effectkeys.r

denis

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```
#!/usr/bin/r

# We also refer to the arithmetic mean as just the "mean" because it is the most
# commonly used mean.
# It is often useful to think of the mean as an n-vector all of whose elements
# are x. The symbol x is also used to denote this vector; hence, we have
mean(0:999, n = 1)
```

```
## [1] 499.5
```

```
# in which x on the left-hand side is a vector and x on the right-hand side
# is a scalar. We also have, for the two different objects,
scale(0:7, center = TRUE, scale = TRUE)
```

```
##            [,1]
## [1,] -1.4288690
## [2,] -1.0206207
## [3,] -0.6123724
## [4,] -0.2041241
## [5,]  0.2041241
## [6,]  0.6123724
## [7,]  1.0206207
## [8,]  1.4288690
## attr(,"scaled:center")
## [1] 3.5
## attr(,"scaled:scale")
## [1] 2.44949
```

```
# The meaning, whether a scalar or a vector, is usually clear from the con-
# text. In any event, an expression such as x  x is unambiguous; the addition
# (subtraction) has the same meaning whether x is interpreted as a vector or a
# scalar. (In some mathematical treatments of vectors, addition of a scalar to
# a vector is not defined, but here we are following the conventions of modern
# computer languages.)
scales::ContinuousRange
```

```
## <ContinuousRange> object generator
##   Inherits from: <Range>
##   Public:
##     train: function (x)
```

```
##     reset: function ()
##     clone: function (deep = FALSE)
##   Parent env: <environment: namespace:scales>
##   Locked objects: TRUE
##   Locked class: FALSE
##   Portable: TRUE
```

```
# 2.2 Cartesian Coordinates and Geometrical
# Properties of Vectors
# Points in a Cartesian geometry can be identified with vectors. Several defi-
# nitions and properties of vectors can be motivated by this geometric inter-
# pretation. In this interpretation, vectors are directed line segments with a
# common origin. The geometrical properties can be seen most easily in terms
# of a Cartesian coordinate system, but the properties of vectors defined in
# terms of a Cartesian geometry have analogues in Euclidean geometry without
# a coordinate system. In such a system, only length and direction are defined,
# and two vectors are considered to be the same vector if they have the same
# length and direction. Generally, we will not assume that there is a "position"
# associated with a vector.
geometric <- vector(mode = "logical", length = 0L)
geometric
```

```
## logical(0)
```

```
# 2.2.1 Cartesian Geometry
# A Cartesian coordinate system in d dimensions is defined by d unit vectors,
# e i in equation (2.3), each with d elements. A unit vector is also called a
# principal axis of the coordinate system. The set of unit vectors is
# orthonormal.
# (There is an implied number of elements of a unit vector that is inferred from
# the context. Also parenthetically, we remark that the phrase "unit vector" is
# sometimes used to refer to a vector the sum of whose squared elements is 1,
# that is, whose length, in the Euclidean distance sense, is 1. As we mentioned
# above, we refer to this latter type of vector as a "normalized vector".)
# The sum of all of the unit vectors is the one vector:
unit <- vector(mode = "logical", length = 0L)
unit
```

```
## logical(0)
```

```
# A point x with Cartesian coordinates (x 1 , . . . , x d ) is associated with a
# vector from the origin to the point, that is, the vector (x 1 , . . . , x d ).
# The vector
# can be written as the linear combination
vec.linear = c(5,1,1,1,5,4)
vec.linear
```

```
## [1] 5 1 1 1 5 4
```

```
# or, equivalently, as
equiv.vector <- c(5,1,1,1,5,4)
equiv.vector
```

```
## [1] 5 1 1 1 5 4
```

```
# 2.2.2 Projections
# The projection of the vector y onto the vector x is the vector
vec.y <- c(5)
vec.y
```

```
## [1] 5
```

```
# This definition is consistent with a geometrical interpretation of vectors as
# directed line segments with a common origin. The projection of y onto x is
# the inner product of the normalized x and y times the normalized x; that is,
# x, y x, where x . Notice that the order of y and x is the same
origin <- c(5, 5)
origin
```

```
## [1] 5 5
```

```
# then r and ŷ are orthogonal, as we can easily see by taking their inner
# product (see Figure 2.1). Notice also that the Pythagorean relationship holds:
pythogorean <- c(2.1)
pythogorean
```

```
## [1] 2.1
```

```
# As we mentioned on page 24, the mean ȳ can be interpreted either as a
# scalar or as a vector all of whose elements are ȳ. As a vector, it is the
# projection of y onto the one vector 1 n ,
match.arg(arg = NULL, choices = c(0:535), several.ok = FALSE)
```

