Visualizing Categorical Time Series

a simple hard thing in matplotlib

Jeff Abrahamson

Jellybooks

2 December 2014

It’s a race!

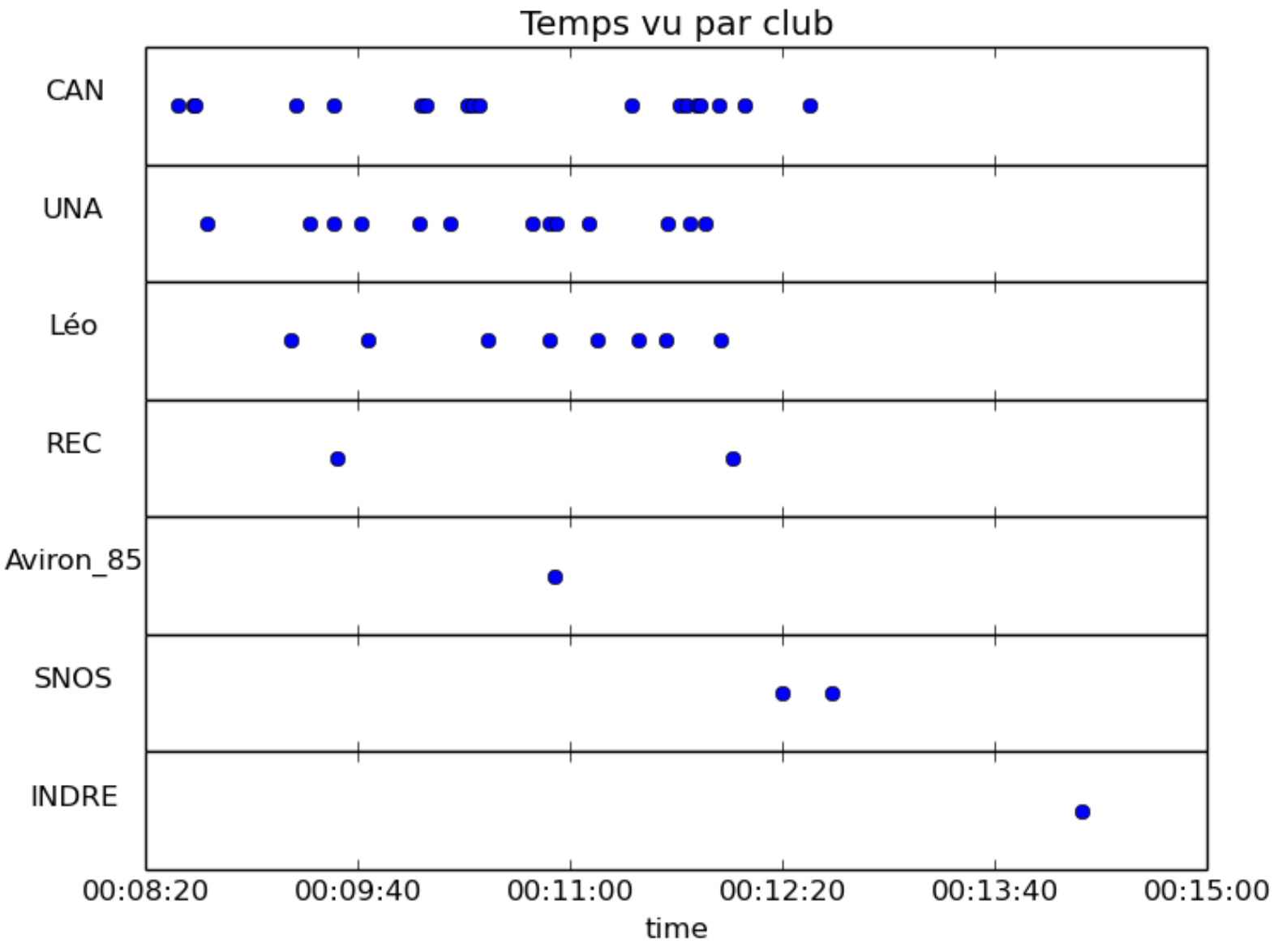
It’s a race!

