BOOTSTRAPPING

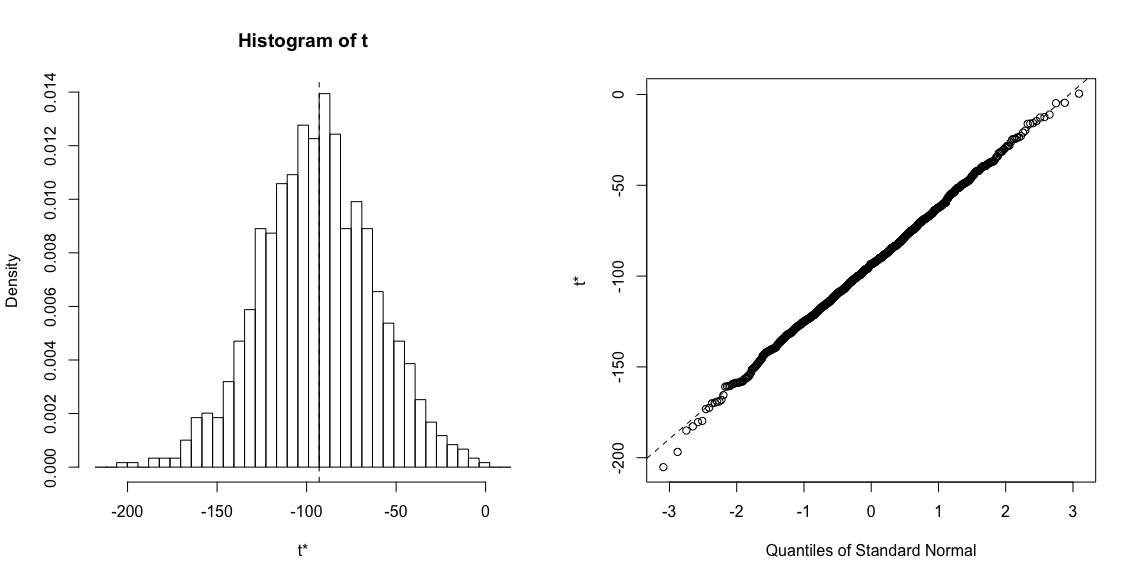
1. Establish a function that returns the vector of regression coefficient
2. Then using the function to resample 1000 replications
3. Plot to determine whether the object is normally-distributed
4. A 95% confidence interval can be obtained via boot.ci()

2．.Use the function to resample 1000 replications

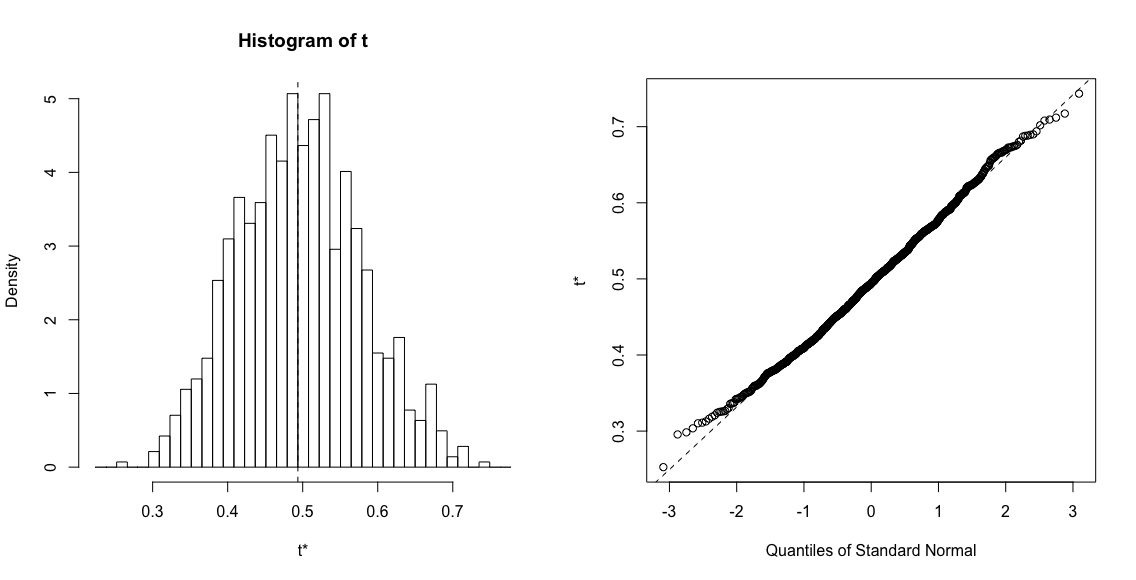
|  |  |  |  |
| --- | --- | --- | --- |
| ORDINARY NONPARAMETRIC BOOTSTRAP | | | |
| Call:  boot(data = ModelData, statistic = bootstrapping, R = 1000, formula = wt...7 ~  gestation + smoke + ht + drace + parity + dht ) | | | |
| Bootstrap Statistics: | | | |
|  | original | bias | std. error |
| t1\* | -91.36454032 | -3.789661169 | 30.08800142 |
| t2\* | 0.43906016 | 0.010392576 | 0.07791636 |
| t3\* | 0.42303666 | -0.017206558 | 0.79633279 |
| t4\* | 1.30907713 | -0.011464226 | 0.30012172 |
| t5\* | -0.48269092 | -0.006968754 | 0.24153077 |
| t6\* | 0.50392644 | -0.001295570 | 0.43692699 |
| t7\* | 0.06533281 | 0.023441647 | 0.28004183 |

