A tree macro

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1 Setup

Include epic.sty and ecltree.sty[1] in your document as below:

```
\documentclass{article}
\usepackage{epic,ecltree}
```

If your printer driver accepts tpic commands, you should specify eepic.sty after epic.sty.

```
\usepackage{epic,eepic,ecltree}
```

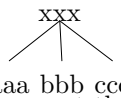
As eepic.sty redefines some macros defined in epic.sty, Do not reverse this order.

2 bundle environment

A tree is drawn by *bundle* environment. The *bundle* environment has one argument. This argument specifies the top node label. Leaves should be specified by `\chunk` in this environment.

If you write

```
\begin{bundle}{xxx}
\chunk{aaa}
\chunk{bbb}
\chunk{ccc}
\end{bundle}
```

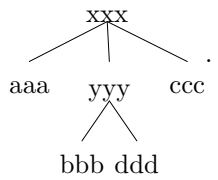
you get 

.

You can nest the *bundle* environment. If you write

[1] Electrical Communications Labs

```
\begin{bundle}{xxx}
\chunk{aaa}
\chunk{
        \begin{bundle}{yyy}
        \chunk{bbb}
        \chunk{ddd}
        \end{bundle}}
\chunk{ccc}
\end{bundle}
```

you get 

.

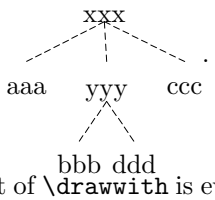
3 Line attribute

You can draw not only solid lines but also dotted lines and dash lines. epic.sty and eepic.sty define several commands for them. If you want to use

```
\dashline[65]{3}(x1,y1)(x2,y2)
```

to draw lines, use `\drawwith` command before (or in) the bundle environment.

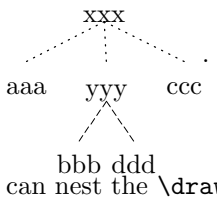
```
\drawwith{\dashline[65]{3}}
```

Then you get 

.

The argument of `\drawwith` is evaluated at `\end{bundle}`. Hence, if you write

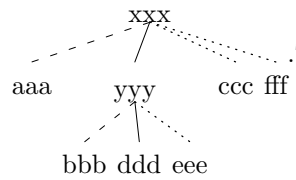
```
\begin{bundle}{xxx}
\chunk{aaa}
\chunk{
        \begin{bundle}{yyy}
        \drawwith{\drawline}
        \chunk{bbb}
        \drawwith{\dashline[65]{3}}
        \chunk{ddd}
        \end{bundle}}
\drawwith{\dottedline{3}}
\chunk{ccc}
\end{bundle}
```

you get 

.

You can nest the `\drawwith`. If you write

```
\drawwith{\drawwith{\drawwith{\dottedline{3}}\drawline}\dashline{3}}
\begin{bundle}{xxx}
\chunk{aaa}
\chunk{
        \begin{bundle}{yyy}
        \chunk{bbb}
        \chunk{ddd}
        \chunk{eee}
        \end{bundle}}
\chunk{ccc}
\chunk{fff}
\end{bundle}
```

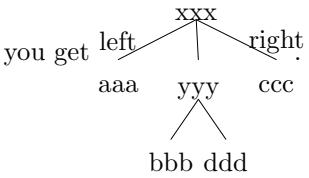
you get 

.Thus the nested `\drawwith` is used in the reverse order.

4 Edge labels

You can write edge labels. They should be specified as the optional argument of `\chunk`. Note that the width of an edge label is neglected. If you write

```
\begin{bundle}{xxx}
\chunk[left]{aaa}
\chunk{
        \begin{bundle}{yyy}
        \chunk{bbb}
        \chunk{ddd}
        \end{bundle}}
\chunk[right]{ccc}
\end{bundle}
```



5 Spacing

The *bundle* environment has three parameters for spacing.

- `\GapDepth` means minimum height of gaps between adjacent nodes.
- `\GapWidth` means minimum width of gaps between adjacent nodes.
- `\EdgeLabelSep` means height of an edge label from the lower node of the edge.

You should set these parameters before the `bundle` environment if you dislike default values.

If you write

```
\begin{bundle}{xxx}
\chunk{aaa}
\chunk{
        \setlength{\GapDepth}{5pt}
        \setlength{\GapWidth}{5pt}
        \begin{bundle}{yyy}
        \chunk{bbb}
        \chunk{ddd}
        \end{bundle}}
\chunk{ccc}
\end{bundle}
```