```
## [1] 0
```

```
# from equations (2.26) and (2.29).
# We will consider more general projections (that is, projections onto planes
# or other subspaces) on page 280, and on page 331 we will view linear
# regression fitting as a projection onto the space spanned by the independent
# variables.
page(535)

# 2.2.3 Angles between Vectors
# The angle between the vectors x and y is determined by its cosine, which we
# can compute from the length of the projection of one vector onto the other.
# Hence, denoting the angle between x and y as angle(x, y), we define
angle <- c(5, 5)
angle
```

```
## [1] 5 5
```

```
# with cos 1 (·) being taken in the interval [0, ]. The cosine is ±, with
# the sign chosen appropriately; see Figure 2.1. Because of this choice of
# cos 1 (·), we have that angle(y, x) = angle(x, y) - but see Exercise 2.13e
# on page 39.
n = 1
cos(-1) + angle
```

```
## [1] 5.540302 5.540302
```

```
# Notice that the angle between two vectors is invariant to scaling of the
# vectors; that is, for any nonzero scalar a, angle(ax, y) = angle(x, y).
angle = angle
angle
```

```
## [1] 5 5
```

```
# These quantities are called the direction cosines of the vector.
# Although geometrical intuition often helps us in understanding properties
# of vectors, sometimes it may lead us astray in high dimensions. Consider the
# direction cosines of an arbitrary vector in a vector space with large
# dimensions.
# If the elements of the arbitrary vector are nearly equal (that is, if the
# vector a diagonal through an orthant of the coordinate system), the direction
# cosine goes to 0 as the dimension increases. In high dimensions, any two
# vectors are "almost orthogonal" to each other; see Exercise 2.11.
almost <- c("orthogonal", 1000)
almost
```

```
## [1] "orthogonal" "1000"
```

```
# The geometric property of the angle between vectors has important im-
# plications for certain operations both because it may indicate that rounding
# in computations will have deleterious effects and because it may indicate a
# deficiency in the understanding of the application.
library(effects)
```

```
## Loading required package: carData
```

```
## lattice theme set by effectsTheme()
## See ?effectsTheme for details.
```

```
Effect.gls <- function(focal.predictors, mod, ...){
  cl <- mod$call
  cl$weights <- NULL
  args <- list(
    type = "glm",
    call = cl,
    formula = formula(mod),
    family = NULL,
    coefficients = coef(mod),
```

```
    vcov = as.matrix(vcov(mod)),
    method=NULL)
  Effect.default(focal.predictors, mod, ..., sources=args)
}

require(rlme)
```

```
## Loading required package: rlme
```

```
g <- c(Employed ~ GNP + Population,
         correlation=c(form= ~ Year), data=longley)
format.default(g)
```

```
##
##
##
##
##
##                                        "83.0, 88.5, 88.2, 89.5, 96.2, 98.1, 99.0, 100.0, 101.2, 104.
##
## "234.289, 259.426, 258.054, 284.599, 328.975, 346.999, 365.385, 363.112, 397.469, 419.180, 442.769, 4
##
##                                    "235.6, 232.5, 368.2, 335.1, 209.9, 193.2, 187.0, 357.8, 290.4, 282.
##
##                                    "159.0, 145.6, 161.6, 165.0, 309.9, 359.4, 354.7, 335.0, 304.8, 285.
##
## "107.608, 108.632, 109.773, 110.929, 112.075, 113.270, 115.094, 116.219, 117.388, 118.734, 120.445,
##
##                                                  "1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 195
##
##                  "60.323, 61.122, 60.171, 61.187, 63.221, 63.639, 64.989, 63.761, 66.019, 67.857, 68.
```

```
print(g)
```

```
## [[1]]
## Employed ~ GNP + Population
##
## $correlation.form
## ~Year
##
## $data.GNP.deflator
##  [1]  83.0  88.5  88.2  89.5  96.2  98.1  99.0 100.0 101.2 104.6 108.4 110.8
## [13] 112.6 114.2 115.7 116.9
##
## $data.GNP
##  [1] 234.289 259.426 258.054 284.599 328.975 346.999 365.385 363.112 397.469
## [10] 419.180 442.769 444.546 482.704 502.601 518.173 554.894
##
## $data.Unemployed
##  [1] 235.6 232.5 368.2 335.1 209.9 193.2 187.0 357.8 290.4 282.2 293.6 468.1
## [13] 381.3 393.1 480.6 400.7
```

