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## The Robin Hood Syndrome: Street Gangs as Complex Adaptive Systems

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### Abstract

Street gangs pose serious threats to their members, to their victims, and to communities at large. The behavior problems associated with gangs are many and varied. Suggested causes for the emergence of gangs are complicated, and many of them are interdependent. Interventions planned to rehabilitate individuals and to weaken the power of the gang are numerous. Research shows that few of these interventions demonstrate consistent or long-lasting effects. This paper investigates the gang as a complex adaptive system (CAS). It defines some of the characteristic behaviors of CASs, describes how these behaviors can be observed in street gangs, posits a CAS-based causal mechanism for gang behavior (Robin Hood Syndrome), suggests interventions that are consistent with the CAS model, and makes recommendations for further research in the area.

### Introduction

Street gangs appear to be an enormous problem in the U.S., but the scope of the problem is unknown. Reliable figures are not available, but sources estimate that 250,000 persons belonged to 5,000 street gangs in the U.S. in 1991 (Brantley & DiRosa, 1994; Hunzeker, 1993). According to an internal report of the Federal Bureau of Investigation, Criminal Investigative Division in 1992, gang related homicides increased over 250 percent from 1979 to 1990 (Brantley & DiRosa, 1994).

Operational definitions of gang membership and gang behavior are inconsistent and frequently unclear (McConnel, 1994). At the National Drug Intelligence Center Street Gang Symposium in Washington, D. C. in 1994, the U.S. Department of Justice defined a street gang as:

- A group or association of three or more persons who may have a common identifying sign, symbol or name, and who individually or collectively engage in, or have engaged in, criminal activity, or as a juvenile commits an act that if committed by an adult would be a criminal act.

In describing the FBI response to the gang situation, Brantley and DiRosa (1994), define a gang as:

- A group of three or more individuals bonded together by race, national origin, culture, or territory, who associate on a continual basis for the purpose of committing criminal acts.

They point out that "territory" in the definition might be geographic territory, a claim to a particular form of criminal activity, or any other identifier that is common to the members of the group.

These definitions establish the two fundamental identifying criteria for gangs: group coherence and criminal activity. This simple definition, however, does not account for the complex phenomenon that terrorizes neighborhoods and

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that attracts and holds young men and women as members (Arias, 1991; Burns & Deakin, 1989). In an effort to capture the underlying patterns and causes of gang behavior, various types of gangs have been the focus of study. Women members generate their own norms and standards for interaction and control (Campbell, 1984; Hopper & Moore, 1980; and Moore, Vigil, & Levy, 1995). Prison gangs, which are sometimes called security threat groups, constitute another unique substrata of the gang phenomenon (Baugh, 1992; Clarke, 1992). Wolfpacks, groups of teens who cluster temporarily for criminal activity, exhibit some gang-like behaviors, though they do not fit the working definition of a street gang (Fried, 1989). Various national and cultural locations deal with unique issues related to gangs and other organized criminal activity (Kersten, 1993; Sheridan, 1997). From the wide variety of gangs, this study will focus on the behavior of male members of street gangs in U.S. cities.

In spite of the lack of consensus concerning the nature and structure of street gangs, psychological models have been proposed to explain the behavior of individuals who function within a gang environment. Interventions based on these models have been defined to meet the needs of individual gang members in less antisocial ways (Arias, 1991; Magaw, 1995). Social models have also been proposed to explain the forces that hold the gang together and to describe how the gang interacts with other social entities within their communities. These models, too, have generated intervention strategies (Evenrud, 1995; Hagedorn, 1991). None of these models, however, provides an integrated view of the individual and group behavior that are characteristic of street gangs.

The science of complex adaptive systems (CAS) should respond to these issues and provide an integrated model of street gang behavior that will allow academics and practitioners to identify, describe, and intervene more effectively than other models. This paper will describe some of the characteristics of CASs, describe a CAS mechanism for street gang behavior, and recommend intervention strategies and further research based on a CAS model of street gang behavior.

