seaborn.FacetGrid

class `seaborn.` **`FacetGrid`** ***(data, row=None, col=None, hue=None, col_wrap=None, sharex=True, sharey=True, size=3, aspect=1, palette=None, row_order=None, col_order=None, hue_order=None, hue_kws=None, dropna=True, legend_out=True, despine=True, margin_titles=False, xlim=None, ylim=None, subplot_kws=None, gridspec_kws=None)***

Subplot grid for plotting conditional relationships.

`__init__` ***(data, row=None, col=None, hue=None, col_wrap=None, sharex=True, sharey=True, size=3, aspect=1, palette=None, row_order=None, col_order=None, hue_order=None, hue_kws=None, dropna=True, legend_out=True, despine=True, margin_titles=False, xlim=None, ylim=None, subplot_kws=None, gridspec_kws=None)***

Initialize the matplotlib figure and FacetGrid object.

The `FacetGrid` is an object that links a Pandas DataFrame to a matplotlib figure with a particular structure.

In particular, `FacetGrid` is used to draw plots with multiple Axes where each Axes shows the same relationship conditioned on different levels of some variable. It's possible to condition on up to three variables by assigning variables to the rows and columns of the grid and using different colors for the plot elements.

The general approach to plotting here is called "small multiples", where the same kind of plot is repeated multiple times, and the specific use of small multiples to display the same relationship conditioned on one ore more other variables is often called a "trellis plot".

The basic workflow is to initialize the `FacetGrid` object with the dataset and the variables that are used to structure the grid. Then one or more plotting functions can be applied to each subset by calling `FacetGrid.map()` or `FacetGrid.map_dataframe()`. Finally, the plot can be tweaked with other methods to do things like change the axis labels, use different ticks, or add a legend. See the detailed code examples below for more information.

Parameters:

data : DataFrame

> Tidy ("long-form") dataframe where each column is a variable and each row is an observation.

row, col, hue : strings

> Variables that define subsets of the data, which will be drawn on separate facets in the grid. See the `*_order` parameters to control the order of levels of this variable.

col_wrap : int, optional

> "Wrap" the column variable at this width, so that the column facets span multiple rows. Incompatible with a `row` facet.

share{x,y} : bool, optional

> If true, the facets will share y axes across columns and/or x axes across rows.

size : scalar, optional

> Height (in inches) of each facet. See also: `aspect`.

aspect : scalar, optional

> Aspect ratio of each facet, so that `aspect * size` gives the width of each facet in inches.

palette : seaborn color palette or dict, optional

> Colors to use for the different levels of the `hue` variable. Should be something that can be interpreted by `color_palette()` (seaborn.color_palette.html#seaborn.color_palette), or a dictionary mapping hue levels to matplotlib colors.

{row,col,hue}_order : lists, optional

> Order for the levels of the faceting variables. By default, this will be the order that the levels appear in `data` or, if the variables are pandas categoricals, the category order.

hue_kws : dictionary of param -> list of values mapping

> Other keyword arguments to insert into the plotting call to let other plot attributes vary across levels of the hue variable (e.g. the markers in a scatterplot).

legend_out : bool, optional

> If `True` , the figure size will be extended, and the legend will be drawn outside the plot on the center right.

despine : boolean, optional

> Remove the top and right spines from the plots.

margin_titles : bool, optional

> If `True` , the titles for the row variable are drawn to the right of the last column. This option is experimental and may not work in all cases.

{x, y}lim: tuples, optional

> Limits for each of the axes on each facet (only relevant when share{x, y} is True.

subplot_kws : dict, optional

> Dictionary of keyword arguments passed to matplotlib subplot(s) methods.

gridspec_kws : dict, optional

> Dictionary of keyword arguments passed to matplotlib's `gridspec` module (via `plt.subplots`). Requires matplotlib >= 1.4 and is ignored if `col_wrap` is not `None` .

See also

`PairGrid` (seaborn.PairGrid.html#seaborn.PairGrid)

Subplot grid for plotting pairwise relationships.

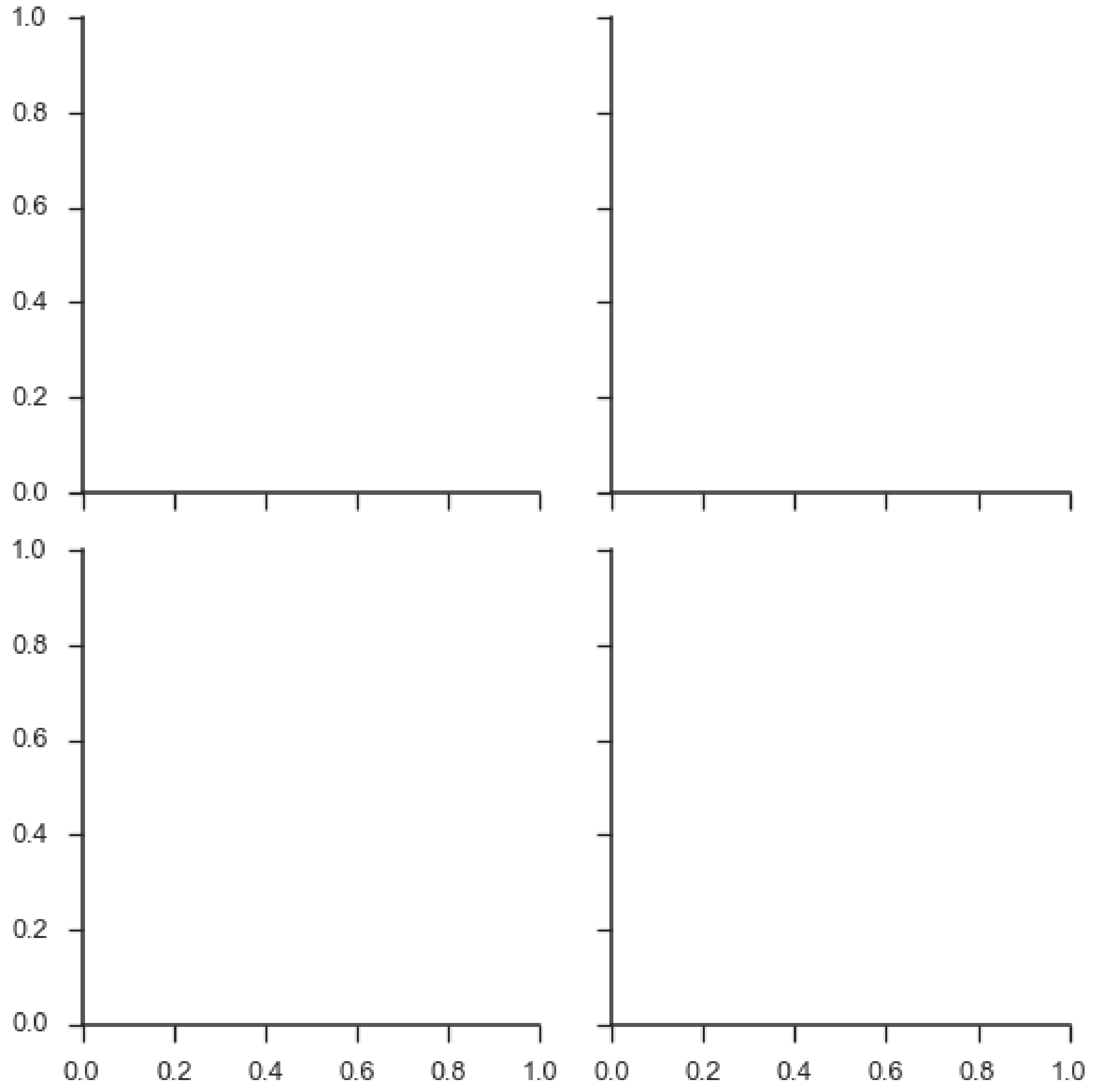
`lmplot` (seaborn.lmplot.html#seaborn.lmplot)
Combine a regression plot and a **`FacetGrid`** .

