What is a Marginal Mean?

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In a contingency table, the **marginal means** of one variable are the means for that variable averaged across every level of the other variable.

As the name implies, these means appear in the **margins** of the contingency table.

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	88.87
Mean	83.9	88.2	89.9	

Marginal means of gender

Marginal means of studying technique

The following example shows how to calculate the marginal means for a given contingency table.

Example: Calculating Marginal Means

The following contingency table shows the average exam score of 100 students who used three different studying techniques to prepare for the exam.

The rows display the gender of the student and the columns display which studying technique they used:

	Technique 1	Technique 2	Technique 3
Male	79.5	88.7	89.2
Female	88.3	87.7	90.6

The **marginal means of gender** are simply the means of each level of gender averaged across each level of studying technique.

For example, the marginal mean exam score of males is calculated as:

Marginal Mean of Males: (79.5 + 88.7 + 89.2) / 3 = **85.8**

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	

Similarly, the marginal mean exam score of females is calculated as:

Marginal Mean of Females: (88.3 + 87.7 + 90.6) / 3 = **88.87**

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	88.87

The **marginal means of studying technique** are simply the means of each level of studying technique averaged across each level of gender.

For example, the marginal mean exam score of students who used technique 1 is calculated as:

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	88.87
Mean	83.9			

The marginal mean exam score of students who used technique 2 is calculated as:

Marginal Mean of Technique 2: (88.7 + 87.7) / 2 = **88.2**

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	88.87
Mean	83.9	88.2		

The marginal mean exam score of students who used technique 3 is calculated as:

Marginal Mean of Technique 3: (89.2 + 90.6) / 2 = **89.9**

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	88.87
Mean	83.9	88.2	89.9	

We can see that the marginal means for both variables appear in the **margins** of the contingency table:

	Technique 1	Technique 2	Technique 3	Mean
Male	79.5	88.7	89.2	85.8
Female	88.3	87.7	90.6	88.87
Mean	83.9	88.2	89.9	

Marginal means of gender

Marginal means of studying technique

Why Use Marginal Means?

Marginal means are useful because they tell us the overall average value for a specific level of some variable.

For example, in the previous scenario we knew the following:

The mean exam score for males who used studying technique 1 was 79.5.
The mean exam score for males who used studying technique 2 was 88.7.

The mean exam score for males who used studying technique 3 was 89.2.

But what if we just wanted to know the overall mean score of males?

The marginal mean for males can answer this: The overall mean score of males was **85.8**.

In a similar fashion, we knew the following:

The mean exam score for males who used studying technique 1 was 79.5.
The mean exam score for females who used studying technique 1 was 88.3.

But what if we just wanted to know the overall mean score of students who used studying technique 1?

The marginal mean for studying technique can answer this: The overall mean score of students who used studying technique 1 was **83.9**.

In essence, marginal means offer a simple way for us to understand the means for specific levels of variables.