

Example

Zhixin

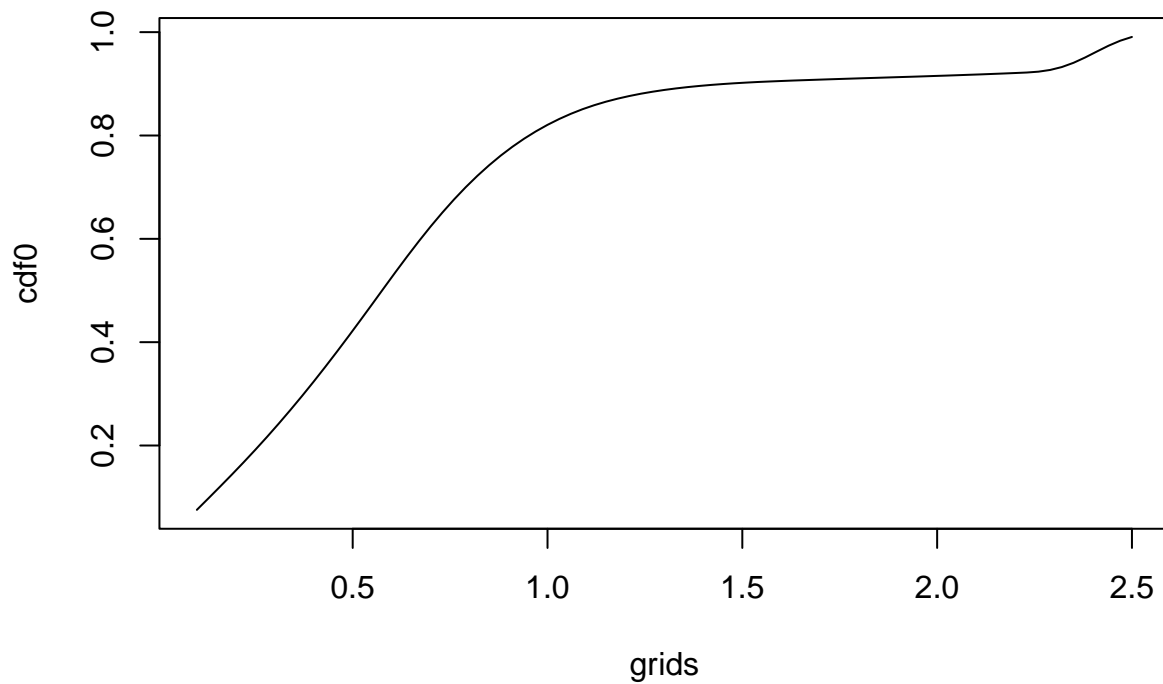
2025-09-12

RegPO_MCSD function and Data loading

1.when sensitivity (alpha) and specificity(beta) are both known, you should use this code and get below outputs:

```
RegPO_MCSD(X=X,y=y,c=c,alpha=0.9,beta=0.9)
```

```
## Warning: package 'coda' was built under R version 4.2.3
```