`factorplot` (seaborn.factorplot.html#seaborn.factorplot)
Combine a categorical plot and a **`FacetGrid`** .

Examples

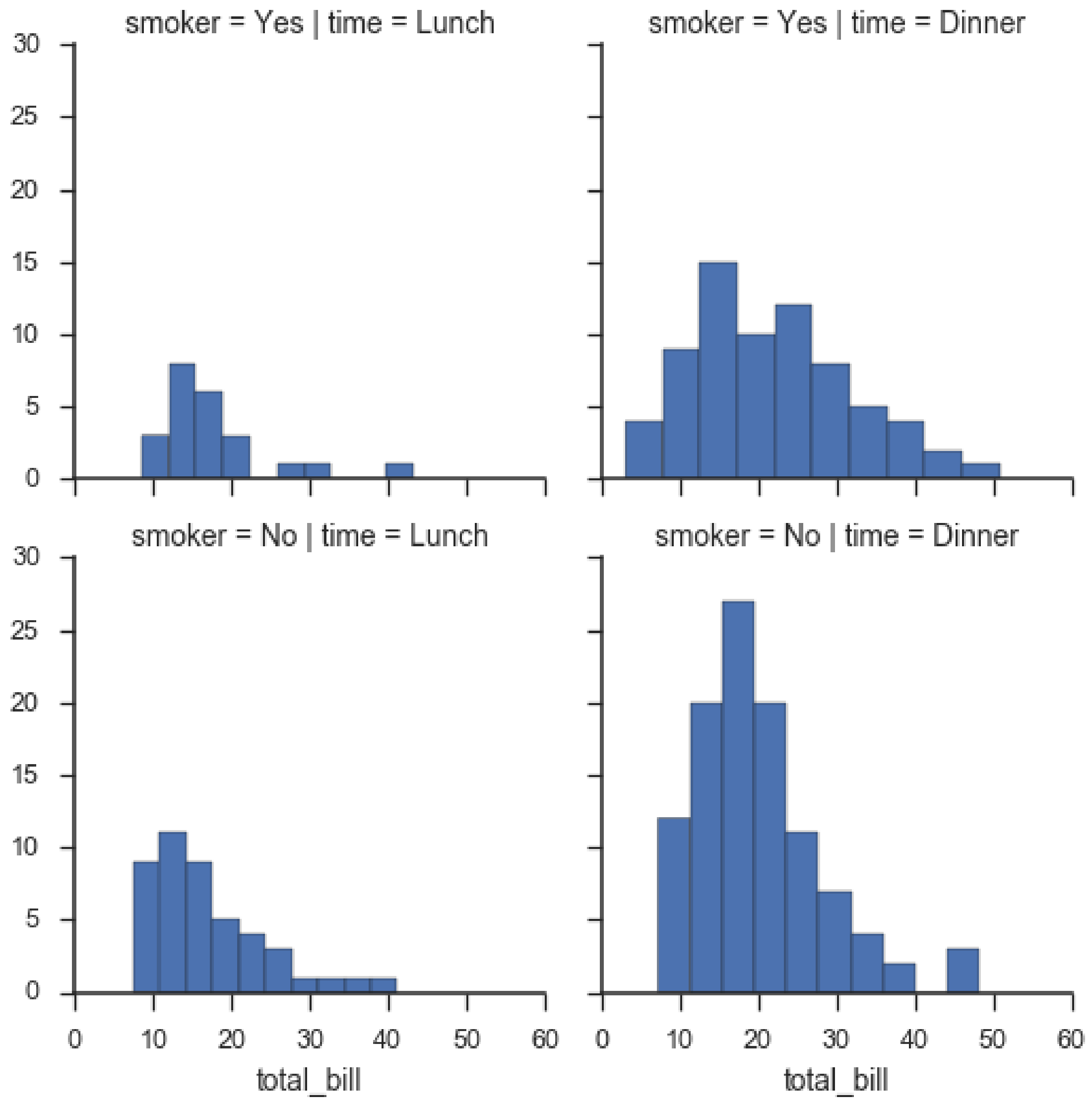
Initialize a 2x2 grid of facets using the tips dataset:

```
>>> import seaborn as sns; sns.set(style="ticks", color_codes=True)
>>> tips = sns.load_dataset("tips")
>>> g = sns.FacetGrid(tips, col="time", row="smoker")
```



Draw a univariate plot on each facet:

```
>>> import matplotlib.pyplot as plt
>>> g = sns.FacetGrid(tips, col="time",  row="smoker")
>>> g = g.map(plt.hist, "total_bill")
```



(Note that it’s not necessary to re-catch the returned variable; it’s the same object, but doing so in the examples makes dealing with the doctests somewhat less annoying).

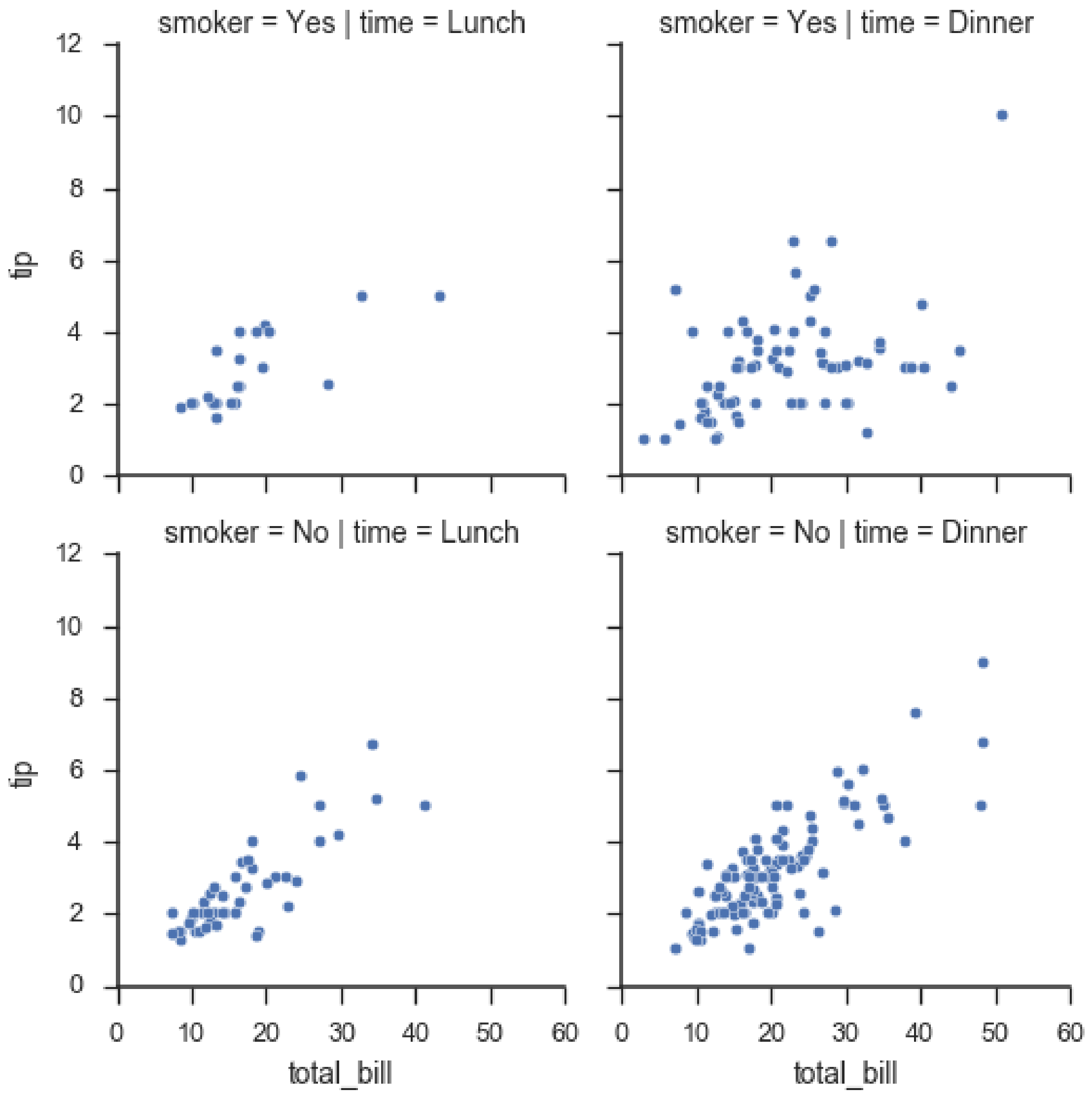
Pass additional keyword arguments to the mapped function:

```
>>> import numpy as np
>>> bins = np.arange(0, 65, 5)
>>> g = sns.FacetGrid(tips, col="time",  row="smoker")
>>> g = g.map(plt.hist, "total_bill", bins=bins, color="r")
```

