

All Tables Test - New TestDFGenerator test_suite

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2025-03-14

```
from IPython.display import HTML, display
import matplotlib as mpl
import matplotlib.dates as mdates
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd

import greater_tables as gter
import greater_tables.utilities as gtu
from greater_tables import GT, sGT
gter.logger.setLevel(gter.logging.WARNING)
```

...code build completed.

1 A Hard-Rules table

Second level index has mixed types. Range of magnitudes. Picking out years.

```
level_1 = ["A", "A", "B", "B", 'C']
level_2 = ['Int', 'Float', 'Float', 3, 'Longer Text']

multi_index = pd.MultiIndex.from_arrays([level_1, level_2],
                                         names=["Level 1", "Level 2"])
start = pd.Timestamp.today().normalize() # Today's date, normalized to midnight
end = pd.Timestamp(f"{start.year}-12-31") # End of the year

hard = pd.DataFrame(
    {'years!': np.arange(2000, 2025, dtype=int),
     'a': np.array(np.round(np.linspace(-100000, 100000, 25), 0), dtype=int),
     'b': 9.3 ** np.linspace(-12, 12, 25),
     'c': np.linspace(-1601, 4000, 25),
     'd': pd.date_range(start=start, end=end, periods=25),
     'e': ('once upon a time, risk is hard to define, not in Kansas anymore, '
           'neutrinos are hard to detect, '
           'Adam Smith is the father of economics'.split(',') * 5)
    }).set_index('years!')
# hard = hard.head()
hard.columns = multi_index
hard
```

Table 1: Default display output (Quarto generated caption)

Level 1	A		B	C	
Level 2	Int	Float	Float	3	Longer Text
years!					
2000	-100000	2.388937e-12	-1601.000	2025-03-14 00:00:00	once upon a time
2001	-91667	2.221711e-11	-1367.625	2025-03-26 04:00:00	risk is hard to define
2002	-83333	2.066191e-10	-1134.250	2025-04-07 08:00:00	not in Kansas anymore
2003	-75000	1.921558e-09	-900.875	2025-04-19 12:00:00	neutrinos are hard to detect
2004	-66667	1.787049e-08	-667.500	2025-05-01 16:00:00	Adam Smith is the father of economics
2005	-58333	1.661955e-07	-434.125	2025-05-13 20:00:00	once upon a time
2006	-50000	1.545619e-06	-200.750	2025-05-26 00:00:00	risk is hard to define
2007	-41667	1.437425e-05	32.625	2025-06-07 04:00:00	not in Kansas anymore
2008	-33333	1.336805e-04	266.000	2025-06-19 08:00:00	neutrinos are hard to detect
2009	-25000	1.243229e-03	499.375	2025-07-01 12:00:00	Adam Smith is the father of economics
2010	-16667	1.156203e-02	732.750	2025-07-13 16:00:00	once upon a time
2011	-8333	1.075269e-01	966.125	2025-07-25 20:00:00	risk is hard to define
2012	0	1.000000e+00	1199.500	2025-08-07 00:00:00	not in Kansas anymore
2013	8333	9.300000e+00	1432.875	2025-08-19 04:00:00	neutrinos are hard to detect
2014	16667	8.649000e+01	1666.250	2025-08-31 08:00:00	Adam Smith is the father of economics
2015	25000	8.043570e+02	1899.625	2025-09-12 12:00:00	once upon a time
2016	33333	7.480520e+03	2133.000	2025-09-24 16:00:00	risk is hard to define
2017	41667	6.956884e+04	2366.375	2025-10-06 20:00:00	not in Kansas anymore
2018	50000	6.469902e+05	2599.750	2025-10-19 00:00:00	neutrinos are hard to detect
2019	58333	6.017009e+06	2833.125	2025-10-31 04:00:00	Adam Smith is the father of economics
2020	66667	5.595818e+07	3066.500	2025-11-12 08:00:00	once upon a time
2021	75000	5.204111e+08	3299.875	2025-11-24 12:00:00	risk is hard to define
2022	83333	4.839823e+09	3533.250	2025-12-06 16:00:00	not in Kansas anymore
2023	91667	4.501035e+10	3766.625	2025-12-18 20:00:00	neutrinos are hard to detect
2024	100000	4.185963e+11	4000.000	2025-12-31 00:00:00	Adam Smith is the father of economics

Table 1 shows the default output and Table 2 the sGT format output.

```
sGT(hard, 'A table with varied columns.')
```

Here are some alternatives:

- Table 3 hrules no vrules
- Table 4 change date and integer formats and
- Table 5 change padding and debug mode.

```
```{python}
#| label: tbl-hard-rules-3a
#| tbl-cap: No V rules but hrules (Quarto generated caption)
display(sGT(hard.sample(5).sort_index(),
 caption='GT caption No v rules, but h rules',
 vrule_widths=(0,0,0),
 hrule_widths=(1,0,0)))
```
```

