Figures for Chapter 5

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```
fig5.1 <-
function (){
    library(KernSmooth)
    ylim <- range(bronchit$poll)+c(0,2.5)
    par(fig=c(0,.525, 0,1))
    plot(xlab="# cigarettes per day", ylab="Pollution", poll ~ cig,
        col=c(2,4)[r+1], pch=(3:2)[r+1], data=bronchit, ylim=ylim)
    legend(x="topright", legend=c("Non-sufferer","Sufferer"), ncol=2,
            pch=c(3,2), col=c(2,4))
    mtext(side=3, line=1.0,
            expression("A: Untransformed "*italic(x)*"-scale"),
            cex=0.85, adj=0)
    par(fig=c(.475,1, 0,1), new=TRUE)
    plot(poll ~ log(cig+1), col=c(2,4)[r+1], pch=(3:2)[r+1],
        xlab="log(# cigarettes per day + 1)", ylab="",
        data=bronchit, ylim=ylim)
    xy1 <- with(subset(bronchit, r==0), cbind(x=log(cig+1), y=poll))
    xy2 <- with(subset(bronchit, r==1), cbind(x=log(cig+1), y=poll))
    est1 <- bkde2D(xy1, bandwidth=c(0.7, 3))
    est2 <- bkde2D(xy2, bandwidth=c(0.7, 3))
    lev <- pretty(c(est1$fhat, est2$fhat),4)
    contour(est1$x1, est1$x2, est1$fhat, levels=lev, add=TRUE, col=2)
    contour(est2$x1, est2$x2, est2$fhat, levels=lev, add=TRUE, col=4,
            lty=2)
    legend(x="topright", legend=c("Non-sufferer","Sufferer"), ncol=2,
            lty=1:2, col=c(2,4))
    mtext(side=3, line=1.0,
            expression("B: Log-transformed "*italic(x)*"-scale"),
            cex=0.85, adj=0)
    par(fig=c(0,1,0,1))
}

fig5.2 <-
function (plotit=TRUE)
{
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    par(mfrow=c(1,2))
    cig2.glm <- glm(r ~ log(cig+1) + poll, family=binomial,
                      data=bronchit)
    termplot(cig2.glm, se=TRUE, ylim=c(-2,4))
    par(mfrow=c(1,1))
}

fig5.3 <-
function ()
{
    nassnew <- subset(nassCDS,
                      !is.na(yearVeh) & yearVeh>=1986 & weight>0)
    nassnew.glm <- glm(dead ~ seatbelt + airbag + dvcat + yearVeh +
                       ageOFocc, weights=weight, family = quasibinomial,
                       data=nassnew)
    par(mfrow=c(1,2))
    termplot(nassnew.glm, terms=c("yearVeh","ageOFocc"),
             smooth=panel.smooth, se=TRUE)
    par(mfrow=c(1,1))
    par(fig=c(0,0.5,0,1), new=TRUE)
    mtext(side=3, line=1.0, "A", adj=0)
    par(fig=c(0.5,1,0,1), new=TRUE)
    mtext(side=3, line=1.0, "B", adj=0)
    par(fig=c(0,1,0,1))
}

fig5.4 <-
function (){
    opar <- par(mfrow=c(1,2), mar=c(3.6,3.6,1.6,0.6), mgp=c(2.25,.5,0))
    qqnorm(rpois(30, 5), ylab="", main="")
    qqnorm(rpois(30, 5), ylab="", main="")
    par(opar)
}

fig5.5 <-
function (){
    if(!require(car))
        stop("Package 'car' must be installed")
    spm(~ . | habitat, data=moths, cex.labels=1.2,
        smooth=FALSE, reg.line=NA)
}

fig5.6 <-
function ()
{
P.glm <- glm(P ~ habitat + log(meters), data=moths,
             family=quasipoisson)
```

```
par(mfrow=c(2,2))
plot(P.glm, which=1:4)
par(mfrow=c(1,1))
}

fig5.7 <-
function ()
{
    library(Ecdat)
    data(Fair)
    spm(~age+ym+religious+education+rate+nbaffairs, data=Fair)
}

library(DAAG)
library(SMIR); data(bronchit)
fig5.1()
cig2.glm <- glm(r ~ log(cig+1) + poll, family=binomial,
                data=bronchit)
fig5.2()
fig5.3()
fig5.4()
fig5.5()
fig5.6()
fig5.7()
```