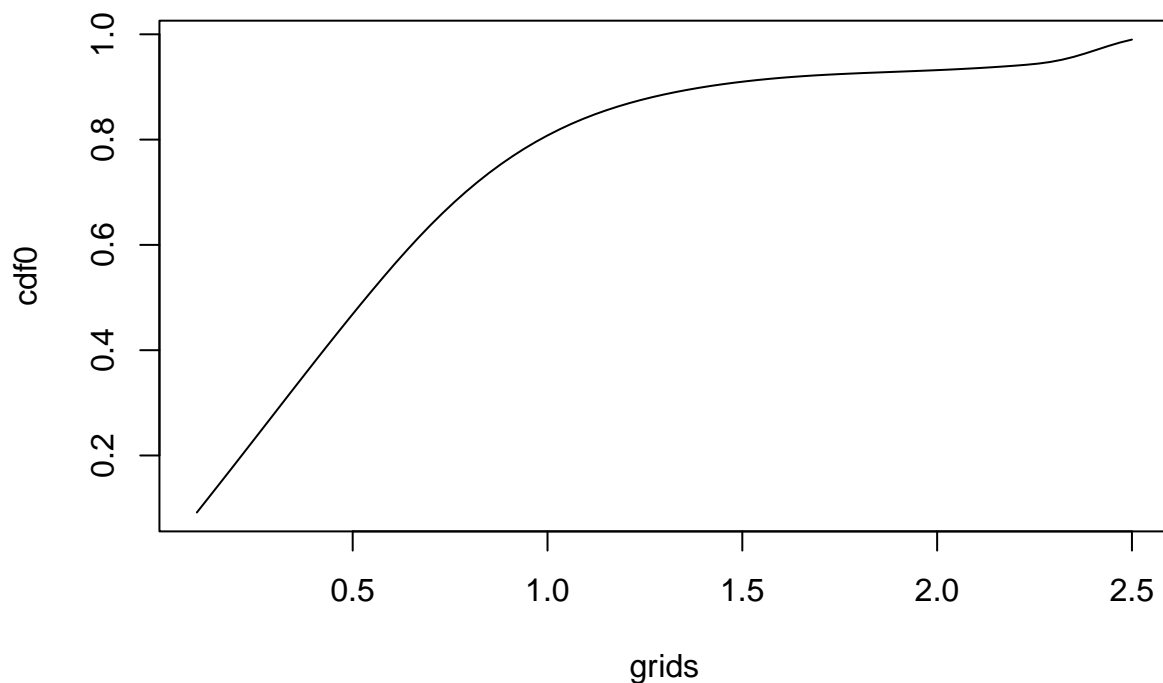


```
## $theta
## [1] 1.118607 -1.107852
##
## $se
```

```
## se.theta1 se.theta2
## 0.5075452 0.5435610
##
## $plot
## NULL
```

2. when sensitivity (alpha) is known but specificity(beta) is unknown, you should use this code and get below outputs:

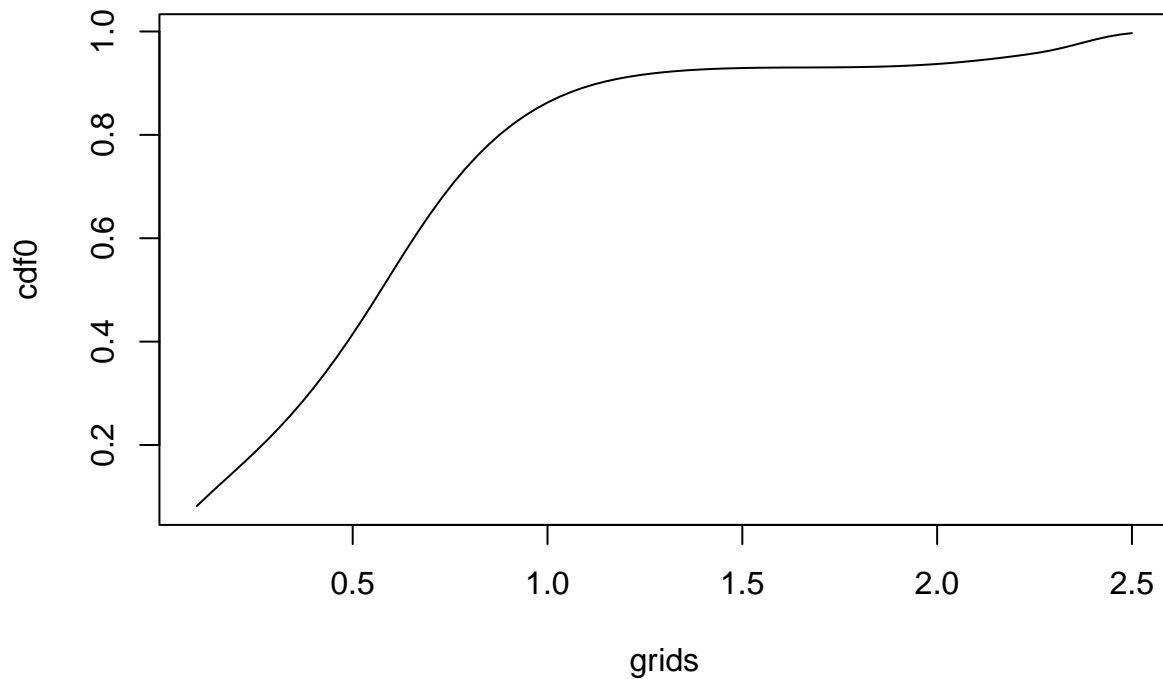
```
RegPO_MCSD(X=X,y=y,c=c,alpha=0.9,beta=FALSE)
```



```
## $theta
## [1] 1.050806 -1.034480
##
## $beta
## [1] 0.9277226
##
## $se
## se.theta1 se.theta2 se.beta
## 0.5236158 0.5583400 0.1104399
##
## $plot
## NULL
```

