Kluwer's *Encyclopædia of Mathematics on CD-Rom*

Dr Dan Moore
Imperial College

d.r.moore@ic.ac.uk

This is the CD-ROM version of the English translation of the Russian Encyclopædia of Mathematics published by Kluwer Academic Publishers of Dordrecht. It is intended as a professional reference work in Mathematics.

Review

This product demonstrates the potential and limitations of a direct transference from a classical medium (books) to a modern medium (CD-ROM) of a direct translation from Russian to English. Sadly, it fails to demonstrate convincingly any added value from the new medium and it fails to exploit any other modern media such as the World Wide Web. By the standards set by current CD-ROM encyclopædia such as Microsoft Encarta, this product seems clumsy, incomplete and dated. Little advantage, other than compactness and cost, is apparent over the original. However, if the user interface were modernised (and improved in efficiency) and the contents updated and made more complete it could be a valuable tool both to the student and the professional mathematician.

The CD-ROM is supplied in a book size (250mm x 140mm x 16mm) package instead of the usual more compact 'jewel case'. The larger format did allowed a more readable installation guide and users handbook to be incorporated into the packaging, but requires that the box be stored on the bookshelf instead of in the CD-ROM case stack, perhaps the publisher's intention. The CD contains software to view the encyclopædia on Windows 95/NT, 3.1x and Apple Macintosh. Several software packages are loaded at install time including *MathReader* from Wolfram Research International to view *Mathematica*® Notebooks (unless *Mathematica* is already present on the system), DynaText browsing software and a 3-D object viewer. The last two items seem proprietary. The installation was not straightforward nor standard for Windows 95/NT and two attempts were required to get the necessary extra fonts loaded for the Dynatext viewer correctly to display mathematical symbols.

A typical screen shot

Supplier's contact details

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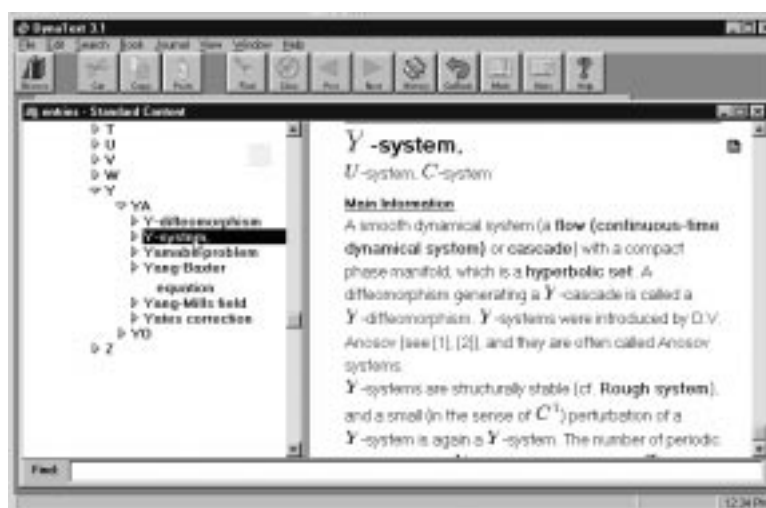
It was at this stage that the software limitations of this product with its 'hand made' browser became apparent. Although no hardware requirements beyond disc space (21 Mb) were given, my 90 MHz Pentium with 40 Meg of Ram and a 2x CD drive was clearly underpowered for this product. Access and searching were so slow as to render the product unacceptable in a 'student lab' environment with equipment of this level. I found the user interface difficult to use immediately. None on the buttons had text explanations that popped up when pointed to (as found in the MS Word GUI for example). Scrolling was painfully slow and the 'Page Up' and 'Page Down' keys had no effect! There was no apparent key or button for jumping to the title when a link had transferred the viewer to another article, nor was the title of the new article displayed anywhere obvious. It was easy to get lost. Some of the formulae appeared too small to read clearly while others seemed unnecessarily large.

In addition to my misgivings about the GUI, I also have problems with the contents, although these probably apply to the books as well as the CD! The cover of the package claims that the Encyclopædia is up to date, but there is no mention of the recent work 'finding' all of the simple groups and you have to read an article in coding theory or surreal numbers to find a reference to Professor Conway. I would have thought that both his discovery of the first 'Monster' simple group and his invention of the automata game 'Life' would rate entries in this work. Confusingly, an article entitled *Fermat's Great Theorem* states that while "..Fermat's last theorem is implied by the Weil-Taniyama conjecture in the theory of elliptic curves..", it says nothing about it being proved. However, the next article, entitled *Fermat's Last Theorem* correctly assigns the recent proof, after correction, to Andrew Wiles. (As a Princeton graduate who came over to study at Cambridge, I am uneasy about material that loses Cambridge graduates going over to Princeton. Some day the converse may occur!) References at the end of many articles seem heavily weighted in favour of Russian mathematicians, reflecting the works Russian origins and sometime miss earlier western authors. There is an irrelevant reference to Runge-Kutta methods in the article about Discrete Fourier Transforms. Balancing that is the more catholic view taken by Russian mathematicians of their field and the topics covered range from pure algebra through complexity theory, coding theory and numerical methods to turbulence, Maxwell's equations and relativity.

My overall feelings after several hours of exploration are those of disappointment and frustration. If it were to work ten times faster and be able to be updated from the WEB and to have up to date WEB links to active sites (on the Four Color Theorem for example), it would be an exciting educational tool. As it stands, it is too cumbersome for me to want to use again. I would walk to the library and consult the original books by Kluwer, if they weren't too expensive to buy! At least then I could get distracted by irrelevant, but interesting material encountered while searching, surely the primary joy of consulting any encyclopædia. Perhaps in five years time when this product is more mature and modern and hardware is much faster, it will come of age. I should add that an Eastern European colleague of mine with more patience is enthusiastic about the product and would like our library to buy it. I would prefer the Hard Cover version, myself, if it weren't ten times as expensive!

If you want the CD, buy it in America where the leading internet book seller lists it for a smaller amount in dollars than is quoted over here in pounds.