

1. For the following data situations, state the name of the unit of analysis and whether the response variable is poisson (counts within unit of analysis) or binomial (scoring of each unit as yes/no).

1a. A mark recapture study involving 30 fish released into each of 4 ponds.

1b. A study of the number of lesions on rats exposed to several levels of a pesticide.

1c. A study of survival rates of marked snails infected by parasites, at high and a low temperatures, for young and old snails.

1d. A study of number of species counted on small mangrove islands, at several time intervals after defaunation.

	Name of unit of analysis	Binomial/Poisson	Symbol	Link	Error Type
1a	_____	_____	_____	_____	_____
1b	_____	_____	_____	_____	_____
1c	_____	_____	_____	_____	_____
1d	_____	_____	_____	_____	_____

2. Assign a symbol to each variable in the table above, state the link and error type you would use in a generalized linear model to analyze that response variable.

Identity link  $Y = \mu$  Log link  $Y = e^\mu$  Logit link  $\ln(p/(1-p)) = \mu$

Error types: normal, poisson, binomial, gamma, negative binomial

3. For data situation (1d) list an explanatory variable, assign a symbol, and then using the symbol you assigned, write a generalized linear model of the form:

$$\mu = \sum \beta_i X_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots \text{ etc}$$

Explanatory variable \_\_\_\_\_ Symbol \_\_\_\_\_ (not X)

$\mu =$  \_\_\_\_\_