Segmentation of Trip Data - Part2

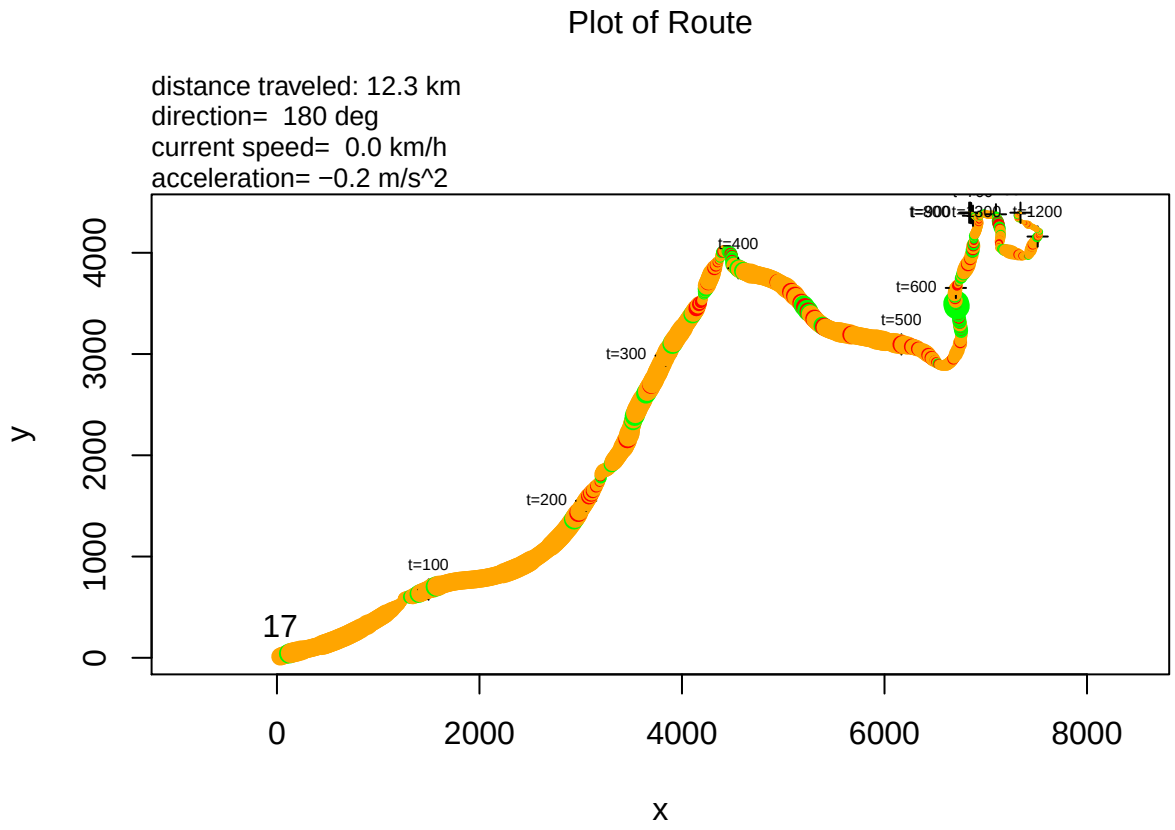
Dave Hurst

Thursday, December 25, 2014

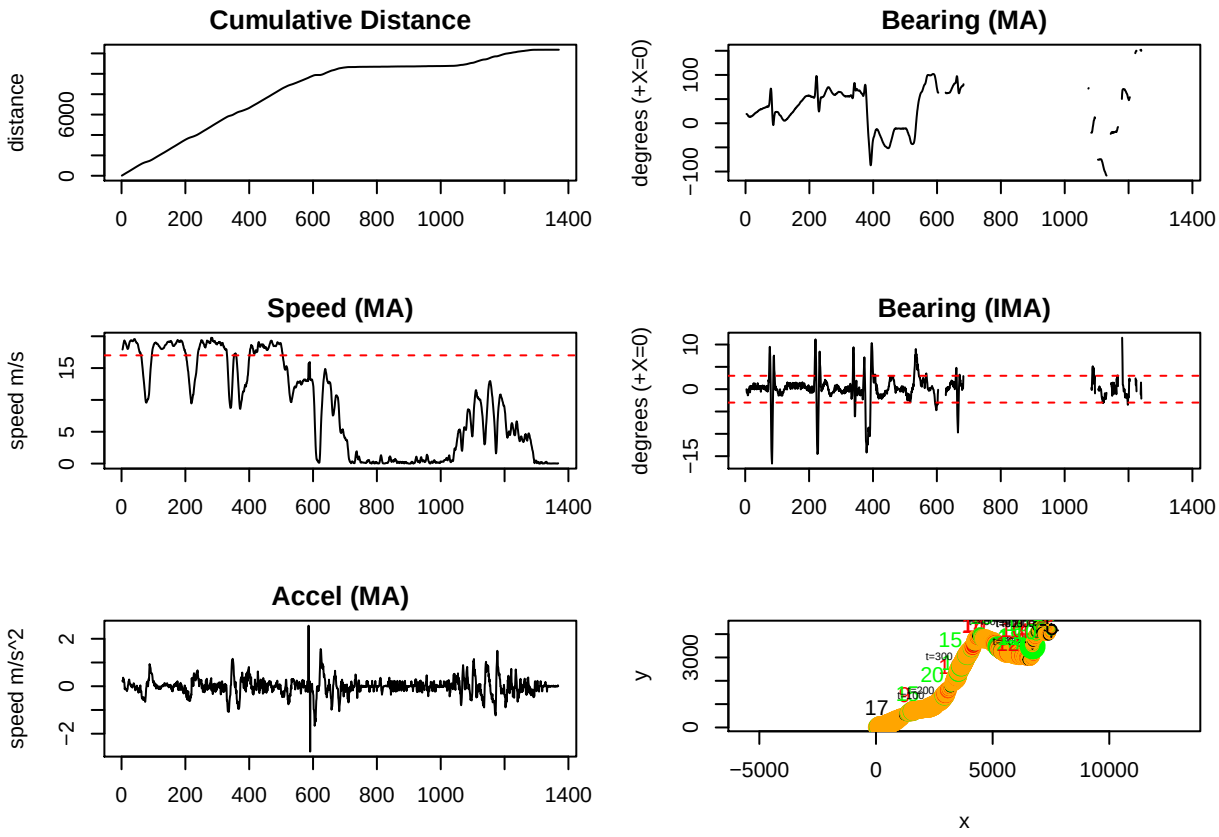
Notes for automating detection of straight trip segments

Now we've got the 99th trip for driver 2591 in memory.

```
plotTrip(trip, v.mark=50)
```




```
plotTripSegment6(trip, 1, 2000)
```

