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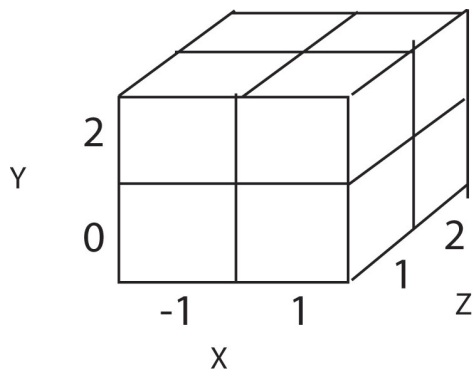
Monday, March 10

Joint Discrete Distributions, two or more random variables Handout

When we have three random variables, we can show the joint probability distribution using multiple tables that look similar to the ones we saw with two random variables, or we can use one table as below:

variable			$f_{XYZ}(x, y, z)$
x	y	z	
-1	0	1	0.10
-1	0	2	0.12
-1	2	1	0.15
-1	2	2	0.05
1	0	1	0.11
1	0	2	0.15
1	2	1	0.20
1	2	2	0.12

From the table, we see that X can take on values of -1 or 1. Y can take on values of 0 or 2. Z can take on values of 1 or 2. Visually, each probability corresponds to a cell in the cube below.



From the table, we can compute marginal probabilities, subsetted joint probabilities, and conditional probabilities as well (on back).

Determine the following:

1. $P(X = 1)$

2. $P(X = 1, Z = 2)$

3. $P(X = 1|Z = 2)$