UNDERSTANDING THE STRUCTURE OF A DRUG TRAFFICKING ORGANIZATION: A CONVERSATIONAL ANALYSIS

by

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Abstract: *Wiretap records and other prosecution materials were used to uncover the structure of a large drug trafficking organization in New York City. Using a variety of techniques, including network analysis, wiretap conversations were analyzed in detail to determine the roles and status of individuals in the organization. The analysis confirmed that the organization was of the "corporate" type, involving a large number of individuals, clear division of labor and a recognizable hierarchy. The field workers had few contacts with others in the organization. This fact means they would be unable to provide information about those at higher levels in the organization to law enforcement officers. The analysis also revealed that those running the organization placed a heavy reliance on telephone contacts. This reinforces the value of wiretap data, not just for law enforcement, but also for social scientists studying these organizations. The methods developed in the course of this research may, therefore, have more general value in studying the operations of large criminal organizations.*

INTRODUCTION

Social scientists have experienced considerable difficulty in penetrating the secret world of drug trafficking (Moore, 1977). The ethno-

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graphic methods they have used successfully in studying street-level dealers (Williams, 1998; Knowles, 1996; Bourgois, 1995; Johnson and Natarajan, 1995; Miller, 1995; Dunlap et al., 1994; Johnson et al., 1994; Mieczkowski, 1994, 1992, 1988; Altschuler and Brownstein, 1991; Hamid, 1991; Williams, 1989) cannot readily be adapted to study the upper-level traffickers who play a vital part in creating and maintaining street markets. This situation is a result of the small monetary inducements available to researchers to pay informants, that will not be sufficient to gain access to, or achieve cooperation from traffickers. In addition, direct contact with these dealers may involve significant risks for the researcher as well as for third parties who help to locate the dealers for interview. According to Adler (1993:27), one of the few researchers to conduct ethnographic research on trafficking, ethnographers will be "confronted with secrecy, danger, hidden alliances, misrepresentations, and unpredictable changes of intent" in dealing with traffickers and smugglers. She describes many of these individuals as being particularly volatile and capable of becoming malicious toward each other or other people with little warning.

Because of the difficulties of ethnographic work with active traffickers, attempts have been made to use alternative data collection methods. For example, Reuter and Haaga (1989) conducted retrospective interviews with traffickers confined to prison. However, as noted by these authors, such interviews have their own drawbacks. It is difficult to evaluate the accounts given by the dealers who may either downplay or exaggerate their roles. In addition, imprisoned dealers, especially those who agree to be interviewed, are unlikely to be representative of the broader population of traffickers.

The records of cases prosecuted in the criminal courts constitute a third source of data about trafficking. After the case is closed, these records have little further value to the court and law enforcement agents, but they are publicly available and can be used for research. Natarajan and Belanger (1998) used these records to test the idea, widely held but with little empirical basis, that drug trafficking enterprises fall into two main types — structured and loosely structured. In fact, they found that their sample of 39 trafficking cases prosecuted in New York City could not readily be classified into these two groups. Instead, they fell into four main organizational types: (1) "corporations" (similar to the structured type identified in the previous literature); (2) "communal businesses"; (3) "family businesses" (approximating to the loosely structured organizations); and (4) "freelance."

These four types of trafficking organizations are also found among street level dealing enterprises and they have parallels among legitimate business organizations. Natarajan and Belanger, therefore, argued that the typology they developed might have general validity, despite the limitations of their exploratory study. Much more information about the organizations exists in the court records, especially in the wiretap records (Reuter, 1994). They recommended that this information be used to undertake detailed analyses of individual enterprises, drawn systematically from the four main types. In this way a more complete understanding might be obtained of the structure and functioning of the full range of drug trafficking organizations.

Their suggestion would require a considerable investment of research, beyond the resources available to most social researchers. However, individual researchers can make a contribution by undertaking case studies of particular organizations, particularly if the organizations are located within the framework provided by Natarajan and Belanger's typology.

The present paper reports one such case study of a cocaine trafficking organization that was successfully prosecuted in a New York City court in 1996. The prosecution charged that the organization was responsible for transporting approximately two to 10 million dollars worth of narcotics per week and for receiving and selling hundreds of kilograms of cocaine monthly. Most of the individuals prosecuted were of Colombian origin and the organization was linked to a prominent drug cartel. In terms of Natarajan and Belanger's typology, this was a "corporate" organization.

Wiretap data relating to the case were analyzed using a hypertext software program, which allowed qualitative data to be converted to a quantitative format. A series of linked analyses were performed to clarify the organizational structure and the roles played by particular individuals. Inferences from earlier stages were subject to sometimes quite important modifications in the light of findings from the subsequent stages. As a result, a much more detailed picture of the organization, and of the roles played by individual members, was obtained than would have been found in the court documents. As will be argued, this result has considerable implications for further research into drug trafficking.