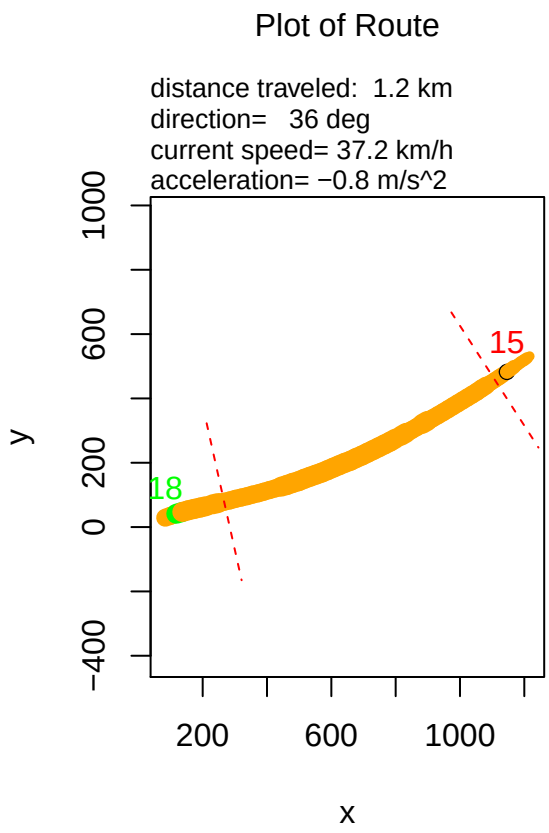


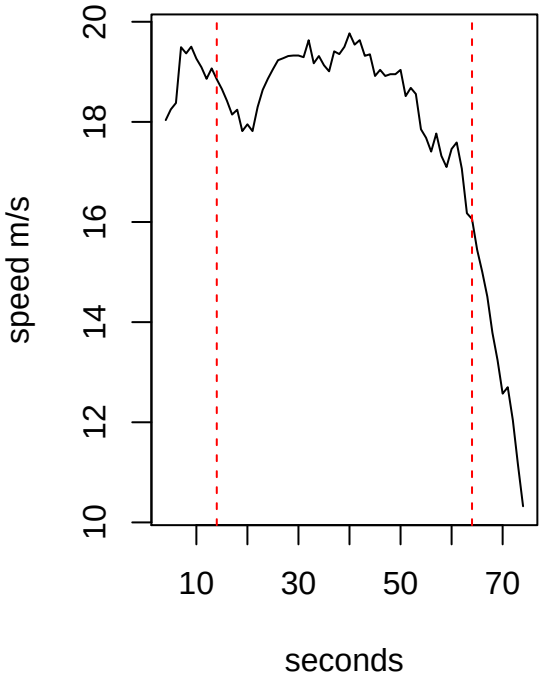

```
ss <- segment.parse.bearing(trip)
```

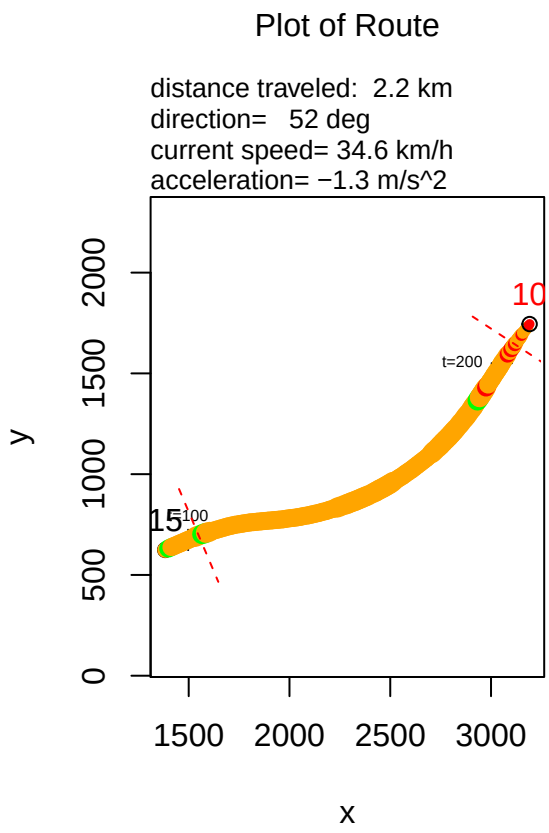
4 segments were detected.

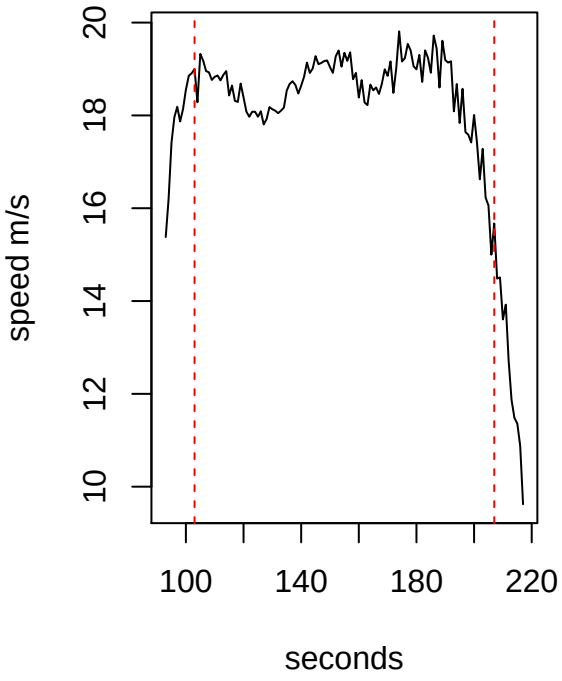
Note: in Part1 I suggested the trip should start where the bearing switched direction and then headed out of the zone. It was easier just to mark the last point that was in the zone, and then shrink the zone a little. That may be better anyway. I still need to interate on a good shrink factor. 10 seconds seems like a good first guess.