Table 2: Greater Tables output (Quarto generated caption)

| years! | A | | B | | C |
|--------|----------|----------|-----------|------------|---------------------------------------|
| | Int | Float | Float | 3 | Longer Text |
| 2000 | -100,000 | 2.389p | -1,601.00 | 2025-03-14 | once upon a time |
| 2001 | -91,667 | 22.217p | -1,367.62 | 2025-03-26 | risk is hard to define |
| 2002 | -83,333 | 206.619p | -1,134.25 | 2025-04-07 | not in Kansas anymore |
| 2003 | -75,000 | 1.922n | -900.88 | 2025-04-19 | neutrinos are hard to detect |
| 2004 | -66,667 | 17.870n | -667.50 | 2025-05-01 | Adam Smith is the father of economics |
| 2005 | -58,333 | 166.196n | -434.12 | 2025-05-13 | once upon a time |
| 2006 | -50,000 | 1.546u | -200.75 | 2025-05-26 | risk is hard to define |
| 2007 | -41,667 | 14.374u | 32.62 | 2025-06-07 | not in Kansas anymore |
| 2008 | -33,333 | 133.681u | 266.00 | 2025-06-19 | neutrinos are hard to detect |
| 2009 | -25,000 | 1.243m | 499.38 | 2025-07-01 | Adam Smith is the father of economics |
| 2010 | -16,667 | 11.562m | 732.75 | 2025-07-13 | once upon a time |
| 2011 | -8,333 | 107.527m | 966.12 | 2025-07-25 | risk is hard to define |
| 2012 | 0 | 1.000 | 1,199.50 | 2025-08-07 | not in Kansas anymore |
| 2013 | 8,333 | 9.300 | 1,432.88 | 2025-08-19 | neutrinos are hard to detect |
| 2014 | 16,667 | 86.490 | 1,666.25 | 2025-08-31 | Adam Smith is the father of economics |
| 2015 | 25,000 | 804.357 | 1,899.62 | 2025-09-12 | once upon a time |
| 2016 | 33,333 | 7.481k | 2,133.00 | 2025-09-24 | risk is hard to define |
| 2017 | 41,667 | 69.569k | 2,366.38 | 2025-10-06 | not in Kansas anymore |
| 2018 | 50,000 | 646.990k | 2,599.75 | 2025-10-19 | neutrinos are hard to detect |
| 2019 | 58,333 | 6.017M | 2,833.12 | 2025-10-31 | Adam Smith is the father of economics |
| 2020 | 66,667 | 55.958M | 3,066.50 | 2025-11-12 | once upon a time |
| 2021 | 75,000 | 520.411M | 3,299.88 | 2025-11-24 | risk is hard to define |
| 2022 | 83,333 | 4.840G | 3,533.25 | 2025-12-06 | not in Kansas anymore |
| 2023 | 91,667 | 45.010G | 3,766.62 | 2025-12-18 | neutrinos are hard to detect |
| 2024 | 100,000 | 418.596G | 4,000.00 | 2025-12-31 | Adam Smith is the father of economics |

Table 3: No V rules but hrules (Quarto generated caption)

| years! | A | | B | | C |
|--------|---------|----------|----------|------------|---------------------------------------|
| | Int | Float | Float | 3 | Longer Text |
| 2008 | -33,333 | 133.681u | 266.00 | 2025-06-19 | neutrinos are hard to detect |
| 2010 | -16,667 | 11.562m | 732.75 | 2025-07-13 | once upon a time |
| 2020 | 66,667 | 55.958M | 3,066.50 | 2025-11-12 | once upon a time |
| 2021 | 75,000 | 520.411M | 3,299.88 | 2025-11-24 | risk is hard to define |
| 2024 | 100,000 | 418.596G | 4,000.00 | 2025-12-31 | Adam Smith is the father of economics |

Table 4: Change date and integer formats (Quarto generated caption)

| years! | A | | B | | C |
|--------|-----|---------|-----------|-------|---------------------------------------|
| | Int | Float | Float | 3 | Longer Text |
| 2001 | | 22.217p | -1,367.62 | 03-26 | risk is hard to define |
| 2009 | | 1.243m | 499.38 | 07-01 | Adam Smith is the father of economics |
| 2017 | | 69.569k | 2,366.38 | 10-06 | not in Kansas anymore |
| 2019 | | 6.017M | 2,833.12 | 10-31 | Adam Smith is the father of economics |
| 2023 | | 45.010G | 3,766.62 | 12-18 | neutrinos are hard to detect |

