The scientific editing platform TEXMACS

Miguel de Benito

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- Quick intro.
- Plugins and sessions.
- Collaboration.

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- What it isn't

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  - Truly WYSIWYG scientific editing and typesetting platform. **Structured** editor.
  - Open source, GNU project. All major platforms.
  - Fully extensible.
  - Mainly C++ and SCHEME with mature codebase.
  - Small team (around 20 members, 5-8 active). Lead: Joris van der Hoeven, CNRS.
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- Some math:

$$|\mathrm{e}^{tA_\varepsilon}| \leqslant \mathrm{e}^{-t/\varepsilon} \sum_{n=0}^{\infty} \left(\frac{t}{\varepsilon}\right)^n \frac{1}{n!} \gamma^{n\varepsilon+1} = \gamma \exp\left\{\frac{t}{\varepsilon}(\gamma^\varepsilon - 1)\right\}.$$

- Tables:

Tomaten, 1Kg	5
Bananen, 2Kg	6
Kekse, 1Pk	2
	=b1+b2+b3

Table 1. A shopping list.

$\sin(4\,x^2)$	$\cos(4\,y^2)$
=diff$(a1, x)$	=diff$(b1, y)$

Table 2. More computations.

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$\sin(4\,x^2)$	$\cos(4\,y^2)$
$8\,x\cos\,(4\,x^2)$	$=\mathrm{diff}(b1, y)$

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$$|\mathrm{e}^{tA_e}| \leqslant \mathrm{e}^{-t/\varepsilon} \sum_{n=0}^{\infty} \left(\frac{t}{\varepsilon}\right)^n \frac{1}{n!}\, \gamma^{n\varepsilon+1} = \gamma \exp\left\{\frac{t}{\varepsilon}\left(\gamma^{\varepsilon} - 1\right)\right\}.$$

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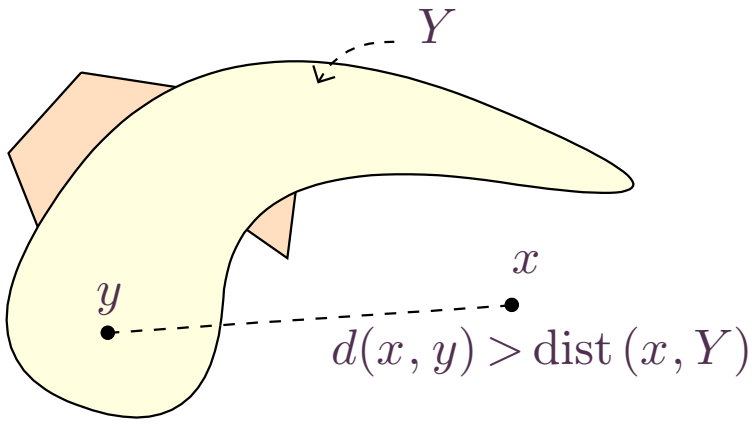

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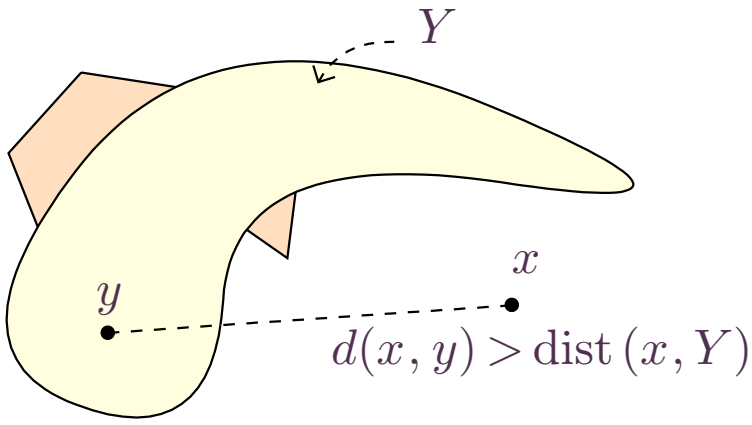

