Birth Data - Bivariate Binary Regression

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First the Birth data are loaded from package "catdata".

```
> library(catdata)
> data(birth)
> attach(birth)
```

Now the original variable "Intensive" is converted into the binary variable "Intensive" indicating whether the child spent time in intensive care or not.

```
> intensive <- rep(0,length(Intensive))
> intensive[Intensive>0] <- 1
> Intensive <- intensive
```

Now "Previous" is reduced to 3 categories by merging two and more previous pregnancies to level "2".

```
> previous <- Previous
> previous[previous>1] <- 2
> Previous <- previous

> library(VGAM)
```

The data set "Birth" is built as data set containing the variables for the model but without missing values.

```
> Birth <- as.data.frame(na.omit(cbind(Intensive, Cesarean, Sex, Weight, Previous,
+ AgeMother)))
> detach(birth)
```

With that data set the model can be fitted. The option "binom2.or" is needed to fit a bivariate binary model.

```
> bivarlogit <- vglm(cbind(Intensive , Cesarean) ~ as.factor(Sex) + Weight +
+ as.factor(Previous) + AgeMother, binom2.or(zero=NULL), data=Birth)
> summary(bivarlogit)
```