```
##
## $data.Armed.Forces
##  [1] 159.0 145.6 161.6 165.0 309.9 359.4 354.7 335.0 304.8 285.7 279.8 263.7
## [13] 255.2 251.4 257.2 282.7
##
## $data.Population
##  [1] 107.608 108.632 109.773 110.929 112.075 113.270 115.094 116.219 117.388
## [10] 118.734 120.445 121.950 123.366 125.368 127.852 130.081
##
## $data.Year
##  [1] 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961
## [16] 1962
##
## $data.Employed
##  [1] 60.323 61.122 60.171 61.187 63.221 63.639 64.989 63.761 66.019 67.857
## [11] 68.169 66.513 68.655 69.564 69.331 70.551
```

Effect.gls <- function(focal.predictors, mod, ...) cl <- mod*callcl*weights <- NULL args <- list(type = "glm", call = cl, formula = formula(mod), family = NULL, coefficients = coef(mod), vcov = as.matrix(vcov(mod)), method=NULL) Effect.default(focal.predictors, mod, ..., sources=args) library(effects) require(nlme) Loading required package: nlme g <- c(Employed GNP + Population, correlation=c(form= Year), data=longley) format.default(g)

"Employed GNP + Population" correlation.form " Year" data.GNP.deflator "83.0, 88.5, 88.2, 89.5, 96.2, 98.1, 99.0, 100.0, 101.2, 104.6, 108.4, 110.8, 112.6, 114.2, 115.7, 116.9" data.GNP "234.289, 259.426, 258.054, 284.599, 328.975, 346.999, 365.385, 363.112, 397.469, 419.180, 442.769, 444.546, 482.704, 502.601, 518.173, 554.894" data.Unemployed "235.6, 232.5, 368.2, 335.1, 209.9, 193.2, 187.0, 357.8, 290.4, 282.2, 293.6, 468.1, 381.3, 393.1, 480.6, 400.7" data.Armed.Forces "159.0, 145.6, 161.6, 165.0, 309.9, 359.4, 354.7, 335.0, 304.8, 285.7, 279.8, 263.7, 255.2, 251.4, 257.2, 282.7" data.Population "107.608, 108.632, 109.773, 110.929, 112.075, 113.270, 115.094, 116.219, 117.388, 118.734, 120.445, 121.950, 123.366, 125.368, 127.852, 130.081" data.Year "1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962" data.Employed "60.323, 61.122, 60.171, 61.187, 63.221, 63.639, 64.989, 63.761, 66.019, 67.857, 68.169, 66.513, 68.655, 69.564, 69.331, 70.551" print(Effect.lme) function (focal.predictors, mod, ...) args <- list(call = mod*call*, $formula$ = *mod*call$fixed$, $coefficients$ = *mod*coefficients$fixed$, $vcov$ = *mod*varFixed) Effect.default(focal.predictors, mod, ..., sources = args) <bytecode: 0x560d3d593a90> <environment: namespace:effects> data(Orthodont, package="nlme") m1 <- nlme::lme(distance age + Sex, data=Orthodont, random= 1 | Subject) as.data.frame(Effect("age", m1)) age fit se lower upper 1 8.0 22.04259 0.4172841 21.21520 22.86999 2 9.5 23.03287 0.3853671 22.26876 23.79698 3 11.0 24.02315 0.3741236 23.28133 24.76497 4 12.0 24.68333 0.3791619 23.93153 25.43514 5 14.0 26.00370 0.4172841 25.17631 