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Five Thousand Downloads

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Numeracy went live with volume 1, issue 1, on December 20, 2007, eagerly ahead of the January 1 2008 launch date. In its first two years (four issues), the journal has published 15 articles, three perspectives pieces, six book reviews, and seven editorials and columns (Table 1).

As of December 18, 2009—two years after the launch—PDFs of those 31 papers have been downloaded a total of 5,615 times: 2,419 in 2008 (including 61 in the last ten days of 2007) and 3,196 in the first 50 weeks of 2009. We passed the 5000 full-text download milestone on **October 20, 2009** (Fig. 1).

The rate of *Numeracy* downloads is clearly increasing. During the 12.3 months of downloads attributed to 2008, there were 197 downloads/month. During the 11.5 months of 2009 thus far, there have been 277 downloads/month. For the 23-month period through November 2009 (see Appendix), the average was 235 downloads/month, about 10% larger than the 221-downloads/month slope of the linear trend line ($R^2 = 0.990$) of cumulative monthly downloads (Fig. 2). The trajectory of the cumulative downloads broke through the linear trend in mid-2009.

A quadratic function gives a better fit ($R^2 = 0.997$) (Fig. 3). The leading coefficient implies an acceleration of about 4 downloads/month/month. If the quadratic model holds, there will be an additional 3,660 downloads between now ($x=23.5$ months) and mid-December 2010 ($x=35.5$ months), thus an average of ten downloads per day in

Table 1.
Papers in *Numeracy*

	Issue			
	1(1)	1(2)	2(1)	2(2)
Editorials	1	1	1	1
Articles	4	4	4	3
Perspectives	1	1		1
Book reviews	1	1	1	3
Columns		1	1	1

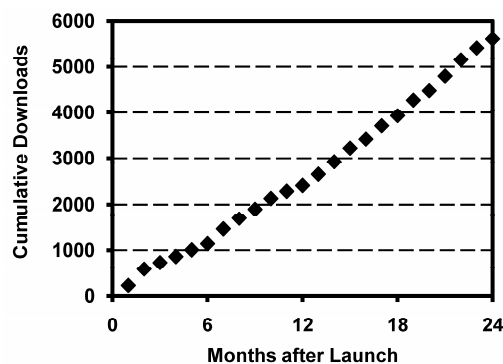


Figure 1. Cumulated monthly downloads from January 1, 2008.

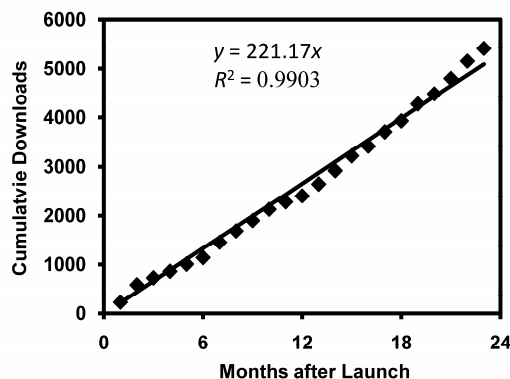


Figure 2. Linear model.

2010. This time next year, the trajectory will have just broken through the 9000 mark, heading for 10,000 on **March 2, 2011** ($x=38.07$ months).

The structure lying beneath the *Numeracy* download trajectory can be seen in the stacked bar graph of Figure 4. The trajectories of individual issues are convex upward. With varying success, they can be fit with power functions (Table 2). Together they aggregate to the quadratic function for the journal as a whole shown in Figure 3.

On March 2, 2011, when the total downloads are scheduled to reach 10,000 by the quadratic model, the trajectories for the individual issues will have reached 3,642 [1(1)], 2,028 [1(2)], 2,509 [2(1)], and 1,786 [2(2)] according to extrapolation of the power functions of Table 2. Those numbers sum to 9965, exquisitely close to 10,000.

But summing the four power functions to produce cumulative downloads in March a year from now ignores the issues of *Numeracy* published between now and then. Taking a rather generic power function, $y = 200x^{0.7}$, for each of the next three issues produces 1,273 [3(1)], 865 [3(2)], and 333 [4(1)] for an additional 2,469 cumulative downloads on March 2, 2011. This augmented trajectory crosses the 10,000 mark on **October 3, 2010**—this year!

