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## Phases, Deadlines, and the Bargaining Process

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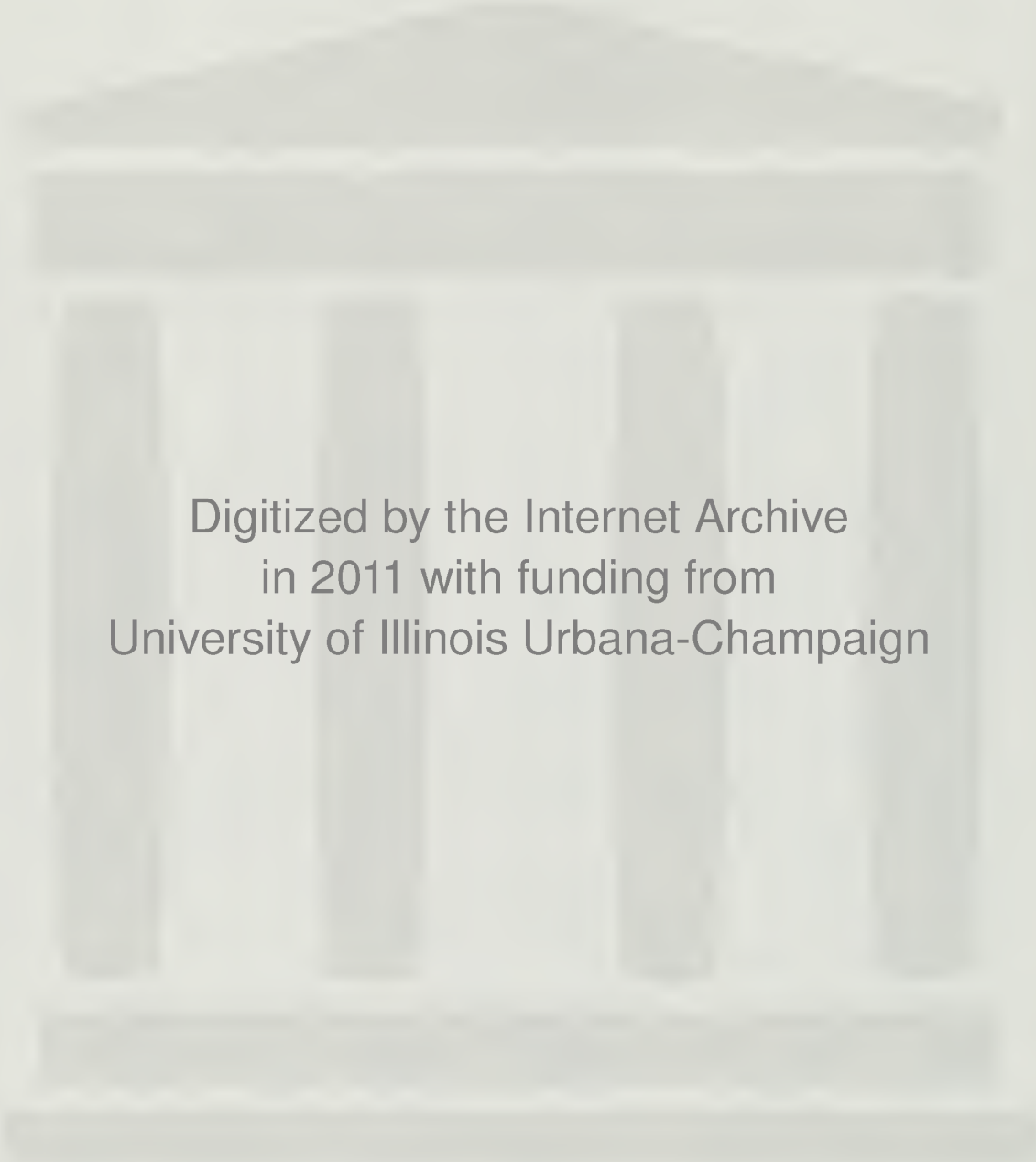
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### Abstract

Gersick's (1988, 1989) punctuated equilibrium model of group performance posits that project groups move through two distinct work phases. Almost all of the groups she observed showed a distinct shift in their activities exactly at the midpoint of their task time. Our research broadens the definition of group performance to include individualistically oriented two-party negotiations and explores the generality of Gersick's model in a completely different group environment. We mapped the temporal activities of bargaining pairs facing short but reasonable deadlines and compared their negotiation process to the predictions of Gersick's model, as well as approaches stressing the effects of the deadline (a variation of the two-phase model), constant action, or increasing action. Results indicate that the negotiations exhibited temporal pacing that reflected increasing action and the deadline more than a first half-second half, two-phase pattern. We conclude by discussing the potential effects of cooperative and individualistic orientations in group tasks.



## Phases, Deadlines, and the Bargaining Process

Organizational researchers have typically confined themselves to a unidirectional, linear time perspective (Dubinskas, 1988) in their study of the dynamics of group development. This singular and normative orientation, coupled with a tremendous heterogeneity of research foci and methods, has led to a proliferation of stage-based models of group development, spanning two (Anderson and Graesser, 1976), three (Bales and Strodtbeck, 1951), four (Hare, 1976; Tuckman, 1965; McGrath, 1984), or five stages (LaCoursiere, 1980).

In more recent research, Gersick (1988, 1989) observed a consistent two-phase (rather than two stage) pattern of temporal behavior in problem solving groups. Group members in her studies established an initial action pattern early that carried them through phase one of their task time, moved through a transition that presented them with an opportunity to redirect their efforts which, if they did shift courses, carried them through phase two, which culminated with a burst of activity to complete their task just prior to their deadline.

For her 1988 study, Gersick intensively observed 8 naturally-occurring groups that included between 3 and 12 members. All faced creative, managerial tasks: three worked on solving a case study; the others designed an evaluation system for a community fund raising organization, planned a one-day management retreat, designed a new bank account, reorganized hospital facilities, or designed a new institute for a university. Groups took between 1 week and 6 months to complete their tasks. The time constraints seemed reasonable for each task. Gersick's (1989) follow-up study was a one-hour experiment where each of 8 groups of MBA students (6 groups of 3 members and 2

groups of 4) designed a commercial advertisement. As in the first study, the group's task was cooperative and creative and had a moderate time limit.

The groups in both of Gersick's studies displayed remarkably similar problem solving patterns. Their approach to the task emerged early (cf., Bettenhausen and Murnighan, 1985) and carried through the first half of the task time. They initiated a midpoint transition, surprisingly and consistently close to the exact half-way point in the time allotted for the task. Groups that made a successful transition qualitatively changed their task orientations, often increasing their task activity: Members quickly adopted specific plans and implemented a course of action that kept them busy right up to and especially right at the deadline.

Gersick's two-phase model does not predict that all groups will change their course right at the midpoint. Rather, the model predicts two distinct phases, the first forming very early, the second occurring sometime later, after an easily observable transition point. Gersick's two studies focused on groups whose task demands were quite diverse. Nevertheless, their basic similarity--all cooperative, creative tasks; no severe time limitations--may have led to their almost completely uniform temporal pacing. Groups that face markedly different tasks might be expected to punctuate their equilibrium actions differently. The present study's use of a considerably different task provides an opportunity for expanding the generality or establishing additional boundary conditions for Gersick's model.

