0.1 `model.matrix.multiple`: Design matrix for multivariate models

Description

Use `model.matrix.multiple` after `parse.formula` to create a design matrix for multiple-equation models.

Usage

```
model.matrix.multiple(object, data, shape = "compact", eqn = NULL, ...)
```

Arguments

`object`	the list of formulas output from `parse.formula`
`data`	a data frame created with `model.frame.multiple`
`shape`	a character string specifying the shape of the outputed matrix. Available options are
"compact"	(default) the output matrix will be an $n \times v$, where v is the number of unique variables in all of the equations (including the intercept term)
"array"	the output is an $n \times K \times J$ array where J is the total number of equations and K is the total number of parameters across all the equations. If a variable is not in a certain equation, it is observed as a vector of 0s.
"stacked"	the output will be a $2n \times K$ matrix where K is the total number of parameters across all the equations.
`eqn`	a character string or a vector of character strings identifying the equations from which to construct the design matrix. The defaults to `NULL`, which only uses the systematic parameters (for which `DepVar = TRUE` in the appropriate `describe.model` function)
`...`	additional arguments passed to `model.matrix.default`

Value

A design matrix or array, depending on the options chosen in `shape`, with appropriate terms attributes.

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See Also

parse.par, parse.formula and the full Zelig manual at http://gking.harvard.edu/zelig

Examples

```
# Let's say that the name of the model is "bivariate.probit", and
# the corresponding describe function is describe.bivariate.probit(),
# which identifies mu1 and mu2 as systematic components, and an
# ancillary parameter rho, which may be parameterized, but is estimated
# as a scalar by default.  Let par be the parameter vector (including
# parameters for rho), formulae a user-specified formula, and mydata
# the user specified data frame.

# Acceptable combinations of parse.par() and model.matrix() are as follows:
## Setting up
## Not run:
data(sanction)
formulae <- cbind(import, export) ~ coop + cost + target
fml <- parse.formula(formulae, model = "bivariate.probit")
D <- model.frame(fml, data = sanction)
terms <- attr(D, "terms")

## Intuitive option
Beta <- parse.par(par, terms, shape = "vector", eqn = c("mu1", "mu2"))
X <- model.matrix(fml, data = D, shape = "stacked", eqn = c("mu1", "mu2")
eta <- X

## Memory-efficient (compact) option (default)
Beta <- parse.par(par, terms, eqn = c("mu1", "mu2"))
X <- model.matrix(fml, data = D, eqn = c("mu1", "mu2"))
eta <- X

## Computationally-efficient (array) option
Beta <- parse.par(par, terms, shape = "vector", eqn = c("mu1", "mu2"))
X <- model.matrix(fml, data = D, shape = "array", eqn = c("mu1", "mu2"))
eta <- apply(X, 3, '
## End(Not run)
```