Table 5: Change padding and debug mode, boxes (Quarto generated caption)

| years! | A | | B | | C |
|--------|----------|----------|-----------|------------|---------------------------------------|
| | Int | Float | Float | 3 | Longer Text |
| 2000 | -100,000 | 2.389p | -1,601.00 | 2025-03-14 | once upon a time |
| 2003 | -75,000 | 1.922n | -900.88 | 2025-04-19 | neutrinos are hard to detect |
| 2004 | -66,667 | 17.870n | -667.50 | 2025-05-01 | Adam Smith is the father of economics |
| 2005 | -58,333 | 166.196n | -434.12 | 2025-05-13 | once upon a time |
| 2023 | 91,667 | 45.010G | 3,766.62 | 2025-12-18 | neutrinos are hard to detect |

```

{python}
#| label: tbl-hard-rules-3b
#| tbl-cap: Change date and integer formats (Quarto generated caption)
display(sGT(hard.sample(5).sort_index(),
  caption='Change default date and integer formats',
  default_date_str='%m-%d', default_integer_str='{x:d}'))

```

```

{python}
#| label: tbl-hard-rules-3c
#| tbl-cap: Change padding and debug mode, boxes (Quarto generated caption)
display(sGT(hard.sample(5).sort_index(),
  caption='Change padding, debug mode lines',
  padding_trbl=(10, 10, 20, 20), debug=True))

```

Here is the raw HTML and LaTeX output.

```

f = sGT(hard.head(4), debug=True)
print('HTML output\n')
print(f._repr_html_())

print('\n\nLaTeX output\n')
print(f._repr_latex_())

```

HTML output

```

<div class="greater-table">
<style>
  #T6JW65HYNG3A5 {
    border-collapse: collapse;
    font-family: "Roboto", "Open Sans Condensed", "Arial", 'Segoe UI', sans-serif;
    font-size: 0.9em;
    width: auto;
    border: none;
    overflow: auto;
    margin-left: auto;
    margin-right: auto;
  }

```

```

}
/* tag formats */
#T6JW65HYNG3A5 caption {
    padding: 8px 10px 4px 10px;
    font-size: 0.99em;
    text-align: center;
    font-weight: normal;
    caption-side: top;
}
#T6JW65HYNG3A5 thead {
    /* top and bottom of header */
    border-top: 1px solid #0ff;
    border-bottom: 1px solid #0ff;
    font-size: 0.99em;
}
#T6JW65HYNG3A5 tbody {
    /* bottom of body */
    border-bottom: 1px solid #f0f;
}
#T6JW65HYNG3A5 th {
    vertical-align: bottom;
    padding: 8px 10px 8px 10px;
}
#T6JW65HYNG3A5 td {
    /* top, right, bottom left cell padding */
    padding: 4px 10px 4px 10px;
    vertical-align: top;
}
/* class overrides */
#T6JW65HYNG3A5 .grt-hrule-0 {
    border-top: 0px solid #f00;
}
#T6JW65HYNG3A5 .grt-hrule-1 {
    border-top: 0px solid #b00;
}
#T6JW65HYNG3A5 .grt-hrule-2 {
    border-top: 0px solid #900;
}
/* for the header, there if you have v lines you want h lines
hence use vrule_widths */
#T6JW65HYNG3A5 .grt-bhrule-0 {
    border-bottom: 1.5px solid #f00;
}
#T6JW65HYNG3A5 .grt-bhrule-1 {
    border-bottom: 1px solid #b00;
}
#T6JW65HYNG3A5 .grt-vrule-index {
    border-left: 1.5px solid #0f0;
}
#T6JW65HYNG3A5 .grt-vrule-0 {
    border-left: 1.5px solid #0f0;
}
#T6JW65HYNG3A5 .grt-vrule-1 {
    border-left: 1px solid #0a0;
}
#T6JW65HYNG3A5 .grt-vrule-2 {
    border-left: 0.5px solid #090;
}
#T6JW65HYNG3A5 .grt-left {
    text-align: left;
}
#T6JW65HYNG3A5 .grt-center {
    text-align: center;
}
#T6JW65HYNG3A5 .grt-right {
    text-align: right;
}

