

project percent-bachelors-degrees

July 15, 2020

```
[72]: %matplotlib inline
import pandas as pd
import matplotlib.pyplot as plt

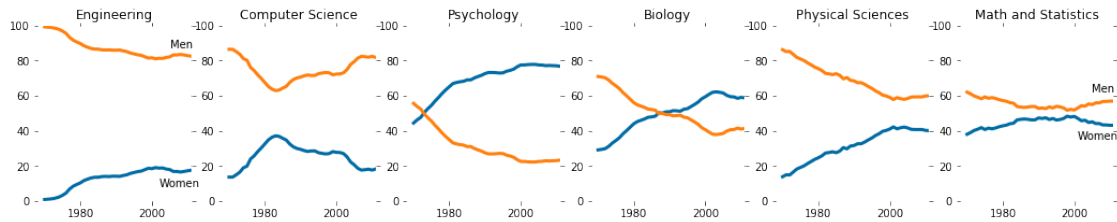
women_degrees = pd.read_csv('percent-bachelors-degrees-women-usa.csv')
cb_dark_blue = (0/255,107/255,164/255)
cb_orange = (255/255, 128/255, 14/255)
stem_cats = ['Engineering', 'Computer Science', 'Psychology', 'Biology',
             ↪ 'Physical Sciences', 'Math and Statistics']

fig = plt.figure(figsize=(18, 3))

for sp in range(0,6):
    ax = fig.add_subplot(1,6,sp+1)
    ax.plot(women_degrees['Year'], women_degrees[stem_cats[sp]],
    ↪ c=cb_dark_blue, label='Women', linewidth=3)
    ax.plot(women_degrees['Year'], 100-women_degrees[stem_cats[sp]],
    ↪ c=cb_orange, label='Men', linewidth=3)
    for key,spine in ax.spines.items():
        spine.set_visible(False)
    ax.set_xlim(1968, 2011)
    ax.set_ylim(0,100)
    ax.set_title(stem_cats[sp])
    ax.tick_params(bottom="off", top="off", left="off", right="off")

    if sp == 0:
        ax.text(2005, 87, 'Men')
        ax.text(2002, 8, 'Women')
    elif sp == 5:
        ax.text(2005, 62, 'Men')
        ax.text(2001, 35, 'Women')

plt.show()
```



