uncertbox

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1 Introduction

`uncertbox` is a LaTeX package for drawing uncertainty boxes on `pgfplots` graphs. I found that my solution to drawing uncertainty boxes was a bit cumbersome, so I put it in a package to provide a nice and clean interface and share it with others.

2 Usage

Using `uncertbox` is very simple. First, you obviously need a graph to add uncertainty boxes to. This should be done with `pgfplots`, with an `axis` environment inside a `tikzpicture` environment. Inside the `axis` environment, put the following command:

```
\prepareuncertbox
```

Then, put the following command inside `tikzpicture` but after `axis`

```
\makeuncertboxes{num}{x}{y}{dx}{dy}
```

where `num` is the number of data points, `x` is the column of your data table corresponding to the x values, `y` is the column of your data table corresponding to the y values, `dx` is the column of your data table corresponding to the uncertainties in x values and `dy` is the column of your data table corresponding to the uncertainties in y values.

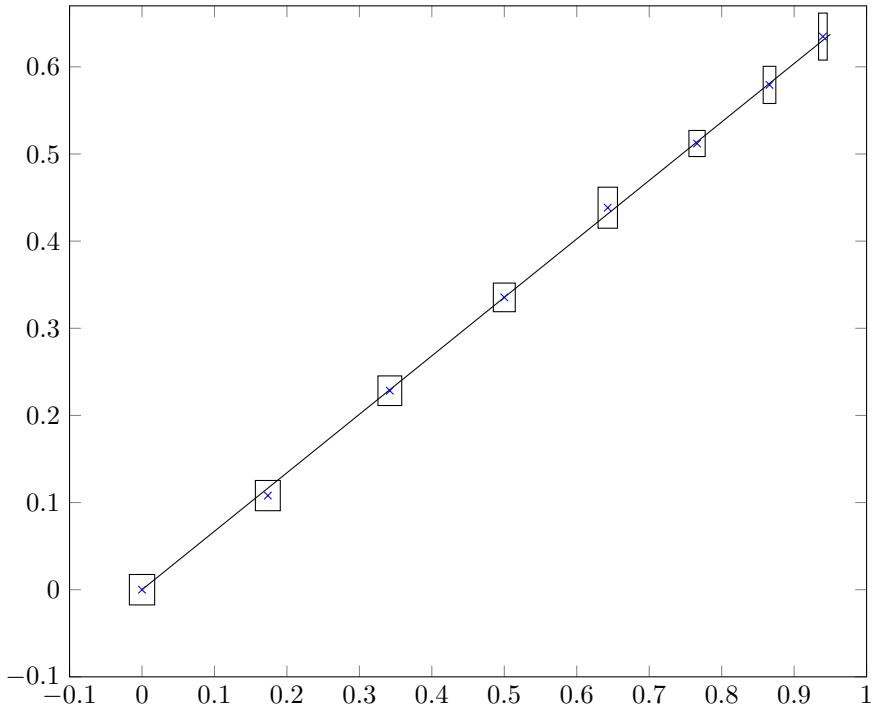
3 Example

First, we read `data.csv`, which contains the following data:

i	r	di	dr	sini	sinr	dsini	dsinr
0	0	1	1	0	0	0.01745240644	0.01745240644
10	6.2	1	1	0.1736481777	0.1079993557	0.01718726517	0.01735032668
20	13.2	1	1	0.3420201433	0.2283508701	0.01639989754	0.01699129471
30	19.6	1	1	0.5	0.3354515698	0.01511422733	0.01644116955
40	26	1	1.5	0.6427876097	0.4383711468	0.01336931897	0.02352768529
50	30.8	1	1	0.7660444431	0.5120428649	0.01121819062	0.01499091723
60	35.4	1	1.5	0.8660254038	0.5792811723	0.008726203219	0.02133755817
70	39.4	1	2	0.9396926208	0.6347305132	0.005969074551	0.0269680128

```
\pgfplotstableread[col sep = comma]{data.csv}{\table}
```

We will plot a graph of `sini` against `sinr` with uncertainties `dsini` and `dsinr`. Using the `prepareuncertbox` and `makeuncertboxes` commands, we will add uncertainty boxes.



The code is as follows:

```
\begin{tikzpicture}
    \begin{axis}[
        xmin = -0.1, xmax = 1,
        ymin = -0.1, ymax = 0.67,
        width = \textwidth]


        \prepareuncertbox


        % Line of best fit
        \addplot[purple, domain = 0:0.95] {0.6709*x};

        % Data points
        \addplot [blue, only marks, mark = x] table [x={sini}, y={sinr}] {\table};
    \end{axis}


    \makeuncertboxes{8}{sini}{sinr}{dsini}{dsinr}

\end{tikzpicture}
```

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