Ancona (1987; Gladstein, 1984) suggests that both time availability and group members' task orientations contribute to group effectiveness. Specifically, time constraints may prevent the completion of desirable, constructive group activities, especially when the deadline is sharp. Groups who recognize that their time is tight, for example, should begin working

right away. Thus, we might expect experienced groups with serious time constraints to complete a transition between the two phases very early.

The structure of the group task may also reduce members' willingness to take constructive reorganizing actions at the task midpoint. Gersick's groups worked on a cooperative, creative task: Everyone in the group gained if the group was successful. The addition of competitive motives, on the other hand, might generate considerably different group dynamics. Almost every group faces a social dilemma (Dawes, 1980): Individual members must choose whether and how much to contribute to the group. If everyone invests time, effort, and/or other resources, the probability of the group's success increases. If some single individual does not contribute and the group succeeds, the individual gains both from the success of the group and from not contributing. If not enough members contribute, however, the group will not succeed, and those who contributed will lose their investments. Thus, if we accept that groups face an inherent social dilemma, then more competitive tasks should increase the likelihood of social cheating (Trivers, 1971) and seriously hamper group performance.

The present study asks whether the two-phase model is applicable in mixed (i.e., competitive and cooperative) motive group contexts. We used a bargaining task that represents a basic strategic interaction: Two people with differing preferences for different outcomes who must nevertheless come to a mutual agreement for either of them to benefit. Each understands the contingencies in the situation quite well and must determine how they can reach the best possible agreement. Thus, these exchanges reflect typical negotiations which have been used to model more general social interactions (Walton and McKersie, 1965).

A negotiation between two competitive individuals is a very different context from the groups in Gersick's studies. The task is competitive rather than cooperative; the groups included two rather than three, four, or as many as twelve people; the negotiations only lasted a short period of time; and the bargainers interacted over computer terminals rather than face-to-face. Clearly, finding similar two-phase patterns of action would provide considerable support for the model; finding different results would identify some of the two-phase model's boundary conditions and could contribute to a clearer documentation of basic bargaining processes.

#### Time and Group Development

Gersick's temporal model of group development focuses directly on the larger issue of time. Time does not hold an important role in contemporary empirical research; it has been a hidden dimension in most research efforts even when anthropologists (e.g., Dubinskas, 1988) argue that time is a common dimension of the work place.

When people view time as a unidirectional dimension or a calendarical measurement, it constrains their behaviors and their interpretation of time (Dubinskas, 1988). Researchers adopting the traditional, stage-based view of group development largely fall into this category. Here, group life is taken as fixed, and activities are analyzed and slotted into the life span post hoc.

When people view time as non-linear (Could, 1987), it becomes a resource, a commodity, or an object manipulated by its users. Researchers taking this point of view might then be more concerned with how people use, manage, and manipulate time. Gersick's (1988; 1989) two-phase model fits this interpretation of time: Group members play an active role in handling the time available for their task. The model implies that group members consider time

availability as they act by trying to gain control over the deadline and carefully appropriating their time. When exactly half has disappeared--a prominent point (Schelling, 1960) in their activities--groups that successfully moved through the transition shifted the emphasis of their efforts and became more directed toward task completion.

Theoretical and empirical support for a multidimensional, active view of time, and how it shapes task performance, is limited. Barley (1988), for instance, reported time-oriented conflict between X-ray technologists, who dealt with simple, standardized radiological procedures, and their supervising radiologists, whose time perspective was less linear, possibly due to external pressures from physicians, other radiologists, and other technologists. Similarly, Dubinskas (1988) described conflict in a biotechnology research company between research biologists, who had an open-ended concept of time and no desire to target a research breakthrough for a given deadline, and managers, who measured performance by costs and results and did not hesitate to press the biologists for research results. Time may be a closed-ended concept to managers (e.g., a deadline for every objective) or monochronic to X-ray technologists (e.g., steady, predictable workflows, standardized work procedures); it may also be open-ended for research scientists (e.g., research has its own pace) or polychronic to radiologists (e.g., workflows are neither steady nor predictable; work procedures undergo constant change).

Parkinson's Law (Parkinson, 1980) introduced an elastic aspect of time, stating that "work expands so as to fill the time available for its completion" (page 13). Although the Law's negative connotations and implications of inefficiency may explain why few empirical studies have tested its relevance, its general thrust is quite similar to that of the two-phase model. In particular, time constraints may be an important factor determining

the speed and style of interactions among group members (e.g., McGrath & Kelly, 1986; Isenberg, 1981; Herman, 1972). Gersick's (1988; 1989) observations also appear to conform to the Law: The shift in action to the second phase indicates that work is elastic and will fit time availability.

### The Present Study

We tested the generality of Gersick's temporal model in a competitive strategic interaction between pairs of bargainers who needed to agree on the division of a fixed outcome in a specified, limited time. The only cooperative element in the task was the requirement that bargainers mutually agree on the outcome. Otherwise, the task was very competitive: each person had to compete with his or her counterpart to obtain a larger share of the fixed payoff (100 lottery tickets). The time limit for each interaction was set at 9 minutes. Pairs bargained anonymously via computer terminals; they had no personal contact with each other.

The data reported here come from a study that was originally designed to investigate the effects of focal points on bargaining processes and outcomes. Focal points are outcomes that can be easily justified strategically. Thus, 50-50 is a focal point since it reflects the common social norm of equality.

The original design provided the two bargainers with different prizes which were known to both bargainers and which could generate additional focal points. Thus, in the four conditions, the bargainers' prizes were \$36 and \$4, \$20 and \$5, \$14 and \$6, or \$15 and \$10. These conditions generated focal points that were based on equalizing expected values in the lotteries that followed negotiations. In the \$36 and \$4 pairs, for instance, the bargainers who could only win an additional \$4 could suggest that they divide the 100 lottery tickets so that they get 90 of the 100 tickets and the \$36 players get

only 10. This would equalize their expected values in their independently conducted lotteries: The \$4 player would have a 90% chance of winning \$4, for an expected value of \$3.60; the \$36 player would have a 10% chance of winning \$36, and an expected value of \$3.60.

The effects of the focal point conditions are reported elsewhere (Roth, Murnighan, and Schoumaker, 1988). The data are reanalyzed here because the fact that they were explicitly timed provides a unique opportunity to test Gersick's model. The bargainers knew how much time they would have in advance; they knew how much time remained while they were bargaining; and the deadline was fixed and clear. These qualities made this data set ideal for an objective test of Gersick's model.

### The Bargaining Process

Bargainers usually began negotiations by asking for most of the payoff; they subsequently reduced their demands incrementally, trading concessions reciprocally to reach agreement. They had complete autonomy over their bargaining activities--except for the time limit. People who bargained well put themselves in position to reach favorable agreements which increased their chances for considerable financial rewards.