OVERVIEW OF THE METHODOLOGY

The wiretap surveillance conducted in the course of investigating the case yielded nearly 600 pages of transcripts of 151 telephone

conversations, ranging in length from two to 10 minutes.[1] (The conversations were recorded in Spanish and subsequently translated into English.) These 600 pages represent less than 10% of all the wiretap records made by agents of the prosecution in this case, i.e., only conversations relevant to the prosecution were transcribed. They came from just 12 of the 34 phones (most of which were cell phones) tapped during a two-month period in the early part of 1993. Seven of these 12 phones were owned by the central figure in the organization who appears to have operated several phones at any one time. It seems that he changed these regularly, perhaps to evade detection.

Before conducting the analysis, the transcripts had to be electronically scanned[2] and imported into a "Folio Views" database. Folio Views is a hypertext software program developed to store, sort, retrieve and analyze textual data. It meets many of the requirements of qualitative research in terms of ease of use, retrieval speed, access to very large textual data files and compatibility with standard word processing programs (Natarajan and Belanger, 1996). It is particularly helpful in quantifying some aspects of essentially qualitative data and materially assists in developing theoretical understanding of large and complex textual files.

In order to obtain a comprehensive picture of the organization and of the place of particular people within it, an analysis was undertaken comprised of five sequential stages:

- **Stage I:** *Conversational count by individuals.* Counts were made of the number of conversations in which each individual was involved and the numbers of other people with whom he or she had telephone contact.
- **Stage II:** *The status analysis.* Using a coding guide developed for this study, the relative status of individuals in the organization was determined through an analysis of the conversations in which each was involved.
- **Stage III:** *The task analysis.* The major tasks performed by each individual were identified by inspecting the content of conversations in which he or she was involved.
- **Stage IV:** *The network analysis.* Links between individuals were analyzed using a software program.
- **Stage V:** *The organizational chart.* An organizational chart for the organization was developed by combining the information yielded by stages I-IV. This was compared with the chart constructed from the prosecution documents.

STAGE I: CONVERSATIONAL COUNT BY INDIVIDUALS

Using court listings of the individuals talking in each conversation, 28 people were identified in the database.[3] The query option of FolioViews enabled the number of conversations in which each person was involved to be counted (see Table 1). One individual, Kay, participated in 125 conversations, 83% of the total. Nine people were involved in 7 to 24 conversations, while 19 people talked in three or fewer conversations. This pattern shows that most individuals were involved in a relatively small number of calls. Moreover, most people talked to only a few individuals. Twenty people talked to only one or two other individuals.

Members of this organization, probably due to the need for security, were very limited in their contacts with others. While informative, this analysis does not identify the position occupied by each individual within the organization. Kay is an important figure because he talks to a disproportionally large number of individuals (24). However, no further definitive statements can be made about the hierarchical structure of the organization based on this analysis.

STAGE II: THE "STATUS" ANALYSIS

A content analysis of conversations was undertaken to gain information about the relative positions of individuals within the organization. This analysis was designed to yield information about conversational tone, which would help to clarify the relative status of different individuals. A coding guide was constructed to use in quantifying these aspects of tone. The first step was to identify an appropriate unit of analysis, the "segment," which was defined as a continuous, uninterrupted utterance by an individual. This definition can be clarified by the following example:

Person X: Hello! How are you?

Person Y: All right. And you?

Person X: Can't complain!

This fictitious excerpt has three segments.

Table 1: Individuals Involved in the 151 Wiretapped Conversations

#	Individuals Involved	Gender	Number of Conversations	%	Number of People Individual Talks To
1	Kay	M	125	83	24
2	Menna	M	24	16	5
3	Steve	M	20	13	4
4	Dante	M	20	13	3
5	Tommy	M	19	13	7
6	Blacky	M	15	10	5
7	Ross	M	15	10	2
8	Fabio	M	10	7	3
9	Frank	M	9	6	3
10	David	M	7	5	2
11	Donald	M	3	2	2
12	Peter	M	3	2	2
13	Doug	M	3	2	1
14	Louis	M	3	2	1
15	Charles	M	3	2	1
16	Marzio	M	2	1	2
17	Perretta	F	2	1	2
18	Lara	F	2	1	1
19	Gabriel	M	2	1	1
20	Bill	M	2	1	1
21	Lorena	F	2	1	1
22	Rosa	F	1	1	1
23	Shawn	M	1	1	1
24	Bruce	M	1	1	1
25	Howard	M	1	1	1
26	Jenny	F	1	1	1
27	Marky	M	1	1	1
28	Robert	M	1	1	1

The Coding Guide

The next step was to construct a coding guide that would distinguish between people of higher and lower status. The following six items were selected to serve this purpose:

(1) *Requesting information:* People of lower status are generally accountable for their actions and have to report to their superiors. Superiors will, therefore, tend to request information from subordinates about their ongoing, past or future activities and about the operation as a whole. Requests for information are stated mainly in the form of a question. Examples: "What's up?" "How did the round go?" "How are you going to arrange that?"