```

```

        font-variant-numeric: tabular-nums;
    }
    #T6JW65HYNG3A5 .grt-head {
        font-family: "Times New Roman", 'Courier New';
        font-size: 0.99em;
    }
    #T6JW65HYNG3A5 .grt-bold {
        font-weight: bold;
    }
</style>
<table id="T6JW65HYNG3A5">
<caption> (id: T6JW65HYNG3A5)</caption>
<thead>
<tr>
<th class="grt-left"></th>
<th class="grt-center grt-bhrule-0 grt-vrule-index" colspan="2">A</th>
<th class="grt-center grt-bhrule-0 grt-vrule-0" colspan="2">B</th>
<th class="grt-center grt-bhrule-0 grt-vrule-0" colspan="1">C</th>
</tr>
<tr>
<th class="grt-left">years!</th>
<th class="grt-center grt-vrule-index" colspan="1">Int</th>
<th class="grt-center grt-vrule-1" colspan="1">Float</th>
<th class="grt-center grt-vrule-0" colspan="1">Float</th>
<th class="grt-center grt-vrule-1" colspan="1">3</th>
<th class="grt-center grt-vrule-0" colspan="1">Longer Text</th>
</tr>
</thead>
<tbody>
<tr>
<td class="grt-left">2000</td>
<td class="grt-right grt-vrule-index">-100,000</td>
<td class="grt-right grt-vrule-1"> 2.389p</td>
<td class="grt-right grt-vrule-0">-1,601.00</td>
<td class="grt-center grt-vrule-1">2025-03-14</td>
<td class="grt-left grt-vrule-0">once upon a time</td>
</tr>
<tr>
<td class="grt-left grt-hrule-0">2001</td>
<td class="grt-right grt-hrule-0 grt-vrule-index">-91,667</td>
<td class="grt-right grt-hrule-0 grt-vrule-1"> 22.217p</td>
<td class="grt-right grt-hrule-0 grt-vrule-0">-1,367.62</td>
<td class="grt-center grt-hrule-0 grt-vrule-1">2025-03-26</td>
<td class="grt-left grt-hrule-0 grt-vrule-0"> risk is hard to define</td>
</tr>
<tr>
<td class="grt-left grt-hrule-0">2002</td>
<td class="grt-right grt-hrule-0 grt-vrule-index">-83,333</td>
<td class="grt-right grt-hrule-0 grt-vrule-1"> 206.619p</td>
<td class="grt-right grt-hrule-0 grt-vrule-0">-1,134.25</td>
<td class="grt-center grt-hrule-0 grt-vrule-1">2025-04-07</td>
<td class="grt-left grt-hrule-0 grt-vrule-0"> not in Kansas anymore</td>
</tr>
<tr>
<td class="grt-left grt-hrule-0">2003</td>
<td class="grt-right grt-hrule-0 grt-vrule-index">-75,000</td>
<td class="grt-right grt-hrule-0 grt-vrule-1"> 1.922n</td>
<td class="grt-right grt-hrule-0 grt-vrule-0">-900.88</td>
<td class="grt-center grt-hrule-0 grt-vrule-1">2025-04-19</td>
<td class="grt-left grt-hrule-0 grt-vrule-0"> neutrinos are hard to detect</td>
</tr>
</tbody>
</table></div>

```

TeX output

```
\begin{tikzpicture}[
  auto,
  transform shape,
  nosep/.style={inner sep=0},
  table/.style={
    matrix of nodes,
    row sep=0.125em,
    column sep=0.375em,
    nodes in empty cells,
    nodes={rectangle, scale=0.635, text badly ragged , draw=blue!10},
    row 1/.style={nodes={text=black, anchor=north, inner ysep=0, text height=0, text depth=0}},
    row 2/.style={nodes={text=black, anchor=south, inner ysep=.2em, minimum height=1.3em, font=\bfseries}},
    row 3/.style={nodes={text=black, anchor=south, inner ysep=.2em, minimum height=1.3em, font=\bfseries}},
    column 1/.style={nodes={align=left }, text height=0.9em, text depth=0.2em, inner xsep=0.375em, inner ysep=0},
    column 2/.style={nodes={align=right }, nosep, text width=6.59em},
    column 3/.style={nodes={align=right }, nosep, text width=7.41em},
    column 4/.style={nodes={align=right }, nosep, text width=7.41em},
    column 5/.style={nodes={align=center}}, nosep, text width=8.24em},
    column 6/.style={nodes={align=left }, nosep, text width=23.89em},
    column 7/.style={text height=0.9em, text depth=0.2em, nosep, text width=0em}   }]
\matrix (T6JW65HYNG3A5) [table, ampersand replacement=\&]{
  \&          \&          \&          \&          \&          \& \& \\
  \& \grtspacer \& A\grtspacer \& \grtspacer \& B\grtspacer \& \grtspacer \& C\grtspacer \& \& \& \\
  years!\grtspacer \& Int\grtspacer \& Float\grtspacer \& Float\grtspacer \& 3\grtspacer \& Longer Text\grtspacer \\
  2000 \& -100,000 \& 2.389p \& -1,601.00 \& 2025-03-14 \& once upon a time \& \& \\
  2001 \& -91,667 \& 22.217p \& -1,367.62 \& 2025-03-26 \& risk is hard to define \& \& \\
  2002 \& -83,333 \& 206.619p \& -1,134.25 \& 2025-04-07 \& not in Kansas anymore \& \& \\
  2003 \& -75,000 \& 1.922n \& -900.88 \& 2025-04-19 \& neutrinos are hard to detect \& \& \\
};

\path[draw, thick] (T6JW65HYNG3A5-1-1.south west) -- (T6JW65HYNG3A5-1-7.south east);
\path[draw, semithick] ([yshift=-0.0625em]T6JW65HYNG3A5-3-1.south west) -- ([yshift=-0.0625em]T6JW65HYNG3A5-3-7.south east);
\path[draw, thick] ([yshift=-0.3125em]T6JW65HYNG3A5-7-1.base west) -- ([yshift=-0.3125em]T6JW65HYNG3A5-7-7.base east);
\path[draw, very thin] ([xshift=-0.1875em, yshift=-0.0625em]T6JW65HYNG3A5-2-2.south west) -- ([yshift=-0.0625em]T6JW65HYNG3A5-2-7.south east);
\path[draw, very thin] ([xshift=-0.1875em]T6JW65HYNG3A5-1-2.south west) -- ([yshift=-0.3125em, xshift=-0.1875em]T6JW65HYNG3A5-7-2.base west);
\path[draw, ultra thin] ([xshift=0.1875em, yshift=-0.0625em]T6JW65HYNG3A5-1-3.south east) -- ([yshift=-0.3125em, xshift=0.1875em]T6JW65HYNG3A5-7-3.base east);
\path[draw, ultra thin] ([xshift=0.1875em, yshift=-0.0625em]T6JW65HYNG3A5-1-5.south east) -- ([yshift=-0.3125em, xshift=0.1875em]T6JW65HYNG3A5-7-5.base east);

\end{tikzpicture}
```