If the process conforms to Gersick's concept of temporal pacing and negotiators intentionally attempt to initiate a transition, a distinctly observable shift in their activities should occur sometime during their bargaining. Since the ultimate goal in many negotiations is to move toward and reach a favorable agreement, changes in the size and rate of concessions, messages, proposals, and the frequency of time mentions (e.g., "Time is running out--we better hurry!") should indicate transition attempts within the negotiations. Previous analysis of these data and the data from several other

studies (Roth, Murnighan, and Schoumaker, 1988) indicated that just less than half (41%) of 956 agreements occurred as late as possible concentrating at the deadline, even when the nature of the agreements changed. Temporal pacing was obvious during these negotiations; bargainers tried to use time to pressure the other bargainer into accepting an agreement and, if this failed, they made sure that they actually reached an agreement that benefitted both parties before time expired.

Our current analysis contrasts the predictions of the two-phase model with the null hypothesis of no change in a group's activities over time. We also consider the applicability of a deadline model, a variation of the two-phase model, that predicts a long first phase devoted to information gathering (e.g., "How will the other party react if I propose x? Let me try it and see.") and fencing (e.g., trying advantageous moves that have low probabilities of being successful--but high outcomes) followed by a quick transition as the deadline becomes imminent. Bargainers then change their strategies toward more effective, upfront negotiations to avoid missing achievable, acceptable agreements. The deadline model (Roth, Murnighan, and Schoumaker, 1988) seriously abbreviates the second phase of the two-phase model.

We also investigate the additional possibility of constantly increasing action: As group members become more and more attuned to their task, they may increase their task activities (e.g., messages, proposals, concessions). Although increasing action may be more appropriate for longer task times, its underlying logic warrants its inclusion here.

The predictions of these four approaches are presented in Figure 1. We represent the two-phase model with a transition exactly at the midpoint, as

this matches Cersick's observations, although this task may generate a different transition point that would still satisfy the model.

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 Insert Figure 1 about here  
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## Methods

### Subjects

The participants in this study were 136 volunteers who were told that they could win money by participating in an experiment on bargaining. Since knowledge of expected values facilitated understanding of the instructions, participants were recruited from undergraduate classes in economics. Each bargainer participated in four consecutive negotiations, each with a different opponent, resulting in 272 negotiations. Each session included between 8 and 16 bargainers seated behind opaque screens throughout a large room.

### Procedure

The task asked pairs of participants to negotiate the distribution of 100 tickets in a lottery. Participants were given lengthy instructions and several practice sessions prior to beginning their negotiations. (See Roth and Murnighan, 1982, for a more extensive description of the procedures). Each of the four negotiations had a 9-minute (540 seconds) deadline; during bargaining the time remaining was continuously displayed on the top right corner of the computer screen. Bargainers could send any proposal and any message they wished, with the exception of self-identifying messages.

The participants were instructed to try to get as many lottery tickets as they could in each of their negotiations. They knew that one of their four negotiations would be randomly chosen to determine which lottery would actually be conducted for them. If they did not reach agreement in the

selected negotiation, they received an appearance payoff, \$4. If they reached an agreement for that negotiation, the lottery was conducted and, if they won it, they received additional prize money, depending on their prize condition. The instructions made it clear that getting more lottery tickets would increase their chances of winning their prize. Each bargainer's lottery was independent of all others. Payments were made immediately after the experiment.

As noted, the experiment established four different prize combinations for the bargaining pairs. The members of each pair had different prizes, one high and one low; both knew the value of each other's prize<sup>1</sup>. An agreement was reached when the two bargainers' mutual demands totalled 100 lottery tickets or less. Thus, if both demanded more than 50, as often happened early in the negotiations, concessions were needed to reach an agreement. The instructions made it clear that time was important and that all bargaining ended at the deadline. Since the data were collected prior to the publication of Gersick's model, the researchers and the participants were unaffected by its hypotheses.

### Dependent Variables

1. Message and proposal frequencies: The messages and proposals sent by each pair were counted during successive 10-second intervals as separate measures of activity. They were also summed for a measure of total activity.
2. Concessions: Concessions were proposals that demanded less than the previous proposal; frequencies were also recorded during successive 10-second intervals. Concession size was measured by subtracting the present from the previous demand. For example, if one bargainer demanded 45 tickets in a

previous offer but reduced it to 35 tickets in the present offer, a concession of 10 was recorded for the pair.

3. Explicit temporal pacing: As in Gersick (1989), explicit temporal pacing was measured by mentions of time. Bargainers could mention time as a tactic to press for agreement. Messages such as "We are running out of time", "Hurry", or "Look at the clock" were recorded as time-mentions.

4. Negotiations were classified as having reached an agreement or not; time of agreement was scored as the second that an offer was accepted.

5. Initial differences: Bargainers who started by demanding outcomes far distant from each other may have set the stage for qualitatively different bargaining processes than bargainers whose first offers were closer together. We differentiated among pairs by the difference in their initial proposals.

### Results

Table 1 reports the intercorrelations among the measures. Messages,

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Insert Table 1 about here

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proposals, and concessions were highly correlated with one another. More work was necessary when the bargainers started with widely disparate opening offers: They were related to more activity, larger concessions, and the amount of time taken to reach an agreement. Experience, operationalized as the number of negotiations completed (including the current one), ranging from 1 to 4, showed relatively small but significant correlations with most of the measures. Agreements were related to less activity, particularly messages, a smaller initial difference in opening offers, and larger average concessions. All of these findings fit the picture of a typical negotiation.

Since no activity followed an agreement, we divided the negotiations into two sets: 147 pairs bargained either for 510 seconds or more, reaching an agreement during the last 30 seconds, or the full 540 seconds without reaching an agreement; 125 pairs reached agreement sooner, prior to 510 seconds. Most of our analyses concentrate on the first set of 147 pairs, as their interactions span a similar time period; the quicker negotiations make the identification of consistent transitions more difficult. The two set's temporal activities were used independently to calculate correlations that were very similar to each other and to the correlations for the entire sample, with one exception: pairs who had longer negotiations generated a significant positive association ( $r = .32$ ,  $p < .01$ ) between concession frequency and reaching an agreement.

Experience yielded effects for proposal ( $F(3,256) = 2.58$ ,  $p < .06$ ), message ( $F(3,256) = 5.51$ ,  $p < .01$ ), and concession frequencies ( $F(3,256) = 3.85$ ,  $p < .05$ ). In each case, increasing experience led to greater activity. If the four negotiations were conceptualized as one rather than four separate tasks--even though the experiment was designed to render each negotiation independent of all others--the data would support a model of increasing activity over time.

### Temporal Comparisons

Table 2 displays the results of simple comparisons of concession, message, and proposal frequencies, time mentions, and the average concession size in the first and second halves of the negotiation time. For all

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Insert Table 2 about here

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negotiations, concessions were larger and more frequent, and time mentions were also more frequent in the second half. Messages and total activity, however, were more frequent in the first half, probably due to the lack of messages or activity for negotiators who reached agreements early. When we only consider long negotiations, lasting 510 seconds or more, all measures of activity increased significantly in the second half.