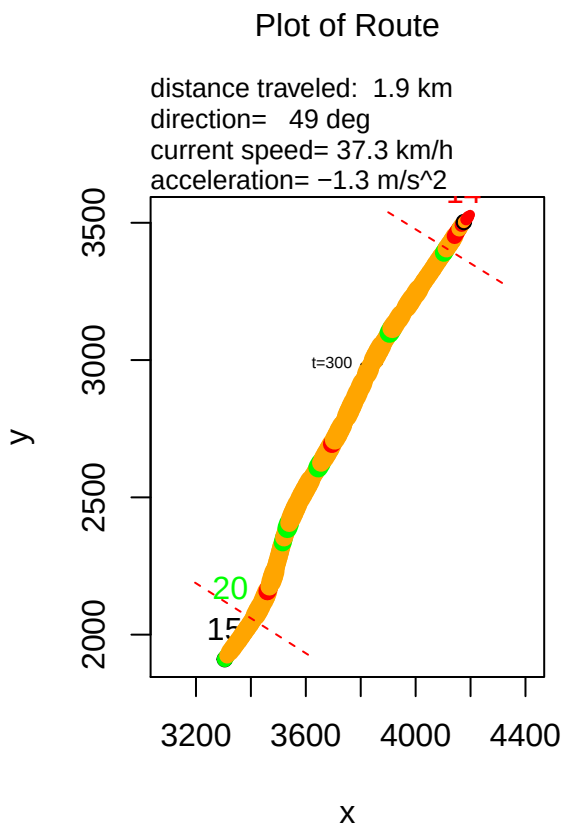
```
for(i in 1:nrow(ss)) {
    t1 <- ss$t0[i]
    t2 <- ss$t0[i] + ss$tlen[i]
    shrink <- 10
    plotTripSegment(trip, t1, t2, b.marks=c( t1+shrink, t2-shrink  ) )
}
```

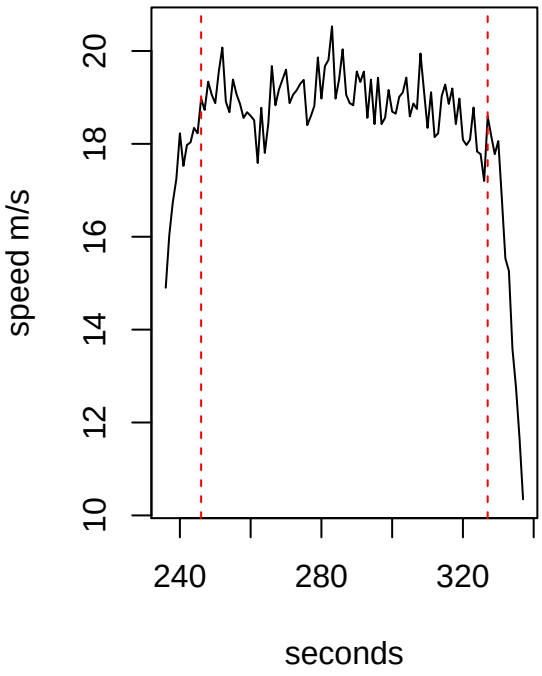

Plot of Route
distance traveled: 1.2 km
direction= 36 deg
current speed= 37.2 km/h
acceleration= −0.8 m/s^2
18
15
y
x
−400
0
200
600
1000
200
600
1000