(2) *Expressing satisfaction:* Higher-status individuals will tend to express their satisfaction with reports of past, ongoing or planned activities. A segment of conversation includes an expression of satisfaction whenever someone is content and approves the actions of others, or is simply happy about the development of some issue. People normally express satisfaction only after being provided with information. The following words or expressions are examples of those indicative of satisfaction: "good job," "well done," "great," "good," "perfect."

(3) *Providing information:* Lower-status people will tend to provide information about their activities, not just when asked. The nature of the information provided is not important. It can relate to the development of some issue, the activities of particular individuals, the time or place of a meeting, the way the drugs are packaged, etc.

(4) *Giving orders:* Superiors will tend to give orders for action on the part of others; for example, "do this," "do that," "call him and tell him...."

(5) *Clarifying orders:* Lower status individuals will tend to clarify orders given to them by superiors. This includes clarifying some elements of the order, or simply repeating the order.

(6) *Use of "sir":* People tend to use the word "sir" when they are talking to someone they respect or someone of higher status.[4]

The coding guide, consisting of these six items, enabled a detailed analysis to be made of the conversation segments. For the individuals in each conversation, the number of segments were counted that contained instances of each of the six items above.

Reliability of the Coding Guide

Before coding the conversations, the reliability of the guide had to be determined. For this purpose, a random sample of 20 conversations was selected. Two coders then independently coded each segment of the 20 conversations. Correlation coefficients were calculated between the ratings made by each rater for both individuals involved in the 20 conversations. Each conversation thus had two correlation coefficients, one for each of the individuals involved.

Example: Conversation # 1, Involving Steve and Kay

	STEVE		KAY	
	Coder 1	**Coder 2**	**Coder 1**	**Coder 2**
Requesting Information	5	3	2	1
Expressing Satisfaction	0	1	0	1
Providing Information	2	1	8	10
Giving Orders	0	0	24	12
Clarifying Orders	12	20	0	0
Use of "Sir"	0	0	0	0
	"Steve" coefficient: 0.96		"Kay" coefficient: 0.90	

The mean of all 40 correlation coefficients was 0.80 and it was concluded that the reliability of the coding guide was satisfactory.

Sampling Procedure

The sampling method had to permit the status of all members of the organization to be determined. Accordingly, one conversation was selected at random from each of the 40 combinations of telephone contacts between two people identified in the database (see Table 2). (Where only one conversation was recorded for a particular dyad, that conversation was included.)

Method for Determining the Status of Individuals

In determining the relative status of two individuals, it was assumed that higher-status individuals would generally express satisfaction, request information, and give orders; in addition, these individuals would generally not clarify orders, not use the word "sir" when talking to others and not provide information.

Table 2: Conversational Dyads (N=148*)

Dyad	Individuals	Number of Conversations
1	Kay and Menna	19
2	Kay and Dante	18
3	Kay and Ross	14
4	Kay and Tommy	11
5	Kay and Black	10
6	Kay and Steve	10
7	Kay and Frank	7
8	Kay and David	6
9	Steve and Fabio	4
10	Tommy and Fabio	3
11	Kay and Fabio	3
12	Kay and Doug	3
13	Kay and Louis	3
14	Steve and Peter	3
15	Kay and Charles	3
16	Kay and Lara	2
17	Kay and Donald	2
18	Kay and Gabriel	2
19	Kay and Bill	2
20	Menna and Blacky	2
21	Kay and Lorena	2
22	Kay and Peter	1
23	Kay and Peretta	1
24	Kay and Bruce	1
25	Kay and Marky	1
26	Kay and Marzio	1
27	Kay and Howard	1
28	Kay and Jenny	1
29	Menna and Tommy	1
30	Menna and Peretta	1
31	Menna and Frank	1
32	Tommy and David	1
33	Tommy and Marzio	1
34	Tommy and Donald	1
35	Tommy and Rosa	1
36	Blacky and Dante	1
37	Dante and Robert	1
38	Steve and Shawn	1
39	Blacky and Frank	1
40	Blacky and Ross	1

*This total excludes three conversations involving unidentified people.

To check these assumptions, correlation coefficients were calculated across the six items of the coding guide (see Table 3). The coefficients, of which five were significant, generally supported the assumptions. Thus, clarifying orders was correlated with the use of the word "sir" (0.34) and giving orders (-0.23). Giving orders (0.33), expressing satisfaction (0.28) and providing information (-0.26) were correlated with requesting information.

To illustrate the method of determining the higher-status person in a dyad, the conversation in the example above involving Kay and Steve is used. In this conversation, as scored by coder 1, Kay requests information in two segments, compared to five for Steve; he gives orders in 24 segments, while Steve gave none; he never clarifies orders, compared to Steve who does so in twelve segments. Up to this point Kay has, therefore, earned three "status" points and Steve has earned none. Since neither of them uses the word "sir," or expresses satisfaction, no points are given for these items. Steve, on the other hand, gets a point for providing information in only two segments, compared to eight for Kay. Because Kay obtains a total of three "status" points compared to one for Steve, he has, therefore, the higher status of the two.

