

Display charts for binary relations

Example of a binary relation on $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$: a is related to b if the quotient b/a is an integer. This can be represented by a chart as follows, where $+$ means that (a,b) is a related pair and 0 means it is not:

$b \backslash a$	1	2	3	4	5	6	7	8	9	10
1	+	0	0	0	0	0	0	0	0	0
2	+	+	0	0	0	0	0	0	0	0
3	+	0	+	0	0	0	0	0	0	0
4	+	+	0	+	0	0	0	0	0	0
5	+	0	0	0	+	0	0	0	0	0
6	+	+	+	0	0	+	0	0	0	0
7	+	0	0	0	0	0	+	0	0	0
8	+	+	0	+	0	0	0	+	0	0
9	+	0	+	0	0	0	0	0	+	0
10	+	+	0	0	+	0	0	0	0	+

Another example of a binary relation on $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$: a is related to b if $|a - b| \leq 2$. This can be represented by a similar sort of chart:

$b \backslash a$	1	2	3	4	5	6	7	8	9	10
1	+	+	+	0	0	0	0	0	0	0
2	+	+	+	+	0	0	0	0	0	0
3	+	+	+	+	+	0	0	0	0	0
4	0	+	+	+	+	+	0	0	0	0
5	0	0	+	+	+	+	+	0	0	0
6	0	0	0	+	+	+	+	+	0	0
7	0	0	0	0	+	+	+	+	+	0
8	0	0	0	0	0	+	+	+	+	+
9	0	0	0	0	0	0	+	+	+	+
10	0	0	0	0	0	0	0	+	+	+

Rock-paper-scissors. Will Player 1 win over Player 2?

1\2	rock	paper	scissors
rock	no	no	yes
paper	yes	no	no
scissors	no	yes	no