2 A Table with TeX Content

```
index = pd.Index(["A", "B", "$C_1$", "C_2 not tex", '$\\cos(A)$'])
tex = pd.DataFrame(
{'x': np.arange(2020, 2025, dtype=int),
'b': np.random.random(5),
'a1': [f'$x^{i}$' for i in range(5,10)],
'a2': [f'$\\sin({i}x\\pi/n)$' for i in range(5,10)],
'a3': [f'$x^{i}$' for i in range(5,10)],
```

Table 7: (Quarto generated caption)

| x | A B | C_1 | C_2 not
tex | cos(A) |
|------|---------------|-----------------|----------------|--------|
| 2020 | 0.50112 x^5 | $\sin(5x\pi/n)$ | x^5 | x^5 |
| 2021 | 0.33757 x^6 | $\sin(6x\pi/n)$ | x^6 | x^6 |
| 2022 | 0.86942 x^7 | $\sin(7x\pi/n)$ | x^7 | x^7 |
| 2023 | 0.21970 x^8 | $\sin(8x\pi/n)$ | x^8 | x^8 |
| 2024 | 0.86200 x^9 | $\sin(9x\pi/n)$ | x^9 | x^9 |

Table 8: greater table output

| x | A (%) B | C_1 | C_2 not
tex | cos(A) |
|------|-------------|-----------------|----------------|--------|
| 2020 | 50.1% x^5 | $\sin(5x\pi/n)$ | x^5 | x^5 |
| 2021 | 33.8% x^6 | $\sin(6x\pi/n)$ | x^6 | x^6 |
| 2022 | 86.9% x^7 | $\sin(7x\pi/n)$ | x^7 | x^7 |
| 2023 | 22.0% x^8 | $\sin(8x\pi/n)$ | x^8 | x^8 |
| 2024 | 86.2% x^9 | $\sin(9x\pi/n)$ | x^9 | x^9 |

```
'a4': [f'\\(x^{i}\\)' for i in range(5,10)],
}).set_index('x')
tex = tex.head()
tex.columns = index
tex
```

Table 6: (Quarto generated caption): table displayed by default routine.

| | A | B | C_1 | C_2 not tex | $\cos(A)$ |
|------|----------|-------|-----------------|-------------|-------------|
| x | | | | | |
| 2020 | 0.501120 | x^5 | $\sin(5x\pi/n)$ | x^5 | $\cos(x^5)$ |
| 2021 | 0.337571 | x^6 | $\sin(6x\pi/n)$ | x^6 | $\cos(x^6)$ |
| 2022 | 0.869421 | x^7 | $\sin(7x\pi/n)$ | x^7 | $\cos(x^7)$ |
| 2023 | 0.219699 | x^8 | $\sin(8x\pi/n)$ | x^8 | $\cos(x^8)$ |
| 2024 | 0.861997 | x^9 | $\sin(9x\pi/n)$ | x^9 | $\cos(x^9)$ |

```
sGT(tex, 'GT Caption')
```

