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CLASSIFICATION See Tabular Analysis; Typologies.

CLUSTER ANALYSIS See Factor Analysis.

COALITIONS Originally a word for union or fusion, the term *coalition* came in the eighteenth century to mean a temporary alliance of political parties. In modern social science, the meaning has broadened to include any combination of two or more social actors formed for mutual advantage in contention with other actors in the same social system. In most contemporary theories of coalition formation, it is taken for granted that the principles governing coalition formation are not much affected by the size of the actors, who may be small children or large nations, but *are* significantly affected by the number of actors in the system. In the sociological and social-psychological literature, interest has focused on coalition formation in social systems containing three actors, commonly known as *tri-*

ads, and on the factors that influence the formation of coalitions in that configuration. Coalitions in triads have certain properties that are very useful in the analysis of power relationships in and among organizations. Moreover, tetrads, pentads, and higher-order social systems can be viewed for analytical purposes as clusters of linked triads.

The social science perspective on coalitions derives from two major sources: the formal sociology of Georg Simmel (1858–1918) and the *n*-person game theory of John von Neumann (1903–1957). Simmel had the fundamental insight that conflict and cooperation are opposite sides of the same coin so that no functioning social system can be free of internal conflicts or of internal coalitions. Simmel also proposed that the geometry of social relationships is independent of the size of the actors in a social system but heavily influenced by their number; that social systems are held together by internal differentiation; that relationships between superiors and subordinates are intrinsically ambivalent; that groups of three tend to develop coalitions of two against one; and that, in stable social systems, coalitions shift continually from one situation to another.

While the basic ideas are attributable to Simmel, the analytical framework for most of the empirical research on coalitions that has been undertaken so far is that of Von Neumann (and his collaborator Oskar Morgenstern). Any social interaction involving costs and rewards can be described as an *n*-person game. In two-person games, the problem for each player is to find a winning strategy, but in games with three or more players, the formation of a winning coalition is likely to be the major strategic objective. The theory distinguishes between zero-sum games, in which one side loses whatever the other side gains, and non-zero-sum games with more complex payoff schedules. And it provides a mathematical argument for the equal division of gains among coalition partners, the gist of which is that any essential member of a winning coalition who is offered less than an equal share of the joint winnings can be induced to desert the coalition and join an adversary who offers more favorable terms. In the various experimental and real-life

settings in which coalitions are studied, this solution has only limited application, but game theory continues to furnish the vocabulary of observation.

Modern empirical work on coalitions falls into two major categories: experimental studies of small groups playing games that have been devised by the experimenter to test hypotheses about the choice of coalition partners and the division of coalition winnings under specified conditions, and observational studies of coalitions in the real world. Stimulated by the publication of divergent theories of coalition formation (Mills 1953; Caplow 1956; Gamson 1961) in the *American Sociological Review*, coalition experiments became part of the standard repertory of social psychology in the 1960s and continue to be so to this day. A great deal has been learned about how the choice of coalition partners and the division of coalition winnings are affected by variations in game rules and player attributes (Miller and Crandall 1980). Much, although by no means all, of this work has focused on three-player games in which the players have unequal resources and any coalition is a winning coalition, the distribution of resources falling into one of three types: (1) $A > B > C$, $A < B + C$; (2) $A = B$, $B > C$, $A < B + C$; (3) $A > B$, $B = C$, $A < B + C$. With respect to the choice of coalition partners, the leading question has been whether subjects will consistently choose the partner with whom they can form the minimum winning coalition, or the stronger partner, or the partner who offers the more favorable terms, or the partner who resembles themselves in attributes or ideology. The general finding is that each of these results can be produced with fair consistency by varying the rules of the experimental game. The division of winnings between coalition partners has attracted even more attention than the choice of partners. The question has been whether winnings will be divided on the principle of *equality*, as suggested by game theory; or *parity*, proportionate to the contribution of each partner, as suggested by exchange theory; or at an intermediate ratio established by *bargaining*. Although many experimenters have claimed that one or the other of these principles is primary, their collective results seem to show that all three

modes of division occur spontaneously and that subjects may be tilted one way or another by appropriate instructions. Additional nuances of coalition formation have been explored in games having more than three players, variable payoffs, or incomplete information. Non-zero-sum games and sequential games with continually changing weights have been particularly instructive. The findings readily lend themselves to mathematical expression (Kahan and Rapoport 1984).

