Reliability Analysis Using SMRD

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Overview

This document contains an automatically generated reliability analysis using the R package `SMRD`. The data under evaluation contains 38 rows and 3 columns and is the shown below:

Table 1: Data set under evaluation

miles	mode	event
6700	Mode1	Failure
6950	Censored	Censored
7820	Censored	Censored
8790	Censored	Censored
9120	Mode2	Failure
9660	Censored	Censored
9820	Censored	Censored
11310	Censored	Censored
11690	Censored	Censored
11850	Censored	Censored
11880	Censored	Censored
12140	Censored	Censored
12200	Mode1	Failure
12870	Censored	Censored
13150	Mode2	Failure
13330	Censored	Censored
13470	Censored	Censored
14040	Censored	Censored
14300	Mode1	Failure
17520	Mode1	Failure
17540	Censored	Censored
17890	Censored	Censored
18450	Censored	Censored
18960	Censored	Censored
18980	Censored	Censored
19410	Censored	Censored
20100	Mode2	Failure
20100	Censored	Censored
20150	Censored	Censored
20320	Censored	Censored
20900	Mode2	Failure
22700	Mode1	Failure
23490	Censored	Censored
26510	Mode1	Failure
27410	Censored	Censored
27490	Mode1	Failure
27890	Censored	Censored
28100	Censored	Censored

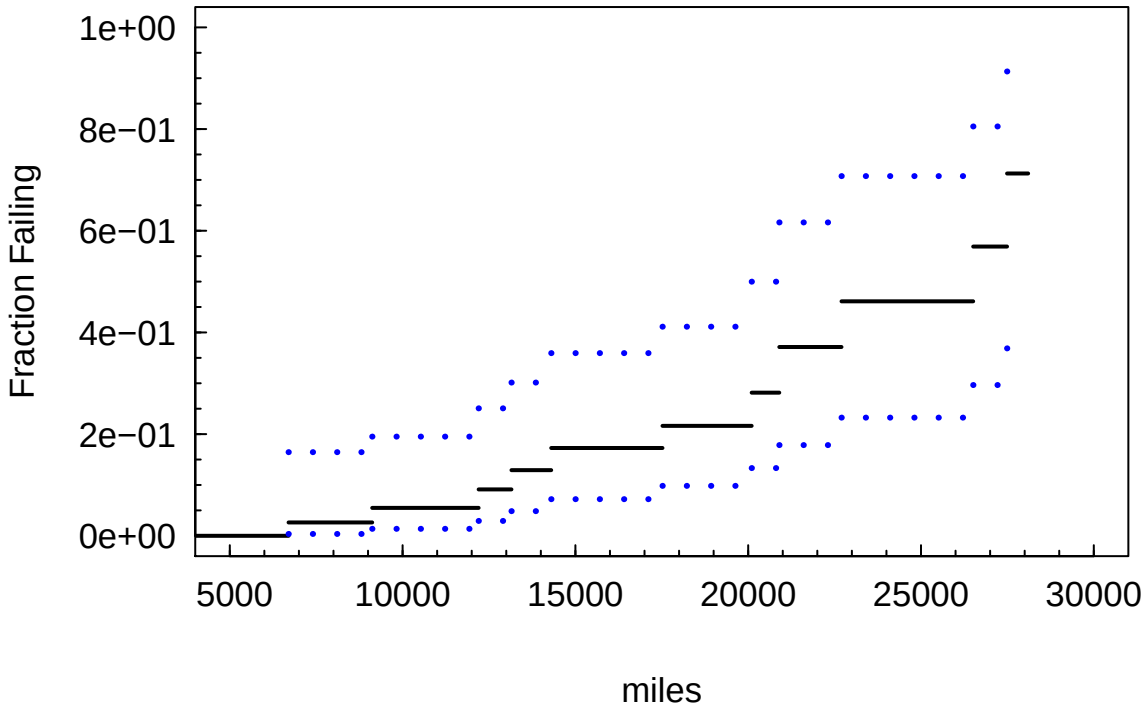


Figure 1: Nonparametric probability plot for the data

CDF Results

The CDF plots below show information about the CDF

```
plot(result$obj)
```

```
plot(result$obj, distribution = result$dist)
```

```
mleprobplot(result$obj, distribution = result$dist)
```

```
simple.contour(result$obj,
               distribution = result$dist,
               threeD = T,
               zoom.level = 2)
```

