Erlend stuff

erlend

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```
mydata<-read.table("Report2_Dataset.txt", header=FALSE)
```

Ascicles

Model selection

Since the Ascicles - covariate has a 0-1 outcome we can assume that it is Bernoulli distributed with parameter θ. A natural conjugate prior for the Bernoulli distribution is the Beta distribution. The posterior beta distribution for the parameter is given by

$$Beta(\theta|a + \sum_{i=1}^{n} x_i, b + n - \sum_{i+1}^{n} x_i)$$

Results

Since we don't have much prior information we proceed with a uniform distribution as a prior, $Beta(1, 1)$. From the data we found $\sum_{i=1}^{312} x_i = 24$, giving us the posterior distribution $\theta|x \sim Beta(25, 289)$. From this distribution the following was found for the parameter:

```
## Posterior mean:  0.08227848
```

```
## Posterior mode:  0.07961783
```

```
## Centered 95% Confidence Interval: [ 0.05235453 , 0.1119428 ]
```

With the following HPD interval:

```
##      lower      upper
## 0.05018087 0.10943792
## attr(,"credMass")
## [1] 0.95
```

Age

We proceed by assuming the age of the patient is poisson distributed

Model selection

A natural prior for the poisson distribution parameter is the gamma distribution, gamma(α, β) The posterior distribution is given by

$$gamma(\sum_{i=1}^{n} x_i + \alpha, n + \beta)$$

as derived in the appendix.

Results

$$

```
n
```

```
## [1] 312
```