

STRIKES AS SEQUENCES OF INTERACTION:
THE AMERICAN STRIKE WAVE OF 1886*

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Strikes as Sequences of Interaction: The American Strike Wave of 1886

Theories of strikes—or any kind of conflict—are theories of *interaction*. Marxists envisage class conflict as a dialectical struggle between Proletariat and Bourgeoisie. Neoclassical economists imagine strikes as an unintended consequence of bargaining between rational actors. The tumult of class conflict is far removed from the quiet of rational bargaining, yet these theories are alike in this respect: strikes ensue from dyadic interaction. Adding political authorities to the dyad of workers and employers extends interaction to three sets of actors.

In theory this is clear. Nevertheless, as Roberto Franzosi (1995, p. 17) emphasizes, “strategic interactions among the players involved have been lost in the literature.” In statistical analysis, strikes are conceived as the outcome of a linear combination of independent variables, which are interpreted as the determinants of workers’ decisions. By implication, strikes are unilateral acts by workers alone. David Card and Craig Olson (1995) are exceptional for modeling the duration and outcome of strikes as the result of decisions on both sides. Labor historians, too, focus on workers. The ‘consciousness’ of the working class is dissected and debated at length, while that of their adversaries remains a mystery. In part, this reflects the bias of sources. “The strikers are exposed to the full glare of publicity,” observes Michelle Perrot (1984, p. 250), while employers make decisions in secret.

Interaction between workers and employers is the subject of this article. It analyzes strikes as *sequences* of interaction. This captures their essentially diachronic character. How strikes actually unfold over time has attracted little attention. Historians are more interested in larger processes such as class formation, and they are inevitably hampered by a lack of detailed evidence. From interviews and participant observation, sociologists can provide richly detailed accounts of individual strikes (a wonderful example is Fantasia 1988, ch. 3). What is lacking, however, is any method of systematically analyzing larger numbers of strikes. In statistical analysis, the determinants of strikes operate instantaneously. Within this statistical framework, event-history analysis can introduce a diachronic element; Carol Conell and Samuel Cohn (1995) use this technique to demonstrate how a strike by one group of workers makes it more likely that other workers will go on strike. Going beyond this framework, sociologists have introduced new methods for analyzing sequences (reviewed by Abbott 1995).

Andrew Abbott applies optimal matching to measure the resemblance between different sequences (e.g. Abbott and Hrycak 1990); Larry Griffin (1993) uses event-structure analysis to formalize the causal connections among events. These diachronic methods are completely abstract, and so they can be applied to many kinds of events. By contrast, the method of analysis presented here takes advantage of the elemental structure of a strike, derived from the dyadic relation between workers and employer.

Because conflict can be averted by the decision of either side, strikes are the tip of an iceberg. Submerged beneath the surface (not usually recorded by statistical agencies) are a huge number of interactions—including unfulfilled threats and pre-emptive concessions. The end of a strike, moreover, does not necessarily terminate the struggle. There may be a series of sequences of interactions, involving the same workers and employer(s), before one side or the other finally accepts the outcome. In situations where employers did not accept collective bargaining, they often granted concessions only to revoke them some months later. Workers then faced the choice between a defensive strike and outright surrender. Therefore some strikes must be explained by prior interactions, rather than by changing economic or political circumstances.

This article examines one particular episode: the strike wave that swept America in the middle of the 1880s. It crested in the first week of May 1886, when over two hundred thousand workers struck for a shorter working day. This was one of the great outbursts of class conflict in American history; relative to the size of the labor force, the number of strikers that year was not exceeded until 1916. Labor historians and historical sociologists have produced valuable studies of this episode, which focus on the organizational growth of the Knights of Labor (e.g. Voss 1993), its involvement with politics (e.g. Fink 1988; Schneirov 1998), and the activities of revolutionary anarchists (e.g. Avrich 1984; Nelson 1988). The relationship between labor and capital in the workplace is, by comparison, rather neglected. To analyze this relationship, we can exploit a unique source of data. The Illinois Bureau of Labor Statistics surveyed 432 firms in Chicago, the epicenter of the strike wave. The survey provides sufficient detail to reconstruct sequences of interaction at the beginning of May, including sequences that did *not* result in strikes as well as those that did. It also records what happened to concessions in the six months *afterwards*.