Results of the "Status" Counts

The mean status scores for the dyads in which they appear, and the proportion of dyads in which they emerge as higher-status individuals is given in Table 4 for each of the 28 individuals in the organization. In many cases, this information is sufficient to establish an individual's status. For others, this information had to be combined with the conversational counts contained in Table 1 before their status could be determined. For a third group, the information in Tables 1 and 4 had to be supplemented by a close reading of the conversations in which they were involved.

Table 3: Correlations Between the Six Items of the Status Instrument (N=80)

Items	Requesting Information	Expressing Satisfaction	Providing Information	Giving Orders	Clarifying Orders	Use of "Sir"
Requesting Information	1.00					
Expressing Satisfaction	0.28*	1.00				
Providing Information	-0.26*	0.08	1.00			
Giving Orders	0.33*	0.01	0.10	1.00		
Clarifying Orders	-0.18	-0.09	-0.18	-0.23*	1.00	
Use of "Sir"	-0.17	-0.10	-0.17	-0.17	0.34*	1.00

*p<0.05

Table 4: Relative Status of the 28 Individuals in the Organization

#	Individual	Mean Status Scores	Appears in # of Dyads	Higher Status in # of Dyads
1	Ross	5	2	2
2	Frank	4	3	3
3	Dante	4	3	3
4	Lara	4	1	1
5	Gabriel	3	1	1
6	Kay	2.5	24	14
7	Tommy	2.1	7	1
8	David	2	2	0
9	Doug	2	1	0
10	Lorena	2	1	1
11	Rosa	2	1	0
12	Steve	1.8	4	1
13	Fabio	1.7	3	1
14	Menna	1.6	5	3
15	Peter	1.6	2	1
16	Blacky	1.2	5	0
17	Donald	1	2	1
18	Charles	1	1	0
19	Marzio	1	2	1
20	Howard	1	1	0
21	Jenny	1	1	0
22	Perretta	.5	2	0
23	Marky	0	1	0
24	Louis	0	1	0
25	Bill	0	1	0
26	Shawn	0	1	0
27	Bruce	0	1	0
28	Robert	0	1	0
	Total Average	**1.6**		

The analysis reported in Table 1 had shown that Kay talks to many more people in the database, and is involved in many more

conversations (83% of all conversations) than anyone else in the database. Table 4 indicates that he is actually a figure of authority. Out of the 24 dyads in which he is involved, he is clearly the higher-status individual in 13 of the cases. These data indicate that that Kay is the key individual in the organization, and is in charge of its daily operations. In four other conversations involving Kay, it was unclear who was the higher-status person (see below), while in seven conversations, the other person obtained a higher status score. These were Dante, Frank, Ross, Lorena, Jenny, Peter and Gabriel. As it turns out Dante, Frank and Ross were all bosses in Columbia and Gabriel is directly associated with them. Lorena and Jenny, both women, are treated respectfully by Kay even though they do not hold important positions. By all the other evidence Peter is a low-level worker and his higher score in the conversation with *Kay* is an anomaly resulting from the nature of the scoring procedure.

STAGE III: THE TASK ANALYSIS

The two previous stages of the analysis provided insight into the structure of the organization and the relative status of individual members, but little information about the tasks performed by particular individuals (except that Kay was clearly managing the day-to-day operations for a group of bosses). This information could only be obtained by reading the conversations, sampled one at a time for each individual (starting with the conversations sampled for the status analysis), until it was clear what tasks he or she performed. As a result, individuals could be classified into four main groups: bosses in Colombia, assistant managers reporting to Kay, lower-level field operatives working under the assistant mangers and field workers working directly for Kay.

(1) *Bosses in Columbia:* Dante, Ross and Frank oversee the operations through Kay. They make sure that meetings with customers are well prepared and that the operation is running smoothly. Lara acts as Frank's secretary. She takes messages from Kay whenever Frank is not around. Gabriel is not a boss, but works directly with them. His principal role appears to be a courier. He was involved in at least one trip carrying drugs from Columbia or taking money to Colombia.

(2) *Assistant managers:* Menna takes care of the technical aspects of the operation. He buys and sells cars for employees, and is in charge of getting license plates and the proper documentation from the Department of Motor Vehicles. He

also is in charge of buying and replacing beepers and cellular phones. He constantly changes the numbers for both in order to elude surveillance. He also obtains useable credit cards for Kay. Blacky is in charge not only of interrogating suspect employees but also of planning to kill them. He was hired, relatively recently, to carry out a few specific tasks and so enjoys a certain degree of autonomy. Tommy is in charge of delivering narcotics and money. An active worker, he is trusted by Kay. Steve, also an active and apparently trusted worker, takes care of important narcotics and/or money tasks, such as delivery and storage.

(3) *Field workers reporting to the assistant managers:* David runs errands and is in charge of making a delivery to Bill. Peter makes deliveries of money and runs other errands. Marzio assists Tommy. Perretta has most contact with Menna. She is in charge of a stash house, in which she lives, and does not play an important role in the organization. Shawn works with Steve. Donald and Rosa work principally for Tommy in transporting drugs.

