```
#####################################################
# Simulation of Deming's Funnel-Experiment
# ---------------------------------------------------
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#####################################################


setFunnel <- function(x=0, y=0) {
    funnel <<- data.frame(x=x, y=y)
}

# ---------------------------------------------------
# throw one marble trough the funnel and mark the coordinate
# ---------------------------------------------------
oneThrow <- function(s=1, col="black") {
    x<-rnorm(s)+funnel$x
    y<-rnorm(s)+funnel$y
    points(x,y,col=col,pch=20)
    return(data.frame(x=x, y=y))
}

# ---------------------------------------------------
# draw a new funnelsheet
# ---------------------------------------------------
newFunnel <- function(title="Demings Funnel Experiment") {
    setFunnel()
    plot(-10:10,-10:10,type="n",main=title,xlab="",ylab="",axes=F)
    lines(c(0,0), c(-3,+3), type="l", col="blue")
    lines(c(-3,+3), c(0,0), type="l", col="blue")
    box()
}

throws <- function(strategy=1, no=50, col="black") {
    last <- data.frame(x=0, y=0)

    for ( i in 1:no ) {
        if ( strategy == 1 ) oneThrow(col=col)
        else if ( strategy == 2 ) {
            setFunnel(funnel$x-last$x, funnel$y-last$y)
            last <- oneThrow(col=col) }
        else if ( strategy == 3 ) {
            setFunnel(-last$x, -last$y)
            last <- oneThrow(col=col) }
        else if ( strategy == 4 ) {
            setFunnel(last$x, last$y)
            last <- oneThrow(col=col) }
        else cat("strategy not implemented\n")
    }
}
```