In addition, differences in message length were tested via a comparison of 42 messages randomly selected from the first half and 42 from the second half. The number of words contained in the messages (mean = 10.19 words, s. d. = 6.58, for the first half and 9.98 words, s. d. = 6.87 for the second) were not significantly different from one another ( $F(1,82) = 0.02$ , ns).

Figures 2 through 5 display the frequencies of the dependent variables for the long negotiations. Message frequencies were relatively stable over

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Insert Figure 2, 3, 4, and 5 about here

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time, showing no abrupt changes. Proposals and concessions (which are very highly correlated) showed notable increases right at the deadline. Proposals were frequent early and were constant and relatively infrequent until the end; concessions showed gradual increases prior to the sharp increase at the end.

Unlike Gersick's (1989) groups, only 28% of the bargaining pairs (76 of 272 pairs) explicitly mentioned time. For the long negotiations shown in Figure 5, mentions showed a sharp increase in the second half, closer to the 390-second mark than to the midpoint of the entire negotiation.

Goodness of fit tests are reported in Table 3. We segmented time into 54 blocks of 10 seconds each. We aggregated the number of agreements, proposals, messages, concessions, and time mentions separately within each block. A line

graph similar to the bar graphs in Figures 2-5 was plotted, and a model of each of the four predictions was fitted to each of the graphs, with ordinary sums of squares used as a measure of goodness of fit. Agreement time for the

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Insert Table 3 about here

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entire sample and proposals for either the entire sample or the long negotiations strongly favored the deadline model, as did Figure 3. Concessions favored either the deadline or the constantly increasing model, as suggested by Figure 4. Messages favored the two-phase model for all negotiations but show little difference among the models for the longer negotiations. Time mentions favored the constantly increasing model over the two-phase model; both models could be supported by Figure 5.

#### Patterns Within Individual Pairs

All of the prior results are based on aggregated data. If surges of activity occurred at different times in different pairs, aggregation may have hidden any evidence for the two-phase model. Thus, we inspected the patterns of total activity (message + proposal frequencies) and the content of the messages for the most experienced pairs (who had completed three negotiations) who took 510 or more of the 540 seconds to reach an agreement (if they did agree). This reduced the sample to a more manageable group of 31 pairs whose behavior was not affected by any truncation of the process due to early agreements.

This micro-analysis indicated that most pairs exhibited either constant ( $n = 15$ ) or constantly increasing activity ( $n = 7$ ). Two pairs matched the patterns of the deadline model; one matched the two-phase model. Others showed unsustained surges ( $n = 2$ ), increasing activity--no activity--

increasing activity ( $n = 3$ ), or a decreasing pattern of activity ( $n = 1$ ). Analysis of message content also provided no startling revelations.

### Discussion

In general, these results do not support a generalization of Gersick's two-phase model of group performance to bargaining pairs. The least pointed of our analyses, the t-tests comparing first and second half activity, supported the model most: Broadly speaking, messages, proposals, concessions, and time mentions increased from the first to the second half of the task for pairs that took a long time bargaining. Time mentions duplicated some aspects of the temporal pacing observed in Gersick's (1988, 1989) studies. The shift to more time mentions, however, occurred much later than halftime and could just as easily be taken as support for a model of constantly increasing action. The more frequent activities--messages and proposals--did not follow a two-phase pattern.

Responding frantically just before the deadline may accurately reflect some of the behaviors of these bargaining pairs. This corresponds to the end of the two-phase model, where groups work harder to achieve completion. Whether a separate deadline model with a conceptually different character to that of the original two-phase model explains the data better is open to argument. The essential observation, however, is identical in these bargaining pairs and in Gersick's problem solving groups: Everyone moves faster just before the deadline. People may simply be myopic about time before the deadline; alternatively, they may use the time early in their task to consciously explore potential outcomes. When the deadline finally becomes imposing and undeniable, activity escalates dramatically. In the current study, the data for concessions reflected this pattern best--and this is

strategically appropriate given the nature of the task, where a big concession at the last second can finalize an agreement and avoid zero outcomes.

Constant or increasing activity also represented messages and time mentions well. Thus, this study's ability to separate bargainers' different negotiation activities generated observations that suggest that different actions may each have their own time-oriented phasing.

### The Sources of Different Results

A strong point of this study is the use of previously collected data to test Gersick's model. We had no knowledge of the two-phase phenomenon at the time of the experiment, yet the data are clearly sufficient to test the model. Thus, experimenter bias is the first alternative explanation that can be ruled out as an explanation of our findings.

Gersick's (1988; 1989) two studies used different subject populations and tasks of different length. This study used a sample that was comparable to one of Gersick's--MBA students--and a much shorter task time. The bargainers in this study had only nine minutes to reach an agreement. Could the differences be explained by an unreasonably limited time for the task?

We would argue that the time was more than ample for this task. Everyone was given plenty of practice prior to the first session. The task itself--bargaining over who would get how many of the 100 lottery tickets--was relatively simple. Most pairs had no problem reaching agreement: Of the 272 interactions, only 63 ended in disagreement. Many of these pairs were close to agreement and disagreed only because both bargainers were hoping that the other would concede at the last second. Indeed, the entire pattern of behavior (particularly the constant message frequencies) indicates that the process was not particularly hurried. Few concessions early and more later

would have fit the two-phase model quite well; it also fits the prescriptions of many models of negotiation (e.g., Walton and McKersie, 1965). Concessions followed this pattern but reflected the effects of deadlines rather than the broader two-phase model. The time allotted was clearly sufficient for conscious, thoughtful strategy implementation.

If we conclude, then, that subject populations and time differences cannot account for the disparate findings, other aspects of the tasks become the most likely causal factor. First note that this task allowed participants to wait until the very last seconds to strike an agreement. Although not laying the groundwork for an agreement might force a negotiator to accept a poor outcome at the end, and early bargaining strategies could reduce the likelihood of such a result, a solution could still be reached instantly, unlike the project groups Gersick studied.

In addition, as we have suggested earlier, the competitive or cooperative nature of the tasks may be critical. In cooperative tasks, early interactions are often marked by social activity. In very competitively oriented tasks, individuals typically want no part of socializing. Both reactions can be construed as strategic: Establishing interpersonal bonds with others may facilitate coordination in a cooperative venture; denying interpersonal connections allows individualistic actors to pursue their own ends with less concern for the other party. Thus, the present results suggest the following hypothesis: The more cooperative a group task, the more likely the group will engage in social activity, especially in the early phases of the task. This hypothesis may explain some of the differences between Gersick's results and ours. It also identifies an underlying reason for observations of two phases in group performance.

If we assume that activity is necessary for efficiency, as it should be in most group tasks, the results of research on integrative bargaining problems (e.g., Pruitt, 1983) sheds some light on this hypothesis. In a typical integrative bargaining task, two bargainers face a multi-issue negotiation; their interests diverge on at least two issues. Their different preferences for these issues establish the possibility for tradeoffs where one bargainer does well on one issue and the other does well on the other. Such integrative solutions distribute outcomes to the bargainers very efficiently.