(4) *Field workers reporting to the chief operator*. Louis meets with people (customers) on behalf of Kay. Charles is a delivery worker, who was suspected of having stolen some money. Blacky had planned to interrogate him and, depending on the outcome, kill him. Jenny may be in charge of a stash house. Marky, Doug and Bill are lower-level workers. While their tasks are unclear, they seem to be involved in transporting drugs. Howard is in charge of bringing a suspect employee for interrogation, along with Blacky and Gabriel. Fabio has a special position: he seems to be *Kay's* special assistant with a somewhat higher status than the field workers. He acts as a link between Kay and Tommy and Steve, two of the assistant managers.

STAGE IV: THE NETWORK ANALYSIS

The three previous stages of the analysis provided information about the structure of the organization, about the relative status of individual members, and about the tasks they perform. It is clear that there is a considerable degree of specialization of roles and that individuals are loosely grouped into teams of workers headed by "managers" who take responsibility for particular areas of the organi-

zation's functioning. However, the degree to which there is contact among the various members of a "team" and among the various teams is unclear. A method of determining this is provided by network analysis, particularly varieties making use of the concept of centrality (Wasserman and Faust, 1994; Berkowitz, 1982). This provides a measure of the degree of interaction among the members of the organization.

According to Baron and Tindall (1993:258), "Degree centrality is measured by counting the number of others that are adjacent to an individual and with whom she/he is in direct contact." Sparrow (1991), who has used network analysis in studying criminal organizations, contends that there are different centrality notions of varying complexity. For the purposes of the present analysis, however, it was sufficient to produce a rudimentary graphic representation of the links between individuals and groups.

Accordingly, the "simulated annealing" features[5] of KrackPlot[6] were used to create an adjacency matrix (Krackhardt et al., 1995) that identified individuals playing important roles in the organization, measured by degree centrality. Figure 1 depicts Kay, Tommy, Menna, Blacky, Dante, Frank, Steve, Ross, Fabio, Perretta, Marzio, David and Peter as being important in the organization based on their direct contact with other individuals in the organization. However, Kay emerges, once again, as the central figure in the organization. In addition, Blacky, Tommy and Menna are the foci of three "teams." This fact is consistent with the task analysis revealing Menna as the center of technical operations, Tommy as the center of distribution tasks and Blacky as the center of security.

Figure 1 also suggests that there is limited contact between the groupings or teams in the organization and that many members of the organization are quite isolated. For example, Kay has links to many individuals (10) who are not directly linked to any of the clusters or any other individuals. A further example is provided by Blacky, who appears to be in charge of security issues for the organization. He has direct contact with the bosses in Columbia, but no direct contact with the distribution network managed by Tommy.

A measure of the degree of inter-relatedness or density of contacts between individuals or teams is provided by "set" analysis. Using Barnes's set-analysis formula recommended by Ianni and Ianni (1990), "percent-density" scores[7] (see Table 5) were calculated for the organization as a whole, with Kay as the focal point, and for the three principal teams (Menna, Blacky and Tommy). In all cases the percent-density scores are well below the critical value of 80%. These

scores indicate that this is a loosely connected organization, with many relatively isolated individuals and relatively little contact between teams responsible for major organizational functions.

