Measuring Power with Variable Quotas
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Here, we create our basic forms using recursion. For each of the forms along the left side, the column corresponds to the quota, and the number of boxes in the column represents the power of the player.

In this example, we will have five players, with weights 1, 2, 3, 4, and 5. The final form is what it would look like if we added a player with weight 6.

Here, by duplicating and shifting forms, we expand our forms as more players are added.

This result is a method to simply and efficiently calculate the power of a set of players, for any possible quota, using the Common Good Power Index. Instead of testing every single possible group, this method allows calculation using simple additive recursion.

Outside academia, this method can be utilized to efficiently calculate large groups of power structures, which allows for weighted voting systems to be constructed around the effective power of each player, rather than just assigning votes and testing systems individually.

This result also presents some interesting follow-up questions. Among them: Is it possible to create an explicit formula for a player’s power for one particular quota? Can this process be reversed to give certain players certain amounts of power? And what can we say about the situations where a player with more votes ends up with less power?

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