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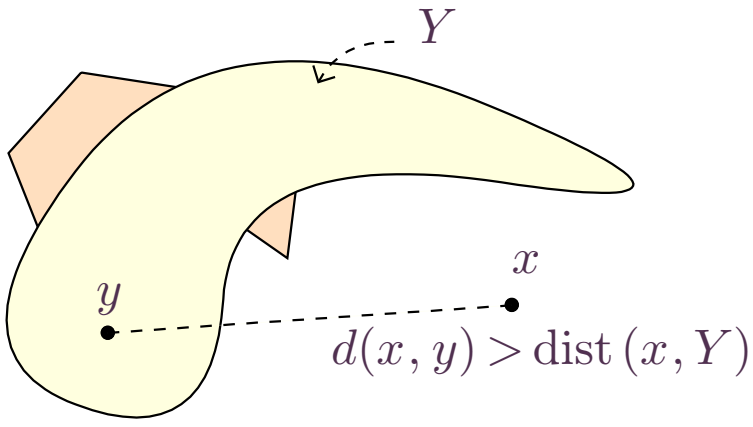

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  Let $p(x) = x^2 - 9$ and $q(x) = x^2 + 6\,x + 9$. Integrate:

$$\int \frac{p(x)}{q(x)}\,\mathrm{d}x = \mathrm{integrate}(p(x)\,/\,q(x), x) + C.$$

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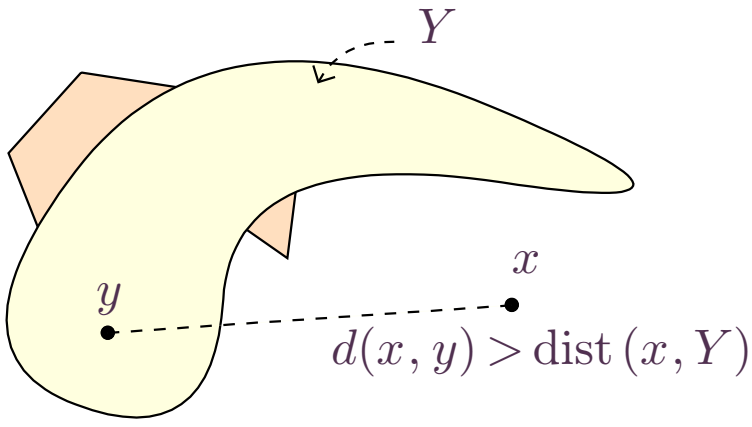

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  Let $p(x) = x^2 - 9$ and $q(x) = x^2 + 6\,x + 9$. Integrate:

$$\int \frac{p(x)}{q(x)}\,\mathrm{d}x = x - 6\log(x+3) + C.$$

Sessions.

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GNUplot] plot [-10:10][-10:10] x+sin(x)
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Easy graphs.

Plot surface

Function

f: $\sin(x)\cos(y)$

Range

x: -3 – 3

y: -3 – 3

Figure 1. A simple surface plot.

A SCILAB session:

```
--> A = [0, 1 ; 0, 0]; B = [1 ; 1]; C = [1, 1];
--> S1 = syslin ('c', A, B, C)
--> x= -6.28:0.1:6.28; y= sin(x); plot (x, y);
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>>> print "hi guys!"
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    mpl.use('PS')
    import matplotlib.pyplot as pl
    import numpy as np
    x = np.linspace(0,3,200)
    pl.plot(x, x + np.sin(3*x))
    fig = pl.gcf()
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Python

```
pl.plot(x, x+np.sin(pow(x, 4)))
ps_out(fig)
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Figure. A live figure.

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```
Scheme] (tm-widget (texmacs-side-tools)
          (tree-view (lambda (ev t) (if (== ev 1) (tree-select t)))
                     (buffer-tree) (tree 'dummy)))
Scheme] (toggle-visible-side-tools 0)
Scheme] (show texmacs-side-tools)
Scheme]
```

Glad to help

mdbenito@texmacs.org

Many others too

texmacs-users@texmacs.org **texmacs-dev@gnu.org**