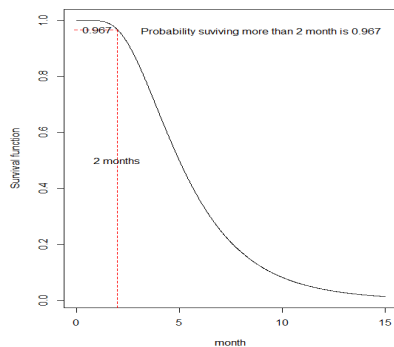
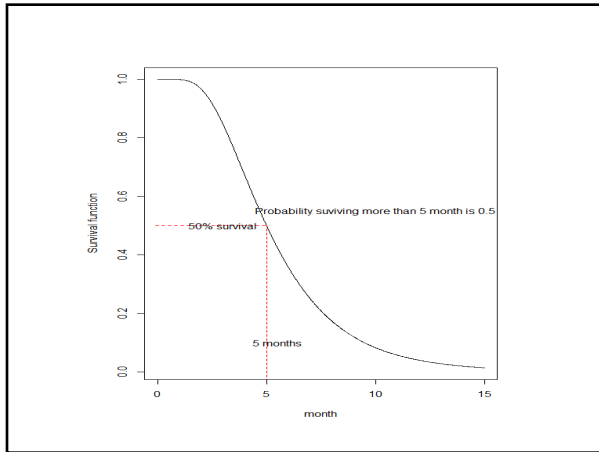


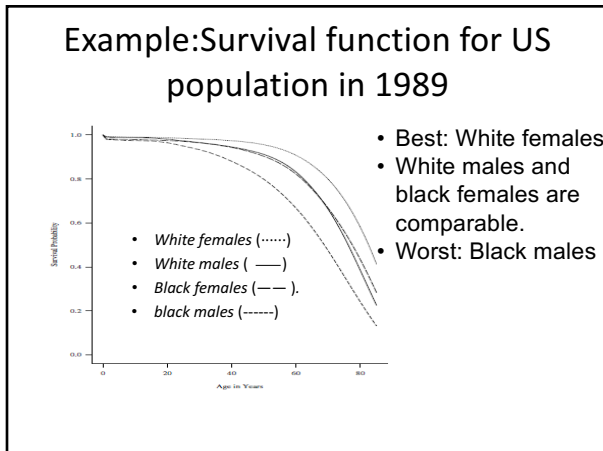
Survival function

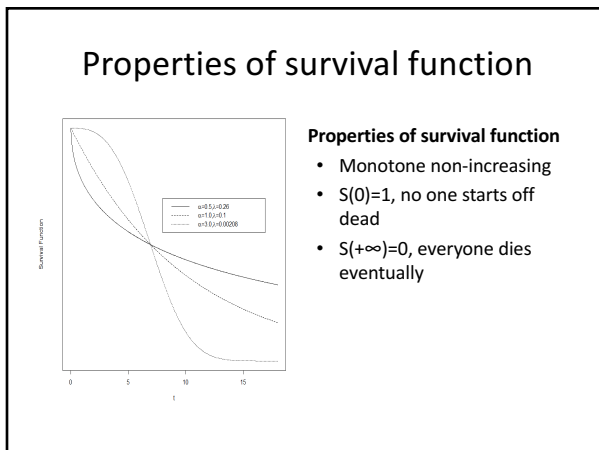
Survival function

- In survival analysis, it is common to work with the survival function.
- Let T be a non-negative random variable representing the survival times.
- The **survival function of T** is given as
$$S(t) = P(T > t).$$
- It gives probability of surviving longer than t .









Survival function

- Connection with cumulative distribution function (CDF).
- For a given t ,
 - CDF gives probability of surviving **up to time t** .
 - Survival function gives probability of surviving **beyond time t** .

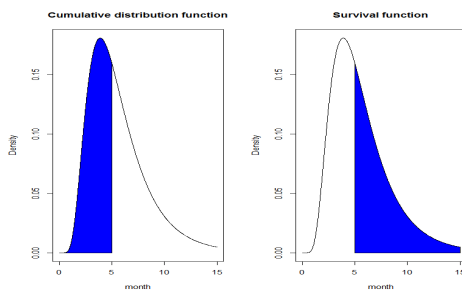
$$F(t) = P(T \leq t)$$

$$S(t) = P(T > t)$$

- Therefore

$$S(t) = 1 - F(t)$$

Area under density function



Summary

- Survival function.
- Survival function is an useful way to summarize survival information.
- Properties of survival function.
- Connection with cumulative distribution function.