Ratio columns.

```
tex.columns = ["A (%)", "B", "$C_1$", "C_2 not tex", '$\\cos(A)$']
sGT(tex, 'Ratio columns in A', ratio_cols='A (%)')
```

3 Greater_tables Test Suite

```
test_gen = gtutest.TestDFGenerator(0, 0)
ans = test_gen.test_suite()
```

3.1 Test Table: basic

Table 9: GT output for test table basic

| uncon-
naged | apprecia-
ble date | concep-
tion float | fining str | ham-
mers
float | molecules
float | ruthlessly float | sandwiches float | translat-
ing float |
|-----------------|-----------------------|-----------------------|----------------|-----------------------|--------------------|------------------|-------------------|------------------------|
| 8,839 | 2016-08-13 | 26.106 | unsuccessfully | 0.00402 | 36.128 | 63490.304Y | -906.724y | 187.654 |
| 10,397 | 2017-03-18 | 166.184 | weighty | 0.65441 | 51.906M | 88.440y | -0.000y | 219.176k |
| 19,251 | 2023-04-12 | 126.049 | reinstating | 0.00435 | 75.448 | 158.217E | -1.141Y | 6.696M |
| 35,202 | 2031-02-20 | 9.514M | regularly | 0.00013 | 1.919 | 53.921P | 456.467f | 980.398 |
| 46,310 | 2022-01-29 | 12.016M | downplayed | 0.00001 | 4.675G | 66.313a | -2.355y | 450.111m |
| 55,986 | 2017-03-18 | 1.785G | harmful | 0.00392 | 88.559 | -98.569P | 128.613n | 142.900 |
| 61,765 | 2031-02-20 | 39.829 | paradise | 0.00000 | 4.541M | 752.248M | 8.739E | 254.917k |
| 79,238 | 2016-08-13 | 46.325M | diagrams | 4.36743 | 11.110k | 18790.418Y | 310.420E | 200.569 |
| 92,160 | 2030-11-17 | 13.733M | shortfall | 0.00000 | 34.625 | -550909914.756Y | -63486983222.994Y | 23.893M |
| | 2023-04-12 | 3.877 | composers | 0.00002 | 57.548 | 111.540p | -2.330Y | 3.200G |

Table 10: GT output for test table timeseries

| bemoan | Absolute Affirmed
Mutton float | Adjourns Eval-
uation Disman-
tling datetime | Hispanic Prohibit
Skeptical datetime |
|------------|-----------------------------------|--|---|
| 2011-01-09 | -0.000y | 2026-02-13 | 2025-07-20 |
| 2012-01-09 | -2.716a | 2011-10-23 | 2018-05-10 |
| 2012-03-01 | 291.376Z | 2014-05-17 | 2031-10-23 |
| 2012-03-27 | 2.489P | 2030-10-30 | 2007-08-24 |
| 2014-01-07 | 957.797M | 2012-11-22 | 2025-07-20 |
| 2015-08-18 | -25.750 | 2024-10-01 | 2025-06-29 |
| 2015-12-13 | -81.647p | 2028-04-20 | 2020-01-17 |
| 2016-06-01 | 0.000y | 2009-06-25 | 2020-01-17 |
| 2018-03-06 | 0.000y | 2012-09-29 | 2018-09-28 |
| 2019-03-05 | -3.510p | 2030-06-13 | 2008-01-30 |
| 2019-03-09 | 1.662u | 2012-11-22 | 2025-06-29 |
| 2020-11-02 | 99.120P | 2009-06-25 | 2029-07-27 |
| 2020-11-20 | 0.232y | 2016-09-29 | 2007-05-27 |
| 2020-12-08 | 29.010a | 2006-09-15 | 2032-04-04 |
| 2021-07-30 | -398.788u | 2011-10-23 | 2032-04-04 |
| 2021-09-25 | 3.780y | 2029-02-24 | 2007-04-22 |
| 2021-11-27 | 0.000y | 2026-02-13 | 2018-09-28 |
| 2027-03-28 | -85.745E | 2015-10-22 | 2032-03-19 |
| 2029-05-28 | 57.186k | 2015-08-12 | 2008-01-30 |
| 2033-02-27 | -496.810f | 2024-10-01 | 2032-04-04 |

```
hrw = (0, 0, 0)
sGT(ans['basic'], "Basic", ratio_cols='z', aligners={'w': 'l'},
     hrule_widths=hrw)
```

Comments go here.

