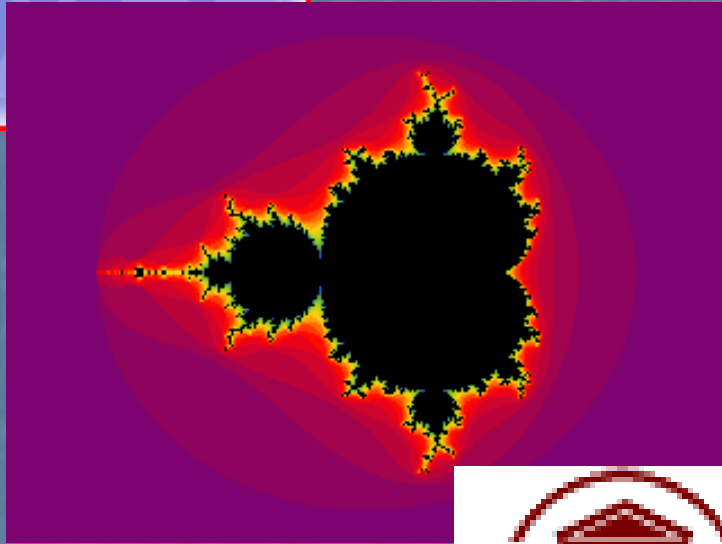


Jstor / Ams



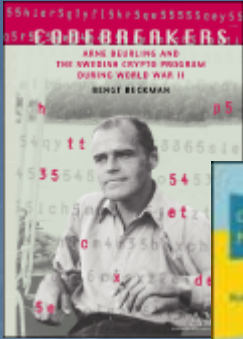
Archiving partnership
from AMS view

American Mathematical Society



- Founded in 1888
- Has about 28,000 members (worldwide)
- About 220 employees
- Annual budget ~\$21M
- 75% of revenue from publications

Publish



- About 100 new titles/yr (>3000 in print)
- Large database (Math Reviews) 1940-
- About 10 journals (distribute others)
- 4 *main* journals (one from 1900-)
- All online in 1996—Back volumes?



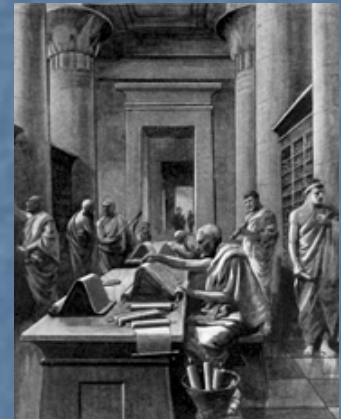
Partnered with JSTOR in 1996.

- JSTOR digitized four primary journals
- Comprises almost 400,000 pages
- Advantages:
 - Older material important for mathematics
 - (No clearway to recover \$800,000 initial cost)



Archiving Requires Redundancy

- Hasn't changed in moving from paper to electronic
- JSTOR is a natural partner
 - (already working together)
- We will soon pass *recent* electronic versions to JSTOR for archiving
- One part of our archiving



BUT...

- Archiving is complex
- Not merely “placing good copies in the hands of multiple organizations”
- Additional problems, especially for STM publishing
- **Essence of archiving is multiplicity ... not just multiple copies**



Mathematics

$$\frac{dy}{dx} = 2\pi i \int e^t \frac{\delta y}{\delta x} dt - \lim_{\delta x \rightarrow 0} f(x)$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\sum_{i=1}^n X_i = \sum_{i=1}^n X_i Y_i - \sum_{i=1}^n (X_i - \bar{X})^2 \cong \frac{x - \mu}{\sigma} \sum_{i=1}^n X_i^2$$

TeX code

(red portion)

```
\[  
x = \frac{\{- b \pm \sqrt{b^2 - 4ac}\}}{2a}  
\]
```

MathML code

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<mrow>
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<mrow>
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</mrow>
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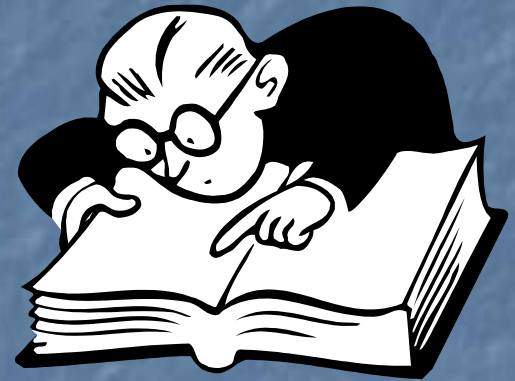
Mathematics: Glyphs & Things

- Unicode
- ISO 10646
- TeX, LaTeX 2e
- MathML 1.0
- Graphics TIFF, EPS
- **Standards**

$$\begin{array}{cccc} \alpha - \beta & \partial, \wp & \Omega - \bar{\cup} & \exists \forall \\ \theta - \in & \xrightarrow{3} & \otimes, \odot & \Rightarrow \\ \mathbb{R}, \mathbb{C} & \notin, \not\subset & \emptyset & \prod x_i \\ \frac{\partial^2 \Omega}{\partial v^2} & \cong, \neq & \prec, \triangleleft & \neg \wedge \vee \end{array}$$

Archiving for the Future

- Archiving means preserving material in a **useable** form (not merely uncorrupted)
- **Useable** means it will function in future environments
- Must preserve (part of) environment as well as data itself
- (Forget mathematics: Just consider graphics formats)



Archiving Requires ...

- Preserving (uncorrupted) data
- Preserving (part of) the environment
- Updating when necessary
- Problem...
 - We know what data to preserve...
 - But we DON'T know what parts of the environment to save
 - And we have little experience with updating (but we know it's expensive)

Moral?



- Multiplicity ...
 - multiple copies
 - in multiple places
 - with multiple environments
 - and multiple incentives for updating
 - and multiple kinds of expertise
- Need a practical way to achieve all this

JSTOR & Publishers

- Slightly different goals
- Not quite the same expertise
- Incentives vary slightly
- ... and that's why JSTOR and the publishers (or scientific societies) are such a good fit

