How to talk about mathematics... to mathematicians

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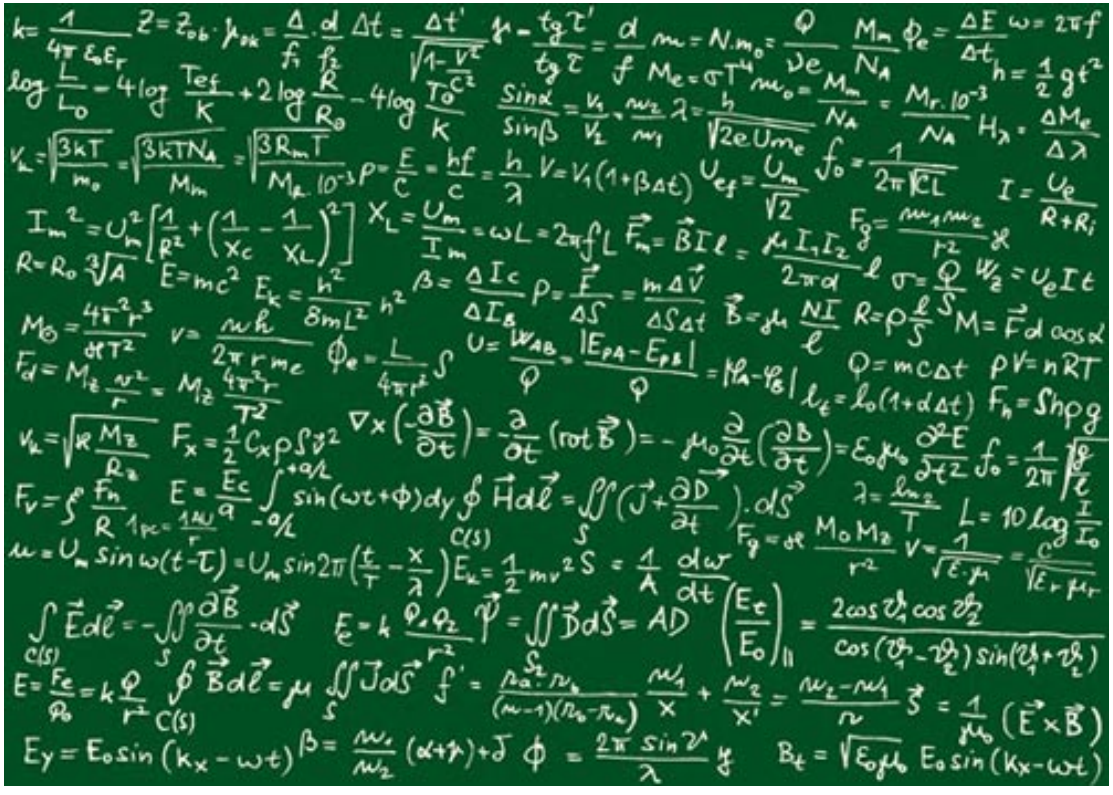
THE BIG NO-NOS!!!

i.e. common mistakes when you give your first talks

- Don't ever speak faster just because you want to say more! make suitable choices about what to say and what not
- Don't overrun
- Don't speak towards the board
- Don't whisper
- Don't number formulas in slides, rather write it on the board and keep it there or rewrite it
- Don't read from notes (or learn it by heart)
- Biggest mistake of all: lack of appropriate intro ...
- ....which is related to: don't assume too much of your audience
- No crowded slides (Not too many formulas)