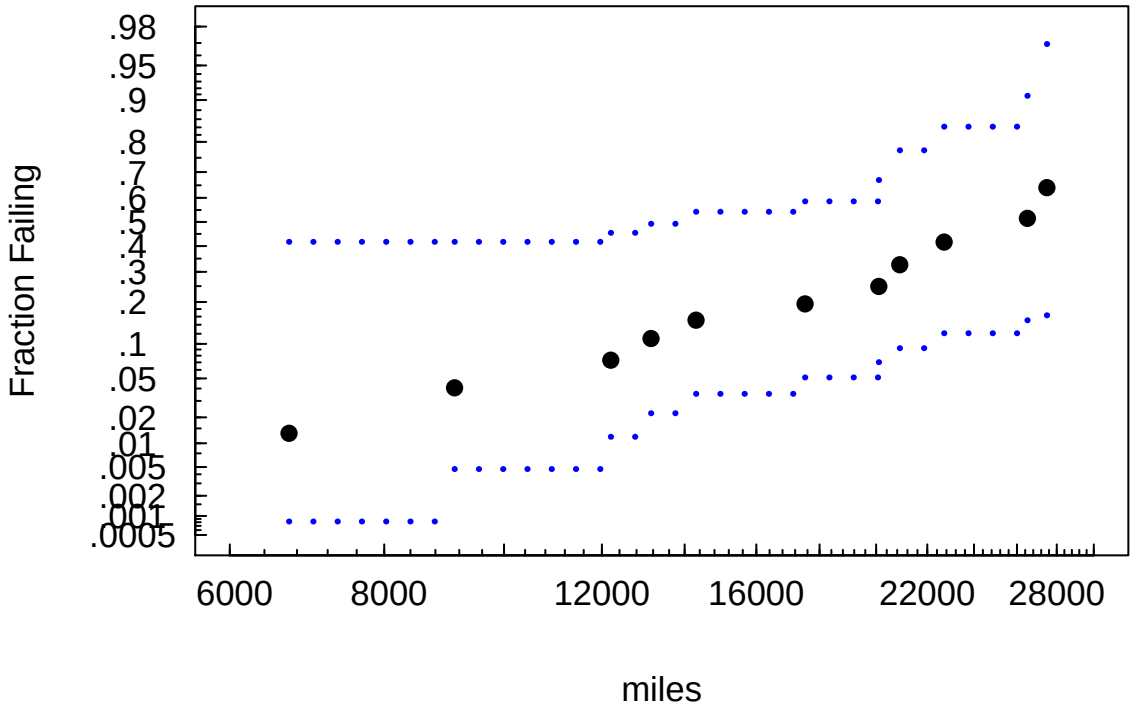


Figure 2: Probability plot for the data using the chosen distribution

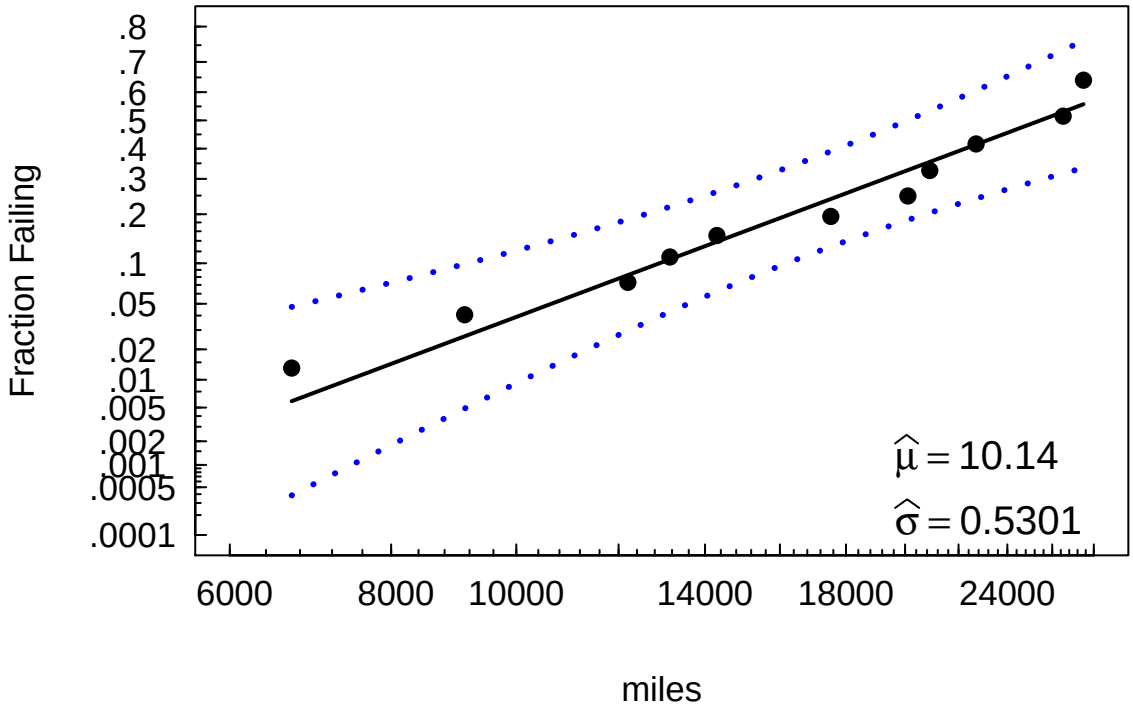