## **Complex Adaptive Systems**

Complex adaptive systems are defined as systems in which ". . . a great many independent agents are interacting with each other in a great many ways . . . . The richness of these interactions allows the system as a whole to undergo spontaneous self-organization." (Waldrop, 1992). The ability of these systems to self-organize improves their adaptability, so these systems are seen as both complex (describing the number of parts and their interactions) and adaptive (describing the nature of the emergent patterns). The model of the CAS has been used both literally and metaphorically to describe the behavior of human systems. In this context, ". . . a CAS behaves/evolves according to two key principles: order is emergent as opposed to predetermined, and the state of the system is irreversible and often unpredictable." (Dooley, 1997)

Examples of such systems abound in nature and in society. The cells of a developing fetus interact with each other in complicated ways to organize themselves into skin and muscle and liver and bone. Birds flying in groups adjust to the speed and direction of their neighbors to generate the familiar V-shaped flock (Kelly, 1994). Talented individuals working together in teams demonstrate productivity superior to the sum of the individuals (Goldstein, 1994). Adaptive work groups (Guastello, 1995) and innovative project design teams (Van de Ven & Garud, 1994) show evidence of complex adaptation. In each of these cases, individuals interact to form a recognizable, emergent pattern. The pattern, once formed, constrains the behavior of the individuals within the system. The healthy fetus generates only cells that fill a particular need in a particular location. The team takes action to influence a wayward member or to ostracize him or her for behavior that lies too far outside the norm.

A street gang, too, can be described as a complex adaptive system. It includes a large number of interacting parts, including the members, the pee wees, the wannabes, and the women. From these interacting parts emerge the group behaviors that are identified with gangs.

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These interacting parts generate rigid and sometimes quite sophisticated organizational structures inside a gang. Specific roles (prez, peacemaker, warlord, advisor, recruiter, armorer) characterize differentiating structures within the gang. The roles also form parts of the whole that interact in complex ways. Task and resource distribution becomes the significant organizing principle in gangs that are involved in drug distribution. Violence and domination form structuration within other gang cultures. Some gang organizations have become so complicated that they are said to have "gone corporate." (American Gangs, 1991) Whatever the motivation for the emergent organizational structure, once formed, it tends to constrain the choices of individual members. The gang takes control. The interactions among members and between them and the rest of the world become ritualized and frequently violent.

The growth of an organizational structure, definitive roles, and ritualized behavior indicates that the gang self-organizes. The spontaneous emergence of structure is a typical behavior of a CAS. Any CAS tends to self-organize, just as the gang does. This behavior, called autopoiesis, indicates that society at large is not entirely responsible for the structure of the gang, but that the coherence and criminality that characterize gangs emerge from the complex interactions of the members.

Describing a street gang as a CAS is not an end in itself. Nothing would be gained by merely re-labeling the phenomenon in the terms of a new mental or mathematical model. Application of the model of CAS can expand understanding of the behavior of individual members and of gangs. It can also point the way toward more effective interventions in both the psychological and social contexts of gang membership. The following sections describe some common behaviors of CASs and describe how those behaviors might help explain the phenomenon of gangs and the behavior of their members. It outlines a descriptive model for the emergence of gangs. It also investigates possibilities for future intervention and research based on the applications of the CAS model to the behavior of gangs and gang members.

## CAS Behaviors and Gangs

In addition to the complex interaction of their parts and their self-organizing emergence, CAS share a variety of other characteristic behaviors. Some of these behaviors and their applications to gang behavior are described below. They include:

- Turbulent boundary conditions
- Nonlinearity and feedback loops
- Sensitive dependence on initial conditions
- Short list of simple rules

### Turbulent Boundary Conditions.

Any CAS incorporates widely divergent parts into a coherent whole. An example will help clarify this paradox. A weather system is a classic example of a CAS. To be active, the system must include hotter and colder temperatures, higher and lower barometric pressures, various levels of humidity, and differences in horizontal and vertical locations of air masses. These difference generate changes in the weather. Turbulence arises at the boundary between pairs of these different areas. Warm air rises past cold air. Wind blows from high pressure to low. Cool and moist air mix to generate rainfall. Without the discrete differences, no complex or adaptive behavior would be possible. The same is true of other CASs--there are discrete differences, and turbulence emerges where the different aspects of the system meet.

