Astrological charts with horoscop and starfont

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Astrology

- The art of assigning meaning to time
- Human activity since prehistory
- Historically not distinguished from mathematics
- Unique symbolic notation and typesetting needs
Terms of reference for *horoscop/starfont*

- “Classic” \LaTeX\ as much as possible
- Focus on typesetting
- Customizability
- Best-of-breed defaults
The Solar System is more or less planar...

...but the Earth’s rotational axis, and thus equator, are tilted.
TEXDR.AFT
May 13, 1977
Jimi Hendrix
November 27, 1942
Madonna Ciccone
August 16, 1958
Madonna Ciccone
August 16, 1958
“Brand X” (free online service)
“Brand Y” (free desktop software)
“Brand Z” (commercial Windows software, $360)
Challenges for astrological typesetting

- Fonts
- Astronomical computations
- Layout
- Colliding labels and cusp shifts
- Rounding
Fonts

textsym
Ar Ta Ge Cn Le Vi Li Sc Sg Cp Aq Pi Su Mo Me Ve Ma Ju Sa Ur Ne Pl No SNo Lil Con Opp Tri Sqr Sex

wasysym
♈♉♊♋♍♎♐♑♒♓⊙
♀♂X♄♅［♇
☌☍△

marvosym

starfont

Astronomical computations

\texttt{\LaTeX} \texttt{egrep} out

\texttt{\LaTeX} in

\texttt{*.aux} \texttt{\LaTeX} \texttt{write18}

\texttt{*.hor} \texttt{*.dvi} \texttt{\LaTeX}

\texttt{*.hor} \texttt{egrep}

Swiss Ephemeris or Astrolog

out
Layout

- polar coordinates: \texttt{trig}
- large circles, arbitrary-slope lines: \texttt{pict2e}
- Why not use TikZ or something?
Colliding labels and cusp shifts

- spring-tension system
- two passes, with and without cusp shifts
Rounding

Near the edge of a sign, we care about which side we’re on.

```
28° 29° 0° 1° 2°
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>------------------</td>
</tr>
</tbody>
</table>
pure rounding
pure truncation
truncation at end
rounding, no carry
```
\horocalcparms{1977}{5}{13}{20:04:0}{W122:10:11}{N37:25:40}
def\horoobjects{Sun,Moon,Mercury,Venus,Mars,Jupiter,Saturn,\%Uranus,Neptune,Pluto,MeanNode,Lilith}\horocalculate\centering\begin{horoscope}\renewcommand{\horotextsize}{1}\horowheelVancouver\horoULnote{TEXDR.AFT\May 13,\1977}\end{horoscope}\par
Running without a backend

\def\horoSunPos{122.9934486}\def\horoSunVel{ 0.9551501}
\def\horoMoonPos{14.1677023}\def\horoMoonVel{14.0958020}
\def\horoMercuryPos{141.5060223}\def\horoMercuryVel{ 1.7002741}
\def\horoVenusPos{136.3436876}\def\horoVenusVel{ 1.2288741}
.
.
.
\def\horoCuspXPos{57.7879392}
\def\horoCuspXIPos{93.3485543}
\def\horoCuspXIIPos{125.8024553}
\def\horoobjects{Sun,Moon,Mercury,Venus,Mars,Jupiter,Saturn,\
     Uranus,Neptune,Pluto}
\horocopyvar{\horoobjects}{Pos}{DPos}
\horocopyvar{\horocusps}{Pos}{DPos}
\horocalculatedtrue
Future possibilities

- Documentation updates
- Externalization
- Manual tweaking, annotations
- Interpretation/packaging