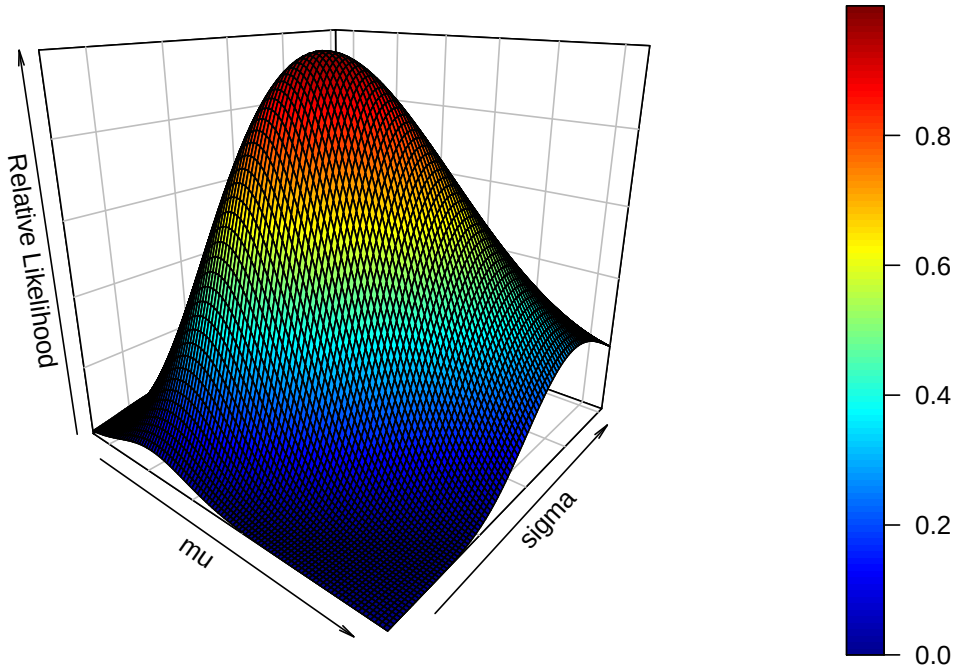


Figure 3: ML Probability plot for the data using the chosen distribution



Additionally, the table below presents values for $F(t)$.