3.2 Test Table: timeseries

```
hrw = (0, 0, 0)
sGT(ans['timeseries'], "Timeseries", ratio_cols='z', aligners={'w': 'l'},
     hrule_widths=hrw)
```

Comments go here.

3.3 Test Table: multiindex

Table 11: GT output for test table multiindex

| reac- | belligerent | inau-
gural | Action For-
mulates Suc-
ceeded float | Designate Ves-
tige Reser-
vation float | Distinguishes In-
vestments Con-
templates year | Hesitate Premiere
Conspiracies year | Newark Waved
Impoverish int |
|--------|-------------|----------------|---|---|---|--|--------------------------------|
| 16,991 | invaluable | 34,061 | -6.471u | 808.075k | 2027 | 2012 | 901,426,869 |
| | invaluable | 43,523 | 18.077u | 3.209G | 2027 | 2010 | 521,984,844 |
| | malevolent | 75,221 | -845.354u | 128.915m | 1995 | 2005 | 434,046,672 |
| | saddens | 39,194 | 36.518z | 3.945M | 1996 | 2019 | 755,593,582 |
| | saddens | 56,895 | 22.781u | 22.434M | 2000 | 1999 | 510,854,557 |
| | saddens | 64,039 | 0.254y | 368.327 | 2022 | 2005 | 313,805,927 |
| | saddens | 87,079 | 3.120a | 18.891M | 1992 | 1996 | 74,515,255 |
| 98,173 | invaluable | 49,891 | 1.454n | 1.702k | 1996 | 2004 | 884,473,151 |
| | malevolent | 24,303 | -486.778Y | 680.242 | 2024 | 2006 | 223,313,250 |
| | malevolent | 40,740 | -0.000y | 77.347M | 2021 | 2000 | 888,657,488 |

Table 12: GT output for test table multicolumns

| | repetitive | | tutu |
|---------|---------------|---------------|--------------------|
| | bicker | wishes | assimilation |
| lecture | addresses | accommodating | lectures |
| 4,873 | hack | 2023 | 3,089 undercurrent |
| 31,679 | stabbing | 2018 | 6,871 episode |
| 38,283 | awarded | 2018 | -7,895 turner |
| 40,641 | accord | 2007 | -3,597 rattling |
| 44,030 | corroborating | 2021 | -9,395 relaunch |
| 59,729 | digest | 1993 | 298 fixate |
| 65,534 | deader | 2011 | -9,990 escalation |
| 86,783 | arrows | 2015 | -535 rebellion |
| 89,904 | refinery | 1994 | -3,027 vacant |
| 92,799 | affirmation | 1995 | -7,911 hobby |

```
hrw = (1.5, 1.0, 0.5)
sGT(ans['multiindex'], "Multiindex", ratio_cols='z', aligners={'w': 'l'},
    hrule_widths=hrw)
```

Comments go here.

3.4 Test Table: multicolumns

```
hrw = (0, 0, 0)
sGT(ans['multicolumns'], "Multicolumns", ratio_cols='z', aligners={'w': 'l'},
    hrule_widths=hrw)
```

Comments go here.

3.5 Test Table: complex

```
hrw = (1.5, 1.0, 0.5)
sGT(ans['complex'], "Complex", ratio_cols='z', aligners={'w': 'l'},
    hrule_widths=hrw)
```

Comments go here.