The explicit application of coalition analysis to real-life situations began with Riker's (1962) study of political coalitions in legislative bodies; he discerned a consistent preference for minimal winning coalitions and emphasized the pivotal role of weak factions. Caplow (1968) showed how the developing theory of coalitions in triads could be used to analyze conflict and competition in nuclear and extended families, organizational hierarchies, revolutionary politics, international relations, and other contexts. The subsequent development of observational studies has been slow and uneven compared with the proliferation of laboratory studies, but there have been some notable achievements, particularly in family dynamics and international relations, where coalition models fit gracefully into earlier lines of investigation. Coalition theory has also been applied, albeit in a more tentative way, to work groups, intra- and interorganizational relationships, litigation and criminal justice, class and ethnic conflict, and military strategy.

Whatever the field of application, the examination of coalition, especially the simple coalition of two against one, provides a key to the social geometry of situations involving conflict, competition, and cooperation. In nearly every conflict, each of the contending parties seeks the support of relevant third parties, and the side that gains that support is likely to prevail. In very many competitive situations, the outcome is eventually decided by the formation of a winning coalition. And any system of cooperation that involves a status order must rely on the routine formation of coalitions of superiors against subordinates and be able to counter coalitions of subordinates against superiors.

All of these situations are susceptible to coalitions of two against one, which tend to transform strength into weakness and weakness into strength. Under many conditions, in the first of the triads mentioned above ($A > B > C$, $A < B + C$), both A and B will prefer C as a coalition partner; his initial weakness ensures his inclusion in the winning coalition. When $A > B$, $B = C$, $A < B + C$, B and C will often prefer each other as coalition partners; A's initial strength ensures his exclusion from the winning coalition. When $A = B$, $A > C$, C's initial weakness again makes him a likely winner. The first purpose of any hierarchy must be to restrain in one way or another the inherent tendency of subordinates to combine against superiors. Although force and ritual are often deployed for this purpose, the stability of complex status orders depends on certain interactive effects that appear in triads with overlapping membership, called linked triads. In such clusters, the choice of coalition partners in one triad influences the choices made in other triads. The natural rules that seem to govern the formation of coalitions in linked hierarchical triads are that a coalition adversary in one triad may not be chosen as a coalition partner in another triad, and that actors offered a choice between incompatible winning coalitions will choose the one in the higher-ranking triad. The net effect favors conservative coalitions of superiors against subordinates without entirely suppressing revolutionary coalitions of subordinates against superiors.

Cross-cutting the coalition preferences that arise from unequal distributions of power and resources are preferences based on affinity, compatibility, and prior experience with potential partners. These other bases of coalition formation are conspicuous in intimate groups such as the family, where same-sex coalitions alternate with same-generation coalitions.

The study of coalitions in nuclear families is particularly rewarding because the distribution of power in the triad of mother-father-child changes so dramatically as the child grows up, and because same-sex coalitions are differently valued than cross-sex coalitions. The initial distribution of power between husband and wife is always trans-

formed by the arrival of children; most cultures encourage certain patterns, such as the Oedipus and Electra complexes described by Sigmund Freud: coalitions of mother and son against father and of father and daughter against mother. Research on the contemporary American family suggests that parental coalitions are quite durable, both mother-daughter and mother-son coalitions against the father are very common, father-daughter coalitions against the mother much less so, and father-son coalitions against the mother comparatively rare. Sibling coalitions are most likely among same-sex siblings adjacent in age. Sibling aggression is endemic in families of this type, especially in the presence of parents. An interesting study by Felson and Russo (1988) suggests that parents usually take side with the weaker child in these incidents, and this leads to more frequent aggression by the excluded child. There are very few family conflicts that cannot be instructively described by a coalition model.

The application of coalition theory to international relations has concentrated on the "strategic triangle" of the United States, China, and the Soviet Union during the Cold War era of 1950-1985. In one of the many studies that have examined the internal dynamics of this triad, Hsiung (1987) concluded that China as the weak player in this triad benefited much more than either of the superpowers from the various coalitional shifts that occurred over time, as would be theoretically expected in a triad of this type ($A = B$, $B > C$, $A < B + C$). A recent study by Caplow (1989) explains the failure of peace planning in 1815, 1919, and 1945, by showing how efforts to put an end to the war system were undermined by the formation of coalitions to prevent the domination of the peacekeeping organization by the strongest of the victorious powers. Many older studies of international balances of power visualize international relations as a game in which the first priority of every major player is to block the domination of the entire system by any other player. Zagare's (1984) analysis of the Geneva Conference on Vietnam in 1954 as a three-person game broadened this approach by comparing the preference schedules of the three players and

showing how they combined to produce the unexpected outcome of the negotiations.

