Multiplicative / interaction model

$$\log_e(odds) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_1 x_2$$

```
glm(formula = y ~ coffee * smoking, family = "binomial")
```

```
Coefficients:
             Estimate Std. Error z value Pr(>|z|)
(Intercept)   -2.2701     0.4523  -5.019 5.19e-07 ***
coffee         1.0226     0.1908   5.360 8.34e-08 ***
smoking        1.5254     0.7487   2.037   0.0416 *
coffee:smoking 1.4413     0.6901   2.089   0.0367 *
```

OR = exp(1.0226) = 2.78

OR = exp(1.5254) = 4.60

ROR = exp(1.4413) = 4.23

	Odds ratio (OR)
Effect of each coffee in non-smokers	2.78
Effect of each coffee in smokers	(2.78 * 4.23) = 11.76
Effect of smoking in non-coffee drinkers	OR = 4.60
Effect of smoking for each additional coffee	(4.60 * 4.23) = 19.46