F1 2012 Brazil - P3 Overall Classification vs Sector Rank

Examples of how current classification or interval between best laptimes may be plotted against sector rank to show which sectors a driver is underperforming in and how the drivers are bunched.
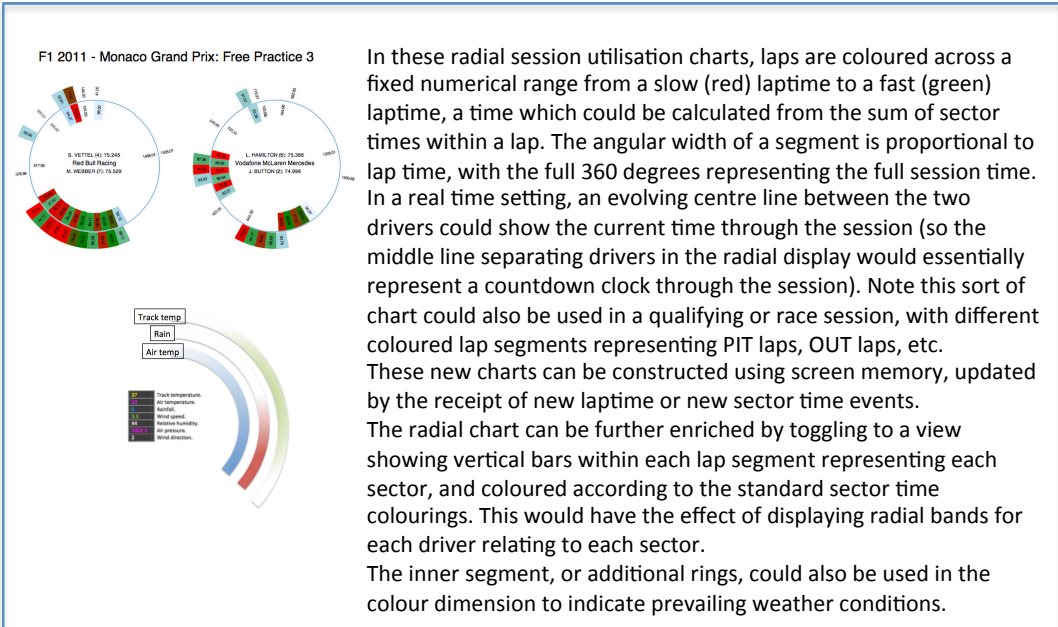
Using just data from the timing feed, we would have to use driver racing number rather than three letter code. If the charts are left unlabeled, points for a particular sector can be plotted by grabbing the sector time column and using row index values for identifying overall classification (i.e. we would not require access to the row based event – single timing feed messages would suffice).

The right hand chart may also use overall classification for the x-axis values.

If a car is in the pits, and their best sector times displayed, we might perhaps colour driver label red (rather than the solid yellows otherwise displayed; we know the driver is in the pits if their driver number on the timing screen is set to red). The other labels might be coloured as they are on timing screen.

F1 2012 Brazil - P3 Sector Deltas vs Classification
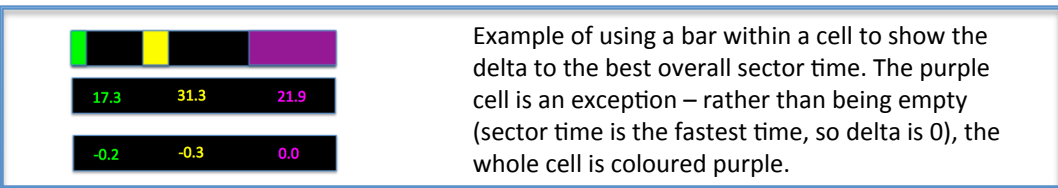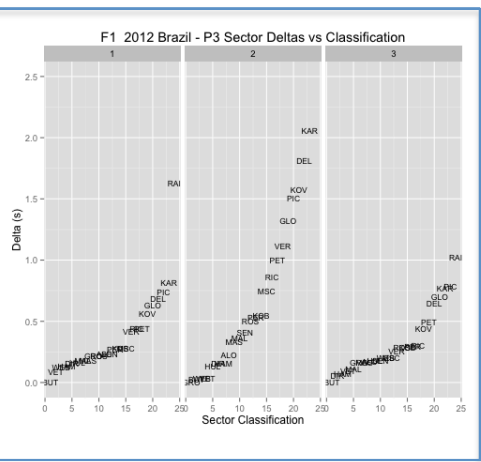
Example of using a bar within a cell to show the delta to the best overall sector time. The purple cell is an exception – rather than being empty (sector time is the fastest time, so delta is 0), the whole cell is coloured purple.

Session utilisation charts provide one way of recording on-track activity during a session as a basis for understanding stories about the session. The first time uses session time (or time of day) along the horizontal x-axis of the chart, and a nominal driver category on the vertical y-axis.

F1 2011 Monaco FP3 - Utilisation

Circles represent that the driver went on track at a particular time. The chart does not display lap performance information. However, circles could be coloured green (improvement on previous timed lap), purple (best in session to date) or blue/cyan(?) (driver's best lap to date?) if we can index the previous lap time recorded for that driver. What the chart does show is how each driver/team utilised the session, making clear any long runs or race simulations in Practice 2, for example. This view is more informative than a simple lap count because it shows the distribution of laps across the session. (Five laps in sequence tells a different story than five single laps each 15 mins apart.) This view might be enriched with weather information, for example, using pastel background colour bands to represent the prevailing weather conditions at the time. Alternatively, a paired line chart underneath the session utilisation chart could record weather conditions such as temperature, rainfall etc across the session. Reading the two charts in association with each other would allow you to see what the prevailing weather conditions while the different drivers were out on track. (So for example, you might learn that a particular driver had no wet running in a session, whereas a competitor did.)

F1 2011 - Monaco Grand Prix: Free Practice 3

In these radial session utilisation charts, laps are coloured across a fixed numerical range from a slow (red) laptime to a fast (green) laptime, a time which could be calculated from the sum of sector times within a lap. The angular width of a segment is proportional to lap time, with the full 360 degrees representing the full session time. In a real time setting, an evolving centre line between the two drivers could show the current time through the session (so the middle line separating drivers in the radial display would essentially represent a countdown clock through the session). Note this sort of chart could also be used in a qualifying or race session, with different coloured lap segments representing PIT laps, OUT laps, etc.

These new charts can be constructed using screen memory, updated by the receipt of new laptime or new sector time events.

The radial chart can be further enriched by toggling to a view showing vertical bars within each lap segment representing each sector, and coloured according to the standard sector time colourings. This would have the effect of displaying radial bands for each driver relating to each sector.

The inner segment, or additional rings, could also be used in the colour dimension to indicate prevailing weather conditions.

Images used are images I have created previously. I didn't have time to recreate images using the example data feed, but all data used to generate these sorts of plot can be derived from the example timing data. tony.hirst@gmail.com