The synttree

1 Introduction

The synttree package provides a macro for creating syntactic tree structures such as those used in Noam Chomsky's Generative Grammar. It is designed to create a tree that looks nice, without manual tweaking, and with as little use of 'special e ects', such as PostScript, as possible.

Since the application is very specific, there is no need for a very complex set of options: synttree is eate

on the structure of that particular element). This is currently not possible: The children are always attached to the center of the label. Support for this may be added sooner or later.

4   Related Packages

A more complex package is the TreeTeX system[2]. This system, however, produces nodes consisting of a node symbol *and* a label, whereas in syntactic trees the label *is* the node symbol. Additionally, the method of specifying the tree structure itself makes the source code hard to read.

The xyling package[4] is a very powerful package, allowing many things that synttree will not do. However, the nodes have to be laid out meticulously in an array. Once that's done, however, the result looks very good.

The "L^AT_E

```
11    {%
12      \count0=\@wholewidth \divide\count0 by 4736
13      \special{pn \the\count0}%
14      \count0= #1\advance \count0 2368 \divide \count0 4736
15      \count1=-#2\advance \count1 -2368 \divide \count1 4736
16      \special{pa \the\count0 \space \the\count1}%
17      \count0= #3\advance \count0 2368 \divide \count0 4736
18      \count1=-#4\advance \count1 -2368 \divide \count1 4736
19      \special{pa \the\count0 \space \the\count1}%
20      \special{fp}%
21    }%
22 }
```

Options to select either version:

```
23 \DeclareOption{specials}{2397Tfst"MTr@drawline"MTr@etexdrawline.96Tf20.030TD[("%)]TJ/F166.97Tf5-20.03-10.96
```

```
23\DeclareOption{specials}{2397Tfst\MTr@drawline\MTr@latexdrawline.96Tf20.030TD[(}%)]TJ/F166.9
```

```
23\%eclareOption{specials}{
```

```
23
```

the depth (the height of the box minus the height of the label). There are also
two external dimensions: the vertical distance from the parent label, y, and the

```
72 \newcount\MTr@tempcntb
73 \newcount\MTr@tempcntc
```

6.5 Adjustable and other parameters

\branchheight The user can set up several parameters. First, \branchheight will set the distance between levels. Default value is half an inch.

```
74 \newcount\MTr@branchheight%
75 \newcommand{\branchheight}[1]{%
76    \setlength{\MTr@templength}{#1}%
77    \MTr@branchheight\MTr@templength%
78 }
79 \branchheight{.5in}%
```

\trianglebalance Next, \trianglebalance will set the balancing of the triangle. Default value is 50.

```
30 \newcount\MTr@trianglebalance%
82 \newcommand{\trianglebalance}[1]{%
84
```

6.6 Main macro

\synttree \synttree is the main macro. If the user has not provided a maximum depth, set it to 0. There will be no messages concerning depth, except when the bottomlevel modifier is used. Control is passed on to \MTr@synttree

```
107 \def\synttree{%
108     \@ifnextchar[{\MTr@synttree{0}}{\MTr@synttree}%]
109 }
```

\MTr@synttree This macro sets maximum depth, end sets picture coordinates to scaled points. Next, initial values of some variables are set, and the first real parsing macro, \MTr@parserightbracket, is called.

```
110 \def\MTr@synttree#1{%
111     \MTr@maxlevel #1%
112
```

```
138    \@AfterFi{\MTr@parseleftbracket#2\END}%
139
```

```
174    \MTr@maketreebox%
175    \egroup%
176    \MTr@uselabelfalse%
177    \MTr@savecurrentchildbox%
178 }
```

\MTr@savecurrentchildbox Save the current picture, with all its data, in the box and registers for the next empty child.

```
179 \def\MTr@savecurrentchildbox{%
180    \advance\MTr@numchildren by 1
181    \ifnum\MTr@numchildren<1%
182
```

```
284    \advance\MTr@tempcnta-\MTr@childparam{#1}{v}
285    \put(\MTr@tempcnta,\MTr@childparam{#1}{y}){%
286      \makebox(0,0)[tl]{%
287        \usebox{\csname MTr@child#1box\endcsname}}}%
288 }
```

\MTr@drawchildline   Draw the line from the parent to the given child.
use the line and triangle #1 of the parent to the given child.

Use child's y, but advance it to make the line stop just above the label.

```
330        \global \MTr@trianglefalse%
331    \fi%
332 }
```

\MTr@outputlabel   Output a tree that is just a label, with no children.

```
333 \def\MTr@outputlabel{%
```

First, set parameters: Height and depth of the subtree are equal to height and depth of the label. The x and w of the subtree each equal half the width of the label. Optionally, x may bD[(290(barod[(290(barod)]TJ/F1de170a76Tf73.84l3a7%D[(w)]TJ/F119.96Tf10.290TD[(

```
367 \ifnum\MTr@loopcnta<#1
368   \advance \MTr@loopcnta by 1
369   \MTr@adjustdistance{\MTr@temp}{\romannumeral \MTr@loopcnta}%
370
```