The article begins by reviewing explanations of strikes (§ 1) and proposing a model of interaction between workers and employer (§ 2). After sketching the origins of the May strikes in Chicago, it analyzes the survey of employers to reconstruct sequences of interaction (§ 3). This reveals the dramatic reversal of

expectations that occurred over the month of May (§ 4). This reversal is examined in more detail by comparing series of two or more strikes in the same workplace (§ 5).

1. Explanations of strikes

Studies of strikes have focused on long-term trends or annual fluctuations. Labor historians situate strikes in the context of working-class formation, and examine how they evolved over decades (e.g. Montgomery 1980). Sociologists and economists aggregate strikes into time series and seek independent variables that correlate with variations in strike frequency from year to year (reviewed by Franzosi 1989). Recent advances have been methodological, with the introduction of instrumental variables to overcome potential endogeneity, and of recursive regression to discern structural breaks (e.g. McCammon 1993). In addition, attention has recently shifted from annual aggregates to individual strikes. Gerald Friedman (1988) was the first to appreciate the potential of data collected by the United States Commissioner of Labor from 1881 to 1894. This rich vein has subsequently been mined to explain why strikes succeed or fail, rather than when strikes occur (Card and Olson 1995; Currie and Ferrie 2000; Friedman 1998; Rosenbloom 1998).

We can identify five distinct explanations for strikes. They are not necessarily mutually exclusive (Franzosi 1995). In one explanation, workers strike when unemployment is low or falling, when they have greater *bargaining power* (Rees 1952, pp. 380-1). The function of the strike is therefore to force the employer to recognize their power. Economic variables also enter another explanation. Workers strike after they have become accustomed to rising wages, when wage increases diminish. Such *inflated expectations* are central to the influential model proposed by Orley Ashenfelter and George Johnson (1969). Union leaders call strikes in order to deflate workers' unrealistic expectations. In their words, "the basic function of the strike is as an equilibrating mechanism to square up the union membership's wage expectations with what the firm may be prepared to pay" (1969, p. 39). Their model also incorporates bargaining power, for they argue that unemployment deflates expectations.

In the third explanation, workers strike when *political opportunities* arise from changes within the state (Tarrow 1996). An example is Roosevelt's promulgation of the National Industrial Recovery Act (Piven and Cloward 1978, ch. 3; Tarrow 1994, ch. 9). The most radical interpretation is that strikes are inherently political: they are aimed at the state and not at employers. This was the claim of Edward

Shorter and Charles Tilly (1974) for strikes in France, though it has since been qualified (Tilly 1989; cf. Edwards 1989). It sparked a vigorous debate over the relative merits of economic and political variables in explaining American strikes (Snyder 1975, 1977; Edwards 1981, ch. 3; Kaufman 1982; Skeels 1982). Nevertheless, whether an explanation refers to political opportunities or bargaining power, it postulates the same underlying rationale: workers respond to opportunities, rather than being motivated by grievances. In the fourth explanation, workers strike after they have developed *collective organization*, invariably measured by union membership. Unlike the other factors, however, this can hardly be conceived as exogenous. Collective action, in the form of strikes, also leads to collective organization (Franzosi 1995, ch. 4; Friedman 1998, ch. 1).

The four explanations considered thus far pertain to workers' decisions. Because the explanations are developed to justify the inclusion of independent variables in statistical analysis, the rationale for these decisions is rarely explicated. The implications are surprising. If strikers really have inflated expectations, then strikes will end in defeat. If they win, then their expectations were justified after all. Conversely, if strikers really have opportunities (whether economic or political), then strikes will end in victory. If they lose, then those opportunities were illusory after all. Explanations in terms of opportunities assume that workers are instrumentally rational, for they only strike when they are likely to win. What, then, of employers? Why do they not comprehend that they are likely to lose? If both sides were instrumentally rational, as Jean-Michel Cousineau and Robert Lacroix emphasize, we would "expect changes in relative bargaining power to be reflected in the terms of the wage agreements rather than in strikes" (1986, p. 377).