../_images/seaborn-FacetGrid-3.png

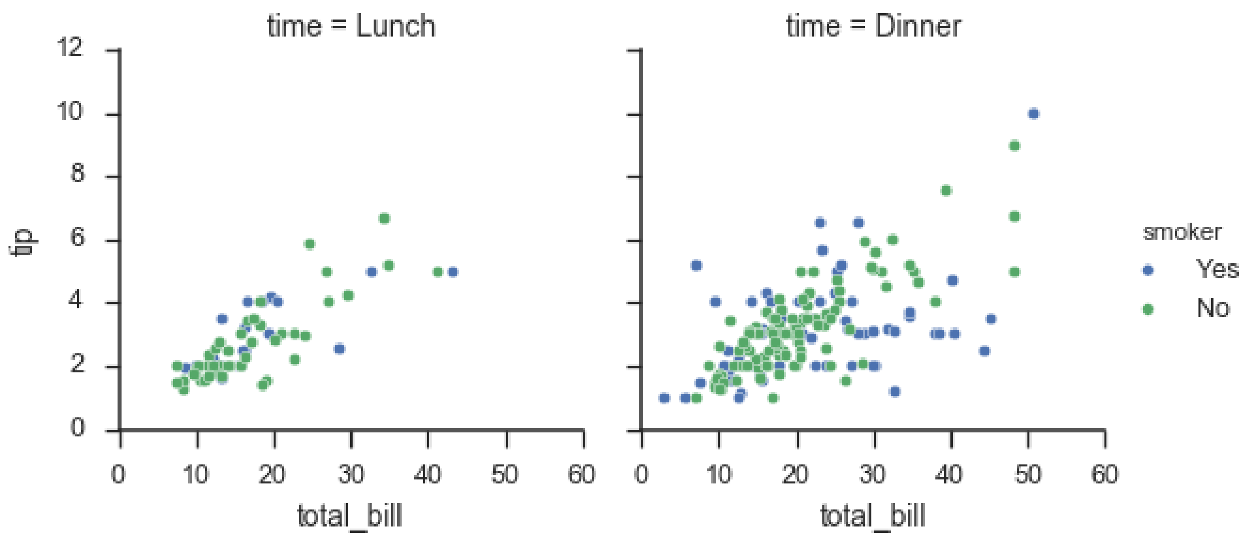
Plot a bivariate function on each facet:

```
>>> g = sns.FacetGrid(tips, col="time",  row="smoker")
>>> g = g.map(plt.scatter, "total_bill", "tip", edgecolor="w")
```



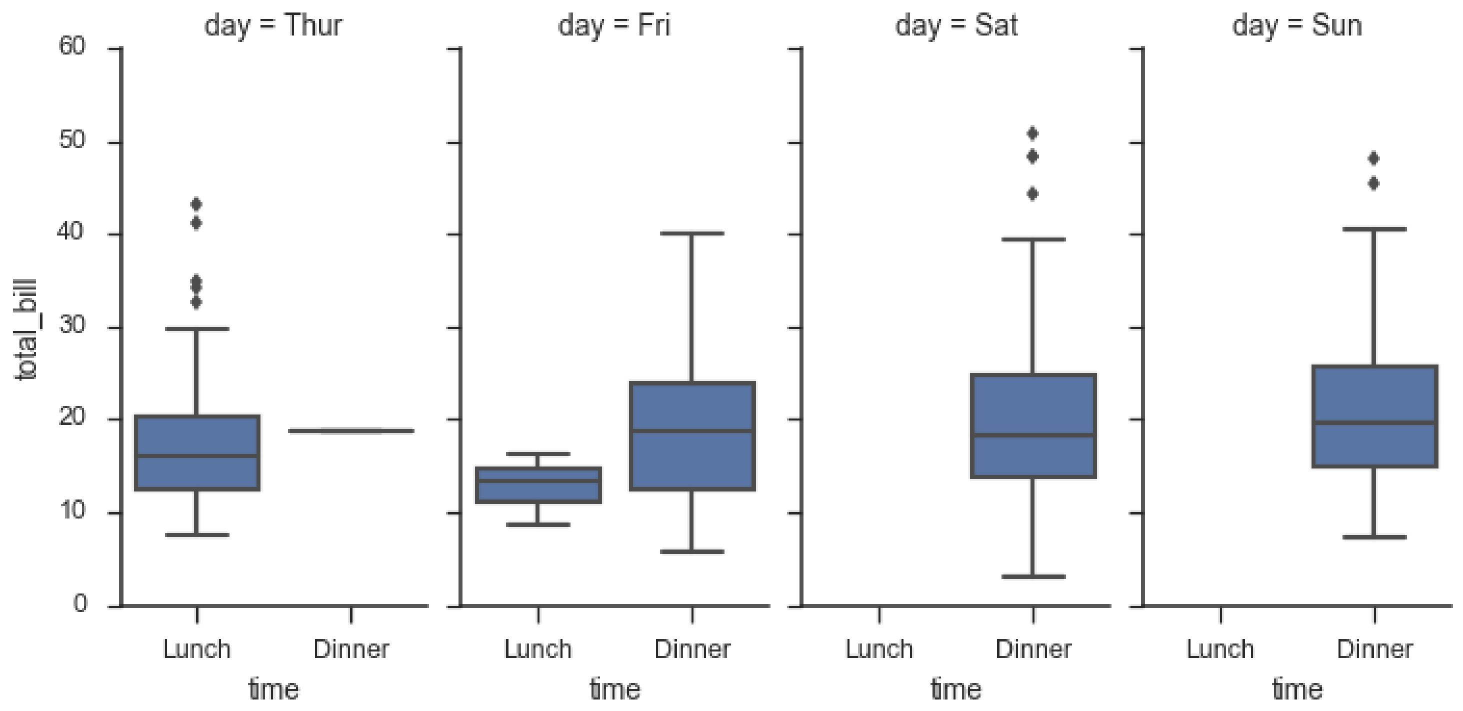
Assign one of the variables to the color of the plot elements:

```
>>> g = sns.FacetGrid(tips, col="time",  hue="smoker")
>>> g = (g.map(plt.scatter, "total_bill", "tip", edgecolor="w")
...        .add_legend())
```