1 Comparing across all degree categories.

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[35]: stem_cats = ['Psychology', 'Biology', 'Math and Statistics', 'Physical_
↳Sciences', 'Computer Science', 'Engineering']
lib_arts_cats = ['Foreign Languages', 'English', 'Communications and_
↳Journalism', 'Art and Performance', 'Social Sciences and History']
other_cats = ['Health Professions', 'Public Administration', 'Education',_
↳'Agriculture', 'Business', 'Architecture']
```

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[101]: fig = plt.figure(figsize=(16,25))
# Generating first column line chart for STEM degrees.

for sp in range(6):
    ax= fig.add_subplot(6,3, 3*sp+1)
    ax.plot(women_degrees['Year'], women_degrees[stem_cats[sp]],_
↳c=cb_dark_blue, label='Women', linewidth=3)
    ax.plot(women_degrees['Year'], 100-women_degrees[stem_cats[sp]],_
↳c=cb_orange, label='Men', linewidth=3)
    ax.set_title(stem_cats[sp])
    ax.set_ylim(0,100)
    ax.set_xlim(1968, 2011)
    ax.tick_params(bottom="off", top="off", left="off", right="off")
    for key, spine in ax.spines.items():
        spine.set_visible(False)
    if sp == 0:
        ax.text(2005,87, 'Men')
        ax.text(2002, 8, 'Women')
    elif sp==5:
        ax.text(2005,62, 'Men')
        ax.text(2001, 35, 'Women')
# Generating second column line chart for lib_arts_cats.
for sp in range(5):
    ax= fig.add_subplot(5,3, 3* sp+2)
    ax.plot(women_degrees['Year'], women_degrees[lib_arts_cats[sp]],_
↳c=cb_dark_blue, label='Women', linewidth=3)
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    ax.plot(women_degrees['Year'], 100-women_degrees[lib_arts_cats[sp]],  

    ↪c=cb_orange, label='Men', linewidth=3)  

    ax.set_title(lib_arts_cats[sp])  

    ax.set_ylim(0,100)  

    ax.set_xlim(1968, 2011)  

    ax.tick_params(bottom="off", top="off", left="off", right="off")  

    for key, spine in ax.spines.items():  

        spine.set_visible(False)  

    if sp == 0:  

        ax.text(2005,77, 'Men')  

        ax.text(2002, 8, 'Women')  

    elif sp==4:  

        ax.text(2004,55, 'Men')  

        ax.text(2004, 35, 'Women')  

# Generating second column line chart for other_cats.  
  

for sp in range(6):  

    ax= fig.add_subplot(6,3, 3* sp+3)  

    ax.plot(women_degrees['Year'], women_degrees[other_cats[sp]],  

    ↪c=cb_dark_blue, label='Women', linewidth=3)  

    ax.plot(women_degrees['Year'], 100-women_degrees[other_cats[sp]],  

    ↪c=cb_orange, label='Men', linewidth=3)  

    ax.set_title(other_cats[sp])  

    ax.set_ylim(0,100)  

    ax.set_xlim(1968, 2011)  

    ax.tick_params(bottom="off", top="off", left="off", right="off")  

    ax.tick_params(label)  

    for key, spine in ax.spines.items():  

        spine.set_visible(False)  

    if sp == 0:  

        ax.text(2005,90, 'Men')  

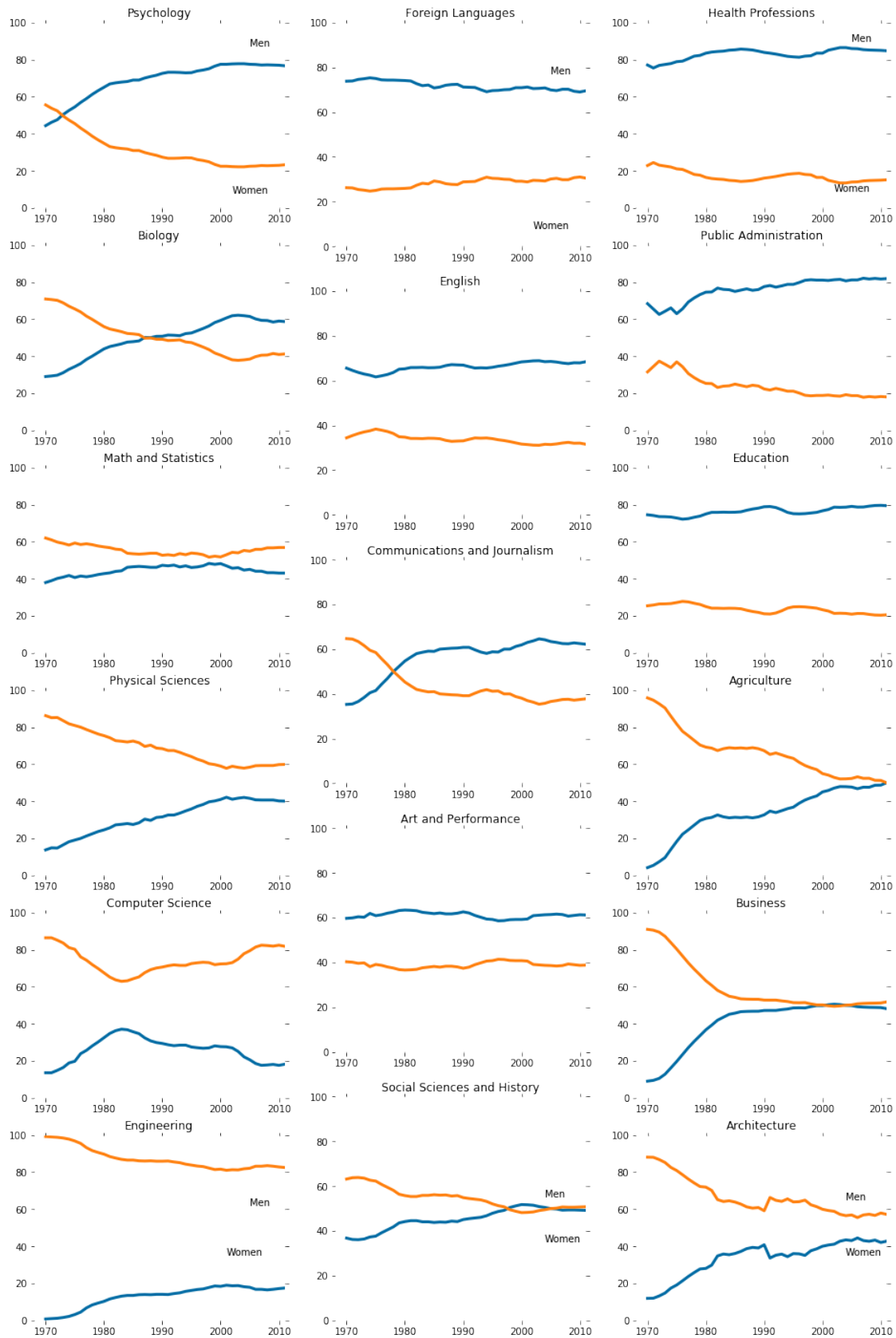
        ax.text(2002, 9, 'Women')  

    elif sp==5:  

        ax.text(2004,65, 'Men')  

        ax.text(2004, 35, 'Women')

