

Censoring

- In survival analysis interest in how long it takes a individual to fail.
- Sometimes the failure time is not known because the experiment was ended before failure occurred.
- This is a simple example of censoring, called left censoring

Modelling survival time

- Often use a Weibull distribution
- $t.\text{surv} \sim \text{dweib}(r, \text{lambda})$
- Want to estimate r , lambda
- Use MCMC
- What to do when $t.\text{surv}$ is censored, that is we know that $t.\text{surv}$ is greater than $t.\text{cens}$?

Censoring as missing data

- If we could continue the experiment long enough would observe all individuals to fail.
- Can simulate this in BUGS
- $t.\text{surv} \sim \text{dweib}(r, \text{lambda})I(t.\text{cens})$
- This will make BUGS generate $t.\text{surv}$ in such a way that $t.\text{surv}$ is greater than $t.\text{cens}$.

Other types of censoring

- Imagine weighing our rats, maybe the scales are only accurate to the nearest gram.
- If a rat weighed 20g on the scales its true weight could be between 19.5 and 20.5g
- This is an example of interval censoring
- $\text{true.weight} \sim \text{dnorm}(\mu, \tau)I(\text{low}, \text{up})$
where $\text{low} \leftarrow \text{observed.weight} - 0.5$
and $\text{up} \leftarrow \text{observed.weight} + 0.5$