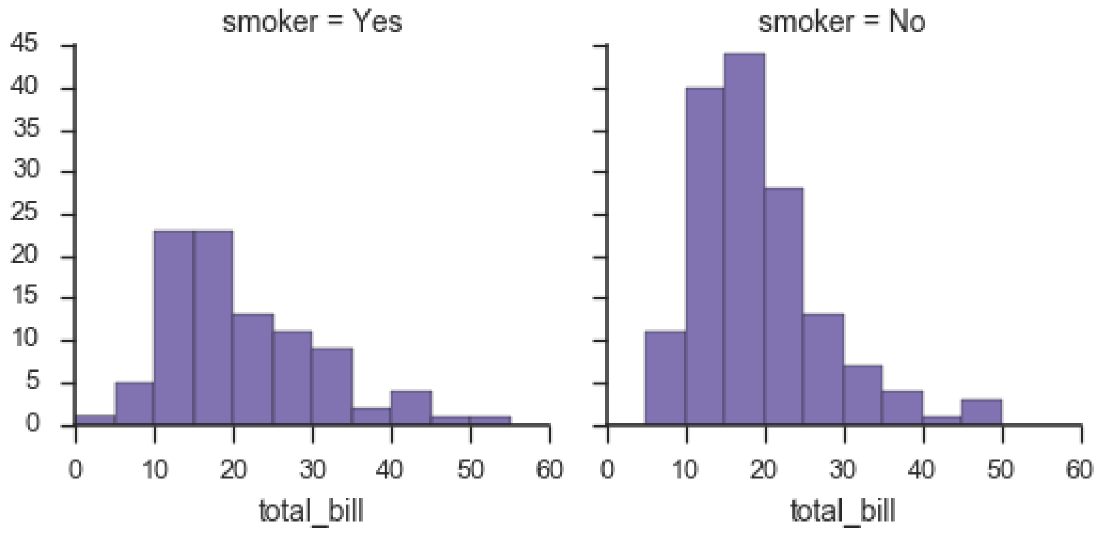
Change the size and aspect ratio of each facet:

```
>>> g = sns.FacetGrid(tips, col="day", size=4, aspect=.5)
>>> g = g.map(sns.boxplot, "time", "total_bill")
```



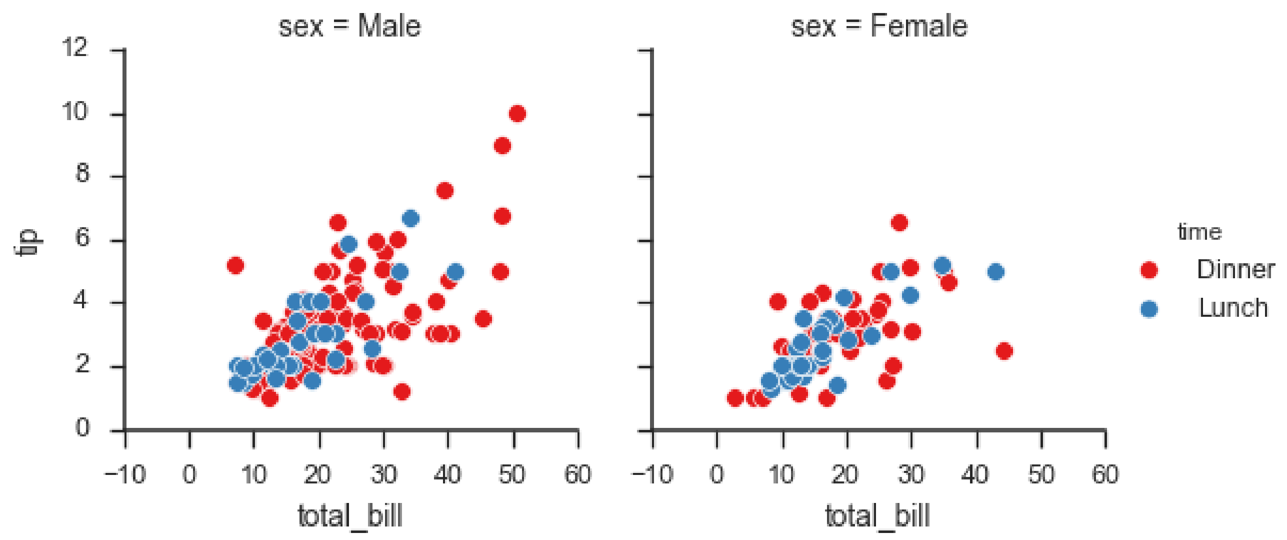
Specify the order for plot elements:

```
>>> g = sns.FacetGrid(tips, col="smoker", col_order=["Yes", "No"])
>>> g = g.map(plt.hist, "total_bill", bins=bins, color="m")
```



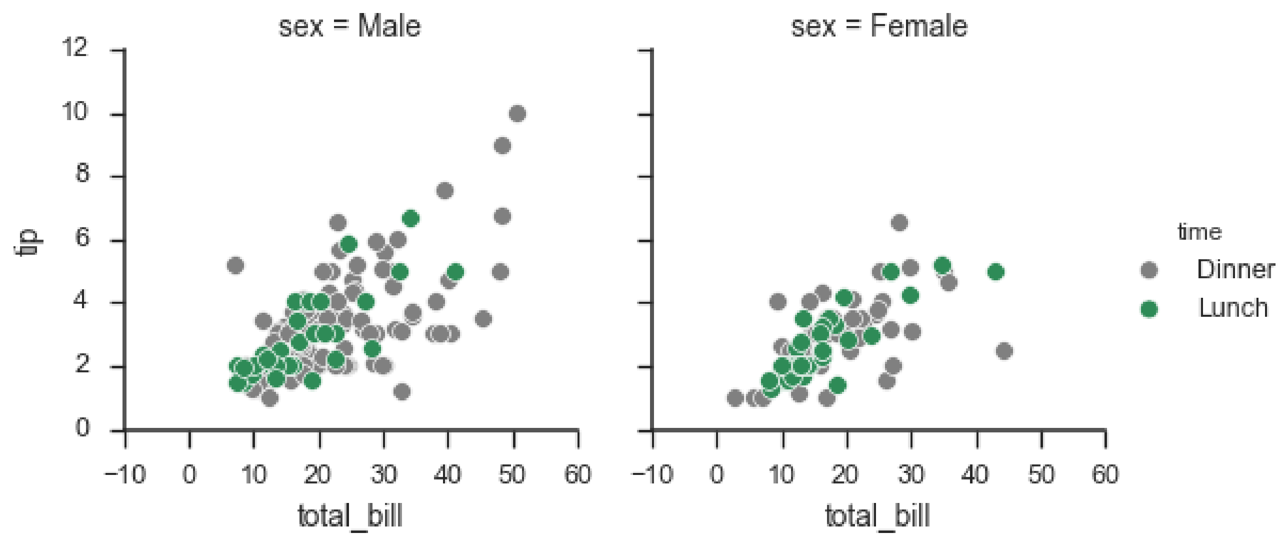
Use a different color palette:

```
>>> kws = dict(s=50, linewidth=.5, edgecolor="w")
>>> g = sns.FacetGrid(tips, col="sex", hue="time", palette="Set1",
...                   hue_order=["Dinner", "Lunch"])
>>> g = (g.map(plt.scatter, "total_bill", "tip", **kws)
...      .add_legend())
```



