

A brief description of non-parametric tests

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Non-parametric Tests In contrast to parametric tests, non-parametric tests do not require any assumptions about the parameters or about the nature of population. It is because of this that these methods are sometimes referred to as the distribution free methods. Most of these methods, however, are based upon the weaker assumptions that observations are independent and that the variable under study is continuous with approximately symmetrical distribution. In addition to this, these methods do not require measurements as strong as that required by parametric methods.

Most of the non-arametric tests are applicable to data measured in an ordinal or nominal scale. As opposed to this, the parametric tests are based on data measured at least in an interval scale. The measurements obtained on interval and ratio scale are also known as high level measurements. Level of measurement 1 . Nominal scale: This scale uses numbers or other symbols to identify the groups or classes to which various objects belong. These numbers or symbols constitute a nominal or classifying scale.

For example, classification of individuals on the basis of sex (male, female) or on the basis of level of education (matric, senior secondary, raduate, post graduate), etc. This scale is the weakest of all the measurements. 2. Ordinal scale: This scale uses numbers to represent some kind of ordering or ranking of objects. However, the differences of numbers, used for ranking, don't have any meaning. For example, the top 4 students of class can be ranked as 1, 2, 3, 4, according to their marks in an examination. 3.

Interval scale: This scale also uses numbers such that these can be ordered and their differences have a meaningful interpretation. 4. Ratio scale: A scale

possessing all the properties of an interval scale along with a true zero point is called a ratio scale. It may be pointed out that a zero point in an interval scale is arbitrary. For example, freezing point of water is defined at 00 Celsius or 320 Fahrenheit, implying thereby that the zero on either scale is arbitrary and doesn't represent total absence of heat.

In contrast to this, the measurement of distance, say in metres, is done on a ratio scale. The term ratio is used here because ratio comparisons are meaningful. For example, 100 kms of distance is four times larger than a distance of 25 kms while 1000F may not mean that it is twice as hot as 500F. It should be noted here that a test that can be performed on high level measurements can always be performed on ordinal or nominal measurements but not vice-versa.

However, if along with the high level measurements the conditions of a parametric test are also met, the parametric test should invariably be used because this test is most powerful in the given circumstances. From the above, we conclude that a non-parametric test should be used when either the conditions about the parent population are not met or the level of measurements is inadequate for a parametric test. References:

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