What I want

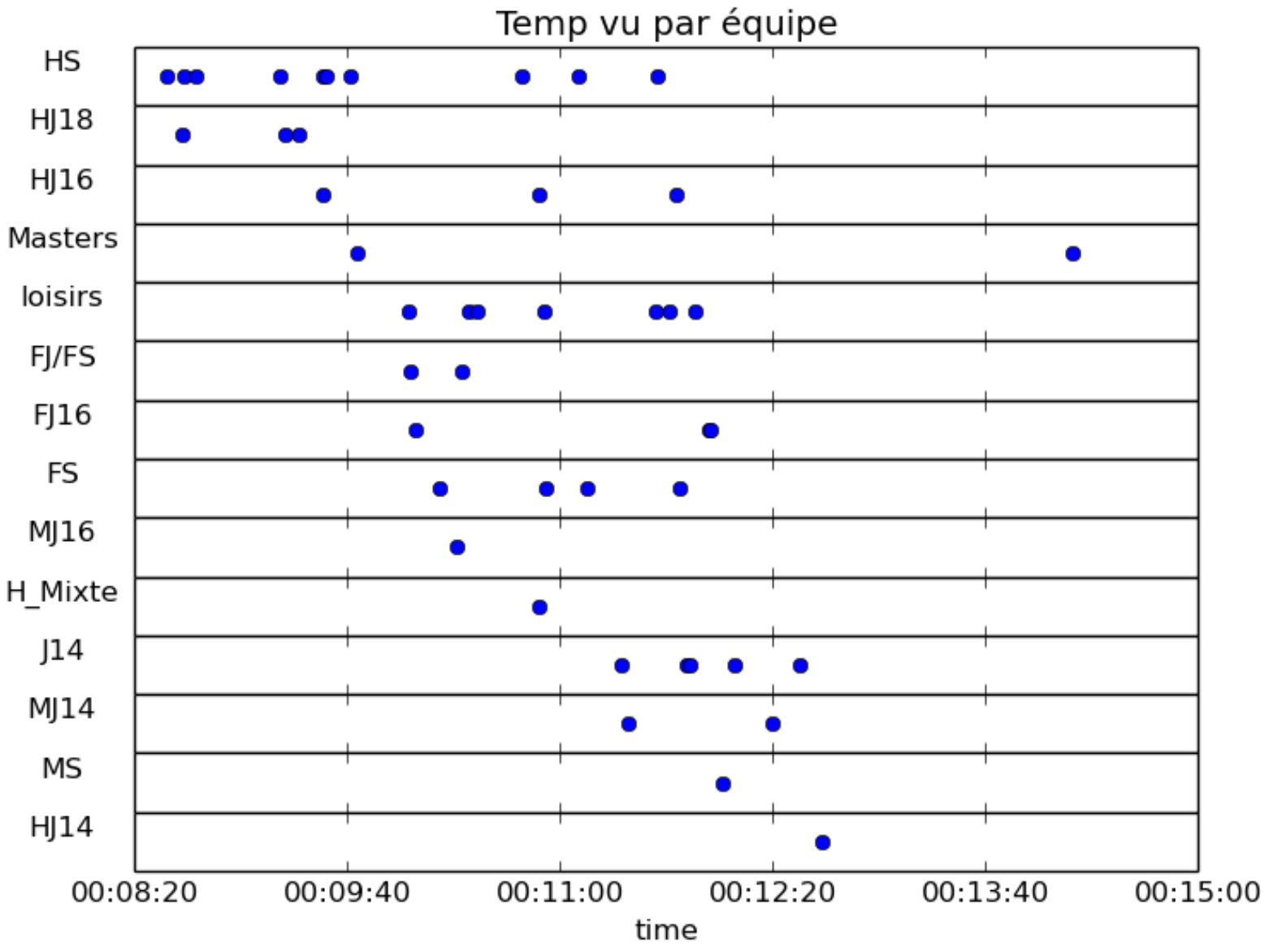
How did we do?

- by club?
- by category?

What I want


Temps vu par club
CAN
UNA
Léo
REC
Aviron_85
SNOS
INDRE
00:08:20
00:09:40
00:11:00
00:12:20
00:13:40
00:15:00
time

What I want


Temp vu par équipe
HS
HJ18
HJ16
Masters
loisirs
FJ/FS
FJ16
FS
MJ16
H_Mixte
J14
MJ14
MS
HJ14
00:08:20
00:09:40
00:11:00
00:12:20
00:13:40
00:15:00
time

Code

```
plot(these_times.time.as_matrix(),
     np.ones(len(these_times)), 'o')
```

Code

```
import matplotlib.pyplot as plt

these_times = times[times.team == team]
plt.plot(these_times.time.as_matrix(),
         np.ones(len(these_times)), 'o')
plt.set_ylabel(team, rotation='horizontal',
               labelpad=30)
plt.set_ybound(0.5, 1.5)
plt.set_position([0.1, 0.1, 8.0, 1.0])
plt.set_yticks([])
```