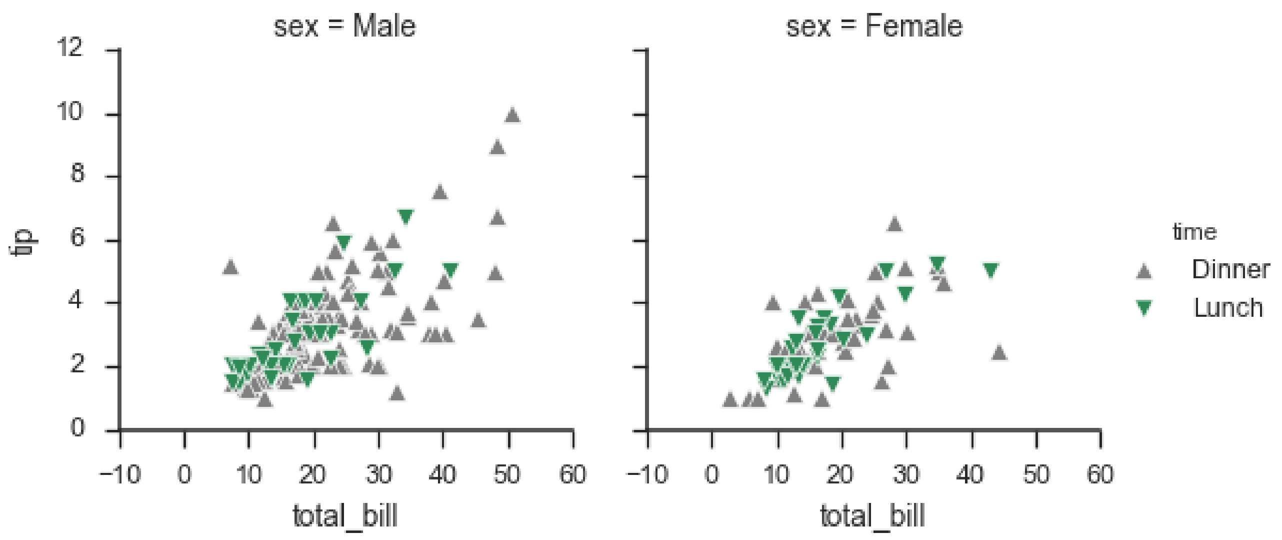
Use a dictionary mapping hue levels to colors:

```
>>> pal = dict(Lunch="seagreen", Dinner="gray")
>>> g = sns.FacetGrid(tips, col="sex", hue="time", palette=pal,
...                   hue_order=["Dinner", "Lunch"])
>>> g = (g.map(plt.scatter, "total_bill", "tip", **kws)
...       .add_legend())
```



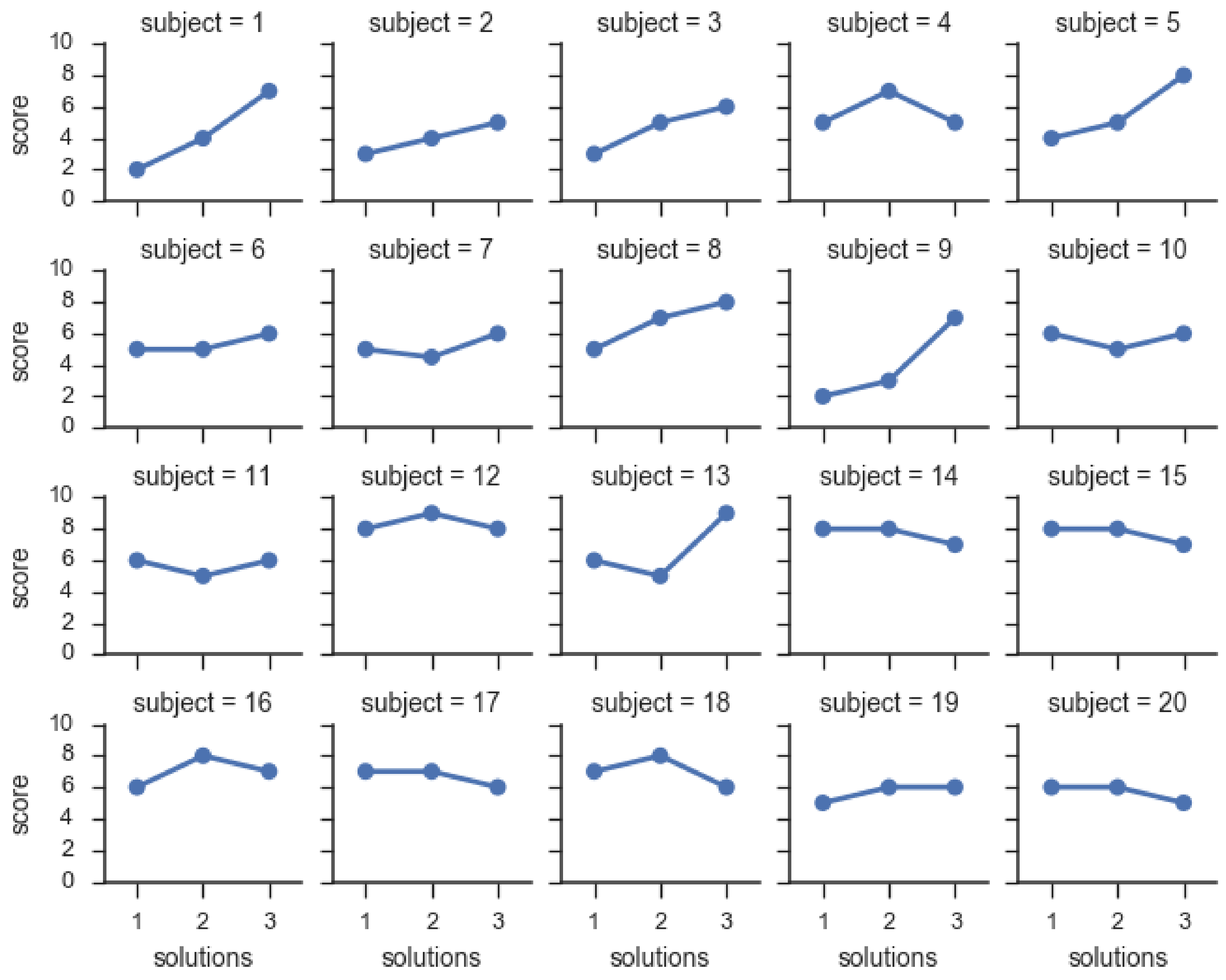
Additionally use a different marker for the hue levels:

```
>>> g = sns.FacetGrid(tips, col="sex", hue="time", palette=pal,
...                   hue_order=["Dinner", "Lunch"],
...                   hue_kws=dict(marker=["^", "v"]))
>>> g = (g.map(plt.scatter, "total_bill", "tip", **kws)
...      .add_legend())
```



“Wrap” a column variable with many levels into the rows:

```
>>> attend = sns.load_dataset("attention")
>>> g = sns.FacetGrid(attend, col="subject", col_wrap=5,
...                   size=1.5, ylim=(0, 10))
>>> g = g.map(sns.pointplot, "solutions", "score", scale=.7)
```