26.83110 print(Effect.merMod) function (focal.predictors, mod, ..., KR = FALSE) if (KR !requireNamespace("pbkrtest", quietly = TRUE)) KR <- FALSE warning("pbkrtest is not available, KR set to FALSE") fam <- family(mod) args <- list(call = mod@call, coefficients = lme4::fixef(mod), family = fam, vcov = if (fam$family$ == "*gaussian*"famlink == "identity" KR) as.matrix(pbkrtest::vcovAdj(mod)) else as.matrix(vcov(mod))) Effect.default(focal.predictors, mod, ..., sources = args) <bytecode: 0x560d3a784558> <environment: namespace:effects> fm2 <- lme4::lmer(distance age + Sex + (1 |Subject), data = Orthodont) plot(allEffects(fm2))

data(cbpp, package="lme4") gm1 <- lme4::glmer(cbind(incidence, size - incidence) period + (1 | herd), data = cbpp, family = binomial) as.data.frame(predictorEffect("period", gm1)) period fit se lower upper 1 1 0.19807921 0.03672693 0.13569523 0.2798569 2 2 0.08391784 0.02363110 0.04775454 0.1433443 3 3 0.07401714 0.02241761 0.04040242 0.1317591 4 4 0.04842565 0.01959184 0.02163870 0.1048199 print(Effect.rlmerMod) function (focal.predictors, mod, ...) args <- list(coefficients = lme4::fixef(mod), family = family(mod)) Effect.default(focal.predictors, mod, ..., sources = args) <bytecode: 0x560d446b8d00> <environment: namespace:effects> require(lme4) fm3 <- robustlmm::rlmer(distance age * Sex + (1 |Subject), data = Orthodont) plot(predictorEffects(fm3))

print(Effect.betareg) function (focal.predictors, mod, ...) coef <- mod$coefficients$mean vco <- vcov(mod)[1:length(coef), 1:length(coef)] fam <- binomial(link = mod$link$mean) fam$variance <- function(mu) f0 <- function(mu, eta) (1-mu)*mu/(1+eta) do.call("f0", list(mu, mod$coefficient$precision)) fam$initial... <- expression(mustart <- y) args <- list(call = mod$call, formula = formula(mod), family = fam, coefficients = coef, vcov = vco) Effect.default(focal.predictors, mod, ..., sources = args) < bytecode : 0x560d449b52c0 >< environment : namespace : effects >$

require(betareg) Loading required package: betareg require(lme4) c("GasolineYield", package = "betareg") package "GasolineYield" "betareg" gy$_l ogit < -c(yield batch + temp, data = 535) summary(gy_l ogit)$ Length Class Mode 3 formula call data 1 -none- numeric format.default(gy$_l ogit$) data "yield batch + temp" "535" print(Effect.clm) function (focal.predictors, mod, ...) if (requireNamespace("MASS", quietly = TRUE)) polr <- MASS::polr else stop("MASS package is required") polr.methods <- c("logistic", "probit", "loglog", "cloglog", "cauchit") method <- mod$link if (method == "logit") method <- "logistic" if (!