Figure 1: Network Structure of the Drug Trafficking Organization

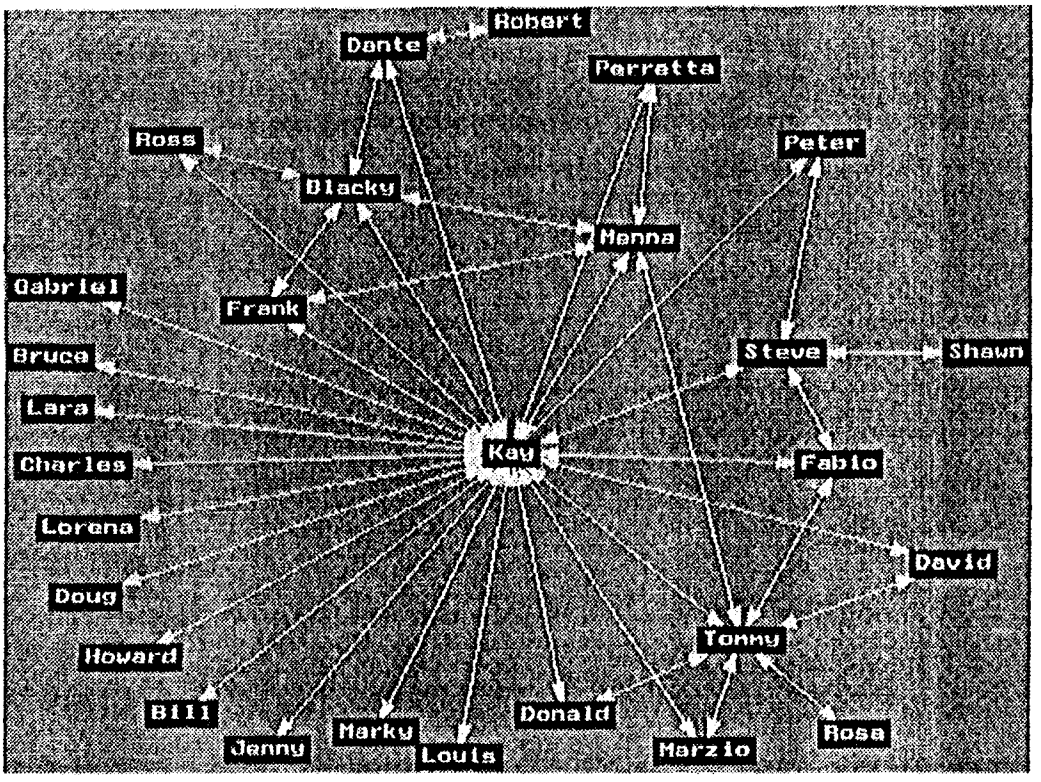


Table 5: Density Scores for the Organization and for the Three Teams

	Percent Density
1. Organization as a whole (Kay as central or focal point)	10
2. Drug Distribution Team (Tommy as central or focal point)	43
3. Menna as central or focal point	60
4. Blacky as central or focal point	66

STAGE V: THE ORGANIZATIONAL CHART

Based on the results of the analyses reported above, it is possible to produce an organizational chart for the trafficking enterprise (see Figure 2). This can be compared with the chart derived from the prosecution's case materials (see Figure 3). This comparison shows that the organizational chart derived from the analyses presented above (Figure 2) is the more complex of the two in that it:

- identifies the individuals in Colombia who were the bosses of the organization, and reveals their connections with the chief operator and other members of the organization;
- distinguishes among assistant managers on the basis of the tasks they perform;
- shows that the chief operator directly supervises many of the field workers;
- makes connections between individual field workers and particular assistant mangers.

The picture of the organization presented by the prosecutors is of course related to their goals, and some aspects of the organization are likely to have been of peripheral interest to them. This includes the identities and the roles of the bosses in Columbia because they were outside the reach of the prosecutors. Nor is the division of tasks within the organization of much importance to the prosecution — perhaps because they were more concerned with emphasizing the seriousness of the organization's activities (amounts of drugs and violence), coupled with the involvement of particular individuals.

DISCUSSION AND CONCLUSIONS

The sequential steps of the analysis reported above reveal a more complete picture of the structure of this "corporate" drug trafficking organization than presented in the prosecution case. In particular, it identifies the individuals in Colombia who were the bosses of the organization, and reveals their connections with the chief operator and other members of the organization. It distinguishes among assistant managers on the basis of the tasks they perform and shows that the chief operator directly supervises many of the field workers. It shows which field workers are linked to particular assistant managers. Finally, it suggests that many of the field workers have limited contacts with others in the organization.[8]

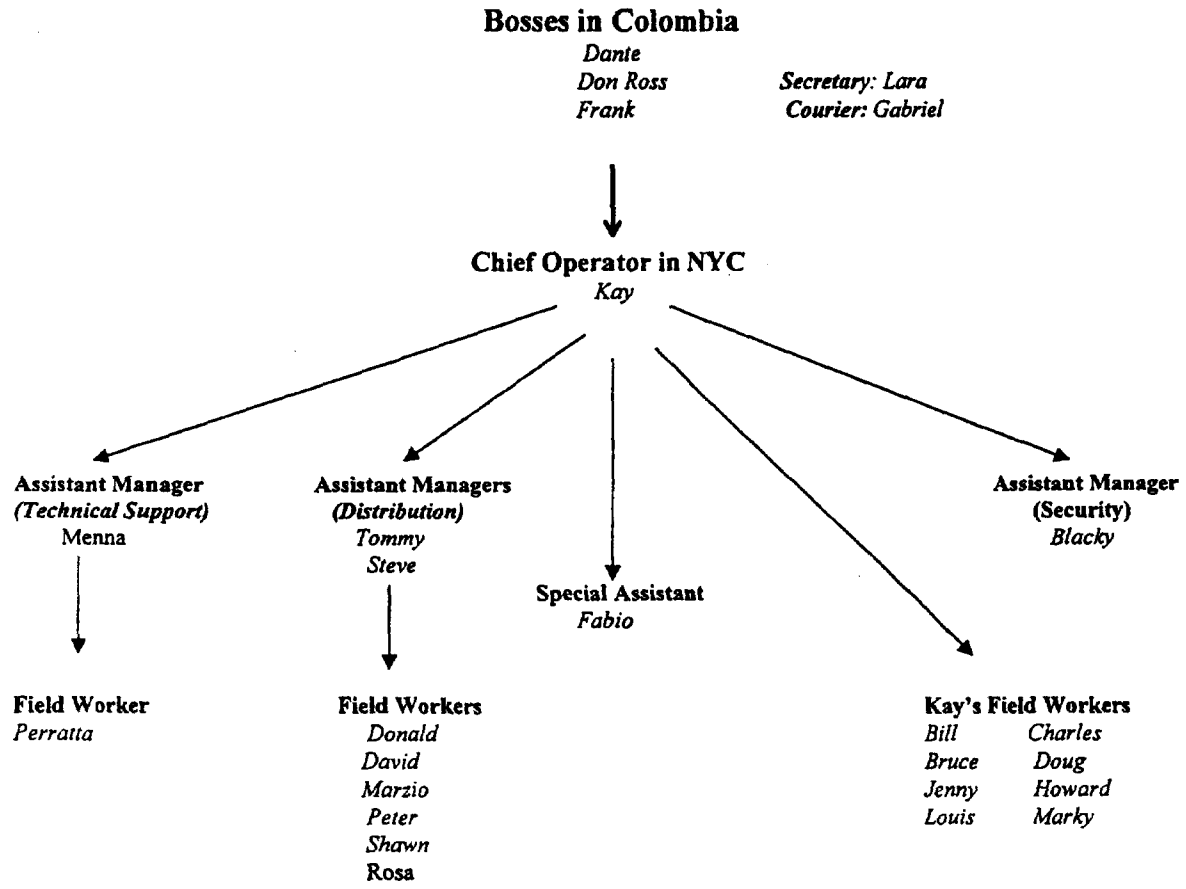
The prosecutors might not, in fact, have needed so much detail about the structure of the organization in order to achieve a successful result. On the other hand, Peterson (1994) has observed that many law enforcement agencies have not properly incorporated intelligence and analysis into their organized crime control function for two reasons. First, the benefits may be unclear to them and, second, they may be reluctant "to deviate from the traditional methods of investigation" (Peterson, 1994:360).

