

## VALUES AND COALITION CONFIGURATIONS

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In many negotiations, some agents prefer to cooperate together than with others. The basic tool to study these kind of negotiations is that of a *coalition structure*, defined as a partition of the individual set into disjoint coalitions. An important reference is Aumann and Dréze (1974). Later on, Owen (1977) proposed and characterized a modification of the Shapley (1953) value with respect to a coalition structure (see also Hart and Kurz, 1983).

Unlike the former approaches, in which each member of the coalition structure gets only its worth, in Owen's (1977) approach each member of the coalition structure bargains against the others to allocate the worth available to the grand coalition.

Coalition structures, nonetheless, do not represent adequately some bargaining situations, since there is no reason to assume that individuals will organize themselves to defend their interests into coalitions that are necessarily disjoint. As Aumann and Myerson (1988) point out the relations between agents need not be transitive; for instance, they mention the case of Syria and Israel having diplomatic relations with the United States but not with each other.

Albizuri et al. (2006) considered the more general concept of *coalition configuration* to model these more complex negotiations. A coalitional configuration is defined to be a family of coalitions *not necessarily disjoint*, whose union is the grand coalition. They generalized the Shapley value with reference to coalition configurations, and simultaneously the notion proposed by Owen (1977). In fact they obtained two generalizations of the Owen value. In both cases it is supposed that a player can cooperate in as many coalitions as he wants and moreover there is not any restriction on these cooperations which depends on the coalitions a player belongs to. Furthermore, there is only one possibility of cooperation once a player belongs to a coalition.

In this paper our aim is to consider the above issues and in this way we give an alternative generalization of the Shapley value and the Owen value. In fact we will obtain two families of values. The second family will be the dual of the first one. We will obtain them with a probabilistic approach based on the ordering of players. We will also include an axiomatic system for each family. We characterize the new values by adapting Owen's (1977) axioms and adding some other specific axioms. One axiom will be related to the *Merger* axiom employed by Albizuri et al. (2006). We will also develop the new values by following the heuristic Owen's procedure of considering the bargaining among the coalitions and within each of the coalitions.