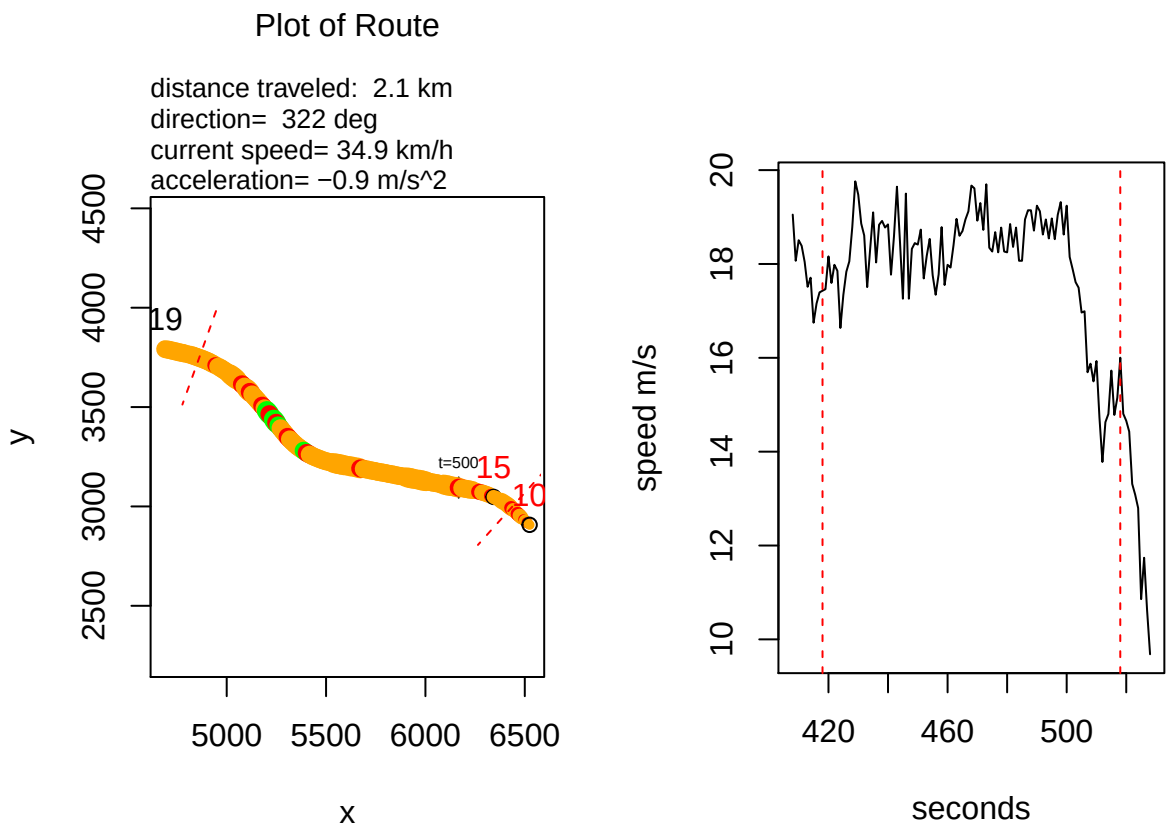

speed m/s
seconds
10
12
14
16
18
20
10
30
50
70


Plot of Route
distance traveled: 2.2 km
direction= 52 deg
current speed= 34.6 km/h
acceleration= −1.3 m/s^2
t=200
15
100
10
y
x
0
500
1000
1500
2000
1500
2000
2500
3000


speed m/s
seconds
10
12
14
16
18
20
100
140
180
220

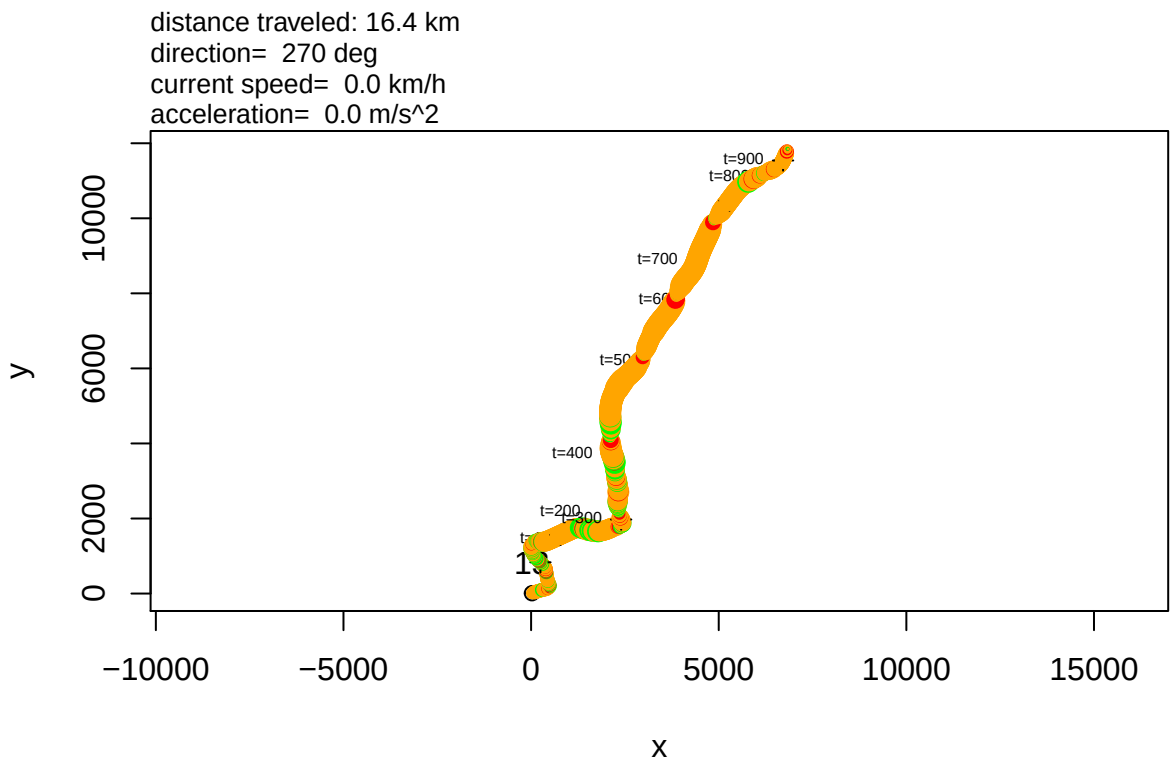

Plot of Route
distance traveled: 1.9 km
direction= 49 deg
current speed= 37.3 km/h
acceleration= −1.3 m/s^2
t=300
20
15
y
x
2000
2500
3000
3500
3200
3600
4000
4400


