Number of Children - Partially Additive Model

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For the following partially additive model the "children"–data from the package "catdata" are used.

```
> library(catdata)
> data(children)
```

Additive Models are fitted with the function "gam" from "mgcv".

```
> library(mgcv)
```

Here the model is fitted and the summary is printed.

```
> gamchild <- gam(child ~ s(age) + s(dur) + as.factor(nation) + as.factor(god) +
+   as.factor(univ), data=children, family=poisson(link=log))
> summary(gamchild)

Family: poisson
Link function: log

Formula:
child ~ s(age) + s(dur) + as.factor(nation) + as.factor(god) +
    as.factor(univ)

Parametric coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)         0.4229     0.0497    8.51   <2e-16 ***
as.factor(nation)1  0.0804     0.1388    0.58   0.5623
as.factor(god)2    -0.1082     0.0591   -1.83   0.0674 .
as.factor(god)3    -0.1432     0.0678   -2.11   0.0348 *
as.factor(god)4    -0.1314     0.0709   -1.85   0.0640 .
as.factor(god)5    -0.0490     0.0670   -0.73   0.4648
as.factor(god)6    -0.1064     0.0752   -1.42   0.1568
as.factor(univ)1    0.5565     0.1713    3.25   0.0012 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Approximate significance of smooth terms:
        edf Ref.df Chi.sq p-value
s(age) 7.37   8.29  172.6 < 2e-16 ***
s(dur) 2.32   3.00   31.5 6.8e-07 ***
```
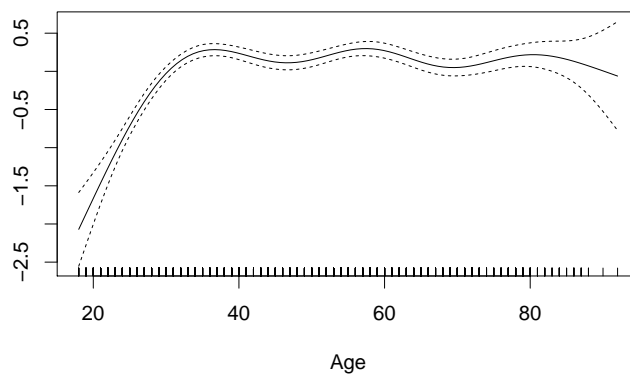
```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

R-sq.(adj) =  0.153   Deviance explained = 18.2%
UBRE = -0.019  Scale est. = 1          n = 1761
```

Now the smooth effects can be plotted, the option "select" determines which effect is plotted.

```
> par(cex=1.5)
> plot(gamchild, select=1, ylab="", xlab="Age")
```



```
> par(cex=1.5)
> plot(gamchild, select=2, ylab="", xlab="Duration")
```