Such behavior is easy to document in gangs. Many differences make significant difference in the gang dynamics. Respect; race and ethnicity; spoken, written, and gestured language; dress; gender; turf; age; family relationships; money; membership; power; and ownership of weapons are some of the differences that make a difference in gang

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culture (Burns & Deakin, 1989; Lasley, 1992; McConnel, 1994). Turbulence, in the form of violence, can erupt along any one of these boundaries. Personal identity, as demonstrated by one or more of these differences, appears to be a greater cause of gang violence than disputes over drugs or the money generated by drugs (American Gangs, 1994). For some teenagers, the gang becomes an adaptive way to define and cope with their complex boundaries of safety and identity.

## **Effective in a complex adaptive environment.**

Hagedorn (1991) describes the complex causal loops in gang behavior and recognizes the situation as an "ecological coexistence" between the gang and its environment (page 534). The nonlinear dynamics of the CAS are based on feedback loops that carry information, resources, or energy from one part of the system to another. These feedback loops can function either to damp (stifle) or to amplify (encourage) the behavior of the system's parts and its emergent structure. The endocrine system in the human body is an example of the interaction of damping and amplifying feedback loops in a CAS. Some hormones facilitate (amplify) processes and others inhibit (damp) them. The healthy dynamical behavior of the body's chemistry depends on the interaction of these amplifying and damping feedback loops. When one or the other is out of synch, the body adapts with symptoms of illness.

Gang behavior includes very clear and distinct amplifying and damping feedback. Money, respect, drugs, positions of power, and other perceived valuables reward and amplify behavior of individuals in the gang. Violence, in the form of beatings or murder, are seen as damping feedback loops. The counter flows of violence and money provide the lifelines that keep the gang functioning as an adaptive organism. Crime and violence, therefore, are not just the occupations of the gang. They provide the feedback loops that allow the gang and its members to build respect in their community and so continue their dynamical development (Burns & Deakin, 1989).

Some feedback loops can be used to blur the differences that drive gang behavior. Discussions with youths who were not members indicated that some feedback loops connect gang members to their non-member peers (McConnel, 1994). Coordinated programs between parks and police departments build feedback networks that support gang intervention (Evenrud, 1995). Graffiti and costumes, designed to distinguish gang members from others, can also be used to obfuscate communication and blur associations (Hunzeker, 1993).

Feedback loops and the nonlinear causal relationships they foster are central to the evolution of gang behavior. They must also play a role in effective intervention.

## **Sensitive Dependence on Initial Conditions.**

The behavior of a CAS is sensitive to small differences in starting conditions. A slight difference at some early point in development may result in quite different outcomes. This phenomenon is commonly known as the butterfly effect. In computer simulations of weather systems, a flap of a butterfly wing in Argentina may be amplified by the rest of the system until it generates a hurricane off the coast of Florida.

Gang-related behaviors frequently demonstrate sensitivity to initial conditions. A complex set of causal relationships may predispose a young man to join a gang, but the proximate cause might be a single beating by a single bully. A neighborhood may be completely free of gang activity until one young man begins to build a power base. Before many months, every teenage boy in the community is required to make life and death choices.

A similar phenomenon relates to the selection of persons to join the gang and of leaders inside the gang. Two brothers may be quite similar in age, history, genetics, experience, home environment, but one may end up in the gang and another not. Two pee wees might join the gang at the same time and place, but one may move up the ranks toward leadership while the other stays in the ranks of the marginal or hard core member. On the other hand, persons of quite different personal and professional experiences may find themselves drawn into the vortex that is the gang dynamic. Gangs frequently use the butterfly effect to lure working professionals into their ranks. A police officer or an attorney may accept a harmless gift and find him or herself bribed into cooperation and on-going relationship with the gang.

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Geographical locations also seem to make a difference in gang development and intervention. An approach that works well in one city or neighborhood may not work at all in another (Arias, 1991; Evenrud, 1995; Hagedorn, 1991). Even when neighborhoods are similar, very small changes in circumstances may require quite different interventions.

Vigil (1996) discusses how violence is used to initiate new gang members. The beatings are influenced by random, seemingly inconsequential, events. Frequently these rituals are unplanned, so a small chance occurrence might spark the beginning of the fight and determine the extent of injuries for the initiate.

These are just a few examples of the ways in which gang members and the dynamics of the group can experience significant effects from trivial causes. Butterfly effects like this are quite characteristic of the complex dynamical patterns of CASs.