speed m/s
seconds
10
12
14
16
18
20
240
280
320



Repeat for another trip: (Note this almost looks like a return trip of the first)

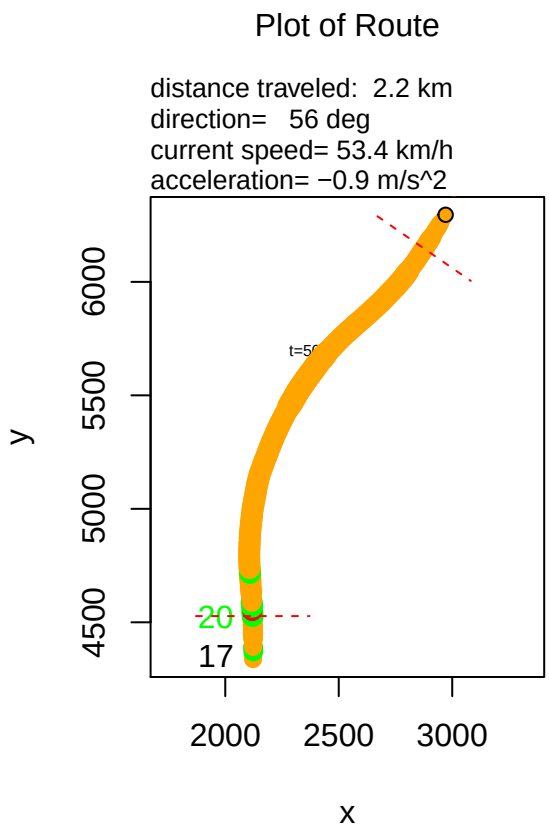
```
trip <- getTrip( driver.id, 199 )
plotTrip(trip, v.mark=50)
```

