're not interacting with technology." But the glassed-out "wearers" (a term akin to "burners," maybe) seems to suggest the opposite result: bringing technology closer actually further distances us from the world.

There's more; worth reading.

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