3. when sensitivity (alpha) is unknown but specificity(beta) is known, you should use this code and get below outputs:

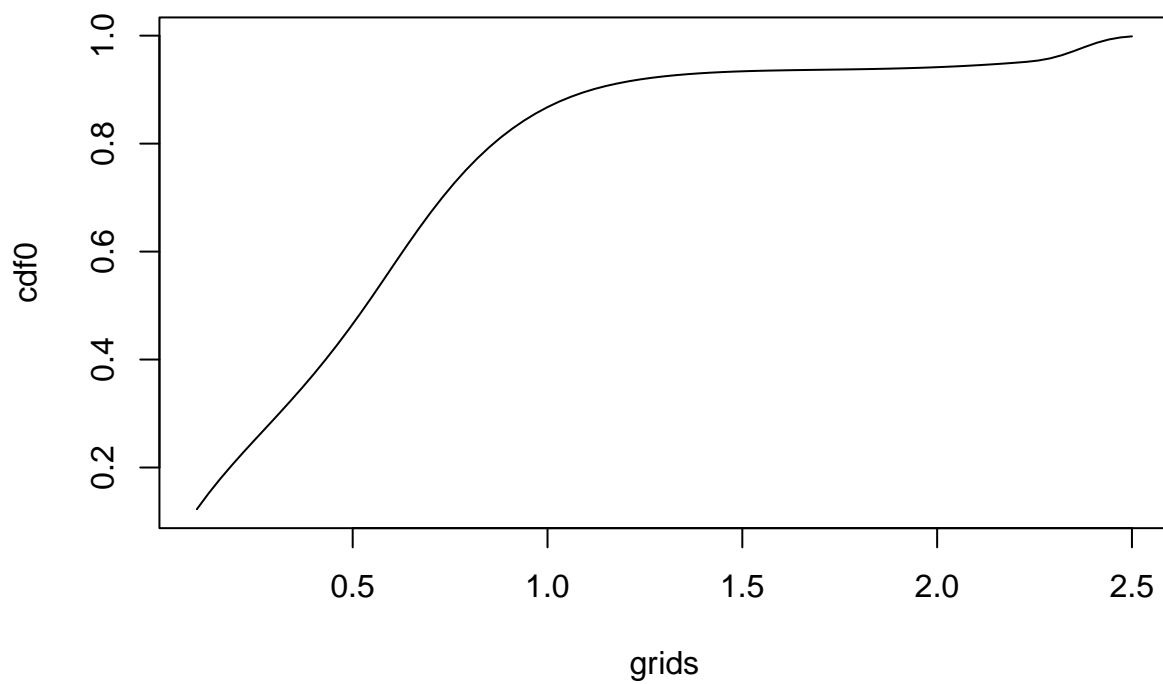
```
RegPO_MCSD(X=X,y=y,c=c,alpha=FALSE,beta=0.90)
```



```
## $theta
## [1] 1.177166 -1.132783
##
## $alpha
## [1] 0.8809129
##
## $se
## se.theta1 se.theta2 se.alpha
## 0.5352614 0.5691497 0.0743710
##
## $plot
## NULL
```

4. when both sensitivity (alpha) and specificity(beta) are unknown, you should use this code and get below outputs:

```
RegPO_MCSD(X=X,y=y,c=c,alpha=FALSE,beta=FALSE)
```



```
## $theta
## [1] 1.046699 -0.979650
##
## $alpha
## [1] 0.8972257
##
## $beta
## [1] 0.9541898
##
## $se
## se.theta1 se.theta2 se.alpha se.beta
## 0.49305229 0.53038887 0.07301241 0.11620390
##
## $plot
## NULL
```

Besides, you can also adjust the `m.knots`, even though our method is robust to `m.knots`.