Table 13: GT output for test table complex

| sermon | idle | librarians | diagrammatic | | | | | intensely | |
|--------|--------------|------------|--------------|----------|--------------|--------------|---------------------|-------------|-------------|
| | | | correlation | | | william | | cardiac | william |
| | | | express | neighbor | unmistakable | connectivity | obscures | demographic | manufacture |
| 51,701 | better | 40,112 | innumerable | 48.980M | 4,249 | 128.796m | 6.663z | 2011-08-25 | 2026-01-16 |
| | complicated | 3,926 | pentecostal | 59.707 | -825 | 8.145G | 15.501E | 2026-07-20 | 2014-12-05 |
| | complicated | 12,208 | proportions | 18.027k | 8,008 | 2.001G | 18.602Y | 2011-08-25 | 2016-07-03 |
| | complicated | 65,629 | navigated | 11.940k | 6,378 | 48.117 | -113.851u | 2026-07-20 | 2030-10-01 |
| | methodically | 27,349 | sawmill | 4.033k | 8,090 | 361.908m | 12076296027110.290Y | 2028-08-07 | 2007-08-27 |
| | methodically | 43,485 | parentheses | 9.546 | -1,250 | 1.301G | -143231.502Y | 2018-12-09 | 2008-11-29 |
| | methodically | 55,700 | forgive | 2.792G | 2,953 | 3.292M | 255.417z | 2031-12-19 | 2008-11-25 |
| | methodically | 60,105 | consultants | 172.060 | -5,666 | 5.968k | -21.254a | 2026-07-20 | 2030-10-01 |
| | methodically | 98,580 | mandating | 74.624k | 5,684 | 8.510M | -0.000y | 2026-06-26 | 2021-09-12 |
| 99,724 | better | 6,020 | broached | 3.282k | 8,757 | 1.264G | 494216364.082Y | 2016-05-06 | 2008-11-25 |
| | better | 15,116 | parallel | 126.036M | 4,638 | 715.691M | -6084.833Y | 2031-09-06 | 2014-12-05 |
| | better | 24,824 | lifesaver | 53.513 | -8,038 | 7.370G | -13.689Y | 2011-08-25 | 2033-06-20 |
| | better | 65,455 | fidelity | 471.271M | 8,256 | 3.143k | -64054884217.656Y | 2011-08-25 | 2033-06-20 |
| | better | 81,893 | accumulating | 13.893M | 7,426 | 105.856 | 0.000y | 2018-12-04 | 2009-11-22 |
| | complicated | 2,248 | covering | 202.243m | -5,336 | 225.260M | 93.754n | 2011-12-27 | 2026-01-29 |
| | complicated | 51,296 | golden | 9.341M | -8,036 | 142.880 | -537.634M | 2018-12-04 | 2021-09-12 |
| | complicated | 54,923 | eventuality | 3.545k | 595 | 166.334 | -1.033Z | 2026-06-26 | 2015-07-20 |
| | methodically | 7,550 | waters | 437.510k | -1,867 | 24.289k | -0.000y | 2026-07-20 | 2019-06-07 |
| | methodically | 83,418 | blankets | 9.726G | -4,364 | 763.757k | 3.599k | 2011-08-25 | 2026-01-02 |
| | methodically | 98,887 | accompany | 1.831M | 1,106 | 2.931k | -629013.362Y | 2014-01-02 | 2007-08-27 |

4 Other input formats

4.1 Markown

| Insured group or insurance product | Sat | RP | RF |
|---|-----|----|----|
| Non-standard auto | x | | |
| General liability for judgment proof corporation | x | | |
| Term life insurance | | x | |
| Catastrophe Reinsurance, outside rating agency bounds | | x | |
| High limit property per risk reinsurance | | x | |
| Personal lines for affluent individuals | x | x | |
| Small commercial lines | x | x | |
| Catastrophe reinsurance, within rating agency bounds | x | x | |
| Large account captive reinsurance | | | x |
| Structured quota share, requiring a risk transfer test | x | | x |
| Working layer casualty excess of loss | | x | x |
| Surplus relief quota share on cat exposed line | x | x | x |
| Middle market commercial lines work comp or commercial auto | x | x | x |

```
txt = '''
```

```
**Insured group or insurance product**	**Sat**	**RP**	**RF**
Non-standard auto	x		
General liability for judgment proof corporation	x		
Term life insurance		x	
Catastrophe Reinsurance, outside rating agency bounds		x	
High limit property per risk reinsurance		x	
Personal lines for affluent individuals	x	x	
Small commercial lines	x	x	
Catastrophe reinsurance, within rating agency bounds	x	x	
Large account captive reinsurance			x
```

Table 15: GT from markdown table input

| Insured group or insurance product | Sat | RP | RF |
|---|-----|----|----|
| Non-standard auto | x | | |
| General liability for judgment proof corporation | x | | |
| Term life insurance | | x | |
| Catastrophe Reinsurance, outside rating agency bounds | | x | |
| High limit property per risk reinsurance | | x | |
| Personal lines for affluent individuals | x | x | |
| Small commercial lines | x | x | |
| Catastrophe reinsurance, within rating agency bounds | x | x | |
| Large account captive reinsurance | | | x |
| Structured quota share, requiring a risk transfer test | x | | x |
| Working layer casualty excess of loss | | x | x |
| Surplus relief quota share on cat exposed line | x | x | x |
| Middle market commercial lines work comp or commercial auto | x | x | x |

Table 16: GT output for list of lists input

| a | b | c | d |
|-------|-----|-----|-----|
| west | 10 | 20 | 30 |
| east | 10 | 200 | 30 |
| north | 10 | 20 | 300 |
| south | 100 | 20 | 30 |

```
Structured quota share, requiring a risk transfer test	x		x
Working layer casualty excess of loss		x	x
Surplus relief quota share on cat exposed line	x	x	x
Middle market commercial lines work comp or commercial auto	x	x	x
```

```
'''
```

```
GT(txt)
```

4.2 List of lists

```
lol = [['a', 'b', 'c', 'd'], ['west', 10, 20, 30], ['east', 10, 200, 30], ['north', 10, 20, 300]]
GT(lol)
```