On the other hand, applying the generic power function across the board to all the issues of *Numeracy* past and future produces a trajectory for the sum that

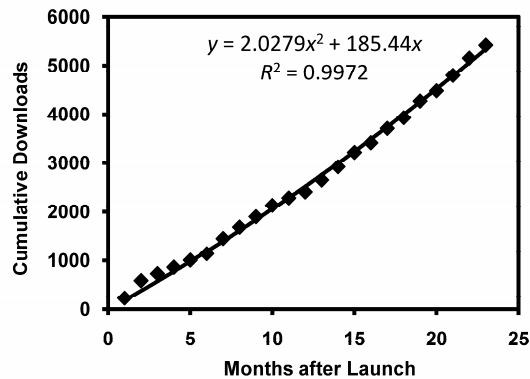


Figure 3. Quadratic model

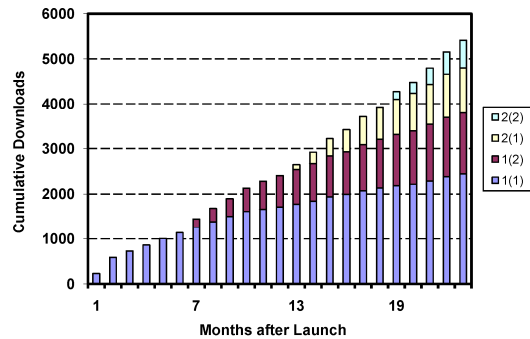


Figure 4. Downloads of papers in the four issues of Table 1.

Table 2. Power Function Fits ($y = ax^b$)

issue	months	a	b	R^2
1(1)	23	333	0.67	0.971
1(2)	17	215	0.65	0.998
2(1)	11	129	0.91	0.982
2(2)	5	157	0.81	0.987

predicts 4,938 downloads at the end of November, 2009 (vs. actual 5,415) and breaks 10,000 on **January 9, 2011**.

I have bolded the dates from the projections so that I can find them easily next year at this time—not because I believe any of them particularly. After all, one of the concepts that the real world brings to quantitative literacy is a governor on extrapolation: “Prediction is hard—especially about the future” (variously attributed to Yogi Berra and Niels Bohr; repeated often by economists, groundwater modelers, and many others). But Yogi Berra also said (actually it’s the title of one of his books), “You can observe a lot by watching.” We have watched as downloads reached 5,000 in just 22 months. We have watched as a month’s downloads have increased from one year to the next (Appendix). And so now we look forward to watching as downloads reach 10,000—probably sooner than the journal’s 44th month; possibly in months 34 to 39. Three years ago (December 2006), when the editors and some of the associate editors and NNN officers met at Dartmouth to plan the journal, we didn’t know what to expect.

Appendix. Monthly Downloads 12/2007 – 11/2009

Month	Issue				Total
	1(1)	1(2)	2(1)	2(2)	
Dec-07	61				61
Jan-08	169				169
Feb-08	358				358
Mar-08	141				141
Apr-08	133				133
May-08	144				144
Jun-08	132				132
Jul-08	124	190			314
Aug-08	126	106			232
Sep-08	119	94			213
Oct-08	109	124			233
Nov-08	49	105			154
Dec-08	50	75	10		135
Jan-09	58	72	100		230
Feb-09	69	62	141		272
Mar-09	96	74	128		298
Apr-09	55	32	110		197
May-09	81	76	134		291
Jun-09	60	61	100	7	228
Jul-09	52	56	67	162	337
Aug-09	31	46	52	79	208
Sep-09	73	73	54	116	316
Oct-09	93	59	76	129	357
Nov-09	63	39	37	123	262
Total	2446	1344	1009	616	5415

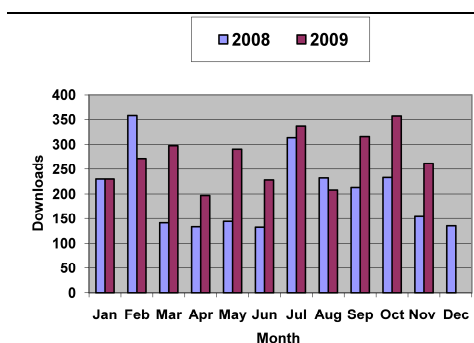


Figure A1. Observations.

There was an initial spurt of downloads associated with the kickoff of the journal.

There is a periodicity reflecting the schedule of January and July issues that was evident in the first year, less so in the second.

Generally for a given month, there has been an increase of downloads from the first year to the second.