

Consider the factors below.

A	B	$f_1(A,B)$
+a	+b	0.3
+a	-b	0.6
-a	+b	0.2
-a	-b	0.5

A	C	$f_2(A,C)$
+a	+c	0.8
+a	-c	0.9
-a	+c	0.2
-a	-c	0.3

B	E	$f_4(B,E)$
+b	+e	0.2
+b	-e	0.8
-b	+e	0.3
-b	-e	0.6

A	B	D	$f_3(A,B,D)$
+a	+b	+d	0.6
+a	+b	-d	0.3
+a	-b	+d	0.2
+a	-b	-d	0.5
-a	+b	+d	0.4
-a	+b	-d	0.1
-a	-b	+d	0.8
-a	-b	-d	0.9

1. Join on B; i.e., form the factor $f'_5(A,B,D,E) = f_1(A,B) f_3(A,B,D) f_4(B,E)$.

A	B	D	E	$f'_5(A,B,D,E)$
+a	+b	+d	+e	$0.3*0.6*0.2=0.036$
+a	+b	+d	-e	$0.3*0.6*0.8=0.144$
+a	+b	-d	+e	$0.3*0.3*0.2=0.018$
+a	+b	-d	-e	$0.3*0.3*0.8=0.072$
+a	-b	+d	+e	$0.6*0.2*0.3=0.036$
+a	-b	+d	-e	$0.6*0.2*0.6=0.072$
+a	-b	-d	+e	$0.6*0.5*0.3=0.090$
+a	-b	-d	-e	$0.6*0.5*0.6=0.180$
-a	+b	+d	+e	$0.2*0.4*0.2=0.016$
-a	+b	+d	-e	$0.2*0.4*0.8=0.064$
-a	+b	-d	+e	$0.2*0.1*0.2=0.004$
-a	+b	-d	-e	$0.2*0.1*0.8=0.016$
-a	-b	+d	+e	$0.5*0.8*0.3=0.120$
-a	-b	+d	-e	$0.5*0.8*0.6=0.240$
-a	-b	-d	+e	$0.5*0.9*0.3=0.135$
-a	-b	-d	-e	$0.5*0.9*0.6=0.270$

2. Now sum over B; i.e., $f_5(A,B,D,E) = \sum_b f'_5(A,b,D,E)$.

A	D	E	$f_5(A,D,E)$
+a	+d	+e	0.036+0.036=0.072
+a	+d	-e	0.144+0.072=0.216
+a	-d	+e	0.018+0.090=0.108
+a	-d	-e	0.072+0.180=0.252
-a	+d	+e	0.016+0.120=0.136
-a	+d	-e	0.064+0.240=0.304
-a	-d	+e	0.004+0.135=0.139
-a	-d	-e	0.016+0.270=0.286