In experiments where either or both bargainers have been given moderate or difficult aspirations (e.g., "You must achieve at least X; anything less is like getting nothing."), they are more likely to reach the integrative solution (Huber and Neale, 1987). Without aspirations, bargainers are less individualistic, possibly more social and cooperative, but less efficient in terms of the expediency of making a decision or reaching an agreement.

Conceptualizing aspirations as the basis for more individualistic motives (Pruitt, 1983) suggests that individualism can increase efficiency. If this result generalizes to problem solving groups (and integrative bargaining is often referred to as exemplifying a problem solving orientation in bargaining), the group as a whole may well be more efficient as the task allows the group's members to be more individualistic. There will certainly be a limit: When the members of a group are so intensely individualistic (or competitive<sup>2</sup>) that they totally disregard everyone else's interests, the group may have difficulty achieving anything. Nevertheless, the notion that individualism rather than cooperation may lead to efficiency, as might shorter phases of social action early in the cycle of group problem solving, fits the underlying philosophy of capitalism (Smith, 1937) and may also be applicable at the level of organizational groups. Recent findings by Chalos and Haka

(1990), which show that individualistic motives on integrative bargaining problems in the context of transfer pricing generate greater firm profit, also supports this logic. Intra-group competitive or individualistic orientations, then, may be more effective than cooperation especially if they are channeled toward the achievement of superordinate or organizational goals. Indeed, the concepts discussed here show clear parallels to the literature comparing do-your-best and difficult but attainable goals (Locke, Saari, Shaw, and Latham 1981).

Our findings also suggest that the entire concept of completely cooperative group interaction may be problematic. Indeed, as we have mentioned earlier, almost all groups face a social dilemma. Temptations to act individualistically may be everpresent. This suggests that the often observed process losses exhibited by task groups (Steiner, 1972) may find their root in cooperative motivations. Rather than being explained by difficulties in coordination that might result, for example, when groups add additional members, process losses may also arise from disincentives for personal benefit. Cooperative motivations, then, may be a more basic causal factor; they may contribute to difficulties in task coordination. (This argument does not, however, imply that a competitive orientation is always functional, as noted above.)

This discussion is necessarily speculative. Nevertheless, a focus on the individualistic aspects of cooperative group tasks offers not only a variety of potentially important questions for theory and research but also a means for drastically reducing the number of categories needed for the taxonomy of group tasks (e.g., see McGrath, 1984). At the very least, this discussion suggests that the mixed-motives inherent in group tasks might be more important than other, more performance-based criteria. In the current

case, tasks that are neither so cooperative nor so individualistic might provide initial results concerning our hypothesis that cooperative motivations may contribute significantly to group inefficiency.

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## Author Notes

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## Footnote

<sup>1</sup>Two payoff conditions, fixed and mixed, were included in the original design. In the fixed conditions, each member of a bargaining pair kept the same prize value for each of their four negotiations where the only thing changing was their opponent. Thus, players with a \$4 prize always had a \$4 prize and negotiated four times with someone with a known \$36 prize. For the mixed conditions, bargainers were assigned either the four high prize values (\$36, \$14, \$15, and \$20) or the four low prize values (\$4, \$6, \$10, and \$5). In this case, one bargainer always had a higher prize in his or her four negotiations; the other bargainer always had the lower prize. Pairs of bargainers in the mixed payoff conditions experienced all four prize combinations: \$4-\$36, \$6-\$14, \$10-\$15, and \$5-\$20.

<sup>2</sup>The constant-sum nature of the task in this study was simultaneously competitive and individualistic: Doing better for oneself meant the other person did worse. Competitive or individualistic behavior can be differentiated in other group tasks when outcomes are not constant-sum.

TABLE 1  
INTERCORRELATIONS AMONG KEY TEMPORAL MEASURES AND NEGOTIATION OUTCOMES

	N	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Agreement (1=yes, 0=no)	272	0.77	0.4226									
2. Time mention frequency	272	0.35	0.6240	-0.17								
3. Negotiation experience (1 to 4 negotiations)	272	2.50	1.1201	0.07	-0.02							
4. Time of agreement (seconds)	209	410.98	142.6095	N.A.*	0.19	0.15						
5. Total activity level (messages + proposals)	272	14.89	5.7265	-0.27	0.25	0.25	0.82					
6. Proposal frequency	272	6.32	2.8276	-0.08	0.18	0.16	0.67	0.77				
7. Message frequency	272	8.57	4.0224	-0.32	0.24	0.24	0.73	0.90	0.41			
8. Concession frequency	272	3.94	2.5149	0.00	0.19	0.20	0.67	0.70	0.90	0.38		
9. Concession size	272	7.71	9.5701	0.16	0.05	-0.11	-0.00	-0.07	-0.07	-0.05	-0.06	
10. Initial difference	272	32.81	22.2523	-0.24	0.21	-0.03	0.41	0.36	0.39	0.25	0.43	0.52

Notes: Except for time of agreement, correlations  $\geq 0.07$  or  $\leq -0.07$  are statistically significant at  $\alpha=0.05$ ; those  $\geq 0.16$  or  $\leq -0.16$  are statistically significant at  $\alpha=0.01$ . For time of agreement, correlations  $\geq 0.15$  or  $\leq -0.15$  are statistically significant at  $\alpha=0.05$ ; those  $\geq 0.40$  or  $\leq -0.40$  are statistically significant at  $\alpha=0.01$ .

\* due to restriction of range.

TABLE 2  
COMPARISONS OF BARGAINING ACTIVITIES IN FIRST AND SECOND HALVES

	Means		Mean Difference	sd <sub>d</sub>	t	p<
	0-270 Seconds	271-540 Seconds				
ALL NEGOTIATIONS (N=272)						
Total activity	7.91	6.98	-0.93	0.2245	-4.60	.0001
Proposal frequency	3.22	3.09	-0.13	0.1355	-0.98	n.s.
Message frequency	4.70	3.87	-0.83	0.1559	-5.35	.0001
Concession frequency	1.22	2.72	1.50	0.1209	12.37	.0001
Time mention frequency	0.06	0.29	0.24	0.0351	6.70	.0001
Average concession size	5.11	6.75	1.64	0.8328	1.96	.0506

NEGOTIATIONS WITH AT LEAST  
510 SECONDS CONTACT TIME (N=147)

Total activity	8.33	9.61	1.29	0.1814	7.09	.0001
Proposal frequency	3.24	4.08	0.84	0.1466	5.75	.0001
Message frequency	5.07	5.57	0.50	0.1690	2.94	.0038
Concession frequency	1.21	3.62	2.41	0.1368	17.61	.0001
Time mention frequency	0.07	0.37	0.30	0.0524	5.72	.0001
Average concession size	3.99	6.13	2.14	0.9836	2.18	.0309

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TABLE 3  
GOODNESS OF FIT COMPARISON FOR THE FOUR MODELS  
(VIA RESIDUAL SUM OF SQUARE)\*

