

### Uncritical Use of Citation Database

This is to express my deep concern about publication in the *Notices* of the paper “Influential mathematicians: Birth, education, affiliation”, vol. 59, no. 2, by John Panaretos and Chrisovalandis Malesios.

The authors discuss statistics based on the “list of Highly Cited Researchers” (HCR) published by Thomson Scientific.

I am not considering here the question whether the number of citations is a reasonable measure of “influence” of a mathematician (for example, someone who wrote a handbook in medical statistics can have a higher citation rate than any “pure” mathematician).

I would like to bring to your attention another, much simpler matter. Suppose that we are indeed interested in the number of citations of mathematicians. Every mathematician who ever cared to look at the Thomson database knows that this database is nonadequate and almost useless for this purpose.

To see this, it is enough to compare it with the MathSciNet citation database (which is by far the most complete citation database for mathematicians).

For example, the list of HCR in Mathematics contains Alan Gelfand but does not contain Israel Gelfand. According to MathSciNet, Alan has 398 citations while Israel has 5,269. The HCR list contains Douglas Arnold but does not contain Vladimir Arnold. According to MathSciNet, Douglas has 1,934 citations and Vladimir has 5,880.

Among the first thirty-four people in HCR, twelve have less than 1,000 MathSciNet citations, however the HCR list *does not* contain the names Erdős (Paul Erdős, 8,301 references in MathSciNet), Hörmander (Lars Hörmander, 6,752), Milnor (John Milnor, 6,558), Lang (Serge Lang, 4,714), Hartshorne (Robin Hartshorne, 4,580), Tao (Terence Tao, 4,304), and so on. None of these names is in the HCR list. Can this be called a list of

most cited mathematicians? Or of most influential mathematicians?

This shows that the HCR list is meaningless.

There are at least two evident reasons why the Thomson database cannot be used for making such a list.

1. It does not distinguish between people with similar names. But most importantly:

2. The Thomson database contains the data for *all* sciences. As a percentage of the whole of science literature, mathematics is negligible. Mathematicians and mathematical journals have much lower citation rates than the average for the whole of science. For this reason, the data on mathematics in the Thomson database are marginal and have no statistical significance.

Uncritical use of this HCR list for the discussion of demography of “influential mathematicians” is an example of poor scholarship. For example, what is the meaning of the fact that there is one HCR mathematician in Turkey, and none in Russia? The whole contents of the paper is discussion of such facts.

Unfortunately, one statement in the paper is correct: “*This interest is not purely academic, these rankings have caught the attention of policy makers.*”

That’s why I am so much concerned that such a paper could be accepted in the *Notices*.

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### Consumer Alert: Mead Flashcards with Errors

Mead division flashcards (© 2010) have cards with errors. Mistakes were made involving division by zero. For instance one card asked for the answer to  $2 \div 0$  and then gives the answer as zero.

MeadWestvaco was contacted about the problem in the fall of 2011. New printings of the cards have corrected the errors and the company purged the faulty inventory in their

warehouse; however, the faulty cards were not removed from stores and are still being sold. For instance, in early March I found that the faulty cards were still on the shelf at my local Walmart. Few consumers likely know of the problem. Other than product reviews on such sites as Amazon and a couple of notices submitted to some education journals, no other notification has been given of the problem, and so most of the cards sold are likely still being used. I am asking those in the mathematical community who have contact with schools to take the time to notify them of this problem. Elementary teachers could be asked to contact parents as well. (In Wisconsin, the State Department of Public Instruction was contacted and notification of the problem is being sent out in a publication for teachers.) If someone has a box of Mead flashcards (24  $\div$  3 card pictured on the box), they should contact MWV Consumer and Office Products Consumer Affairs Department at 1-800-648-6323 and provide the representative with the item number or UPC (bar code) from the product, as well as your name and mailing address, and a new set of flashcards will be sent. (Note that corrected boxes will have a 48  $\div$  6 card pictured on the box.)

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