## **Short List of Simple Rules.**

In a self-organizing environment, coherence emerges from repeated application of a short list of simple rules. The clearest model for this behavior is a computer simulation called a cellular automata. In a cellular automata, the CAS generates coherent patterns of behavior when each individual part follows a short list of simple rules. You can think of a cellular automata as a two-dimensional matrix. Each cell in the matrix can be "on" or "off." A few simple rules determine whether a particular cell is lighted or not. Given an array of cells and a stable set of rules, the automata will generate patterns of lighted and darkened cells. The emergent image can settle into a stable pattern, set up a periodic cycling from one pattern to another, or establish a complex sequence of ever changing structures. In this way, many separate entities following the same list of simple rules generate coherent and patterned behavior of the whole. The emerging patterns of a cellular automata have been used to visualize changes in demographics of neighborhoods. The image can be quite similar to the interactions among gangs as they establish and defend their turfs.

The proposed CAS model of gangs depends on a short list of simple rules like those that determine the behavior of the cellular automata. Simple rules drive the behavior of each gang member and result in the coherent behavior of the whole gang. By playing out those rules over a period of time in various circumstances and environments, the gang demonstrates emergent patterns of behavior that are different from, but emerge out of, the behavior of the individual members (Burns & Deakin, 1989). The Robin Hood Syndrome is described in the next section. It is a model of gang behavior based on the characteristics of CASs and on the behavior of individual members and entire gangs.

## **The Robin Hood Syndrome**

The name Robin Hood Syndrome was chosen to describe the CAS model of street gang behavior for a variety of reasons. First, using the heroic image of Robin Hood underscores the importance of point of view in analysis of CAS. To some, Robin Hood was a brigand, thief, and outlaw. To others he was a rescuer and courageous hero. The same duality of perceptions exists about gang members and their leaders in today's society. Second, Robin Hood's band represented a cohesive social unit like that observed in most street gangs. Third, the boundary of identity and distrust of the establishment and of authority are hallmarks of Robin Hood's legend. It separated rich from poor and allowed a merry band to steal from the one and give to the other. This alienation is also prevalent among street gangs and their communities. Finally, the new label provides an alternative to the destructive causal loop described by Brantley and DiRosa (1994) in which labeling behavior as gang-related increases alienation and destructive behavior.

The Robin Hood Syndrome encompasses a variety of behavioral manifestations, all of which arise from the application of a short list of simple rules in the context of a complex adaptive system. The emergent behaviors of members and of whole gangs result from the iterative application of these simple rules (Burns & Deakin, 1989).

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Though they match gang behavior described in the literature, it is not certain that these are the specific rules that drive gang behavior in real situations. Further research will be required to determine whether these cover the content and extent of the targeted behavior. The rules include:

- The future is not guaranteed.
- Control or be controlled.
- Treat insiders and outsiders differently.

## **The Future is not Guaranteed.**

Gang members behave as if the future were not guaranteed. Many of their verbal and nonverbal behaviors indicate a lack of future orientation (Glick, 1992). The inability of gang members to defer gratification and the apparent unconcern for personal safety both indicate weak concepts of future stability. Persons who blame high unemployment and economic hopelessness for gang behavior (Hagedorn, 1991) recognize the lack of faith in a productive future. Interventions that use the "scared straight" approach show potential gang members a frightening future to deter them from gang involvement (Koehler, 1997).

This simple rule is consistent with the gang member's observation of his complex adaptive environment. First, he would have experienced sensitive dependence on initial conditions (butterfly effects) in multiple situations. He would be well aware that large changes can erupt without warning at any moment. In addition, this rule would provide a nonlinear causal loop. If the gang member does not expect a stable future, he will take actions without considering the future, and instability will result. This rule, then becomes a self-fulfilling prophecy. The application of the rule in multiple environments and circumstances would tend to generate many of the actions that are recognized as gang-related behaviors.

## **Control or be Controlled.**

Respect seems to be a fundamental value to gang members. When a gang member approaches a boundary with another person, he has two choices: either control the opponent and gain respect or agree to be controlled and give respect to the other. This rule applies to many different aspects of gang behavior. The use of violence or money as a means of manipulation (Arias, 1991), lack of respect for authority (Brantley & DiRosa, 1994), and the preoccupation with personal safety (Hagedorn, 1991) all indicate a propensity to control or be controlled. Initiation rites that include beatings indicate that part of the social contract of the gang is to yield control willingly to other members (Vigil, 1996).