It is possible that more detailed information available to the prosecutors in this case might have resulted in their pursuing a somewhat different approach, focused more on other individuals in the trafficking organization. This is not to criticize the prosecutors or the quality of their analysis. Rather, it is to suggest that the kind of sociometric analyses undertaken above could be of practical value in helping the prosecution to develop an understanding of drug trafficking organizations that they must indict.

Law enforcement intelligence analysts already make some use of network analysis, such as Anacapa Charting System (Sparrow, 1991). Indeed, according to Ianni (1990:82), network analysis has been found to be "...an invaluable tool for amalgamating and translating the often disparate bits of information and observations into an understandable pattern of behaviors and social action, and determining the logic or 'rules of the game' which structure those relations." Such analyses might not be justified on a routine basis, but might become valuable when the organization is large and important, and when the case has aroused significant public disquiet.

By the same token, when using court records of prosecuted cases to study criminal organizations, social scientists must remember that prosecutors do not have to present a more detailed picture of the organization than is needed to achieve their goals. This means that they present only some of the information available to them. Accordingly social scientists must not rely completely on the prosecution's description of the case. Rather, they must always undertake their own analyses of court data if they are to obtain a thorough understanding of the structure of the organization, its constituent personnel and the roles played by these individuals in its functioning (Parsons, 1968). For example, an understanding of the network of relationships among field workers was important for the sociological analysis presented above, but this may not have been needed in prosecuting the case.

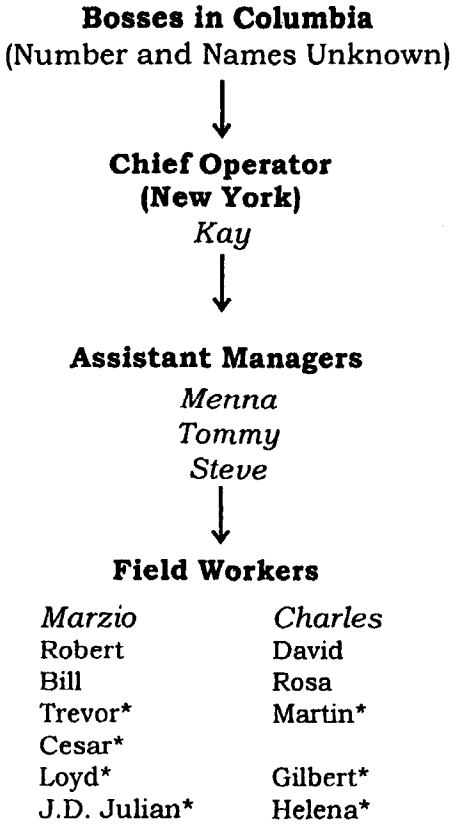
Figure 2*: Structure of the Drug Trafficking Organization According to Wiretap Database**



*The roles of *Robert and Lorena* cannot be determined from the wiretap data

** *Bruce, Bill, Doug, Marky, Peter and Fabio* are not accused of crime in the prosecution records

Figure 3: Structure of the Drug Trafficking Organization According to the Prosecution Records*



*These seven individuals do not appear in the wiretap data. In addition, for six individuals who were mentioned in the prosecution case no information could be found concerning their roles in the organization.