3．.Plots

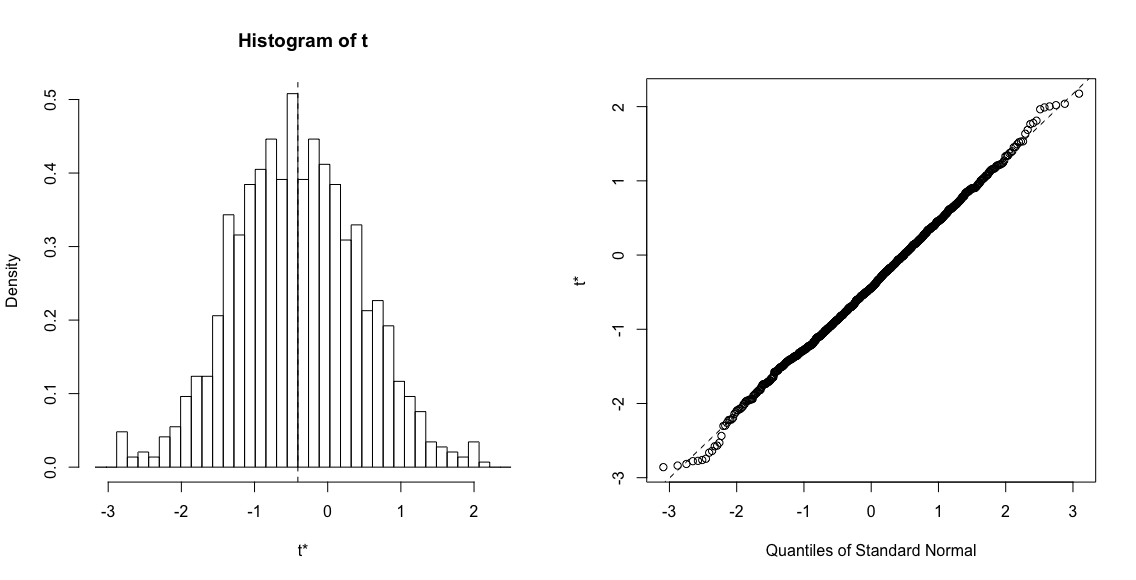
index1



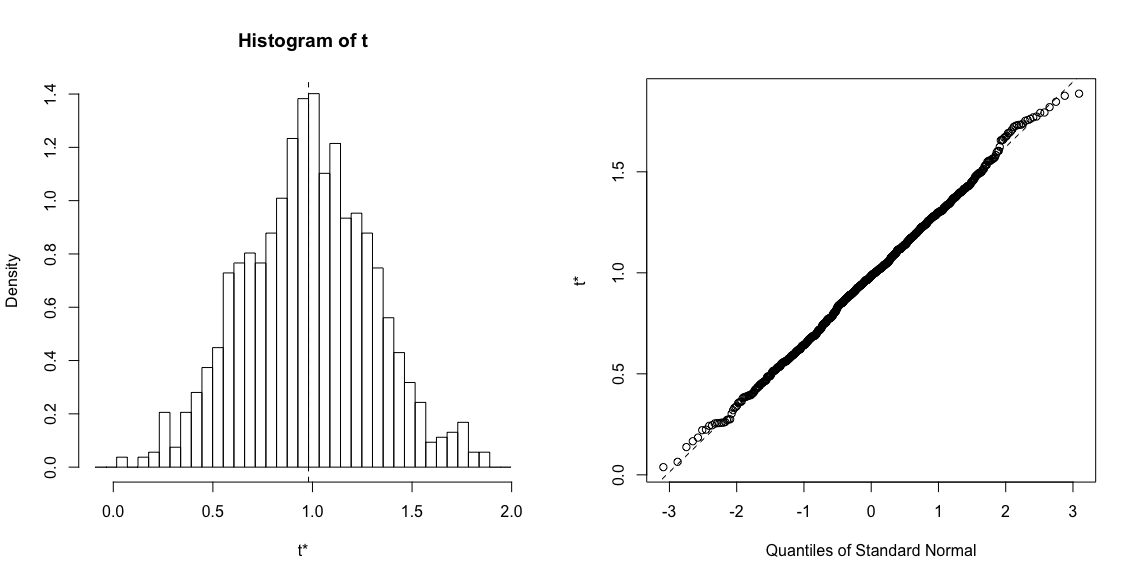
index2



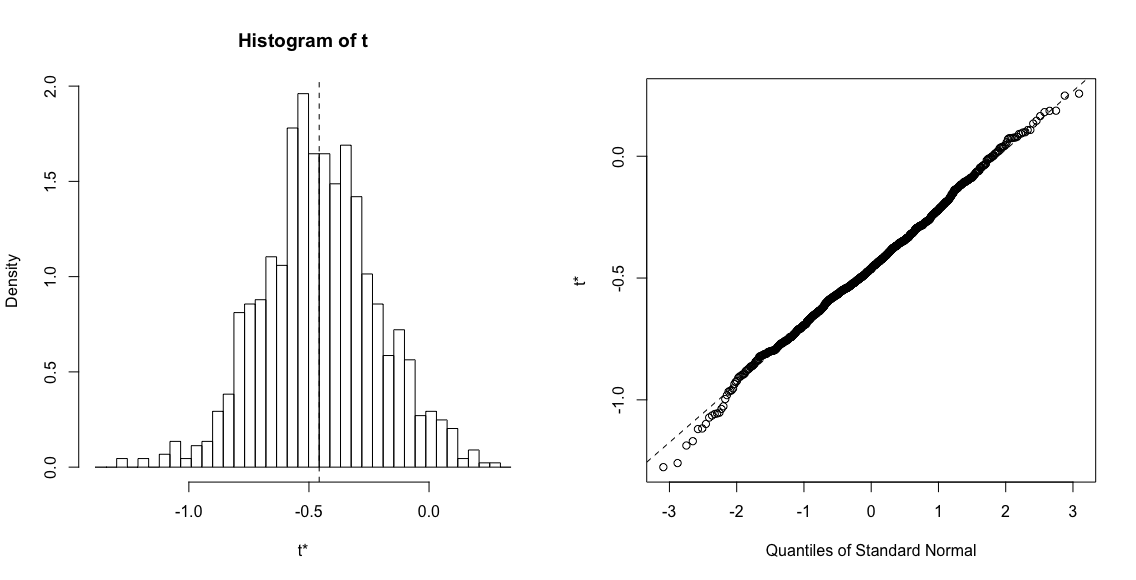
index3



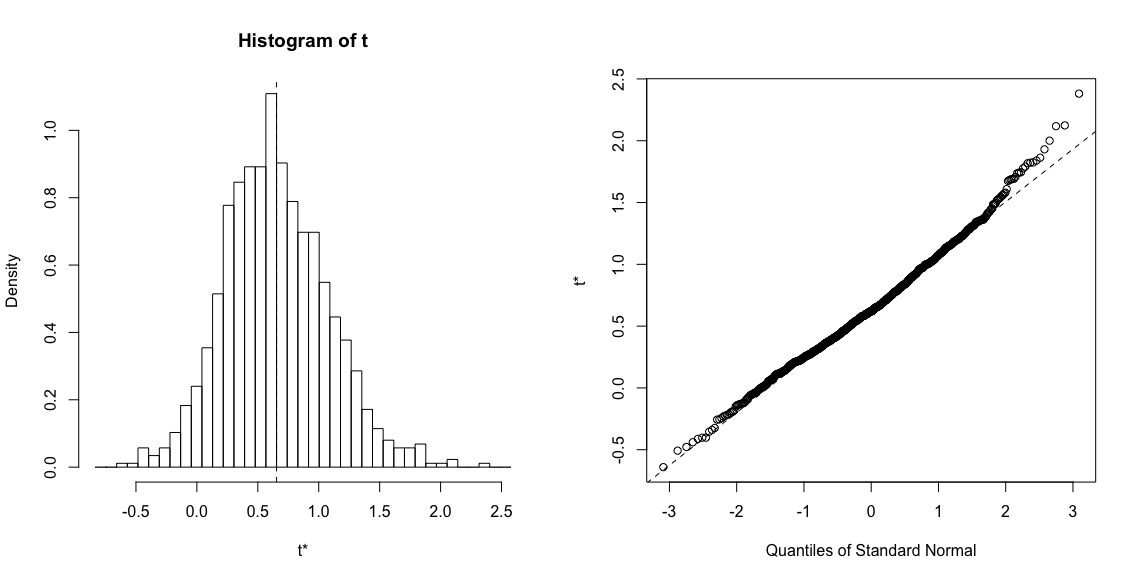
index4



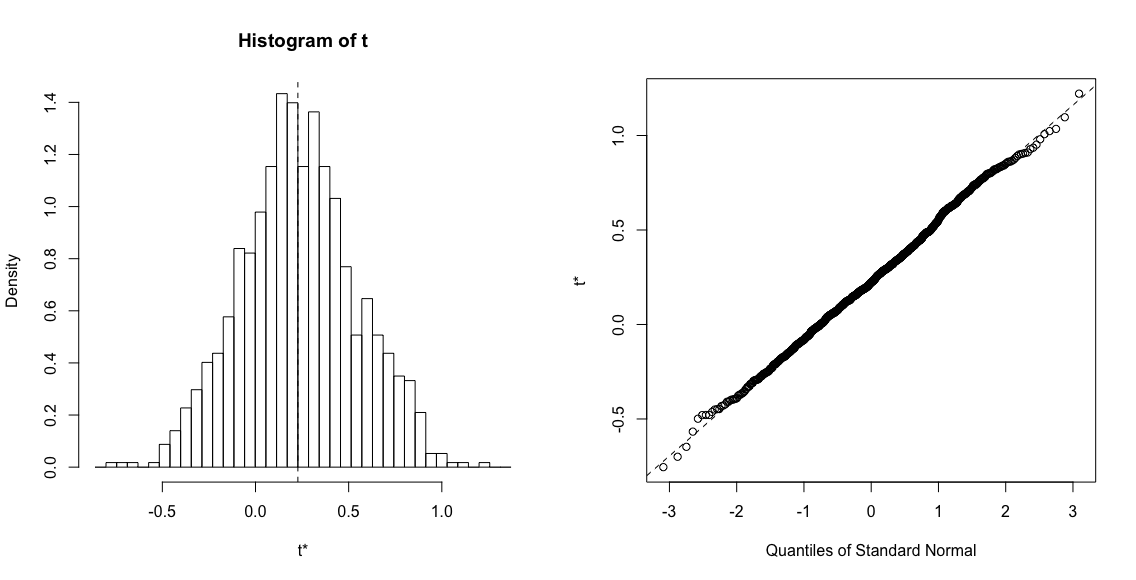
index5



index6



index7



4.. A 95% confidence interval can be obtained via boot.ci()

> boot.ci(results, type = "bca", index = 1)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 1) | |
| Intervals : | |
| Level | BCa |
| 95% | (-145.43, -26.78 ) |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 2)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 2) | |
| Intervals : | |
| Level | BCa |
| 95% | ( 0.2717, 0.5778 ) |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 3)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 3) | |
| Intervals : | |
| Level | BCa |
| 95% | (-1.0837, 1.9989 ) |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 4)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 4) | |
| Intervals : | |
| Level | BCa |
| 95% | ( 0.754, 1.916 ) |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 5)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 5) | |
| Intervals : | |
| Level | BCa |
| 95% | （-0.9495, -0.0124） |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 6)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 6) | |
| Intervals : | |
| Level | BCa |
| 95% | (-0.3275, 1.4210 ) |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 7)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 7) | |
| Intervals : | |
| Level | BCa |
| 95% | (-0.4872, 0.6068 ) |
| Calculations and Intervals on Original Scale | |

> boot.ci(results, type = "bca", index = 8)

|  |  |
| --- | --- |
| BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS | |
| Based on 1000 bootstrap replicates | |
| CALL :  boot.ci(boot.out = results, type = "bca", index = 8) | |
| Intervals : | |
| Level | BCa |
| 95% | (-0.0012, 0.0000 ) |
| Calculations and Intervals on Original Scale | |