Bug report for the integral2 function in the R package pracma

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Problem Description

When using integral2 for double integration over a specific range, the function will halt under certain conditions.

Reproducible Example

```
library(pracma)

fp <- function(d,r){
      rt = 1/(sqrt(2*pi)*e1)*exp(-1*(r*cos(d)-u1)^2/(2*(e1^2)))
      rt = rt*1/(sqrt(2*pi)*e2)*exp(-1*(r*sin(d)-u2)^2/(2*(e2^2)))
      rt = rt*r
      return(rt)
}
u1=0; u2=7.5; e1=1.5; e2=8.6;
d1=2.67; d2=2.985; r1=2.1; r2=10.1;
val=integral2(fp,d1,d2,r1,r2);
```

Output and error message:

```
Error in if (adjerr[1] > localtol) { :
  missing value where TRUE/FALSE needed
Calls: integral2 -> .save2list
Execution halted
```

Session Information

```
> sessionInfo()
R version 4.4.2 (2024-10-31 ucrt)
Platform: x86_64-w64-mingw32/x64
Running under: Windows 11 x64 (build 22631)

Matrix products: default


locale:
[1] LC_COLLATE=Chinese (Simplified)_China.utf8
[2] LC_CTYPE=Chinese (Simplified)_China.utf8
[3] LC_MONETARY=Chinese (Simplified)_China.utf8
[4] LC_NUMERIC=C
[5] LC_TIME=Chinese (Simplified)_China.utf8

time zone: Asia/Shanghai
tzcode source: internal

attached base packages:
[1] stats     graphics  grDevices utils     datasets  methods   base

other attached packages:
[1] pracma_2.4.4

loaded via a namespace (and not attached):
[1] compiler_4.4.2
```

Expected Behavior

This is the integral of a two-dimensional independent normal distribution and the result should be around 0.006.

Additional Notes

I tried to add an if statement in line 203 of the integrate2 function to check the validity of localtol, which can solve this bug.

```
193     eps <- .Machine$double.eps
194     dtheta <- thetaR - thetaL
195     dphi <- phiT - phiB
196     localtol <- tol * (dtheta/2) * (dphi/2) / area
197     localtol <- max(localtol, 100*eps*abs(sum(Qsub)))
198
199     adjerr <- adjust * esub
200     if (nList+4 > size(mainList,1))
201         mainList <- rbind(mainList, zeros(100, 7))
202
203 if(localtol[1]){                          #add by Yunshan Gong 2024/11/20
204     if (adjerr[1] > localtol) {
205         nList <- nList + 1
206         mainList[nList, ] <- c(Qsub[1], esub[1], thetaL, thetaL + dtheta/2,
207                                              phiB ,phiB + dphi/2, adjerr[1])
208     } else {
209       err_ok <- err_ok + adjerr[1]
210     }
211
212     if (adjerr[2] > localtol) {
213       nList <- nList + 1
214       mainList[nList, ] <- c(Qsub[2], esub[2], thetaL + dtheta/2, thetaR,
215                                            phiB, phiB + dphi/2, adjerr[2])
216     } else {
217       err_ok <- err_ok + adjerr[2]
218     }
219
220     if (adjerr[3] > localtol) {
221       nList <- nList + 1
222       mainList[nList, ] <- c(Qsub[3], esub[3], thetaL, thetaL + dtheta/2,
223                                            phiB + dphi/2, phiT, adjerr[3])
224     } else {
225       err_ok <- err_ok + adjerr[3]
```

More Examples

Here are more examples where the error can be reproduced. With the modifications above, the double integral can be calculated correctly.

```
u1=-4.41; u2=6.07; e1=0.1; e2=0.2;
d1=1.728; d2=2.042; r1=2.1; r2=10.1;
val=integral2(fp,d1,d2,r1,r2);
```

```
u1=-2.32; u2=7.13; e1=0.1; e2=0.4;
d1=1.414; d2=1.728; r1=17.3; r2=19.1;
val=integral2(fp,d1,d2,r1,r2);
```