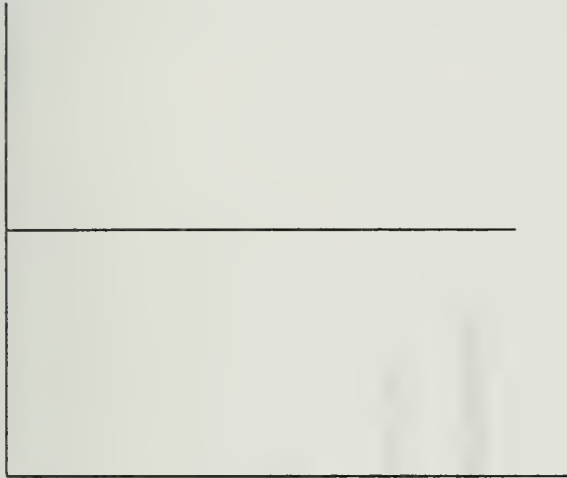
Temporal activities	Model 1 Constant Action Model	Model 2: Constantly Increasing Model	Model 3: Deadline Model	Model 4: Two-Phase Model
All Negotiations (N=272)				
Agreement time	3060.1481	2443.1079	<u>390.7925</u>	2775.4074
Proposals	6073.3704	n.a. <sup>a</sup>	<u>3969.1698</u>	6043.8518
Messages	8332.1481	n.a. <sup>a</sup>	7874.8679	<u>7021.8519</u>
Concessions	8066.3704	<u>3096.7133</u>	4725.8868	5191.6297
Time mentions	210.9074	<u>116.3121</u>	164.5283	132.7407
Negotiations Lasting at least 510 Seconds (N=147)				
Proposals	5106.6111	4496.9045	<u>1869.0377</u>	4857.4445
Messages	2544.5926	<u>2446.9045</u>	2473.2075	2514.9630
Concessions	6048.4444	2681.1650	<u>2532.7925</u>	4175.8519
Time mentions	164.9074	<u>84.1920</u>	210.8302	104.8148

\* Underlined figures represent the least sum of square among the 4 models.

a The least square fit to these variables resulted in a negative slope.