Both family dynamics and international relations in peacetime exemplify situations of continuous conflict, wherein relationships have long histories and are expected to persist indefinitely, and the opposition of interests is qualified by the necessity for cooperation. The choice of coalition partners and the division of winnings is strongly influenced by the past transactions of the parties and by the fact that payoffs are not completely predictable. Continuous conflict triads with $A > B > C$, $A < B + C$ often alternate the three possible coalitions according to circumstances: the *conservative coalition* AB reinforces the existing status order; the *revolutionary coalition* BC challenges it; and the *improper coalition* AC subverts it.

Episodic conflicts, by contrast, involve discrete zero-sum games played under strict rules. The passage of any measure in a legislative body necessarily involves the formation of a coalition. Even when one party has a solid majority, its members will seldom be in complete agreement on an issue. The formation of a coalition for the passage of a specific measure usually involves hard bargaining and payoffs negotiated in advance. Under these conditions, the tendency to minimize costs by forming the minimal winning coalitions is very strong. When $A > B > C$, $A < B + C$, a BC coalition is highly probable. Empirical studies of legislative voting bear this out, although more than minimal coalitions also occur, for various reasons.

The resolution of disputes by civil and criminal litigation is another variety of episodic conflict that has begun to be studied as a coalition process. Black (1989) explores the triad of judge and courtroom adversaries and discovers a clear tendency for judges to favor the litigant to whom they are socially closer, ordinarily the litigant of higher status—a tacit conservative coalition. But in forms of dispute resolution where the third party is less authoritative, the weaker adversary may be favored. Marital counselors, for example, often side with wives against husbands, and ombudsmen and other relatively powerless mediators normally incline toward the weaker party.

In terminal conflicts, the object is the perma-

nent destruction of adversaries, and the formation of coalitions is a delicate matter. In the triad where $A > B > C$, $A < B + C$, a successful BC coalition that destroys A leaves C at the mercy of B. Indeed, any winning coalition is hazardous for the weaker partner. A fragile peace can be maintained if $A > B > C$ and $A = B + C$; the BC coalition forms as a matter of course, creating what is known as a balance of power. This has been the key configuration in European affairs for the past several centuries. The balance breaks down with any significant shift in the relative power of the parties; for example, if A grows stronger than the BC coalition, it will be tempted to conquer them. If B becomes equal to A, an AB coalition may be tempted to attack and partition C. If C grows stronger and the triad assumes the form $A > B$, $B = C$, $B + C > A$, the formation of a BC coalition to overthrow A is likely. In the eighteenth century, the breakdown of a balance of power led to war without delay. Under current conditions, the breakdown of a balance of power among major industrialized states does not involve an automatic resort to arms, but in several regional arenas, such as Southeast Asia and the Middle East, the old mechanism is still intact.

Terminal conflicts occur also within nations as coups, resistance movements, and revolutions. One common pattern is the urban uprising against a dictatorial regime, in which the players are the government, the army, and the populace. If the army continues to support the government and is willing to fire on the populace, the uprising fails. If the army sides with the populace, the government is overthrown. Often the issue is undecided until the moment when the troops confront the demonstrators. At a more fundamental level, successful revolutions require a coalition of formerly separate factions against the ruling group.

Every organization generates both internal and boundary coalitions. Internal coalitions are activated whenever persons or groups of unequal status interact before witnesses. In general, the presence of a high-status witness reinforces the authority of a superior, while the presence of a low-status witness reduces it; examined in detail,

these catalytic effects are delicate and precise. Boundary coalitions occur whenever one organization has permanent relations with another. Their respective agents must form a coalition with each other to perform their functions, and that coalition pits them both against their own colleagues, always with interesting consequences.

In a long-term perspective, the two bodies of coalition studies, experimental and observational, exemplify two extremes of scholarly development. The experimental studies have explored nearly every possibility suggested by the available theories, run down every lead, manipulated every variable. Further progress probably waits on a new theoretical framework. The observational studies have scarcely tapped the rich possibilities suggested by the available theories and confirmed by the few empirical studies that have been done thus far. The social psychology of coalitions is well developed; most of the macrosociological work remains to be done.

(SEE ALSO: *Decision-Making Theory and Research*)

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COERCIVE PERSUASION AND ATTITUDE CHANGE

Coercive persuasion and thought reform are alternate names for programs of social influence capable of producing substantial behavior and attitude change through the use of coercive tactics, persuasion, and/or interper-