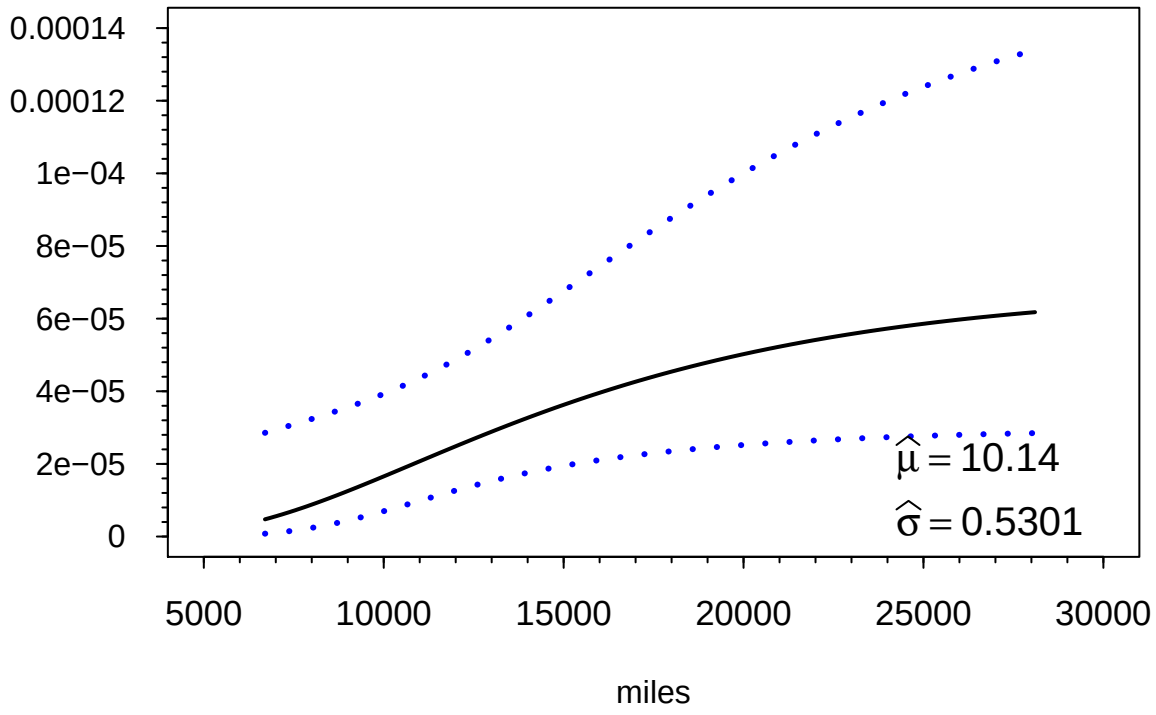
```
knitr::kable(result$mlest$fail)
```

miles	Fhat	Std.Err.	95% Lower	95% Upper
6000	0.00320	0.00456	0.00013	0.03551
8000	0.01449	0.01366	0.00180	0.07277
10000	0.03896	0.02561	0.00919	0.12150
12000	0.07797	0.03762	0.02714	0.18060
14000	0.12960	0.04874	0.05700	0.24960
16000	0.19050	0.05950	0.09590	0.32740
18000	0.25660	0.07055	0.13940	0.41110
20000	0.32450	0.08185	0.18370	0.49630
22000	0.39150	0.09275	0.22700	0.57840
24000	0.45570	0.10250	0.26830	0.65370
26000	0.51590	0.11050	0.30730	0.72000
28000	0.57130	0.11640	0.34400	0.77660
30000	0.62160	0.12010	0.37850	0.82350

Hazard Function Results

The following results

```
mlehazplot(result$obj, distribution = result$dist)
```




```
knitr::kable(result$mlest$mle)
```

	MLE	Std.Err.	95% Lower	95% Upper
mu	10.14477	0.14418	9.86219	10.42735
sigma	0.53007	0.11268	0.34945	0.80405