Commands for producing Figure 4.12 (p. 94)

Upper left（名詞全体での散布図＋平滑化曲線）

```
> plot(ratings$meanFamiliarity, ratings$meanSizeRating, xlab="mean familiarity", ylab="mean size rating")
> lines(lowess[T1](ratings$meanFamiliarity, ratings$meanSizeRating))
```

Upper right（名詞全体での散布図＋回帰直線）

```
> plot(ratings$meanFamiliarity, ratings$meanSizeRating, xlab="mean familiarity", ylab="mean size rating")
> abline(ratings.lm)
```

Lower left（名詞の種類（plant vs. animal）ごとに散布図＋平滑化曲線）

```
> plot(ratings$meanFamiliarity, ratings$meanSizeRating, xlab="mean familiarity", ylab="mean size rating",
type="n[T2]")

> plants = ratings[ratings$Class == "plant",]
> animals = ratings[ratings$Class == "animal",]

> points(plants$meanFamiliarity, plants$meanSizeRating, pch = 'p', col = "darkgrey")
> points(animals$meanFamiliarity, animals$meanSizeRating, pch = 'a')

> lines(lowess(plants$meanFamiliarity, plants$meanSizeRating), col="darkgrey")
> lines(lowess(animals$meanFamiliarity, animals$meanSizeRating))

> plants.lm=lm(meanSizeRating~meanFamiliarity, data=plants)
> animals.lm=lm(meanSizeRating~meanFamiliarity, data=animals)

> abline(coef(plants.lm), col="darkgrey", lty=2)
> abline(coef(animals.lm), lty=2)
```

Figure 4.13（**parabola**）

```
> xvals = seq(-4,4,0.1)
> yvals1=0.5+0.25*xvals+0.6*xvals^2
> yvals2=2.5+0.25*xvals-0.2*xvals^2

> plot(xvals, yvals1, xlab="x", ylab="y
+ ylim=range(yvals1, yvals2), type="l"
> lines(xvals, yvals2, col="darkgrey")
```

Lower right（名詞の種類（plant vs. animal）ごとに散布図＋回帰直線）

```
plot(ratings$meanFamiliarity, ratings$meanSizeRating, xlab="mean familiarity", ylab="mean size rating",
type="n[T3]")

plants.lm = lm(meanSizeRating~meanFamiliarity + I[T4](meanFamiliarity^2), data=plants)
summary(plants.lm)$coef
```

Quadratic term

```
points(plants$meanFamiliarity, plants$meanSizeRating, pch='p', col="darkgrey")
plants$predict = predict[T5](plants.lm)
plants = plants[order(plants$meanFamiliarity), ]
lines(plants$meanFamiliarity, plants$predict, col="darkgrey")

animals.lm = lm(meanSizeRating~meanFamiliarity + I(meanFamiliarity^2), data=animals)
summary(animals.lm)$coef

points(animals$meanFamiliarity, animals$meanSizeRating, pch='a')
animals$predict = predict(animals.lm)
animals = animals[order(animals$meanFamiliarity), ]
lines(animals$meanFamiliarity, animals$predict)
```