One novel feature of the methodology employed above is that it has undertaken a quantitative analysis of essentially qualitative information. It has produced a detailed picture of one trafficking organization based upon what individuals in the organization said to each other in wiretapped conversations. These wiretap records are available for many trafficking cases prosecuted in the courts. The method seems to be robust and could be used to study not just "corporate" organizations of the type analyzed above, but also the three other kinds of trafficking organizations — "communal businesses," "freelance" and "family businesses" — identified by Natarajan and

Belanger (1998). Such studies would considerably enhance our knowledge of drug trafficking.

Wiretap records have their limitations as a source of data about criminal organizations. Thus, suspects targeted for wiretapping may not be representative of the organization as a whole. Their phones may be tapped for relatively brief and possibly unrepresentative periods. Since they often speak in a foreign language, translation may result in loss of important information. They also sometimes speak in code that may not be easy to decipher. Finally, the records of conversations are not always maintained in a complete form. Despite these problems, analysis of wiretapped conversations might also prove to be of more general value to social scientists in studying other kinds of illegal organizations. If so, this would be important in view of the difficulties mentioned above of studying these organizations through conventional ethnographic methods.

In addition to lessons for methodology, the results of the present study also have implications for policy. Because they reveal a loosely structured corporate organization with a lack of ties between individuals, they underline the difficulties of interdiction. No doubt this structure has been deliberately created with just this in mind. "Corporate" organizations of the kind studied here cannot rely on personal, communal or family loyalties to protect the organization when a lower-level employee is arrested. Instead, they must ensure that these employees do not know much about the organization, especially about the major players. In other words, arresting lower-level employees would achieve little in terms of interfering with the organization's operations and would produce little useful intelligence about the bosses.

Faced with these difficulties, law enforcement agents have pursued the alternative approach of conducting intensive wiretap surveillance focused at higher levels in the organization. This may be a lengthy and difficult process, but this surveillance exploits what may be the most vulnerable aspect of trafficking: the essential need for frequent telephone contacts between various members of the organization. Without this telephone contact, it would be impossible for bosses in Colombia to exercise such close control over the organization and impossible for the managers to direct and instruct the lower-level workers.

The cloning of cell phones has been a godsend to traffickers because this has not only reduced the costs and difficulties of using phones, but has also helped to protect them from arrest (Natarajan et al, 1996, 1995). Wiretap techniques have been improved with the

result that cloned phones are no longer out of reach of surveillance. It may therefore not be long before traffickers begin communicating via the Internet. This will lead to yet another round of "catch-up" measures by law enforcement agencies and more despair about the difficulties of effectively intervening in trafficking.

One response to the difficulties of interfering with the supply of drugs might be to focus instead on reducing the demand. But demand for drugs is inextricably entwined with their supply, and reducing demand may depend on reducing supply (Smart, 1980; Huba et al., 1980). In any case, it seems premature to abandon interdiction at this stage when so little is known about how drugs reach this country, how they are distributed locally and how they get into the hands of users.

The key to the successful prevention of many other kinds of crime has been a detailed understanding of how these crimes are committed (Clarke, 1997, 1995). We must therefore broaden and deepen our knowledge of these matters for drug trafficking. The methodology developed in this paper usefully expands the techniques currently available for this purpose.

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NOTES

1. The wiretap data were organized in terms of separate conversations between suspected drug dealers. The database originally contained 131 conversations. When inspecting these, 27 were found to involve several individuals, resulting from the use of call waiting and because different people were taking turns on the phone. Such calls were treated in the original transcripts as single conversations, even though they might include one or more "sub-conversations." For the present analysis each "sub-conversation" was treated as a separate "dyadic" conversation with its own record. This yielded a total of 161 conversations of which 10 were very brief — only including greetings — and which were deleted from the database. When this cleaning process was complete, a total of 151 dyadic conversations were obtained for analysis.

2. Two steps were involved in transferring the data from the case records into an electronic format: scanning and character recognition to convert the images to textual form. Once the pages were scanned, several formatting modifications needed to be made before performing the character recognition. These included cleaning the page (getting rid of dark spots), straightening it, and getting a sharper image.

3. In this paper fictitious names have been used to identify the individuals involved.

4. It is assumed here that "sir" is a translation of the Spanish "Señor." Señor is, at times, used a little differently in Spanish than sir is in English.

5. "Simulated annealing" is an optimization routine that maximizes certain positive features (such as nodes that are not too close to each other, edges that are not too long, nodes that do not go through the edges) of graph layout defined by the annealing algorithm (Krackhardt et al., 1995).

6. KrackPlot is a graph layout software for social network analysis.

7. Percent Density = $\frac{100 \times na}{½n \times (n-1)}$

Where:

na = # of actual relations
n= # of person
½n x(n-1)= # of theoretically possible relations

8. This conclusion is especially subject to the limitation that only data from 12 of the 34 phones tapped were made available for this study. Conversations on the remaining 22 phones might have revealed more contacts among field workers.