```



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[123]: # Or other methods.
women_degrees = pd.read_csv('percent-bachelors-degrees-women-usa.csv')
cb_dark_blue = (0/255,107/255,164/255)
cb_orange = (255/255, 128/255, 14/255)
stem_cats = ['Psychology', 'Biology', 'Math and Statistics', 'Physical_
↳Sciences', 'Computer Science', 'Engineering']
lib_arts_cats = ['Foreign Languages', 'English', 'Communications and_
↳Journalism', 'Art and Performance', 'Social Sciences and History']
other_cats = ['Health Professions', 'Public Administration', 'Education',_
↳'Agriculture', 'Business', 'Architecture']

fig = plt.figure(figsize=(16, 25))

for i in range(0,3):
    a=i+1
    if a == 1 :
        for sp in range(0,6):
            ax1=fig.add_subplot(6,3,a)
            ax1.plot(women_degrees['Year'], women_degrees[stem_cats[sp]],_
↳c=cb_dark_blue, label='Women', linewidth=3)
            ax1.plot(women_degrees['Year'], 100-women_degrees[stem_cats[sp]],_
↳c=cb_orange, label='Men', linewidth=3)
            ax1.set_title(stem_cats[sp])
            a+=3
            for key,spines in ax1.spines.items():
                spines.set_visible(False)
            ax1.set_xlim(1968, 2011)
            ax1.set_ylim(0,100)
            ax1.tick_params(bottom="off", top="off", left="off",_
↳right="off", labelbottom='off')
            ax1.set_yticks([0,100]) # Removing a y-axis ticks.
            ax1.axhline(50, c=(171/255, 171/255, 171/255), alpha=0.3) #_
↳Adding a horizontal line.

            if sp == 0:
                ax1.text(2005, 87, 'Men')
                ax1.text(2002, 8, 'Women')
            elif sp == 5:
                ax1.text(2005, 62, 'Men')
                ax1.text(2001, 35, 'Women')
            ax1.tick_params(labelbottom='on')

        elif a == 2 :

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    for sp in range(0,5):
        ax2=fig.add_subplot(6,3,a)
        ax2.plot(women_degrees['Year'], women_degrees[lib_arts_cats[sp]],
        ↪c=cb_dark_blue, label='Women', linewidth=3)
        ax2.plot(women_degrees['Year'],
        ↪100-women_degrees[lib_arts_cats[sp]], c=cb_orange, label='Men', linewidth=3)
        ax2.set_title(lib_arts_cats[sp])

        a+=3
        for key,spines in ax2.spines.items():
            spines.set_visible(False)
            ax2.set_xlim(1968, 2011)
            ax2.set_ylim(0,100)
            ax2.tick_params(bottom="off", top="off", left="off",
        ↪right="off", labelbottom='off')
            ax2.set_yticks([0,100]) # Removing a y-axis ticks.
            ax2.axhline(50, c=(171/255, 171/255, 171/255), alpha=0.3) #
        ↪Adding a horizontal line.

        if sp == 0:
            ax2.text(2005, 87, 'Men')
            ax2.text(2002, 8, 'Women')
        elif sp == 4:
            ax2.text(2005, 62, 'Men')
            ax2.text(2001, 35, 'Women')
            ax2.tick_params(labelbottom='on')

    elif a == 3 :
        for sp in range(0,6):
            ax3=fig.add_subplot(6,3,a)
            ax3.plot(women_degrees['Year'], women_degrees[other_cats[sp]],
            ↪c=cb_dark_blue, label='Women', linewidth=3)
            ax3.plot(women_degrees['Year'], 100-women_degrees[other_cats[sp]],
            ↪c=cb_orange, label='Men', linewidth=3)
            ax3.set_title(other_cats[sp])

            a+=3
            for key,spines in ax3.spines.items():
                spines.set_visible(False)
                ax3.set_xlim(1968, 2011)
                ax3.set_ylim(0,100)
                ax3.tick_params(bottom="off", top="off", left="off",
            ↪right="off", labelbottom='off')
                ax3.set_yticks([0,100]) # Removing a y-axis ticks.