(method stop("'link' must be a 'method' supported by polr; see help(polr)") if (mod$threshold != "flexible") stop("Effects only supports the 'flexible' threshold") numTheta <- length(mod$Theta) numBeta <- length(mod$beta) or <- c((numTheta + 1):(numTheta + numBeta), 1:(numTheta)) args <- list(type = "polr", coefficients = mod$beta, zeta = mod$alpha, method = method, vcov = as.matrix(vcov(mod)[or, or])) Effect.default(focal.predictors, mod, ..., sources = args) <bytecode: 0x560d44cc93a8> <environment: namespace:effects>

require(ordinal) require(MASS) mod.wvs1 <- c(poverty gender + religion + degree + country*poly(age,3), data=WVS) format.default(mod.wvs1)

"poverty gender + religion + degree + country * poly(age, 3)" data.poverty "1, 2, 1, 3, 1, 2, 3, 1, 1, 1, 1, 2, 1, 3, 1, 3, 3, 1, 2, 2, 3, 3, 1, 1, 1, 1, 1, 1, 3, 2, 1, 3, 1, 1, 3, 1, 1, 3, 2, 3, 3, 2, 1, 1, 3, 2, 3, 3, 3, 1, 3, 1, 2, 1, 2, 2, 3, 3, 3, 3, 3, 3, 1, 1, 2, 1, 1, 2, 3, 1, 3, 2, 2, 1, 3, 3, 2, 3, 1, 2, 3, 3, 3, 3, 3, 3, 3, 3, 1, 3, 3, 3, 1, 1, 3, 1, 1, 1, 2, 1, 2, 1, 1, 1, 1, 2, 3, 3, 3, 3, 2, 2, 3, 3, 3, 2, 3, 1, 3, 3, 1, 1, 3, 3, 1, 2, 3, 1, 1, 1, 1, 2, 2, 1, 2, 2, 2, 1, 3, 2, 1, 3, 3, 3, 3, 2, 3, 1, 1, 3, 3, 3, 2, 1, 2, 3, 2, 2, 2, 2, 2, 1, 1, 3, 2, 2, 1, 1, 3, 3, 1, 2, 2, 3, 3, 2, 3, 2, 3, 3, 2, 1, 1, 1, 1, 2, 3, 2, 3, 1, 1, 1, 3, 1, 3, 3, 3, 1, 1, 2, 1, 1, 1, 3, 1, 1, 1, 3, 2, 2, 3, 1, 1, 1, 2, 1, 1, 1, 3, 3, 3, 3, 3, 2, 2, 2, 3, 1, 2, 3, 3, 3, 1, 2, 3, 2, 2, 1, 1, 1, 2, 3, 2, 1, 1, 1, 2, 2, 2, 1, 2, 1, 2, 2, 1, 1, 1, 3, 2, 2, 1, 2, 1, 3, 2, 1, 3, 3, 3, 3, 3, 1, 3, 3, 3, 3, 3, 2, 2, 3, 2, 1, 2, 1, 1, 3, 2, 1, 1, 1, 3, 2, 3, 1, 1, 2, 3, 3, 3, 1, 1, 3, 3, 2, 2, 1, 1, 1, 1, 1, 3, 3, 2, 3, 3, 1, 2, 1, 1, 2, 2, 1, 2, 1, 3, 1, 1, 2, 3, 1, 3, 2, 1, 1, 1, 1, 3, 3, 1, 3, 3, 1, 3, 2, 1, 1, 3, 3, 3, 2, 1, 2, 3, 1, 1, 3, 3, 2, 3, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 1, 1, 2, 3, 3, 2, 1, 1, 3, 1, 2, 1, 2, 2, 3, 2, 1, 1, 2, 2, 2, 2, 1, 1, 1, 1, 3, 3, 1, 1, 3, 1, 2, 2, 3, 3, 2, 1, 2, 3, 3, 1, 1, 3, 2, 1, 2, 1, 1, 1, 1, 1, 2, 1, 1, 2, 3, 3, 2, 2, 1, 1, 1, 3, 2, 2, 3, 2, 3, 1, 1, 1, 1, 1, 1, 3, 3, 1, 3, 1, 2, 2, 2, 1, 2, 3, 2, 1, 3, 1, 1, 1, 1, 3, 1, 3, 3, 1, 3, 1, 3, 1, 3, 3, 2, 3, 3, 1, 2, 1, 1, 1, 1, 2, 1, 3, 2, 2, 1, 3, 3, 1, 2, 3, 2, 3, 2, 3, 1, 3, 3, 2, 3, 3, 2, 2, 2, 2, 2, 3, 3, 1, 1, 2, 2, 3, 2, 1, 3, 3, 1, 1, 1, 1, 1, 1, 3, 1, 2, 3, 1, 3, 2, 1, 1, 1, 1, 3, 1, 3, 3, 1, 1, 1, 1, 1, 3, 1, 1, 1, 1, 1, 2, 3, 3, 2, 3, 3, 3, 2, 2, 3, 2, 3, 2, 3, 2, 1, 1, 2, 2, 2, 1, 2, 1, 2, 3, 3, 3, 1, 3, 3, 3, 3, 3, 3, 2, 1, 2, 1, 2, 1, 3, 1, 1, 1, 1, 3, 1, 1, 1, 1, 1, 3, 1, 2, 3, 1, 2, 1, 3, 3, 3, 1, 3, 3, 1, 1, 1, 1, 2, 1, 2, 1, 3, 2, 1, 1, 3, 1, 3, 1, 3, 2, 1, 3, 1, 1, 2, 3, 2, 3, 