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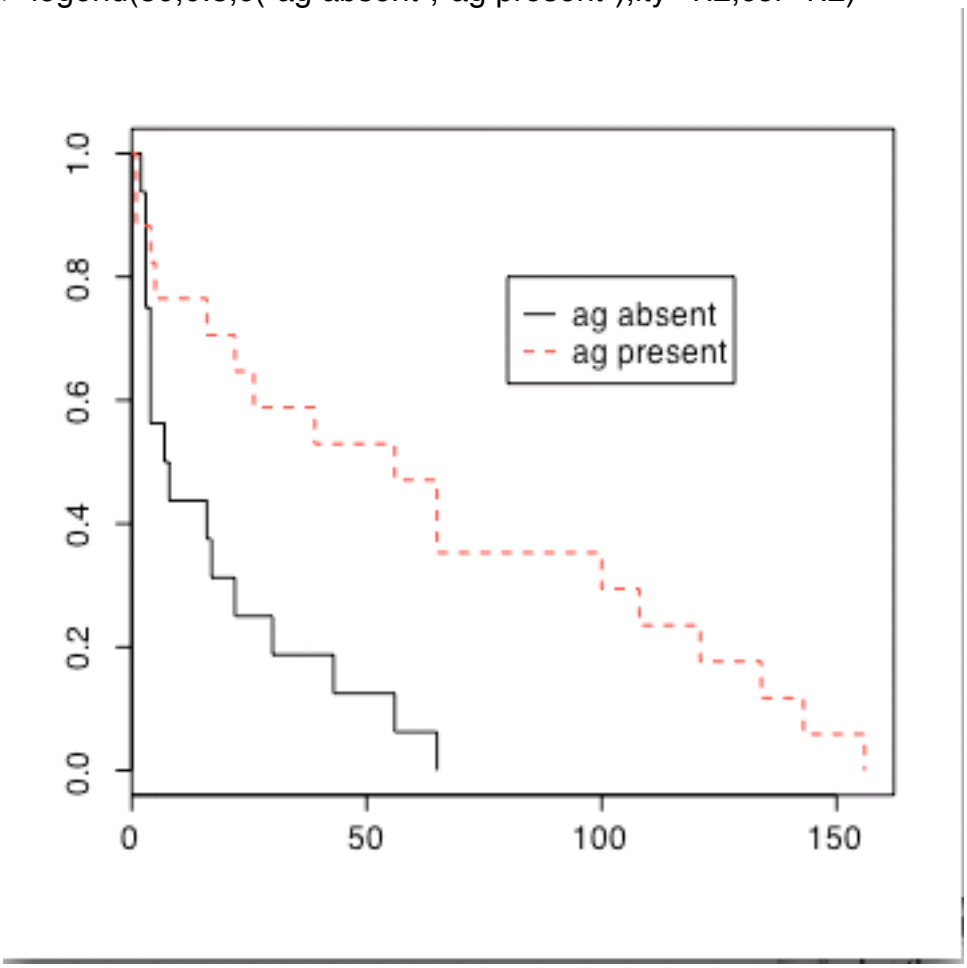
```
> library(survival)
> ?survfit
> ?Surv
> ?coxph
> ?survreg
> library(MASS)
> data(leuk)
> leuk
      wbc      ag time
1    2300 present   65
2     750 present  156
3    4300 present  100
4    2600 present  134
5    6000 present   16
6   10500 present  108
7   10000 present  121
8   17000 present    4
9    5400 present   39
10   7000 present  143
11   9400 present   56
12  32000 present   26
13  35000 present   22
14 100000 present    1
15 100000 present    1
16  52000 present    5
17 100000 present   65
18   4400  absent   56
19   3000  absent   65
20   4000  absent   17
21   1500  absent    7
```

```
22   9000  absent   16
23   5300  absent   22
24  10000  absent    3
25  19000  absent    4
26  27000  absent    2
27  28000  absent    3
28  31000  absent    8
29  26000  absent    4
30  21000  absent    3
31  79000  absent   30
32 100000  absent    4
33 100000  absent   43
```

```
> plot(survfit(Surv(time)~ag,data=leuk),lty=1:2,col=1:2)
> legend(80,0.8,c("ag absent","ag present"),lty=1:2,col=1:2)
```




```
> data(gehan)
> gehan
   pair time cens   treat
1     1    1    1 control
```

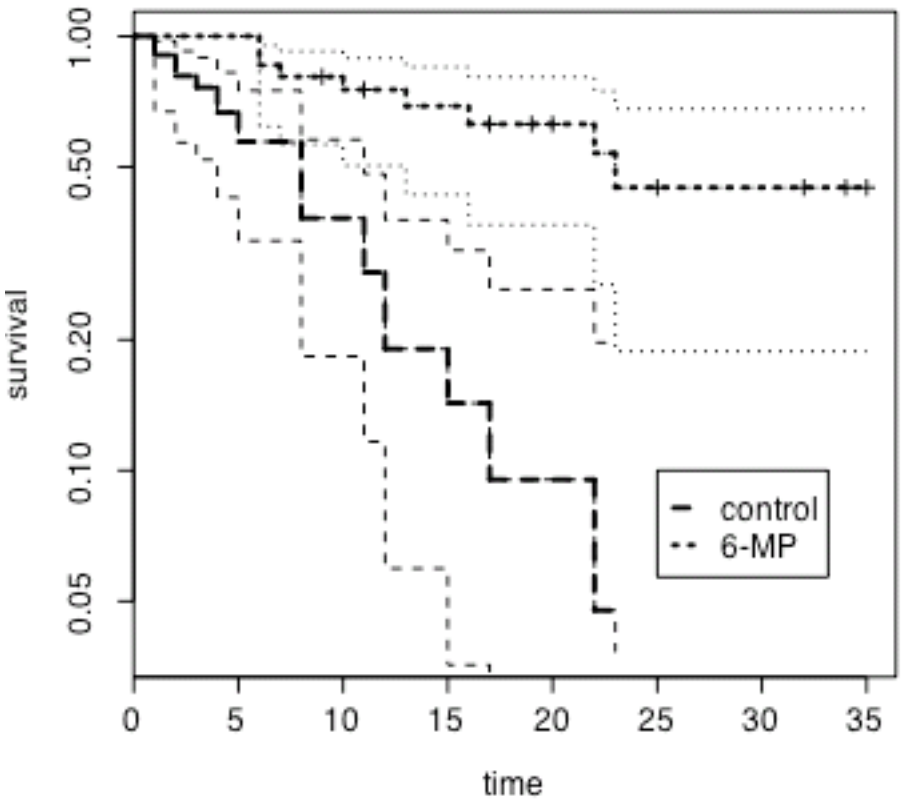
```
2     1   10    1    6-MP
3     2   22    1 control
4     2    7    1    6-MP
5     3    3    1 control
6     3   32    0    6-MP
7     4   12    1 control
8     4   23    1    6-MP
9     5    8    1 control
10    5   22    1    6-MP
11    6   17    1 control
12    6    6    1    6-MP
13    7    2    1 control
14    7   16    1    6-MP
15    8   11    1 control
16    8   34    0    6-MP
17    9    8    1 control
18    9   32    0    6-MP
19   10   12    1 control
20   10   25    0    6-MP
21   11    2    1 control
22   11   11    0    6-MP
23   12    5    1 control
24   12   20    0    6-MP
25   13    4    1 control
26   13   19    0    6-MP
27   14   15    1 control
28   14    6    1    6-MP
29   15    8    1 control
30   15   17    0    6-MP
31   16   23    1 control
32   16   35    0    6-MP
33   17    5    1 control
34   17    6    1    6-MP
35   18   11    1 control
36   18   13    1    6-MP
37   19    4    1 control
38   19    9    0    6-MP
39   20    1    1 control