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```
        ax3.axhline(50,c='green', alpha=0.3)# Adding a horizontal line.
if sp == 0:
    ax3.text(2005, 87, 'Men')
    ax3.text(2002, 8, 'Women')
elif sp == 5:
    ax3.text(2005, 62, 'Men')
    ax3.text(2001, 35, 'Women')
ax3.tick_params(labelbottom='on')
```

```
plt.show()
```



2 Exporting images to file.

```
[127]: women_degrees = pd.read_csv('percent-bachelors-degrees-women-usa.csv')
cb_dark_blue = (0/255,107/255,164/255)
cb_orange = (255/255, 128/255, 14/255)
stem_cats = ['Psychology', 'Biology', 'Math and Statistics', 'Physical_
↳Sciences', 'Computer Science', 'Engineering']
lib_arts_cats = ['Foreign Languages', 'English', 'Communications and_
↳Journalism', 'Art and Performance', 'Social Sciences and History']
other_cats = ['Health Professions', 'Public Administration', 'Education',_
↳'Agriculture', 'Business', 'Architecture']

fig = plt.figure(figsize=(16, 26))

for i in range(0,3):
    a=i+1
    if a == 1 :
        for sp in range(0,6):
            ax1=fig.add_subplot(6,3,a)
            ax1.plot(women_degrees['Year'], women_degrees[stem_cats[sp]],_
↳c=cb_dark_blue, label='Women', linewidth=3)
            ax1.plot(women_degrees['Year'], 100-women_degrees[stem_cats[sp]],_
↳c=cb_orange, label='Men', linewidth=3)
            ax1.set_title(stem_cats[sp])
            a+=3
            for key,spines in ax1.spines.items():
                spines.set_visible(False)
            ax1.set_xlim(1968, 2011)
            ax1.set_ylim(0,100)
            ax1.tick_params(bottom="off", top="off", left="off",_
↳right="off", labelbottom='off')
            ax1.set_yticks([0,100]) # Removing a y-axis ticks.
            ax1.axhline(50, c=(171/255, 171/255, 171/255), alpha=0.3) #_
↳Adding a horizontal line.

            if sp == 0:
                ax1.text(2005, 87, 'Men')
                ax1.text(2002, 8, 'Women')
            elif sp == 5:
                ax1.text(2005, 62, 'Men')
                ax1.text(2001, 35, 'Women')
            ax1.tick_params(labelbottom='on')
```

```

elif a == 2 :
    for sp in range(0,5):
        ax2=fig.add_subplot(6,3,a)
        ax2.plot(women_degrees['Year'], women_degrees[lib_arts_cats[sp]],
        ↪c=cb_dark_blue, label='Women', linewidth=3)
        ax2.plot(women_degrees['Year'],
        ↪100-women_degrees[lib_arts_cats[sp]], c=cb_orange, label='Men', linewidth=3)
        ax2.set_title(lib_arts_cats[sp])

        a+=3
        for key,spines in ax2.spines.items():
            spines.set_visible(False)
            ax2.set_xlim(1968, 2011)
            ax2.set_ylim(0,100)
            ax2.tick_params(bottom="off", top="off", left="off",
            ↪right="off", labelbottom='off')
            ax2.set_yticks([0,100]) # Removing a y-axis ticks.
            ax2.axhline(50, c=(171/255, 171/255, 171/255), alpha=0.3) #
            ↪Adding a horizontal line.

        if sp == 0:
            ax2.text(2005, 87, 'Men')
            ax2.text(2002, 8, 'Women')
        elif sp == 4:
            ax2.text(2005, 62, 'Men')
            ax2.text(2001, 35, 'Women')
        ax2.tick_params(labelbottom='on')

elif a == 3 :
    for sp in range(0,6):
        ax3=fig.add_subplot(6,3,a)
        ax3.plot(women_degrees['Year'], women_degrees[other_cats[sp]],
        ↪c=cb_dark_blue, label='Women', linewidth=3)
        ax3.plot(women_degrees['Year'], 100-women_degrees[other_cats[sp]],
        ↪c=cb_orange, label='Men', linewidth=3)
        ax3.set_title(other_cats[sp])

