CHOOSING THE MOVIE FOR A MOVIE NIGHT

The students of your school choose a movie for a movie night among three possibilities: *All for love* (a romantic comedy), *Boulevard police* (action movie), *Creepy night* (horror movie). For short, we call these movies A, B, and C respectively. The students vote by ordering the movies in their order of preference (first choice, second choice, third choice). For example, they write $B > C > A$ to mean that B is the first choice, C the second choice, and A the third choice. Suppose that the result of this ranking are as follows:

$A > B > C$	38%
$A > C > B$	2%
$B > C > A$	18%
$B > A > C$	7%
$C > A > B$	3%
$C > B > A$	32%

Which movie should be selected in your opinion?

- Movie A has a clear win. Indeed, consider the first choice of the students: 40% choose A, 25% choose B and 35% choose C.
- Movie B has a clear win. Indeed, let's compare the movies two by two. 57% of the students prefer B to A, so B wins over A. Moreover, 63% of the students prefer B to C, so B wins over C.
- Movie C has a clear win. Indeed, B is the least favorite first option, so we can discard it. Removing B from the rankings and reconsidering which movie is the first choice, we see that 47% of the students choose A and 53% of the students choose C.

Movie B is the compromise solution because it is the second choice for 70% of the students. Since 95% of the students rank movie B as first of second choice, it would be reasonable to suggest to select movie B.

Conclusion: The outcome of a vote depends on the rule with which the outcome is determined. Indeed, as we see in the above example, according to the chosen rule, it's either movie A or B or C that gets selected. Before the voting it is necessary to agree on the rule. This may depend, for example, on whether compromise solutions are well-accepted or not. For example, is avoiding the third choice more important than selecting the first choice?

A different example: Replace B by a movie that is very similar to A (say, B is the movie *Best friends in love*). Then distributing the first choice between A and B would favor C. For example, if 64% of the students love the options A and B and detest the horror movie C, the most common first choice would be C (in case the votes of the romantic comedy fans are evenly split between A and B). This example shows that similar choices take vote away from one another and that while casting a vote one should keep this in mind.