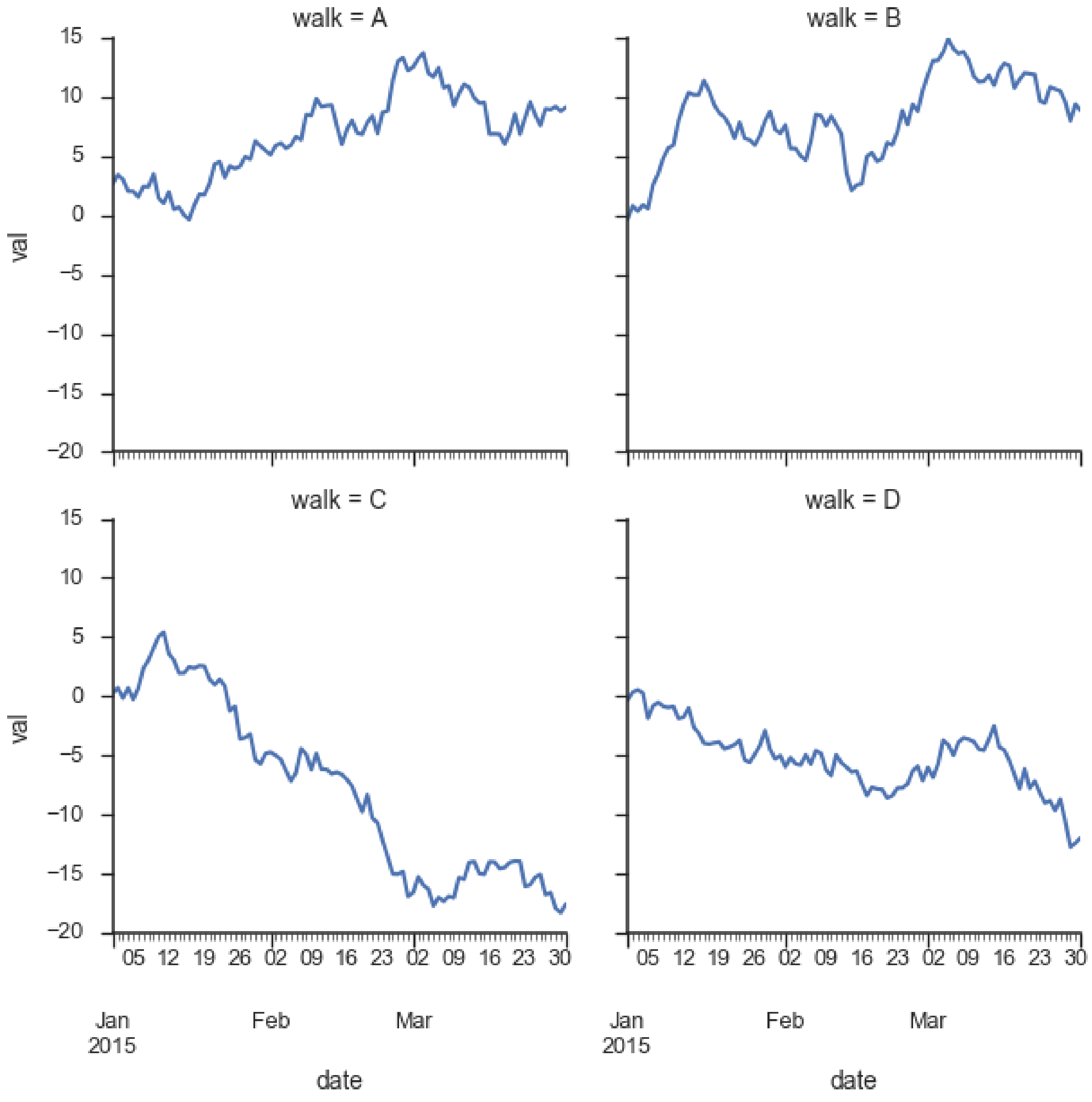
Define a custom bivariate function to map onto the grid:

```
>>> from scipy import stats
>>> def qqplot(x, y, **kwargs):
...     _, xr = stats.probplot(x, fit=False)
...     _, yr = stats.probplot(y, fit=False)
...     plt.scatter(xr, yr, **kwargs)
>>> g = sns.FacetGrid(tips, col="smoker", hue="sex")
>>> g = (g.map(qqplot, "total_bill", "tip", **kws)
...       .add_legend())
```

../_images/seaborn-FacetGrid-12.png

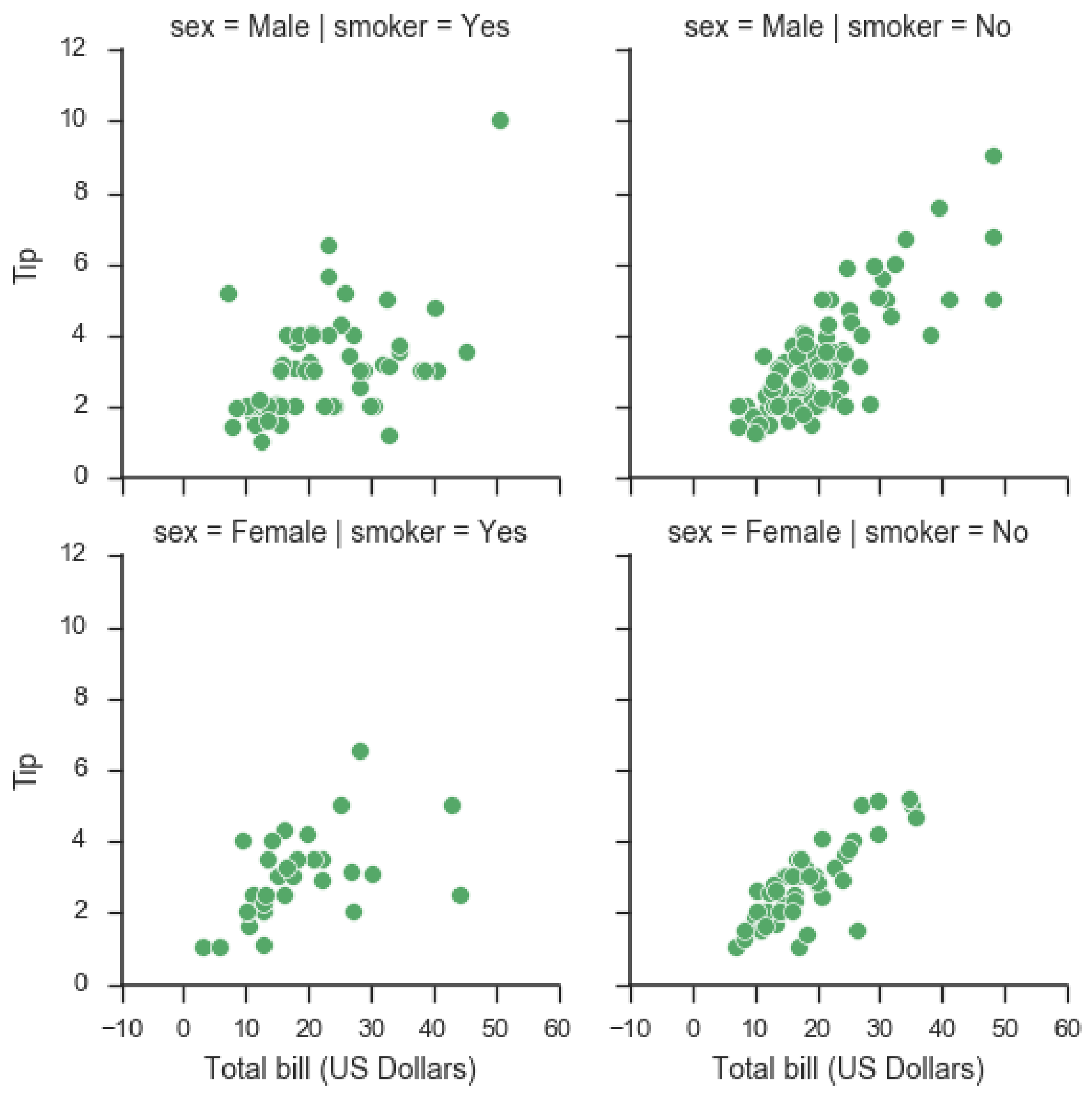
Define a custom function that uses a `DataFrame` object and accepts column names as positional variables:

```
>>> import pandas as pd
>>> df = pd.DataFrame(
...     data=np.random.randn(90, 4),
...     columns=pd.Series(list("ABCD"), name="walk"),
...     index=pd.date_range("2015-01-01", "2015-03-31",
...                         name="date"))
>>> df = df.cumsum(axis=0).stack().reset_index(name="val")
>>> def dateplot(x, y, **kwargs):
...     ax = plt.gca()
...     data = kwargs.pop("data")
...     data.plot(x=x, y=y, ax=ax, grid=False, **kwargs)
>>> g = sns.FacetGrid(df, col="walk", col_wrap=2, size=3.5)
>>> g = g.map_dataframe(dateplot, "date", "val")
```