        a+=3
        for key,spines in ax3.spines.items():
            spines.set_visible(False)
            ax3.set_xlim(1968, 2011)

```

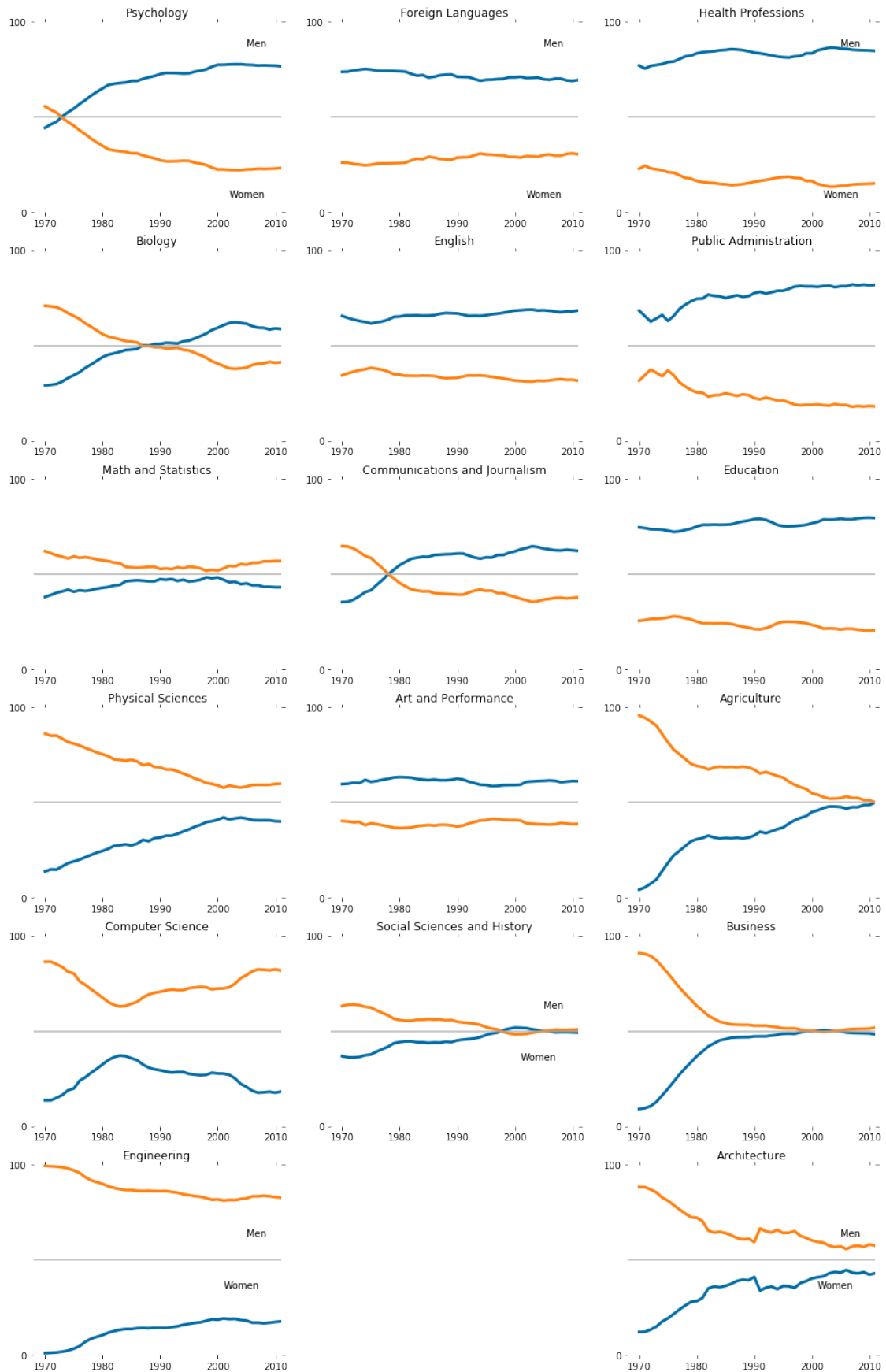
```

        ax3.set_ylim(0,100)
        ax3.tick_params(bottom="off", top="off", left="off",
→right="off", labelbottom='off')
        ax3.set_yticks([0,100]) # Removing a y-axis ticks.
        ax3.axhline(50,c=(171/255, 171/255, 171/255), alpha=0.3)#
→Adding a horizontal line.
        if sp == 0:
            ax3.text(2005, 87, 'Men')
            ax3.text(2002, 8, 'Women')
        elif sp == 5:
            ax3.text(2005, 62, 'Men')
            ax3.text(2001, 35, 'Women')
        ax3.tick_params(labelbottom='on')

plt.savefig("gender_degrees.png") # To save file.

plt.show()

```



[]: