

**Example 3.5: Power (Fixed Non-Centrality)**

Input

```
n1<- 6; n2 <- 6
df <- n1 + n2 -2
alpha <- 0.05
curve(pt(x,df=df),from=-5, to=5, ylab= expression(F[n]),
      main="Central and Non-Central t-Distribution")
abline(h=1-alpha, col="red") # cut at upper quantile
abline(v=qt(1-alpha, df=df), lty=3, col="red") # get critical value
n1 <- 5
n2 <- 5
n <- n1+n2
theta <- 2
ncp <- theta * sqrt(n1 * n2/(n1+n2))
mtext(paste("non-centrality",round(ncp,2)))
curve(pt(x,df=df, ncp=ncp), lty=2, add=TRUE, col="blue")
legend("topleft", legend=c("central t", "non-central t"),
      lty=c(1,2), col=c("black", "blue"),
      bty="n", inset=c(0,0.2))
```