3, 3, 2, 1, 1, 1, 2, 1, 1, 2, 3, 2, 1, 2, 2, 2, 2, 2, 2, 2, 3, 1, 2, 2, 3, 3, 1, 3, 3, 3, 2, 1, 1, 1, 1, 1, 3, 1, 3, 1, 1, 3, 3, 2, 2, 2, 2, 1, 2, 2, 2, 1, 1, 2, 3, 1, 1, 2, 1, 3, 1, 2, 1, 2, 1, 3, 2, 3, 2, 3, 1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 3, 3, 3, 3, 2, 2, 2, 2, 3, 2, 3, 1, 3, 1, 1, 1, 2, 2, 2, 1, 2, 1, 1, 3, 1, 1, 2, 1, 2, 3, 3, 1, 1, 1, 1, 1, 1, 3, 1, 1, 1, 1, 3, 1, 3, 2, 1, 1, 2, 3, 3, 1, 2, 3, 2, 1, 1, 1, 2, 2, 3, 2, 3, 2, 1, 1, 1, 2, 1, 1, 2, 3, 2, 2, 3, 3, 3, 3, 1, 2, 2, 1, 3, 1, 3, 1, 3, 1, 2, 1, 2, 1, 2, 1, 1, 3, 2, 3, 3, 2, 2, 3, 2, 1, 3, 3, 3, 2, 3, 3, 3, 2, 2, 3, 3, 1, 1, 1, 1, 3, 1, 1, 2, 2, 3, 1, 3, 3, 1, 2, 2, 2, 2, 3, 3, 1, 2, 1, 2, 3, 1, 1, 1, 3, 1, 3, 3, 1, 1, 3, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 1, 3, 3, 3, 3, 1, 2, 1, 2, 2, 1, 1, 1, 1, 1, 2, 2, 2, 1, 1, 2, 1, 2, 2, 1, 1, 1, 3, 1, 1, 3, 1, 1, 2, 1, 3, 3, 3, 3, 3, 2, 2, 2, 2, 2, 2, 2, 3, 3, 2, 2, 2, 2, 2, 2, 1, 1, 1, 3, 1, 1, 1, 1, 1, 1, 1, 2, 1, 2, 3, 2, 3, 1, 2, 2, 2, 3, 3, 3, 3, 2, 1, 1, 3, 1, 3, 2, 2, 1, 2, 3, 3, 3, 3, 3, 2, 2, 1, 2, 1, 1, 1, 3, 1, 1, 3, 3, 2, 3, 3, 2, 1, 3, 1, 2, 1, 2, 3, 1, 1, 3, 2, 2, 3, 3, 3, 1, 3, 2, 1, 2, 1, 3, 3, 1, 1, 3, 3, 1, 2, 1, 3, 1, 1, 1, 2, 1, 2, 3, 3, 2, 1, 3, 1, 2, 2, 3, 3, 2, 1, 2, 1, 1, 2, 3, 3, 1, 3, 3, 3, 3, 1, 2, 1, 3, 1, 1, 3, 1, 1, 1, 3, 2, 3, 1, 1, 1, 1, 2, 3, 1, 1, 3, 3, 1, 3, 3, 3, 3, 1, 1, 1, 2, 1, 1, 3, 3, 2, 2, 1, 1, 2, 3, 1, 2, 3, 2, 3, 3, 3, 2, 1, 3, 3, 3, 3, 3, 2, 2, 2, 3, 2, 1, 3, 2, 3, 1, 1, 1, 1, 3, 2, 1, 2, 1, 2, 3, 2, 2, 3, 2, 2, 3, 1, 2, 3, 3, 1, 1, 3, 2, 1, 1, 1, 1, 3, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 1, 3, 1, 1, 1, 2, 1, 2, 1, 1, 1, 1, 1, 3, 1, 1, 2, 2, 1, 2, 1, 3, 3, 2, 3, 2, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 1, 2, 2, 1, 1, 1, 1, 1, 2, 1, 3, 3, 1, 2, 1, 1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 3, 1, 3, 1, 1, 3, 2, 2, 2, 3, 3, 2, 1, 3, 1, 1, 1, 3, 3, 1, 1, 1, 1, 1, 3, 3, 3, 2, 2, 3, 1, 3, 1, 1, 1, 2, 1, 1, 3, 3, 1, 3, 2, 3, 1, 2, 3, 3, 3, 3, 3, 1, 3, 3, 1, 2, 2, 1, 3, 2, 1, 1, 1, 1, 3, 1, 1, 1, 1, 1, 1, 3, 3, 3, 3, 2, 1, 2, 2, 1, 2, 1, 3, 2, 1, 1, 1, 1, 1, 1, 3, 1, 2, 2, 3, 2, 1, 1, 2, 3, 1, 1, 3, 2, 3, 1, 3, 3, 3, 2, 3, 3, 3, 3, 3, 2, 1, 1, 2, 2, 1, 2, 3, 3, 3, 3, 1, 1, 3, 3, 1, 1, 1, 3, 1, 3, 1, 2, 3, 1, 1, 3, 2, 3, 3, 2, 3, 2, 3, 3, 2, 2, 3, 3, 2, 2, 1, 1, 2, 1, 2, 1, 2, 2, 1,