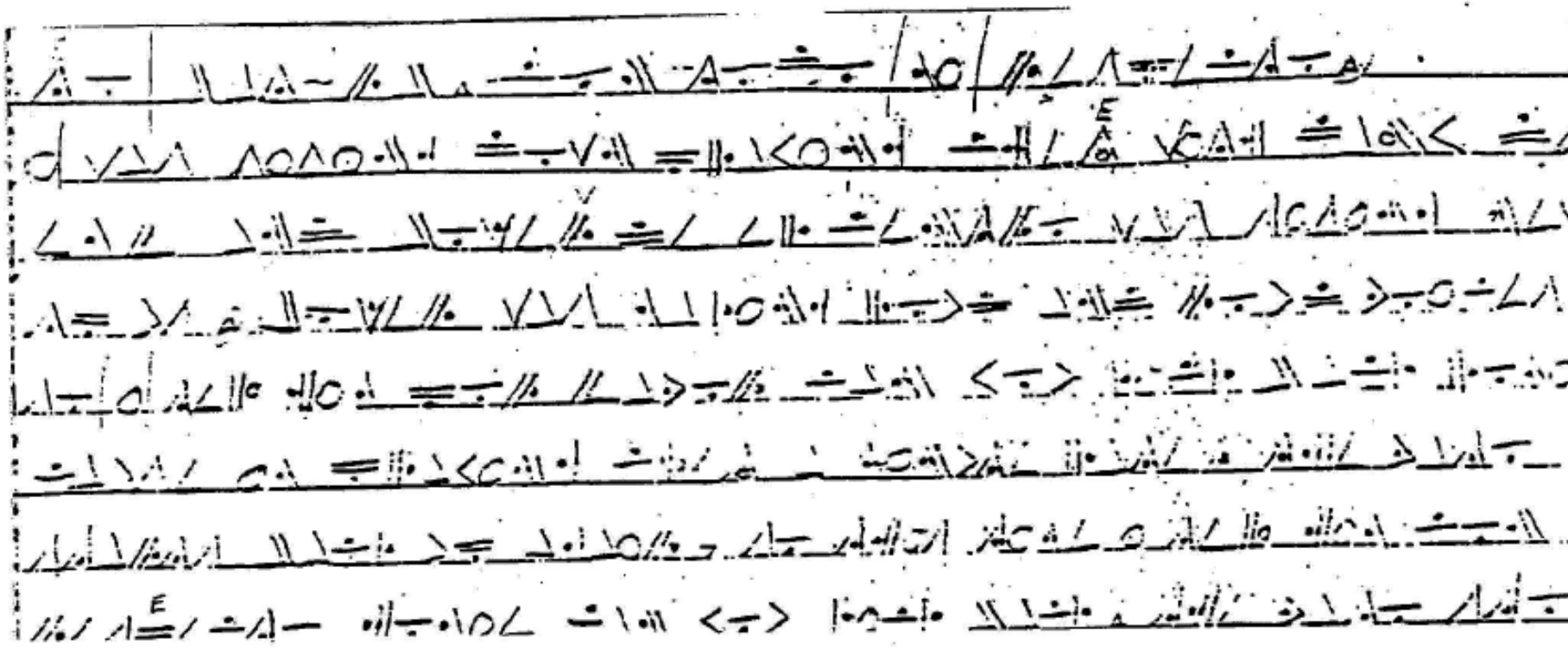
$$
\begin{aligned}
Q(x_k, \xi_{k+1}) &\simeq -\frac{\ell^2}{N} \sum_{i=1}^{N} \left| \xi_{k+1}^{i,N} \right|^2 - \sqrt{\frac{2\ell^2}{N}} \sum_{i=1}^{N} \frac{x_k^{i,N} \xi_{k+1}^{i,N}}{\lambda_i} + \left\{ \sum_{i=1}^{k} S_k^{i,N} \right\}^{1/2} \\
&\simeq -\ell^2 - \sqrt{\frac{2\ell^2}{N}} \sum_{i=1}^{N} \frac{x_k^{i,N} \xi_{k+1}^{i,N}}{\lambda_i} \sim \mathcal{N}(-\ell^2, 2\ell^2 S_k^N) \\
&\to [-z(t) - \mathcal{C}\nabla\Psi(z(t))] d_\ell(S(t))\, dt + \sqrt{g_\ell(S(t))}\, dW(t) \\
&= \left[z^2(t) f(t) - d_\ell(\sqrt{S(t)}) \right] dt + \sqrt{g_\ell} dW_t \\
&\sim= [f^3(t) - d_\ell^2(\sqrt{S(t)})] dt - \left(\sum_{i=1}^{k} e^{x_k^i} \lambda_i \left| \xi_{i,k}^N \right|^2 \right) dM_t
\end{aligned}
$$

where

$$
S^{(N)}(t) = (Nt - k) S_{k+1}^N + (k + 1 - Nt) S_k^N, \quad \frac{k}{N} \le t < \frac{k+1}{N}.
$$

converges to the solution of the system

$$
\begin{aligned}
dS(t) &= A_\ell(S(t))\, dt, \\
dz(t) &= [-z(t) - \mathcal{C}\nabla\Psi(z(t))] d_\ell(1)\, dt + \sqrt{g_\ell(1)}\, dW(t)
\end{aligned}
$$



Target measures

- Measures of the form

$$d\pi(q) \propto e^{-\Phi(q)} d\pi_0(q), \qquad \pi_0 \sim \mathcal{N}(0, C), \ q \in \mathcal{H}.$$

“I took a test in Existentialism. I left all the answers blank and got 100.”

Woody Allen

Variables of your problem

- Audience
- Content of talk
- Tools (Slides, pointer, board...)

Tools at your disposal

- Slides
  - Role of slides: aid to your voice. People are not meant to listen and read at the same time!
  - Slides are not there to remind you of what you want to say
  - Aesthetics of slides doesn't matter too much when you talk to mathematicians. However, use of colours can be helpful
- Board
  - If you are using the board then possibly write something on it beforehand
  - Divide the board at the beginning to keep it tidy

Audience

- Specialists in your area
- People from different communities $\rightarrow$ stating what is obvious to you is CRUCIAL

Content

- Think about what you really want to say, what is the message?
- Give it structure
  - Overview
  - Keep reminding audience of where you are with your plan of the talk
- Don't underestimate the value of telling people what they already know
- Give background, maybe some history, examples and *motivation*
- Flexibility: style and organization should be well adapted to the topic
- Present ideas (not necessarily proofs, to an extent. Ideas don't come with a proof).
- Conveying the technical part is always the hardest: explain why it should be true (give example)

Miscellaneous facts

- *Entertaining*: if you are enthusistic about it, your enthusiasm will come across. Emphasize the aspects that you are most excited about
- Jokes ????
- The first time you give a talk keep it safe
- Voice
- Locate clock (and don't be afraid to ask the chair how much tie you have left)
- Have a USB with you
- slides = min / 2
- Learn first sentence

Why should I make the effort?

- Collaborations
- Multidisciplinarity
- To be cited
- Because it will be useful for interviews even when\if you leave academia - confused answers only make people think that you don't know what you are talking about
- If you don't communicate it properly it is a dry exercise for personal entertainement

White on darker background

Close your talk with references

vs “Thank you for your attention”