# Vaso Constriction - Logistic Regression

December 4, 2025

First the dataset vaso is loaded.

```
library(catdata)
data(vaso)
attach(vaso)

## Das folgende Objekt ist maskiert durch .GlobalEnv:
##
##     vaso
```

For the fitting of a logit model, the response is 0-1 coded. (data set contains 1 2). Moreover, the covariates vol and rate are log-transformed.

```
y <- vaso$vaso
y[vaso$vaso==2] <- 0
```

Fit of a logit-model with log-transformed covariates.

```
vaso1 <- glm(y ~ vol + rate, family=binomial)
summary(vaso1)
```

```
##
## Call:
## glm(formula = y ~ vol + rate, family = binomial)
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)   -2.875      1.321  -2.177  0.02946 *
## vol            5.179      1.865   2.778  0.00547 **
## rate           4.562      1.838   2.482  0.01306 *
## ---
## Signif. codes:
## 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 54.040  on 38  degrees of freedom
## Residual deviance: 29.227  on 36  degrees of freedom
## AIC: 35.227
##
## Number of Fisher Scoring iterations: 6
```

Next, a logit-model with original covariates is fitted.

```
vaso2 <- glm(y ~ I(exp(vol)) + I(exp(rate)), family=binomial)
summary(vaso2)

##
## Call:
## glm(formula = y ~ I(exp(vol)) + I(exp(rate)), family = binomial)
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)   -9.5296     3.2332  -2.947  0.00320 **
## I(exp(vol))    3.8822     1.4286   2.717  0.00658 **
## I(exp(rate))   2.6491     0.9142   2.898  0.00376 **
## ---
## Signif. codes:
## 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 54.040  on 38  degrees of freedom
## Residual deviance: 29.772  on 36  degrees of freedom
## AIC: 35.772
##
## Number of Fisher Scoring iterations: 6
```