Code

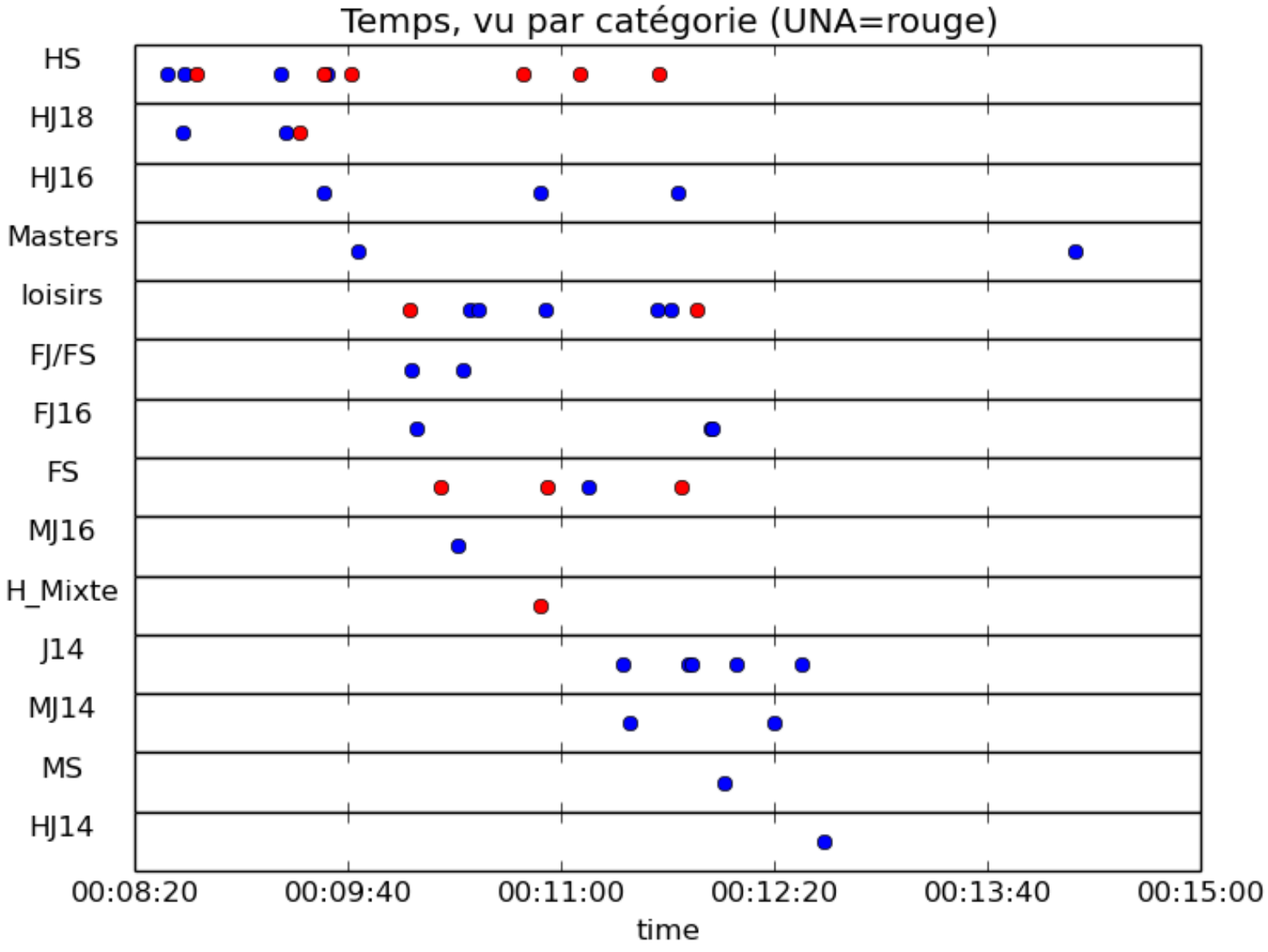
```
import matplotlib.pyplot as plt

these_times = times[times.team == team]
ax[index].plot(these_times.time.as_matrix(),
          np.ones(len(these_times)), 'o')
ax[index].set_ylabel(team, rotation='horizontal',
                labelpad=30)
ax[index].set_ybound(0.5, 1.5)
ax[index].set_position([0.1, 0.1, 8.0, 1.0])
ax[index].set_yticks([])
```

Code

```
teams = times.team.unique()      # ['time', 'team']
fig, ax = plt.subplots(len(teams),
                       sharex=True, sharey=True)
for index, team in enumerate(teams):
    these_times = times[times.team == team]
    # and do what was on the previous slide
ax[0].set_title('Time by team')
min_tick = ax[0].get_xticks().min()
max_tick = ax[0].get_xticks().max()
ax[0].set_xticks(np.linspace(min_tick,
                             max_tick, 6))
fig.subplots_adjust(hspace=0)
```

I want more!


Temps, vu par catégorie (UNA=rouge)
HS
HJ18
HJ16
Masters
loisirs
FJ/FS
FJ16
FS
MJ16
H_Mixte
J14
MJ14
MS
HJ14
00:08:20
00:09:40
00:11:00
00:12:20
00:13:40
00:15:00
time

I want more!

Remember when we said this?

```
these_times = times[times.team == team]
ax[index].plot(these_times.time.as_matrix(),
               np.ones(len(these_times)), 'o')
```

I want more!

So instead say this:

```
others_times = times[(times.category == category)
                     & (times.club != 'UNA')]
our_times = times[(times.category == category)
                  & (times.club == 'UNA')]
ax[index].plot(others_times.time.as_matrix(),
               np.ones(len(others_times)), 'bo')
ax[index].plot(our_times.time.as_matrix(),
               np.ones(len(our_times)), 'ro')
```

And everyone is happy!

Questions ?

github.com/JeffAbrahamson/talks/