40   20    6    0    6-MP
41   21    8    1 control
42   21   10    0    6-MP

> Surv(gehan$time,gehan$cens)
 [1]  1  10  22   7   3  32+ 12  23   8  22  17   6   2  16  11  34+  8
[18] 32+ 12  25+  2  11+  5  20+  4  19+ 15   6   8  17+ 23  35+  5   6
[35] 11  13   4   9+  1   6+  8  10+
```

```
> gehan.surv <- survfit(Surv(time,cens)~treat,data=gehan,conf.type="log-log")
> summary(gehan.surv)
Call: survfit(formula = Surv(time, cens) ~ treat, data = gehan, conf.type = "log-log")

                treat=6-MP
 time n.risk n.event survival std.err lower 95% CI upper 95% CI
    6     21       3    0.857  0.0764        0.620        0.952
    7     17       1    0.807  0.0869        0.563        0.923
   10     15       1    0.753  0.0963        0.503        0.889
   13     12       1    0.690  0.1068        0.432        0.849
   16     11       1    0.627  0.1141        0.368        0.805
   22      7       1    0.538  0.1282        0.268        0.747
   23      6       1    0.448  0.1346        0.188        0.680

                treat=control
 time n.risk n.event survival std.err lower 95% CI upper 95% CI
    1     21       2   0.9048  0.0641      0.67005        0.975
    2     19       2   0.8095  0.0857      0.56891        0.924
    3     17       1   0.7619  0.0929      0.51939        0.893
    4     16       2   0.6667  0.1029      0.42535        0.825
    5     14       2   0.5714  0.1080      0.33798        0.749
    8     12       4   0.3810  0.1060      0.18307        0.578
   11      8       2   0.2857  0.0986      0.11656        0.482
   12      6       2   0.1905  0.0857      0.05948        0.377
   15      4       1   0.1429  0.0764      0.03566        0.321
   17      3       1   0.0952  0.0641      0.01626        0.261
   22      2       1   0.0476  0.0465      0.00332        0.197
   23      1       1   0.0000      NA           NA           NA
```




```
> survdiff(Surv(time,cens)~treat,data=gehan)
Call:
survdiff(formula = Surv(time, cens) ~ treat, data = gehan)

                N Observed Expected (O-E)^2/E (O-E)^2/V
treat=6-MP     21        9     19.3      5.46      16.8
treat=control 21       21     10.7      9.77      16.8

 Chisq= 16.8  on 1 degrees of freedom, p= 4.17e-05
```