This rule builds the framework that leads individuals into the gang in the first place. A child may feel victimized as he watches his mother struggle to survive economically. For one hundred dollars a day, this same child gains control over his own future as a lookout for the gang. The alternatives are to be controlled by others or to seize an opportunity to control them. This rule feeds into the desire for respect within the community and the desire to mimic gang members who are respected. It inspires gang members to abuse others, including the pee wees and the female members of the gang. It focuses them on protection of a geographical territory. It encourages them to buy and use weapons as a means of intimidation. All of these behaviors, which follow from a simple rule of control, allow the potential and actual gang members to negotiate their relationships inside and outside of the gang.

## **Treat Insiders and Outsiders Differently.**

This rule may be an extension of "control or be controlled," but it shifts focus to identity and membership. The gang symbols of graffiti, dress, name, spoken language, and hand signals serve as ways to distinguish the "insider" from the "outsider" (Burns & Deakin, 1989). These strong boundaries of belonging ensure that the gang member can define acceptance, safety, and economic security in the midst of a threatening environment. The use of money, sex, and violence all appear as aspects of this dichotomy between those who belong and those who do not. This rule also

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allows gang members to focus their anger and frustration on outsiders, rather than disrupting the internal functioning of the system.

These three simple rules are necessary to generate the behavior of gangs, however, they may not be sufficient. Further research will be required to evaluate and revise a short list of simple rules that drive the Robin Hood Syndrome and its resultant street gang behavior.

One will quickly note that this list of rules is not restricted to gang culture. The rules are also embedded in civil society as a whole. Western contemporary society shows many effects of the inability to plan for the future. Everything from short-term business outlooks to high rates of consumer debt indicate that much of civil culture shares a skepticism about the future. Prevailing economic structures, interpersonal relationships, patience with family abuse, and preoccupation with power reinforce the concept of "control or be controlled." Civil society still treats insiders and outsiders differently. Racial bias and bigotry as well as economic isolationism mark the tendency to discriminate between the same and the different. The gang, then follows the same rules that are followed by the rest of society. If civil society and gangs share the same simple rules, then what makes gang behavior so abhorrent to the rest of society? CAS provides two possible explanations: sensitive dependence on initial conditions and nonlinear relationships between rules.

Even following the same rules, there is no guarantee that two CAS situations will evolve in the same direction. Because the CAS is sensitive to initial conditions, two different people could follow the same sets of rules and end up in very different outcomes. A suburban child might receive some small influence that sends his trajectory in one direction while his neighbor goes spinning off in another. From this perspective, then, different initial conditions distinguish between gang members and non-members. Pre-natal care, geographic location, early childhood education, early nutrition, television and other entertainments, effective adult models, and innumerable other influences would set the conditions for or against gang involvement. On the other hand, these criteria would not be predictive because the CAS dynamics might damp, rather than amplifying such differences in initial conditions. This short list of simple rules is neither simple nor closed. In practice, each of the rules depends on the implementation of the others. Every decision requires the gang member to consider the question in the context of all relevant rules. In this way each one influences others. The introduction of even one more rule might shift the interpretation of all rules dramatically. For example, imagine the resulting behavior if the Robin Hood rules were expanded to include the Golden Rule. The expectation to control would be mitigated by a competing rule to "do unto others as you would have them do unto you." This one simple addition would alter all of the implementations of all of the other rules and the individual and emergent behaviors available in the system.

If these assumptions about CAS and gang behavior are true, then the rest of society differs from the gang members not as good differs from evil, but as warm wet air differs from cold dry air in a weather system. The initial position and the rules that drive the dynamics will shape adaptive behavior into one or another emergent pattern. The highly complex interdependencies of individuals and simple rules generate self-organized patterns that gang members recognize as adaptive and that civil society fears.

## Options for Intervention

In this paper, a new complex adaptive model for analysis of gang behavior has been proposed. If gangs truly do behave as CASs, then standard intervention approaches cannot be successful. When an intervention depends on authority and power, then it reinforces the gang's simple rule of control and continues to model gang-like behavior. Interventions that use the element of surprise reinforce the perception that the future is unknowable. When consequences are used to shape behavior, potential gang members revert to their distrust of the future and fail to respond. When any action is taken by civil society to intervene, the rule that separates insiders from outsiders forces

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the gang to strengthen their defense mechanisms. If the short list of simple rules is valid, then standard intervention techniques exacerbate rather than alleviate gang behavior.