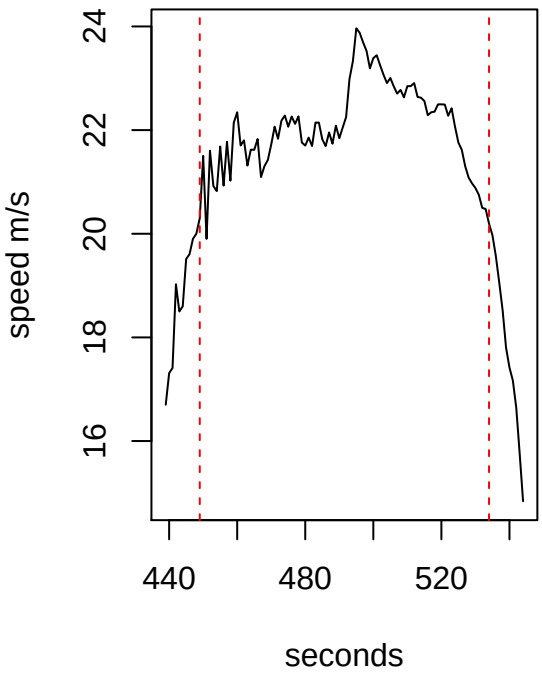


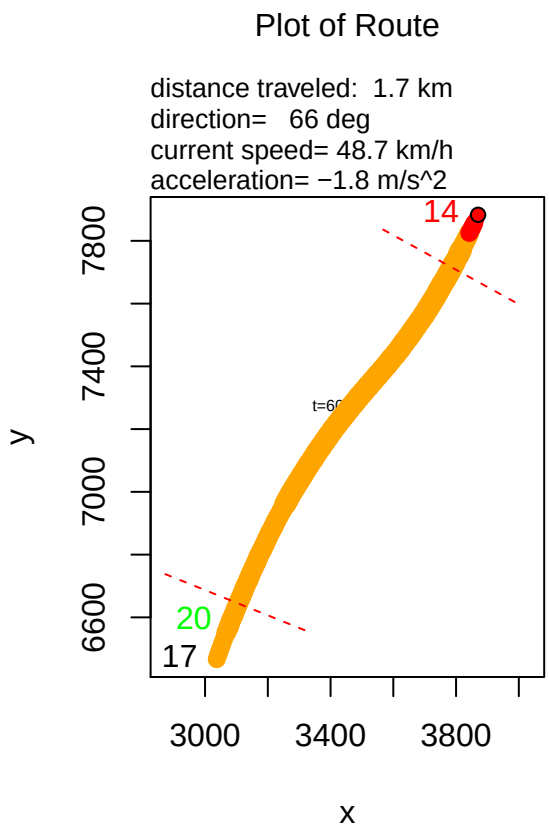

```
ss <- segment.parse.bearing(trip)
cat (nrow(ss), "segments were detected.\n")
```

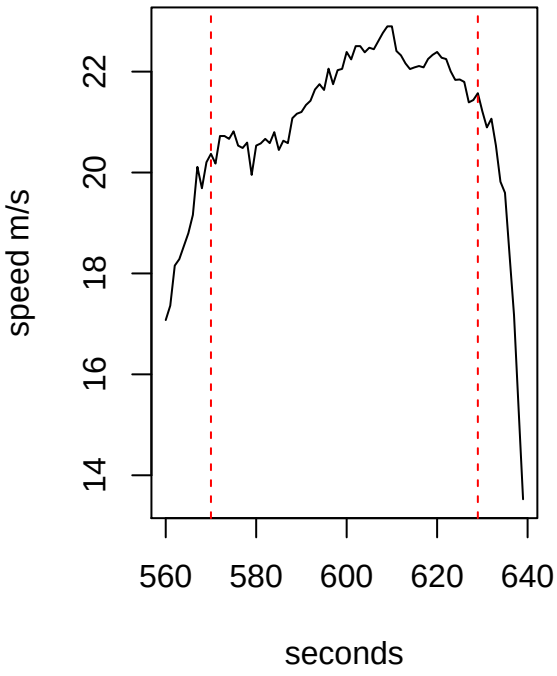
```
## 4 segments were detected.
```

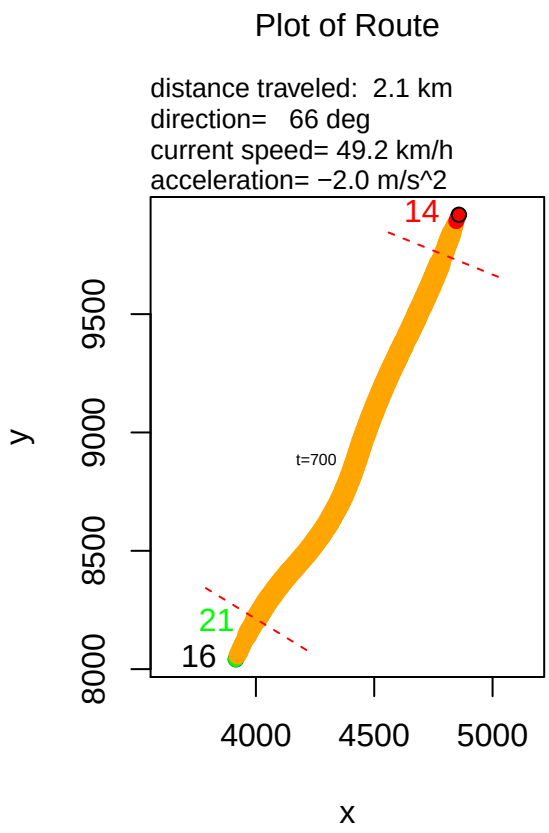
```
for(i in 1:nrow(ss)) {
    t1 <- ss$t0[i]
    t2 <- ss$t0[i] + ss$tlen[i]
    shrink <- 10
    plotTripSegment(trip, t1, t2, b.marks=c( t1+shrink, t2-shrink  ) )
}
```