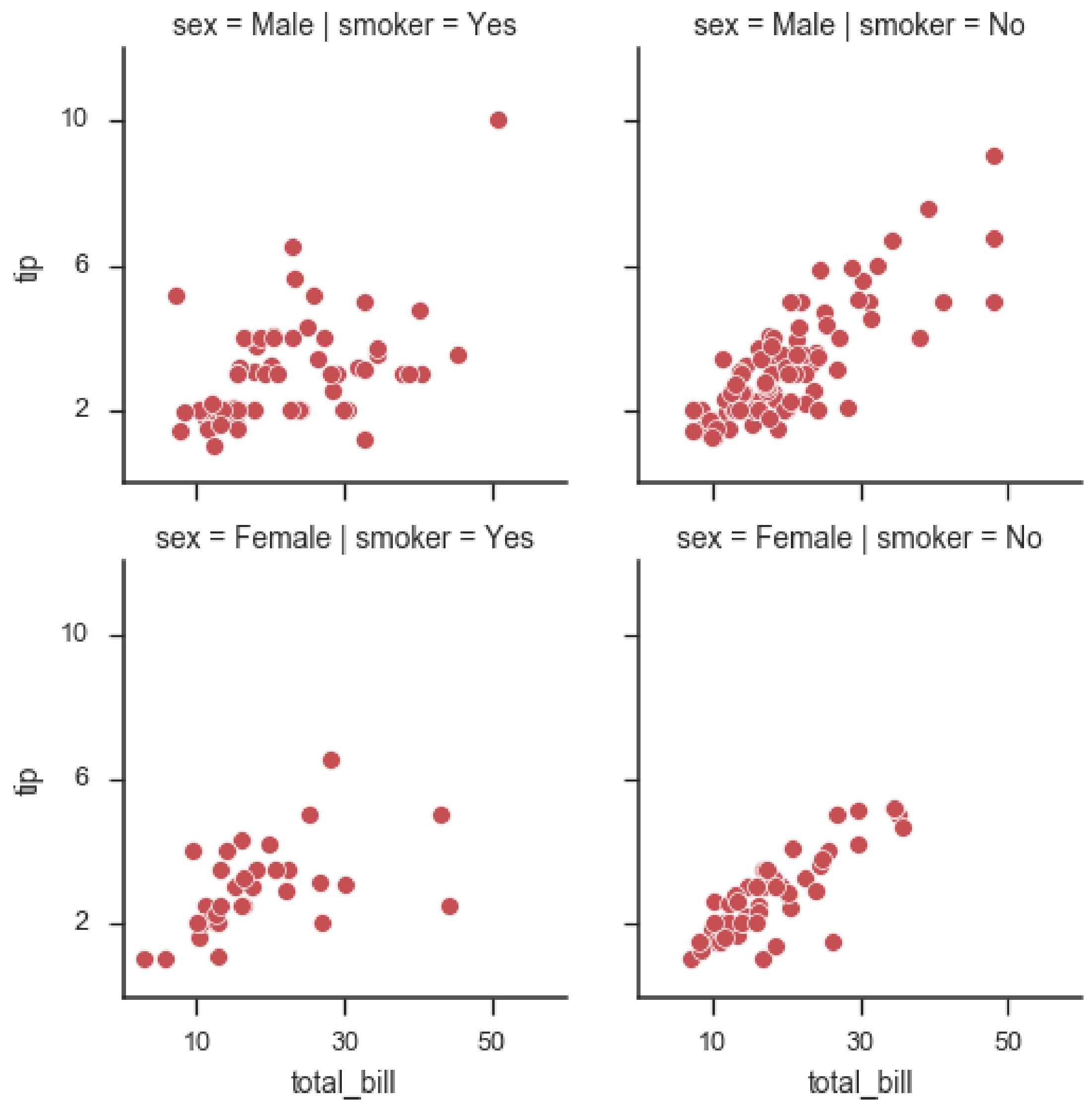
Use different axes labels after plotting:

```
>>> g = sns.FacetGrid(tips, col="smoker", row="sex")
>>> g = (g.map(plt.scatter, "total_bill", "tip", color="g", **kws)
...       .set_axis_labels("Total bill (US Dollars)", "Tip"))
```



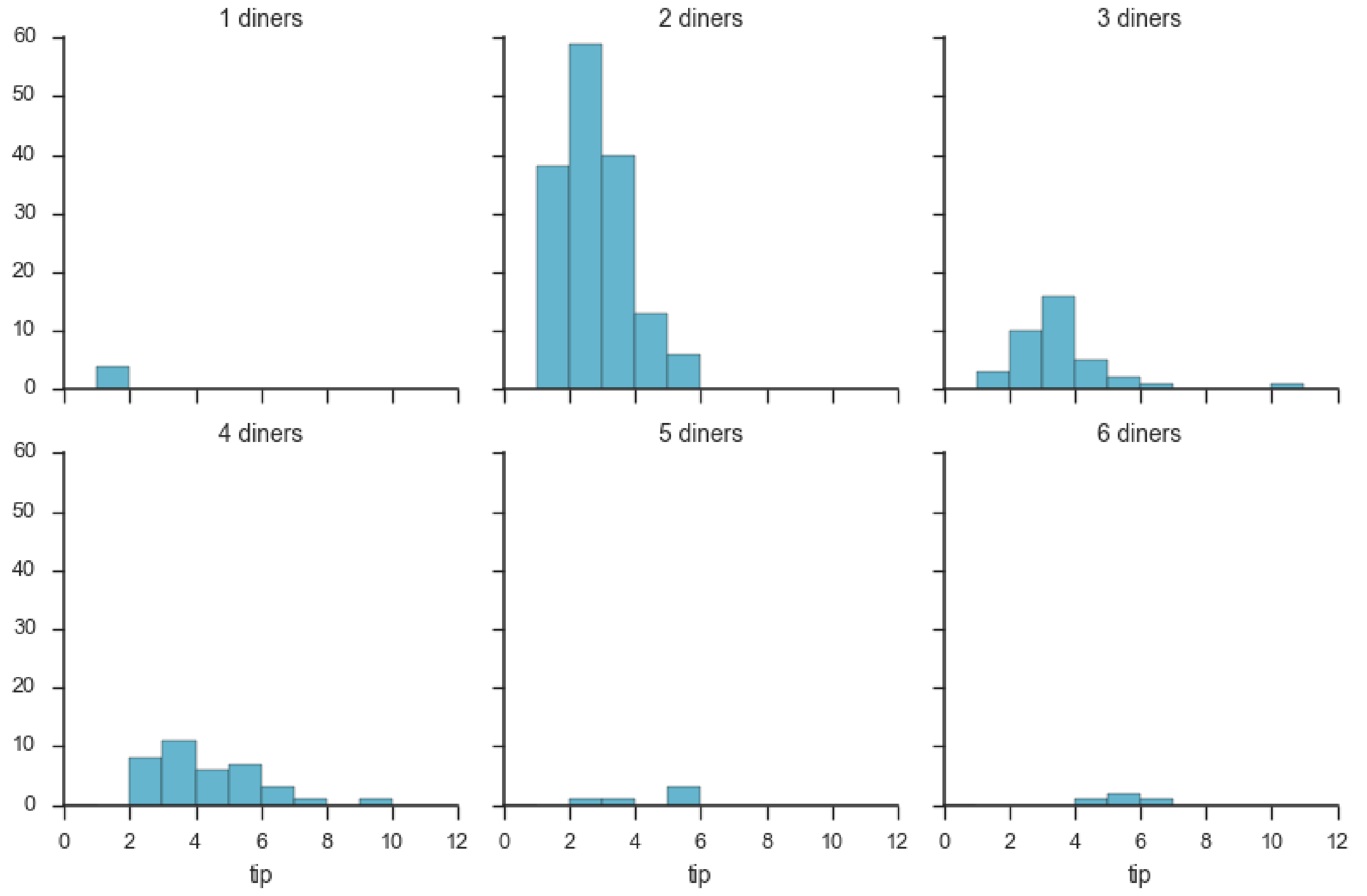
Set other attributes that are shared across the facetes:

```
>>> g = sns.FacetGrid(tips, col="smoker", row="sex")
>>> g = (g.map(plt.scatter, "total_bill", "tip", color="r", **kws)
...       .set(xlim=(0, 60), ylim=(0, 12),
...            xticks=[10, 30, 50], yticks=[2, 6, 10]))
```