FIGURE 1  
FOUR PATTERNS OF TEMPORAL ACTION

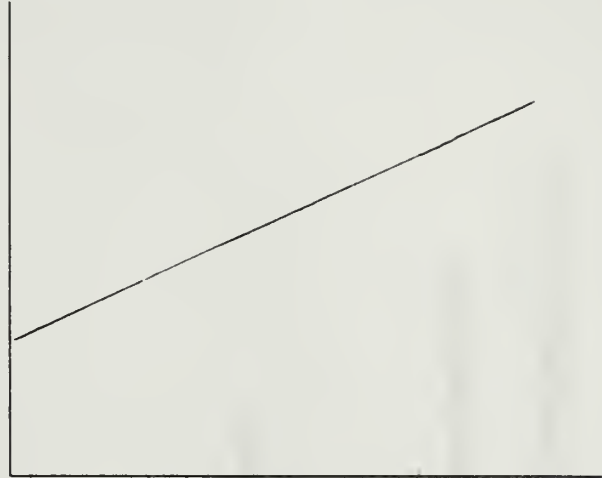
Activity



Time

(a) The Constant Action Model

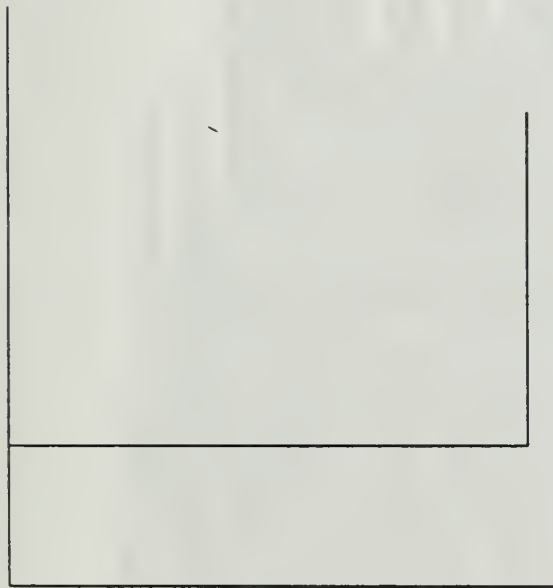
Activity



Time

(b) The Constantly Increasing Model

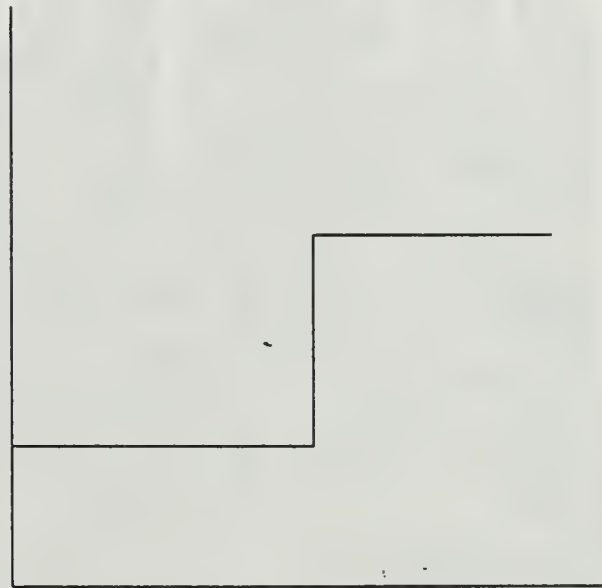
Activity



Time

(c) The Deadline Model

Activity



Time

(d) Gersick's Two Phase Model

Figure 2

Frequency Distribution of Messages