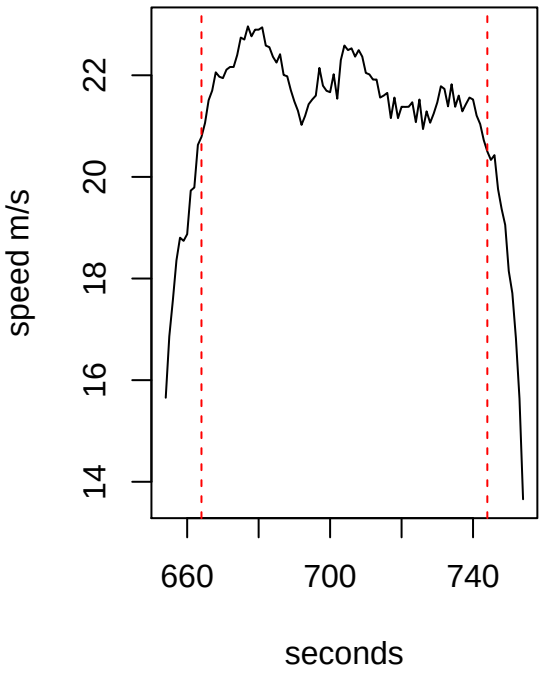

Plot of Route
distance traveled: 2.2 km
direction= 56 deg
current speed= 53.4 km/h
acceleration= −0.9 m/s^2
y
4500
5000
5500
6000
20
17
2000
2500
3000
x

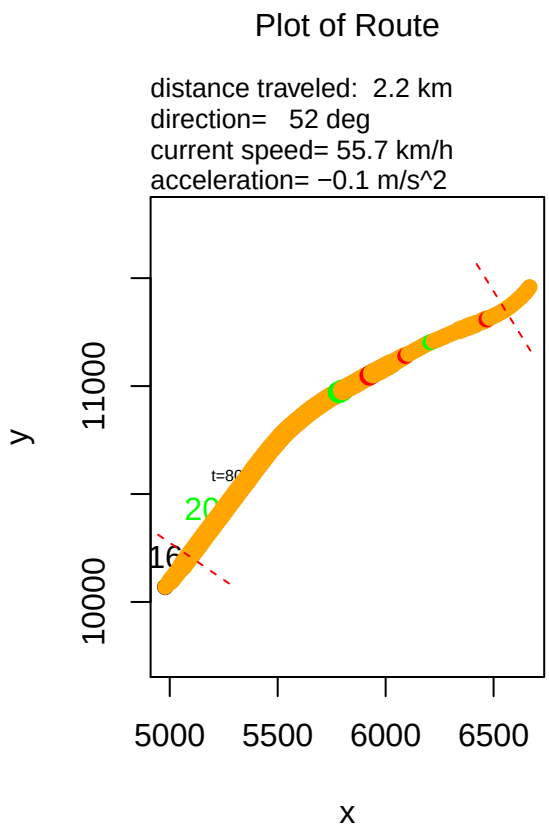

speed m/s
16
18
20
22
24
440
480
520
seconds

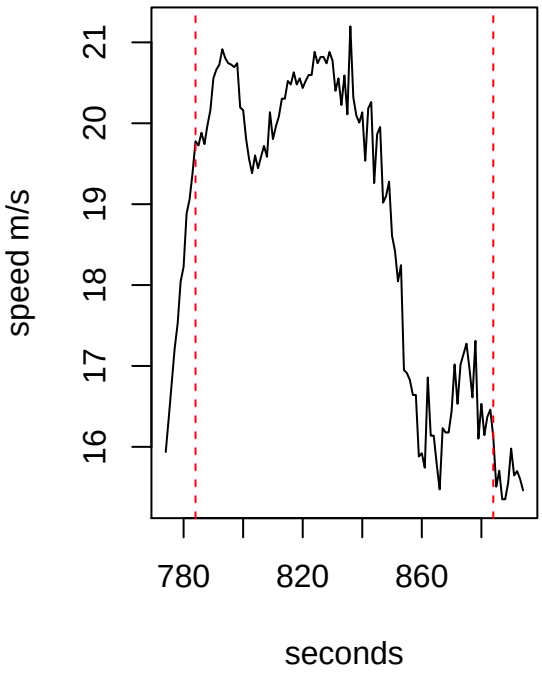

Plot of Route
distance traveled: 1.7 km
direction= 66 deg
current speed= 48.7 km/h
acceleration= −1.8 m/s^2
14
20
17
y
x
6600
7000
7400
7800
3000
3400
3800


speed m/s
seconds
14
16
18
20
22
560
580
600
620
640


Plot of Route
distance traveled: 2.1 km
direction= 66 deg
current speed= 49.2 km/h
acceleration= −2.0 m/s^2
14
t=700
21
16
8000
8500
9000
9500
y
4000
4500
5000
x


speed m/s
14
16
18
20
22
660
700
740
seconds





To Do

Trip 200 returned NaN . . . need to handle that