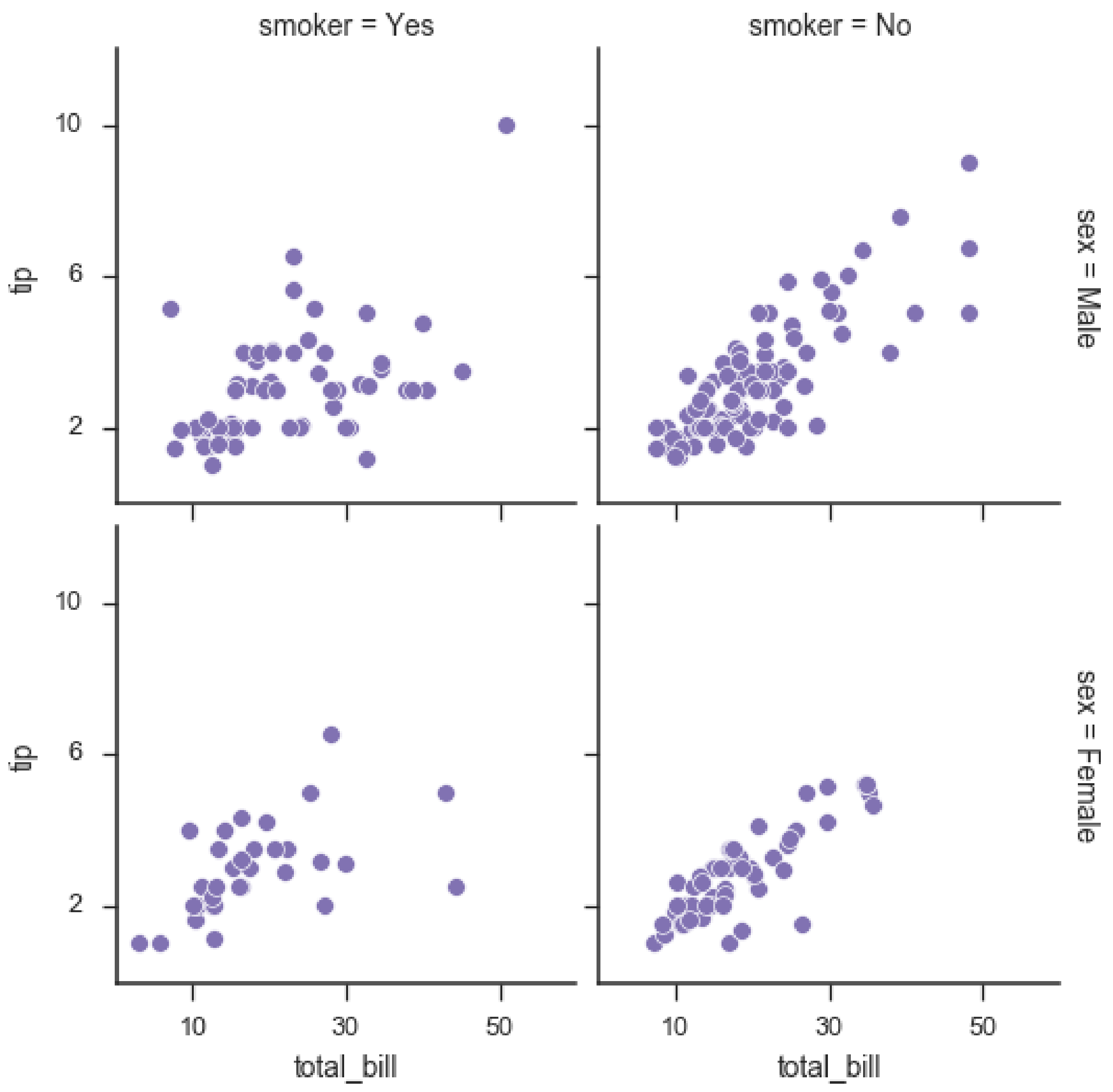
Use a different template for the facet titles:

```
>>> g = sns.FacetGrid(tips, col="size", col_wrap=3)
>>> g = (g.map(plt.hist, "tip", bins=np.arange(0, 13), color="c")
...       .set_titles("{col_name} diners"))
```



Tighten the facets:

```
>>> g = sns.FacetGrid(tips, col="smoker", row="sex",
...                   margin_titles=True)
>>> g = (g.map(plt.scatter, "total_bill", "tip", color="m", **kws)
...       .set(xlim=(0, 60), ylim=(0, 12),
...            xticks=[10, 30, 50], yticks=[2, 6, 10])
...       .fig.subplots_adjust(wspace=.05, hspace=.05))
```



Methods

__init__ (data[, row, col, hue, col_wrap, ...])	Initialize the matplotlib figure and FacetGrid object.

add_legend ([legend_data, title, label_order])	Draw a legend, maybe placing it outside axes and resizing the figure.
despine (**kwargs)	Remove axis spines from the facets.
facet_axis (row_i, col_j)	Make the axis identified by these indices active and return it.
facet_data ()	Generator for name indices and data subsets for each facet.
map (func, *args, **kwargs)	Apply a plotting function to each facet's subset of the data.
map_dataframe (func, *args, **kwargs)	Like *map* but passes args as strings and inserts data in kwargs.
savefig (*args, **kwargs)	Save the figure.
set (**kwargs)	Set attributes on each subplot Axes.
set_axis_labels ([x_var, y_var])	Set axis labels on the left column and bottom row of the grid.
set_titles ([template, row_template, ...])	Draw titles either above each facet or on the grid margins.
set_xlabels ([label])	Label the x axis on the bottom row of the grid.
set_xticklabels ([labels, step])	Set x axis tick labels on the bottom row of the grid.
set_ylabels ([label])	Label the y axis on the left column of the grid.
set_yticklabels ([labels])	Set y axis tick labels on the left column of the grid.

Attributes

ax	Easy access to single axes.

Source (../_sources/generated/seaborn.FacetGrid.txt) Back to top