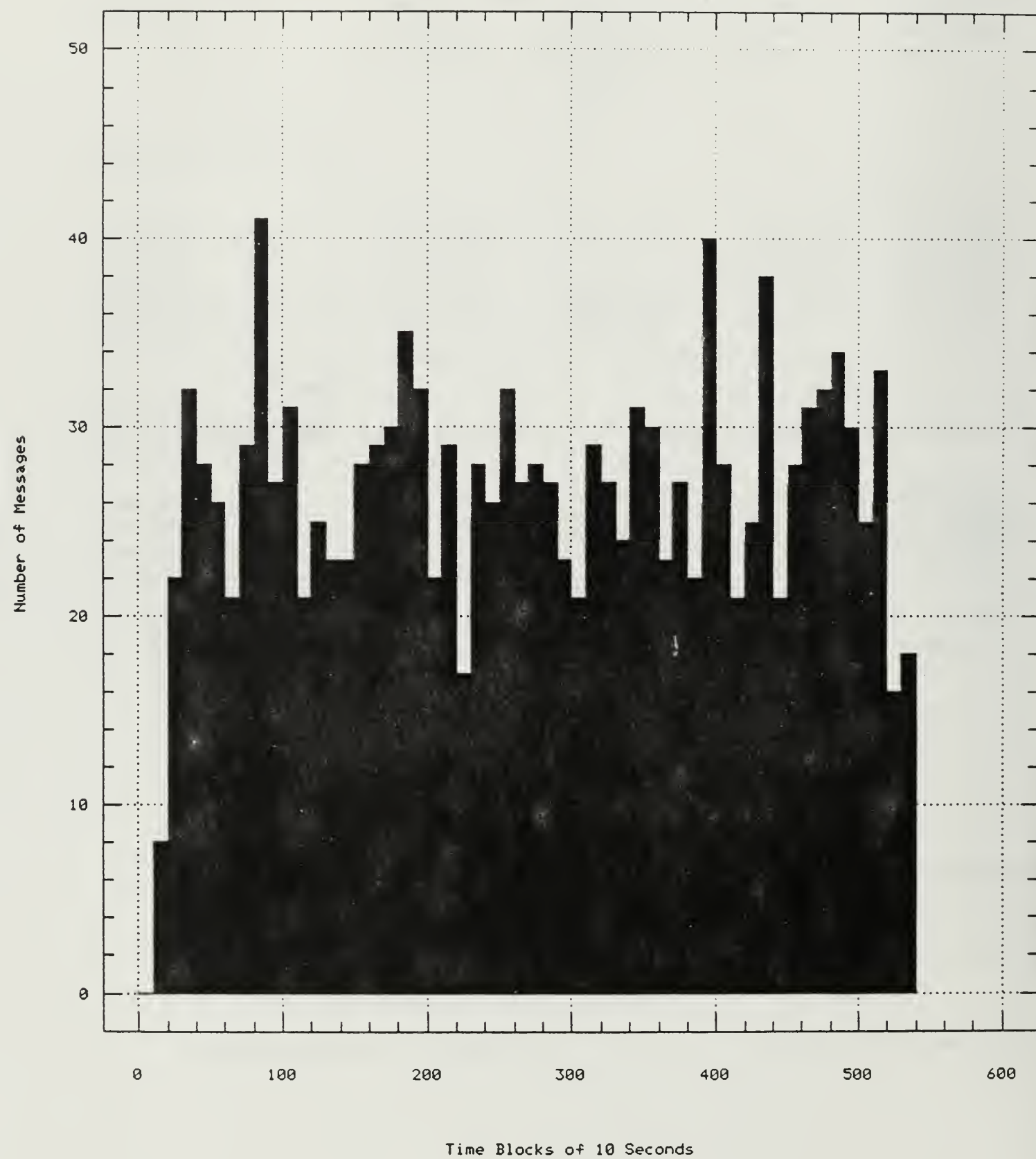


Figure 3

Frequency Distribution of Proposals

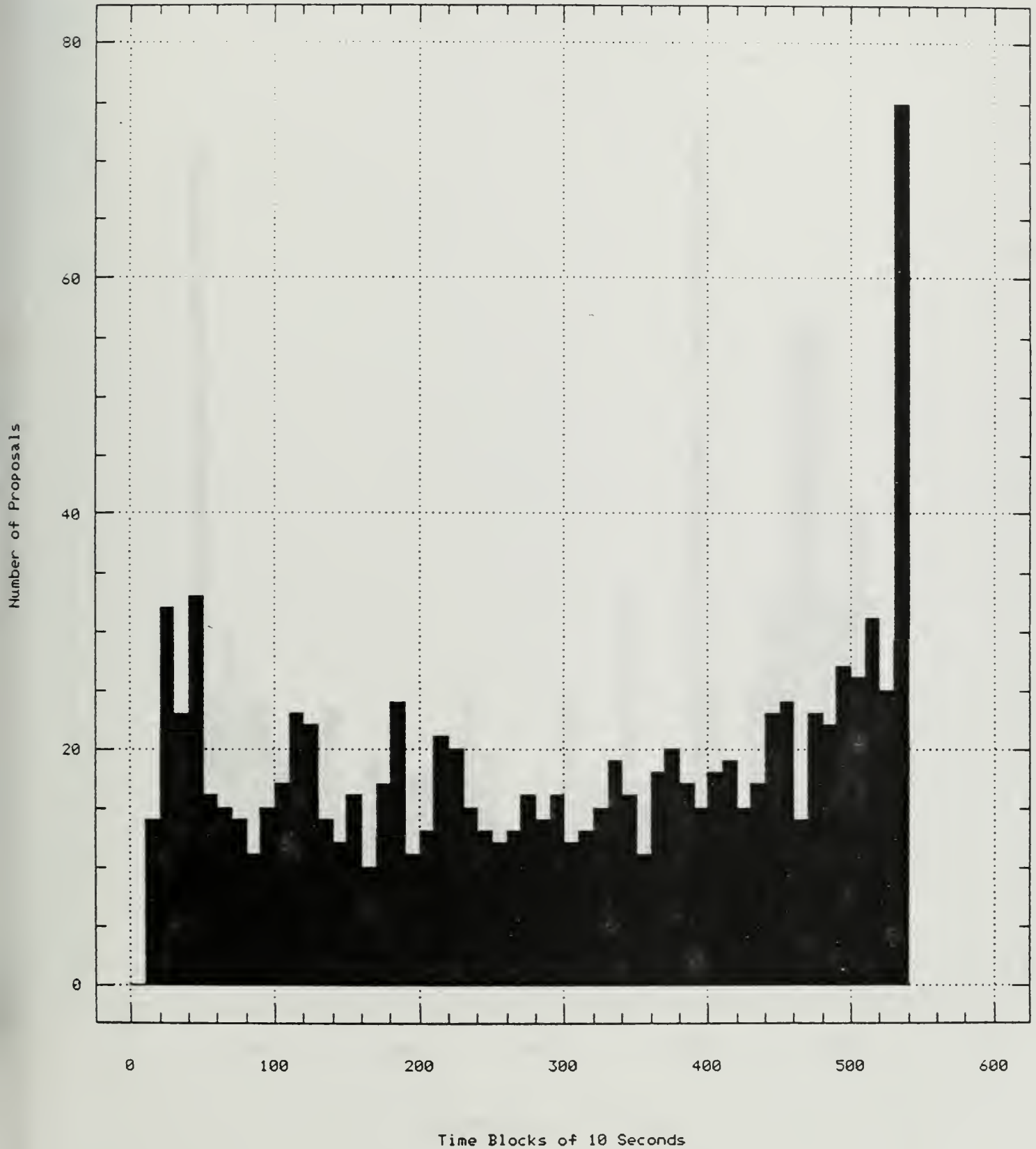


Figure 4

Frequency Distribution of Concessions

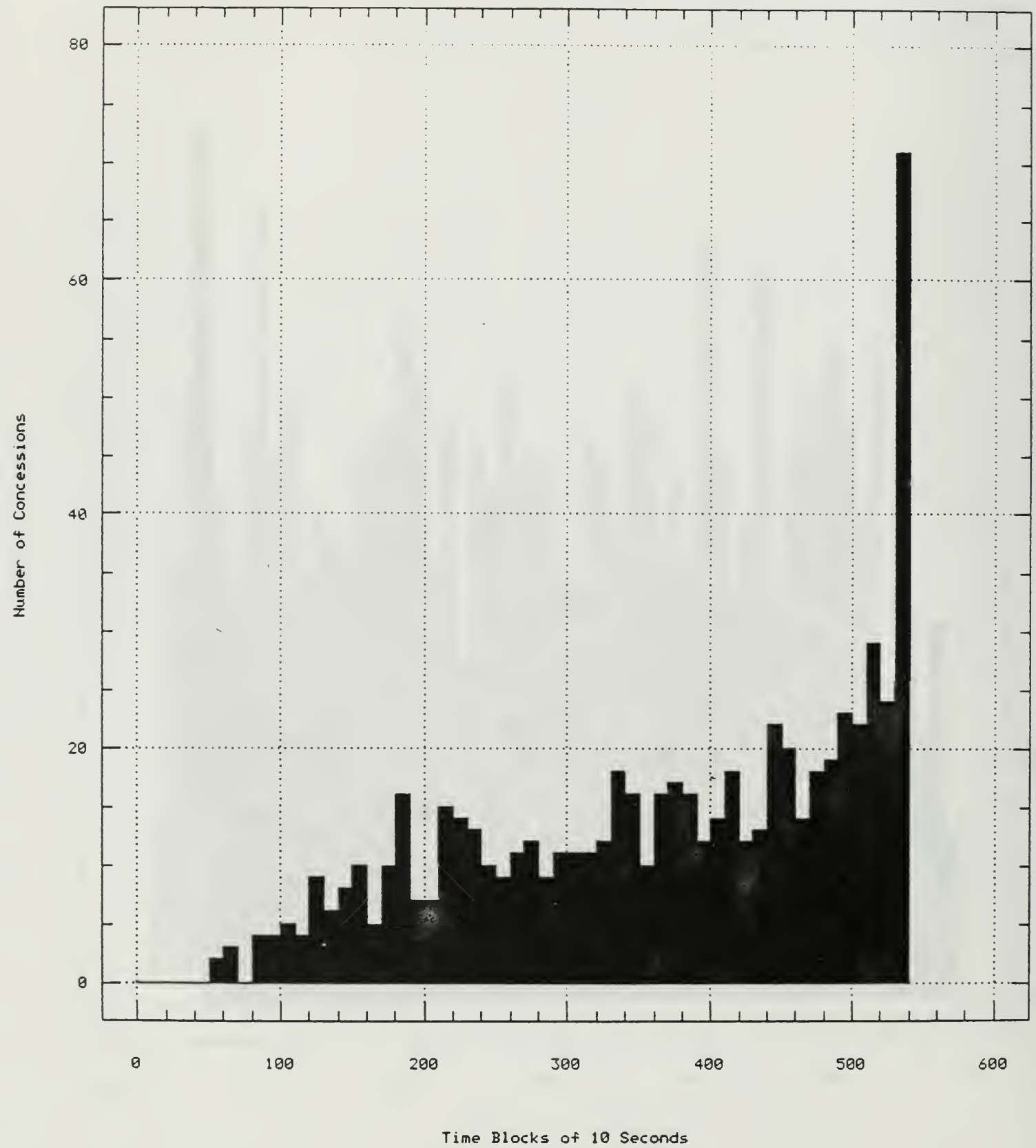
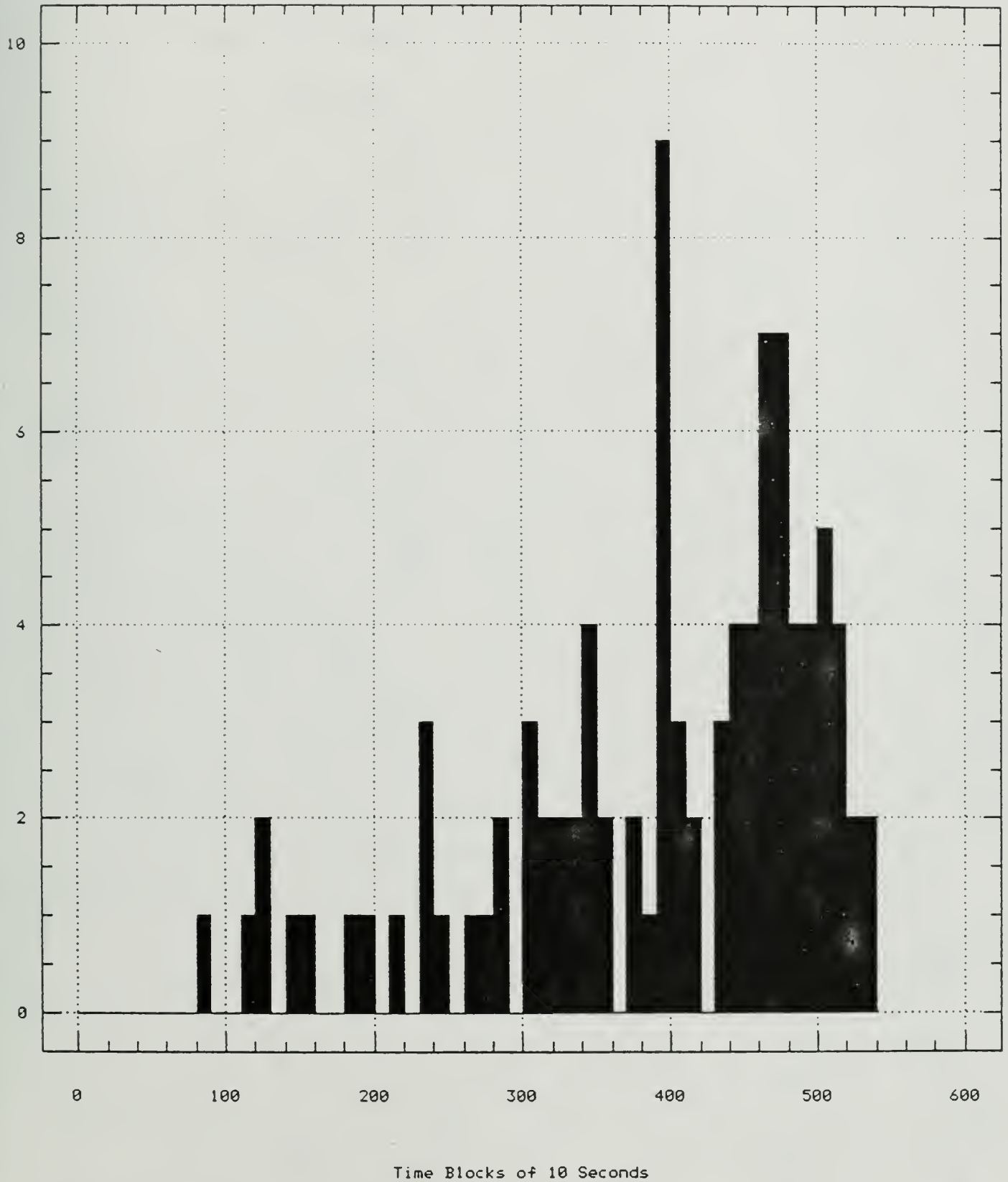


Figure 5

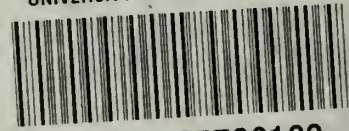
Frequency Distribution of Time Mentions







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