Much research remains to be done before reliable recommendations can be made for individual or group intervention based on the CAS model. The ideas listed below are speculations about how such an approach might revolutionize interventions for gangs and for gang members. A CAS intervention might include one or more of the following tactics.

- Expect to generate a unique intervention for each gang situation. No two CASs are the same, so the expectation should be that every gang will require its own, unique intervention for change to be effective.
- Look for and exploit differences within the gang. The cohesion of the group is usually much weaker than it appears from a distance. Hidden differences, concerns, and competitions may already have weakened the gang's power structure. Investigate and take advantage of those inherent weaknesses.
- Introduce cognitive mediators to change the implications of one of the simple rules used by gang members. Nagy (1997) introduced and tested one specific cognitive mediator that shifted the youth's ability to think about the future. This intervention successfully decreased aggression among incarcerated youth.
- Focus on iterative interventions to take advantage of the iterative and emergent nature of the CAS. Use similar techniques for primary (early childhood prevention), secondary (wannabe interest), and tertiary (full-fledged membership) situations.
- Avoid labeling behaviors as gang-related or individuals as gang members. Describe behaviors as specific and observable, and respond to the discrete behaviors immediately and effectively.
- Initiate multiple interventions simultaneously, and continue to support the ones that work. Do not expect a single large intervention to bring about transformation in a CAS. Rather, try several different things. It is impossible to predict ahead of time which will work and which will not. Through the process of implementation, some interventions will fit and survive, and others will fail and be discarded.
- Search for low-cost and high-benefit tactics. The butterfly effect can generate tremendous positive effects as well as negative ones. Some small intervention, implemented at the right time and in the right way may make a tremendous transformation possible.
- Design interventions to address the use of the short list of simple rules in the civil society at large. Begin a public dialogue about responsible approaches to the future, the use of power, and xenophobia.
- Stop looking for simple causes. Understand that the nonlinear and highly interdependent nature of the systems transcends any simplistic solutions. Focus, instead, on the nonlinear interactions and seek leverage points that will shift the direction or the influence of forces in the system (Weick, 1976).
- Establish new sets of feedback loops outside the confines of the gang that will alter the environment in which the gang thrives. Introduce amplifying feedback loops that do not involve money or drugs and alternative damping feedback loops that do not involve violence. Other feedback loops will disrupt the existing ones and allow for new boundary conditions to emerge.
- Introduce distortions into the boundary expectations of gang members by opening boundaries that were closed and closing ones that were previously open.
- Educate the public about the characteristic behaviors of CAS, and provide CAS-based options for effective interactions with gangs.
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It is highly likely that current intervention methods that are successful have, in some way, adjusted the systems at the level of the CAS behaviors. It might be possible to use the CAS model to analyze and evaluate the effectiveness of existing intervention approaches.

## Possibilities for Future Research

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This paper is just the beginning of research into the complex adaptive nature of gangs. A variety of research projects might prove fruitful in this area.

- Collect information from gang members to adapt the list of rules that drive the Robin Hood Syndrome to fit reality.
- Evaluate existing records to test for the presence of other CAS behaviors in gang environments.
- Survey effective intervention techniques and determine whether or not they address the CAS nature of gangs.
- Design and develop a cellular automata computer simulation model to investigate the behavior of gangs and individuals in gangs.
- Use other models from CAS research, such as epidemiology, meteorology, anthropology, and economics, to build meaningful metaphors about the dynamics of gangs.
- Design, implement, and test techniques at the primary, secondary, and tertiary stages to determine if the CAS model generates effective treatment or intervention strategies.

All of these research approaches would help test and extend the ideas presented in this paper.

## Conclusion

This paper has presented a model of street gangs as complex adaptive systems. CAS behaviors and their relevance to street gang behavior were summarized. The Robin Hood Syndrome was defined as a combination of gang behaviors that emerge from applications of a short list of simple rules. Based on this model, the paper proposed promising intervention and research strategies. The Robin Hood Syndrome is a powerful model to help understand and intervene in the behavior of street gangs and their members. When a street gang can be viewed as an adaptive response to a complex situation, then new options for research and intervention are created.

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