Subject: Re: EPS fragment output for latex font interpretation?
Posted by Paolo Grigis on Wed, 25 Jul 2007 12:07:44 GMT
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Gernot Hassenpflug wrote:
> Paolo_Grigis <pgrigis@astro.phys.ethz.ch> writes:
>
>> Gernot Hassenpflug wrote:
>>> Hello all,
>>>
>>> I have used IDL to output EPS figures with whatever fonts IDL has
>>> built-in. Now I would like to use IDL to output EPS fragments (in
>>> vector format) with markers for the text information, and .tex files
>>> containing the text corresponding to the markers, with both files to
>>> be later interpreted by LaTeX with an \input statement. With matlab,
>>> which I do not currently have a licence to, this was possible using
>>> the user-contributed laprint program.
>>>
>>> With such a splitting of the tasks, it is easy to adjust text size and
>>> font to what is required in the LaTeX document.
>>>
>>> Is there any way to do such a task in IDL (I have 6.2 and 6.3 licences
>>> at my workplace).
>>>
>>> Alternatively, if there is a way to use Computer Modern fonts with
>>> IDL, I could try to use those in the EPS file directly (then output in
>>> binary format is fine too).
>
> /../
>
>> I've done so in a few occasion, and it worked out fine.
>> Here's an example with IDL, LaTeX and unix commands, which
>> I put together with some help from this newsgroup a while ago:
>
> Many thanks! That is great news, my search of this group had turned up
> only mention of LaTeX package psfrag in 1997...
>
>> IDL commands to generate a figure with b and t as text markers:
>>
>> N=1000
>>
>> x=findgen(N)/(N-1)*10-5
>>
>> mu=0.
>> sigma=1.
>>
>> y=total(exp(-(x-mu)^2/(2*sigma^2)),/cumulative)*(x[1]-x[0])
>>

>> set_plot,'PS'
>> device,filename='fig1.eps',/encapsulated,xsize=12.,ysize=8.
>> !p.font=0
>
> I'll try this at work in the morning, for use. Is the setting of font
> to 0 one of the critical tricks?

Yes, I think it is. The point is that latex need to search and replace
your text labels, but it cannot find them if they are encoded as anything
different than plain text. Using device fonts should ensure that. I am
not sure exactly how to do the same using true type font...

>
>> plot,x,y,yrange=[0.,3.],thick=4,/xstyle,xrange=[-5,5],xtitle ='x',ytitle='y'
>> oplot,!X.crange,sqrt(2*!Pi)*sigma*[1,1],linestyle=2
>>
>> xyouts,0.,1.,'t',/data
>> xyouts,-3,2.65,'b'
>> device,/close
>> set_plot,'X'
>
> OK, understood.
>
>> ;END IDL
>>
>> LaTeX file:
>>
>> \documentclass{article}
>> \usepackage{geometry}
>> \usepackage{graphicx}
>> \usepackage{psfrag}
>> \pagestyle{empty}
>> \geometry{paperwidth=12.1cm,paperheight=8.1cm,margin=0pt}
>
> Excellent! So the below could be put into a separate .tex file and
> \input into the main document as I am used to doing under Matlab with
> the laprint program.
>
>> \begin{document}
>> \psfrag{t}[l][][1.35]{$\displaystyle y=\int_{-\infty}^x
>> e^{-\left(\frac{t-\mu}{\sqrt{2}\sigma}\right)^2}\,\mathrm{d} t$}
>> \psfrag{x}[c][][1.75]{x}
>> \psfrag{y}[c][][1.75]{y}
>> \psfrag{b}[c][][1.35]{$\displaystyle y=\sqrt{2\pi}\sigma$}
>> \includegraphics[width=11.9cm,height=7.9cm]{fig1.eps}
>> \end{document}
>
> Understood.

>
>> %end latex
>>
>>
>> Linux command to TEX and transform into eps:
>>
>> latex doc.tex
>> dvips -o fignew.ps doc.dvi
>
> Yes, OK.
>
>> ps2epsi fignew.ps fignew.epsi
>> perl -ne 'print unless /^%%BeginPreview/../^%%EndPreview/' < fignew.epsi > fignew.eps
>> rm fignew.epsi
>
> Ah, this part is new to me. Any idea what this is repairing, since
> you've already specified emcapsulated PS in your IDL program. (I
> understand the perl part after that to remove the preview TIFF image.)

Well, this is not really necessary, don't bother. Since dvips produces a
ps file, if you really want an eps you'll have to convert the ps to eps
in whatever manner you like (on my machine I just happen to have
ps2epsi available, so that's what I used). The reason for that is to
have a separate, final eps file with the figure *and* the latex
embellishments, which could afterwards be directly included into another
(either latex or non-latex) document without need for additional processing.

You're right about removing the preview, just save some disk space.

Ciao,
Paolo

>
>> Now you should have an eps file with equations rather than "t" and "b" labels...
>>
>> Hope this helps,
>> Paolo Grigis
>
> Fantastic! I'll let you know how this goes.
>
> Best regards,
> Gernot