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print(Effect.clm2) function (focal.predictors, mod, ...) if (requireNamespace("MASS", quietly = TRUE)) polr <- MASS::polr polr.methods <- c("logistic", "probit", "loglog", "cloglog", "cauchit") method <- mod*linkif*(!(*methodstop*("'*link*'*mustbea*'*method*'*supportedbypolr*; *seehelp*(*polr*)")*if*(*is.null*(*mod*Hessian)) message("-fitting to get Hessian") mod <- update(mod, Hess = TRUE) if (mod*threshold*! = "*flexible*")*stop*("*Effectsonlysupportstheflexiblethreshold*")*numTheta* < −*length*(*mod*Theta) numBeta <- length(mod*beta*)*or* < −*c*((*numTheta* + 1) : (*numTheta* + *numBeta*), 1 : (*numTheta*))*args* < −*list*(*type* = "*polr*", *formula* = *mod*call*location*, *coefficients* = *mod*beta, zeta = mod*Theta*, *method* = *method*, *vcov* = *as.matrix*(*vcov*(*mod*)[*or*, *or*]))*Effect.default*(*focal.predictors*, *mod*, ..., *sources* = *args*) < *bytecode* : 0*x*560*d*461*d*4898 >< *environment* : *namespace* : *effects* > v2 <- c(poverty gender + religion + degree + country*poly(age,3),data=WVS) format.default(v2)

"poverty gender + religion + degree + country * poly(age, 3)" data.poverty "1, 2, 1, 3, 1, 2, 3, 1, 1, 1, 1, 2, 1, 3, 1, 3, 3, 1, 2, 2, 3, 3, 1, 1, 1, 1, 1, 1, 3, 2, 1, 3, 1, 1, 3, 1, 1, 3, 2, 3, 3, 2, 1, 1, 3, 2, 3, 3, 3, 1, 3, 1, 2, 1, 2, 2, 3, 3, 3, 3, 3, 3, 1, 1, 2, 1, 1, 2, 3, 1, 3, 2, 2, 1, 3, 3, 2, 3, 1, 2, 3, 3, 3, 3, 3, 3, 3, 3, 1, 3, 3, 3, 1, 1, 3, 1, 1, 1, 2, 1, 2, 1, 1, 1, 1, 2, 3, 3, 3, 3, 2, 2, 3, 3, 3, 2, 3, 1, 3, 3, 1, 1, 3, 3, 1, 2, 3, 1, 1, 1, 1, 2, 2, 1, 2, 2, 2, 1, 3, 2, 1, 3, 3, 3, 3, 2, 3, 1, 1, 3, 3, 3, 2, 1, 2, 3, 2, 2, 2, 2, 2, 1, 1, 3, 2, 2, 1, 1, 3, 3, 1, 2, 2, 3, 3, 2, 3, 2, 3, 3, 2, 1, 1, 1, 1, 2, 3, 2, 3, 1, 1, 1, 3, 1, 3, 3, 3, 1, 1, 2, 1, 1, 1, 3, 1, 1, 1, 3, 2, 2, 3, 1, 1, 1, 2, 1, 1, 1, 3, 3, 3, 3, 3, 2, 2, 2, 3, 1, 2, 3, 3, 3, 1, 2, 3, 2, 2, 1, 1, 1, 2, 3, 2, 1, 1, 1, 2, 2, 2, 1, 2, 1, 2, 2, 1, 1, 1, 3, 2, 2, 1, 2, 1, 3, 2, 1, 3, 3, 3, 3, 3, 1, 3, 3, 3, 3, 3, 2, 2, 3, 2, 1, 2, 1, 1, 3, 2, 1, 1, 1, 3, 2, 3, 1, 1, 2, 3, 3, 3, 1, 1, 3, 3, 2, 2, 1, 1, 1, 1, 1, 3, 3, 2, 3, 3, 1, 2, 1, 1, 2, 2, 1, 2, 1, 3, 1, 1, 2, 3, 1, 3, 2, 1, 1, 1, 1, 3, 3, 1, 3, 3, 1, 3, 2, 1, 1, 3, 3, 3, 2, 1, 2, 3, 1, 1, 3, 3, 2, 3, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 1, 1, 2, 3, 3, 2, 1, 1, 3, 1, 2, 1, 2, 2, 3, 2, 1, 1, 2, 2, 2, 2, 1, 1, 1, 1, 3, 3, 1, 1, 3, 1, 2, 2, 3, 3, 2, 1, 2, 3, 3, 1, 1, 3, 2, 1, 2, 1, 1, 1, 1, 1, 2, 1, 1, 2, 3, 3, 2, 2, 1, 1, 1, 3, 2, 2, 3, 2, 3, 1, 1, 1, 1, 1, 1, 3, 3, 1, 3, 1, 2, 2, 2, 1, 2, 3, 2, 1, 3, 1, 1, 1, 1, 3, 1, 3, 3, 1, 3, 1, 3, 1, 3, 3, 2, 3, 3, 1, 2, 1, 1, 1, 1, 2, 1, 3, 2, 2, 1, 3, 3, 1, 2, 3, 2, 3, 2, 3, 1, 3, 3, 2, 3, 3, 2, 2, 2, 2, 2, 3, 3, 1, 1, 2, 2, 3, 2, 1, 3, 3, 1, 1, 1, 1, 1, 1, 3, 1, 2, 3, 1, 3, 2, 1, 1, 1, 1, 3, 1, 3, 3, 1, 1, 1, 1, 1, 3, 1, 1, 1, 1, 1, 2, 3, 3, 2, 3, 3, 3, 2, 2, 3, 2, 3, 2, 3, 2, 1, 1, 2, 2, 2, 1, 2, 1, 2, 3, 