The Incidence Rate Ratio (IRR) is a measure commonly used in the context of count data models, such as Poisson or negative binomial regression models, which are often used to model the rate of occurrence of an event.

**Understanding IRR**

1. **Definition:** The IRR is the ratio of the incidence rate of an event occurring in one group to the incidence rate of the event occurring in another group. It provides a way to quantify the change in incidence rates for a one-unit change in the predictor variable.
2. **Calculation:** In the context of a generalized linear model, particularly those using a log link function (such as Poisson or negative binomial regression), the IRR is obtained by exponentiating the regression coefficients. If *β* is a regression coefficient, then the IRR is calculated as 𝑒 *β*
3. **Interpretation:**
   * **IRR > 1:** The event rate is higher in the exposed group compared to the unexposed group. For example, an IRR of 1.5 means that the event rate is 50% higher for a one-unit increase in the predictor variable.
   * **IRR < 1:** The event rate is lower in the exposed group compared to the unexposed group. For example, an IRR of 0.7 means that the event rate is 30% lower for a one-unit increase in the predictor variable.
   * **IRR = 1:** There is no difference in event rates between the groups.

* **tbl\_regression(exponentiate = TRUE):** This creates a table of the regression results with exponentiated coefficients, giving you the IRRs instead of the raw coefficients.
* **add\_global\_p(type = "II"):** This adds global p-values for each variable based on Type II sum of squares.

**Interpretation of Output:**

* Each row in the table will provide the IRR for a one-unit change in the corresponding predictor variable.
* The IRR column will show how the incidence rate of the outcome (e.g., Abundance) changes with a one-unit change in the predictor.

For example, if the IRR for **z.s.NeaDistRiv** is 1.12, it means that for each one-unit increase in **z.s.NeaDistRiv**, the incidence rate of **Abundance** increases by 12%. If the IRR is 0.80, it means the incidence rate decreases by 20% for each one-unit increase in **z.s.NeaDistRiv**.