

## Supporting variable and dummy variable

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### ABSTRACT

Let  $a=2t$  ,  $t=r$  then we can get  $a=2r$ . Here without  $t$  we can not relate  $a$  with  $r$  . So here ' $t$ ' is the supporting variable. But if  $a=2t$ ,  $t=r$  ,  $r=2b$  ,  $a=3b$  then without  $t,r$  we get another relationship between  $a$  and  $b$  and we will say that  $t,r$  are dummy variables. When we find some relationship between two quantities and again without taking the help of that we can get a new relationship between the two, then the concept of dummy variable comes. In case of geometry the axes may act as dummy axes.

A relationship between two variables is that  $a=2t$  ( where ' $a$ ' and ' $t$ ' are variables) . Again  $t=2b$  is another relationship between two variables ' $t$ ' and ' $b$ '. Now we can find from these two relations  $a=4b$ . Here we say that ' $t$ ' is a supporting variable, because without ' $t$ ' we can not relate ' $a$ ' and ' $b$ '.

If we find another relationship between ' $a$ ' and ' $b$ ' , such that  $a=3b$  , then ' $t$ ' will not be needed to find the relationship between ' $a$ ' and ' $b$ '.

We will not take the help of 't' to find 'b' from 'a' because there may exist some errors to find some relationships between 'a' and 'b' . So after another experiment we get the proper relationship between 'a' and 'b', which is  $a=3b$  instead of the previous  $a=4b$ . Now we can say that 't' is a dummy variable.

In many real life experiences we can see the dummy variables. If we construct three axes to measure a curve situated in different locations with the help of other three axes then middle axes always act as supporting axes . Now if we find a direct location from the initial axes and no help is needed , then the middle axes are dummy axes , where variables of the axes are called dummy variables.

In normal life to construct a house we require a ladder but after the construction of stairs there is no need of a ladder. So here a ladder is a dummy element or variable. Here before the construction the ladder was the supporting element or variable.

To construct many things we need the help of supporting variables but after construction we can get or keep aside the supporting variables as dummy variables. Sometimes we take the help of dummy variables to construct a relationship and after the relationship is made then we can keep aside some variables as dummy variables.

The use of dummy variables lies not only in mathematics but also we can use it in general life. Like you marry your brother's sister in law, then Sister-in-law is a dummy relationship between you and your wife because now the relationship of you and your brother's sister in law is less compact than the husband-wife relationship . In social activities we can see these types of dummy relationship between two or more elements or persons.

In tensor analysis the inclusion of dummy variables can be seen but if we go far enough of it , we can see that everywhere the dummy variable can act and can be created for our own interest. Tensor acts with vectors but I found supporting variables everywhere which can be put as dummy variables , only the set relationship is needed between two or more sets. The set can consist of anything.

Then comes the elements of sets with supporting variables and we can call it as" supporting set" . The set of dummy variables can be taken as "dummy sets". This type of thinking comes. We can replace the dummy variables with supporting variables and converse is also true.

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