

CONFLICTING CLAIMS

When resources are limited, consuming them means competing for them. The rules for dividing these resources depend on objective rights and on fairness principles. The most common of these rules are the proportional rule and the egalitarian rule.

CONFLICTING CLAIMS PROBLEMS REQUIRE CERTAIN CRITERIA.



FISHING QUOTAS

Every year, the European Union sets the total acceptable fish catches. The division of those catches is carried out according to the principle of relative stability proportional to the history of catches for each country.



IRRIGABLE LAND

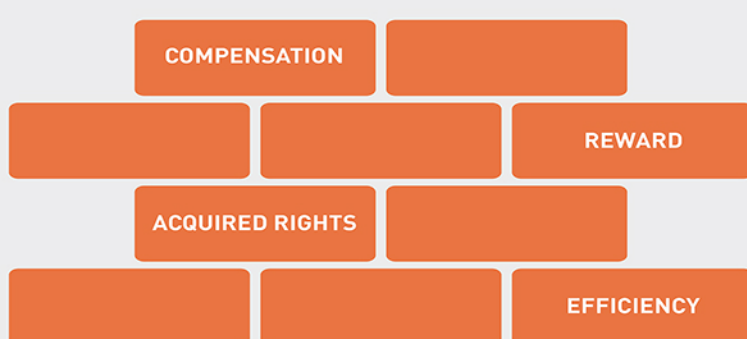
From ancient times, water has been divided proportionally to the area being irrigated, and depending on the kind of crops.



BANKRUPTCY

In the event of the bankruptcy of a company, the creditors litigate in order to collect the amount owed to them. Law grants them an order of precedence, and the principle of proportionality is applied to creditors with the same precedence.

WHAT DOES "FAIR DIVISION" MEAN? 4 KEY POINTS CAN BE IDENTIFIED:



COMPENSATION

The unjustified inequalities suggest that some agents ought to be compensated.

REWARD

When some agents contribute in different ways towards reaching a common good, such good should be divided according to how much each agent has contributed.

ACQUIRED RIGHTS

Some agents might have acquired rights (which might be subjective or objective) that give them priority over other agents.

EFFICIENCY

The resources should be assigned to those who can make the best of them.

A SIMPLE, OBJECTIVE MODEL

Divide an amount Q between n people with, eventually, different claims.



We need to:

1. Quantify the claims.
2. Determine the principles of fairness in order to suggest a solution.

SOME PRINCIPLES



BILATERAL CONSISTENCY

The fact of reallocating between two people the joint amount received by the two of them should not change the original division.



ORDINALITY

If one person has more rights than another, the amount they receive should be bigger (or, at least, not smaller).



EQUAL TREATMENT BETWEEN EQUALS

Two equals (both with the same rights) should receive the same.



MONOTONICITY OF RESOURCES

If there is an increase in the amount to be divided, nobody should receive less than they received before.

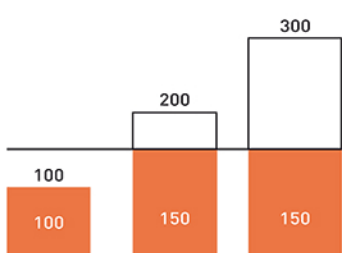
There are plenty of rules that meet some minimal principles of fairness, e.g., the proportional distribution.

SOME SOLUTIONS: EXAMPLES

If we divide $Q = 400$ between three people who demand 100, 200 and 300, respectively:

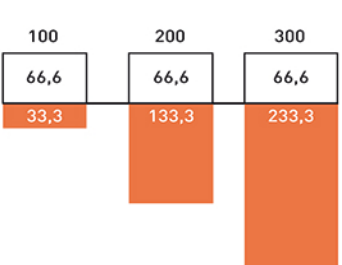
EGALITARIAN RULE IN PROFITS

Everybody gets the same, without exceeding the claimed amount.



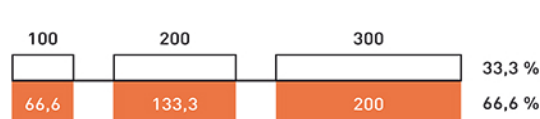
EGALITARIAN RULE IN LOSSES

Everybody loses the same (up to the claimed amount).



PROPORTIONAL RULE

Everybody gets the same proportion of the amount claimed. In this case, the relative profits and losses are equally distributed.



A MYSTERIOUS EXAMPLE: THE TALMUD RULE

The Talmud, a compendium of legal and religious rulings of the Jewish community, proposes its own division rules based upon the evenly split division. Two equals shall get the same, but two non-equals do not necessarily have to get a different amount.

«A man dies and leaves three widows that claim 100, 200 and 300, respectively.» The Talmud proposes various solutions:

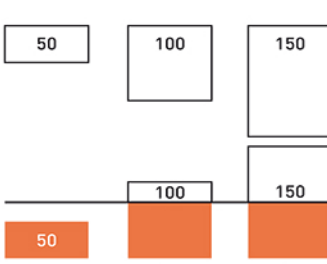
	IF THE MAN LEAVES:			AND IF HE LEAVES:	
	100	200	300	350	400
WIDOW 1 CLAIMS 100	33,3	50	50	50	50
WIDOW 2 CLAIMS 200	33,3	75	100	100	125
WIDOW 3 CLAIMS 300	33,3	75	150	200	225

This rule was reinterpreted in 1985 by M. Maschler and R. Aumann (Nobel Prize in Economic Sciences in 2005).

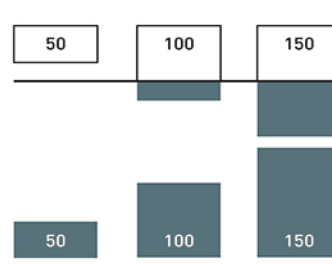
HOW IS THE RULE APPLIED

We divide the claims in two halves. The egalitarian division in profits is applied for the first half (supposing there is something left to distribute).

If the amount to be divided is $Q = 200$



If the amount to be divided is $Q = 400$



Distributive justice has been studied since ancient times. The source of conflict lies in comparing what each individual gets with what the others get.

«...but this is the origin of quarrels and complaints, when either equals have and are awarded unequal shares, or unequals equal shares.»

(Aristotle (IV century B.C.),
Nicomachean Ethics, book V)