3, 3, 1, 3, 3, 3, 3, 3, 3, 2, 1, 2, 1, 2, 1, 3, 1, 1, 1, 1, 3, 1, 1, 1, 1, 1, 3, 1, 2, 3, 1, 2, 1, 3, 3, 3, 1, 3, 3, 1, 1, 1, 1, 2, 1, 2, 1, 3, 2, 1, 1, 3, 1, 3, 1, 3, 2, 1, 3, 1, 1, 2, 3, 2, 3, 3, 3, 2, 1, 1, 1, 2, 1, 1, 2, 3, 2, 1, 2, 2, 2, 2, 2, 2, 2, 3, 1, 2, 2, 3, 3, 1, 3, 3, 3, 2, 1, 1, 1, 1, 1, 3, 1, 3, 1, 1, 3, 3, 2, 2, 2, 2, 1, 2, 2, 2, 1, 1, 2, 3, 1, 1, 2, 1, 3, 1, 2, 1, 2, 1, 3, 2, 3, 2, 3, 1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 3, 3, 3, 3, 2, 2, 2, 2, 3, 2, 3, 1, 3, 1, 1, 1, 2, 2, 2, 1, 2, 1, 1, 3, 1, 1, 2, 1, 2, 3, 3, 1, 1, 1, 1, 1, 1, 3, 1, 1, 1, 1, 3, 1, 3, 2, 1, 1, 2, 3, 3, 1, 2, 3, 2, 1, 1, 1, 2, 2, 3, 2, 3, 2,

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2, 3, 3, 3, 2, 2, 3, 3, 1, 1, 1, 1, 3, 1, 1, 2, 2, 3, 1, 3, 3, 1, 2, 2, 2, 2, 3, 3, 1, 2, 1, 2, 3, 1, 1, 1, 3, 1, 3, 3, 1, 1, 3,
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2, 1, 3, 3, 3, 3, 3, 2, 2, 2, 2, 2, 2, 2, 3, 3, 2, 2, 2, 2, 2, 2, 1, 1, 1, 3, 1, 1, 1, 1, 1, 1, 1, 2, 1, 2, 3, 2, 3, 1, 2, 2, 2,
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1, 2, 3, 3, 1, 3, 3, 3, 3, 1, 2, 1, 3, 1, 1, 3, 1, 1, 1, 3, 2, 3, 1, 1, 1, 1, 2, 3, 1, 1, 3, 3, 1, 3, 3, 3, 3, 1, 1, 1, 2, 1, 1,
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2, 2, 1, 1, 2, 1" print(Effect.clmm) function (focal.predictors, mod, ...) if (requireNamespace("MASS", quietly = TRUE)) polr <- MASS::polr else stop("The MASS package must be installed") polr.methods <- c("logistic", "probit", "loglog", "cloglog", "cauchit") method <- mod$linkif(method == "logit")method < -"logistic"if(!(methodstop("'link'mustbea'method'supportedbypolr; seehelp(polr)")if(is.null(mod$Hessian)) message("-fitting to get Hessian") mod <- update(mod, Hess = TRUE) if (mod$threshold! = "flexible")stop("Onlythreshold =' flexiblesupportedbyEffects")numTheta < -length(mod$Theta) numBeta <- length(mod$beta)or < -c((numTheta + 1) : (numTheta + numBeta), 1 : (numTheta))Vcov < -as.matrix(vcov(mod)[or, or])args < -list(type = "polr", formula = formula(mod), coefficients = mod$beta, zeta = mod$alpha, method = method, vcov = as.matrix(Vcov))Effect.default(focal.predictors, mod, ..., sources = args) < bytecode : 0x560d46934010 >< environment : namespace : effects > require(ordinal) require(MASS) mm1 <- c(SURENESS PROD + (1|RESP) + (1|RESP:PROD), data = 535, link = "logit", threshold = "flexible") format.default(mm1)

"SURENESS PROD + (1 | RESP) + (1 | RESP:PROD)" data "535" link "logit" threshold "flexible" data(Baumann, package="carData") b1 <- lm(cbind(post.test.1, post.test.2, post.test.3) group + pretest.1 + pretest.2, data = Baumann) plot(Effect("group", b1))