## compute an empirical ROC curve from a fitted logistic model

## and a data frame with the modelled logical field

##

## results are used as an argument to logit.plot.ss, logit.roc.plot

##

## arguments

## model a fitted glm

## steps how many thresholds; default 20

## returns

## logit.roc data frame with three fields:

## pts vector of points along the curve

## sens, spec sensitivity, specificity

logit.roc <- function(model, steps=20) {

# get the response field

# from the model object

field.name <- attr(attr(terms(formula(model)), "factors"),

"dimnames")[[1]][1]

# and extract the T/F from it

eval(parse(text=paste("tmp <- ",

ifelse(class(model$data) == "data.frame", "model$data$", ""),

field.name, sep="")))

r <- data.frame(pts = seq(0, 1-(1/steps), by=1/steps),

sens = 0, spec=0);

for (i in 0:steps) {

thresh <- i/steps;

r$sens[i] <- sum((fitted(model) >= thresh) & tmp)/sum(tmp);

r$spec[i] <- sum((fitted(model) < thresh) & !tmp)/sum(!tmp)

}

return(r)

}