Using Relative Coordinates in pstricks

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Abstract

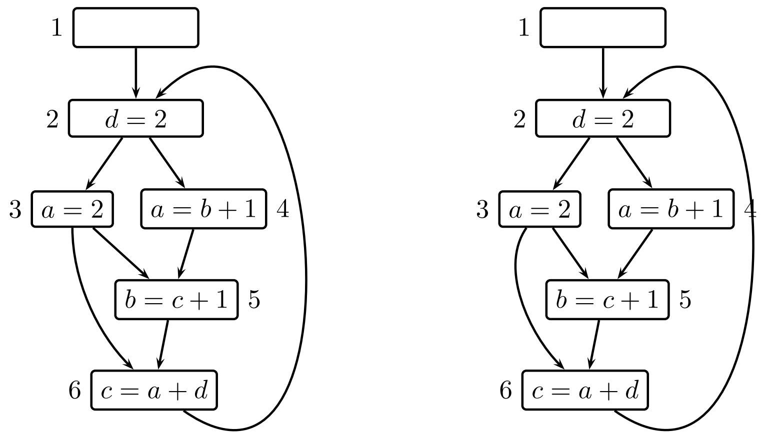
`pstricks` is a powerful package which allows the user to create excellent pictures by providing many commands. The main drawback of pstricks is that it requires using absolute coordinates which have to be calcaulated by the user. This makes it difficult to change the pictures later. This is brief introduction to using the package `pst-rel-points.sty` (developed by yours truly!) without having to worry about absolute coordinates.

1 Examples

The main advantage of pstricks is that it allows logical components of pictures to be explicitly named. This facilitates specifying relationships bewtween them in terms node and node connectors and labels for them etc.

In this document, we do not explain `pstricks`. A google search would throw many useful links, manuals and tutorials. We show a couple of examples using relative coordinates. Then we describe the main command which is used.

Consider the following two graphs:



In the second graphs we have shifted node 5 a little towards left from the original position. Doing so in `pstricks` requires calculating new cordinates for both 5 and 6.

2 Commands

We use the `pspicture` environment from `pstricks` package. The LaTeX source of this document is also bundled with the tarball so it should be easy to figure out. For `pst-rel-points` to be of any help, we need to set the `unit` to be very small (may be `1mm` or `.9mm`).

The command to be used within the `pspicture` environment is:

- `\putnode{nodeName}{predNode}{deltax}{deltay}{stuffToTypeset}`. This command puts the `stuffToTypeset` at coordinates which are `deltax` and `deltay` away from the x and y coordinates of `predNode`. The resulting node is named `nodeName`. This name can be used for drawing node connectors.

We reproduce the source of the first graph below to illustrate the commands.

```
\newcommand{\graph}{
\psset{unit=1.2mm}
\psset{linewidth=.3mm}
\psset{framearc=.2}
\begin{pspicture}(-10,0)(38,50)
%\psframe(2,0)(38,50)
\putnode{n1}{origin}{20}{45}{1 \white\psframebox{$a = b+1$}\white \ 1}
\putnode{n2}{n1}{0}{-10}{2 \psframebox{\ \ \ $d = 2$\ \ \ }\white\ 2}
\putnode{n3}{n2}{7}{-10}{{\white\ 4} \psframebox{$a = b+1$} 4}
\putnode{n31}{n2}{-7}{-10}{3 \psframebox{$a = 2$}\white\ 3}
\putnode{n4}{n3}{-3}{-10}{{\white\ 5} \psframebox{$b = c+1$} 5}
\putnode{n5}{n4}{-2}{-10}{6 \psframebox{$c = a + d$}\white \ 6}
\ncline{->}{n1}{n2}
\ncline{->}{n2}{n3}
\ncline{->}{n2}{n31}
\ncline{->}{n3}{n4}
\ncline{->}{n31}{n4}
\ncline{->}{n4}{n5}
\nccurve[angleA=325,angleB=45,ncurv=1.5]{->}{n5}{n2}
\nccurve[angleA=270,angleB=135]{->}{n31}{n5}
\end{pspicture}
}
```

For the second graph, we just need to reduce the third argument of `\putnode` for node `n4`.

3 Epilogue

This document and the `pst-rel-points` package is available at:

`http://www.cse.iitb.ac.in/~uday/latex/`