This leads to the last explanation. Neoclassical economists treat a strike as a failure of two sides to reach agreement. Failure occurs when both expect to gain from a strike. Paradoxically, whatever the strike's outcome, both sides should have reached it at the outset—thus avoiding the costs of a strike. This insight is due to J. R. Hicks (1963—first edition, 1932). He argued that "the majority of actual strikes are doubtless the result of faulty negotiation," resulting from "ignorance by one side or the other of the other's dispositions" (pp. 146, 147). In this theory of *imperfect information* (Cousineau and Lacroix 1986), strikes occur when economic conditions—and we could add political conditions—are uncertain. Uncertainty makes the divergence of workers' and employers' expectations more likely. The strike functions to improve each side's information and hence to align their expectations. A variant is the theory of *asymmetric information* (Kennan and Wilson 1993). Some elements in the bargaining calculus

are known to one side only. Most obviously, workers have far less information about current and future profits than their employer. If workers' demands are exorbitant, then the employer can convince them of it only by withstanding a strike. The strike therefore functions to convey this private information.

This kind of explanation has two problems. It turns out that neither theory is necessary to explain strikes, even if both sides are instrumentally rational. Raquel Fernandez and Jacob Glazer (1991) prove that strikes "can result as equilibrium behavior within a framework of perfect rationality and complete information" (p. 241). Moreover, simple bargaining experiments—where both sides possess identical information—show that failure to reach agreement is not uncommon. We can nonetheless gain two valuable insights from this explanation. Firstly, strikes must be analyzed as an interaction between two sides, rather than a unilateral action by workers. A strike may be provoked by the employer's actions. But even when a strike is initiated by workers, the employer could in principle have prevented it by granting their demands. Secondly, the outcome of a strike should be treated as fundamentally uncertain. The balance of power cannot be known with certainty *ex ante*—it is revealed only *ex post*, after the strike has ended in success or failure.

2. Theorizing interaction between workers and employer

To understand strikes, it is necessary to theorize a process of interaction between labor and capital. Activists in the labor movement in the 1880s were divided by different—and indeed irreconcilable—conceptions of the relationship between capital and labor. These conceptions can be classified as harmony, antagonism, and contradiction (borrowing from Parkin 1979). Proponents of harmony—like the General Master Workman of the Knights of Labor, Terence Powderly—did their best to quash strikes, which they attributed to moral ignorance (e.g. Powderly 1886). Revolutionaries like Albert Parsons appreciated strikes only insofar as they forced workers to understand the inescapable contradictions of capitalism (e.g. Parsons 1886). Those who conceived class in terms of antagonism, by contrast, believed that workers *could* improve their conditions by exercising collective power. Two representative figures were Peter J. McGuire, Secretary of the Brotherhood of Carpenters and Joiners, and James Buchanan, who helped organize railroad workers and miners in the West. "Employers and employés have antagonistic interests," McGuire bluntly declared (1883, p. 350). "The interest of the employer is to get his labor at the cheapest rate possible; while the interest of the employé is to get the most for his labor." More precisely, the employer only needs to pay workers a wage high enough to prevent them, as individuals, from

leaving for another employer. It is in workers' interest to raise their wage beyond this—but not to the point where it is not profitable to employ them.

This conception of antagonism underlies the theory developed here. We can begin with a sequence of interactions between two sides. A decision tree has been used in game theory to deduce the logic of bargaining, and in political science to analyze the outbreak of war (e.g. Fernandez and Glazer 1991; Bueno de Mesquita et al. 1997). Figure 1 depicts workers (W) and their employer or employers (E) alternating in taking decisions. Every decision is a branching point, which affects the subsequent sequence of decisions. The diagram is necessarily simplified. It excludes any third party to the conflict—most obviously the state. It also ignores the problem of collective action by treating workers (and employers, if more than one is involved) as a single 'actor.' Separating the vertical interaction between workers and their employer(s) from the horizontal interactions among workers is artificial, but nonetheless essential for theoretical clarity.

Not all paths in the diagram end in a strike, but the possibility of striking overshadows every interaction. “To win concessions asked of the employer”—as Buchanan understood—“labor must possess the power to compel” (1903, p. 250). Power is the ability to inflict costs. By acting collectively, workers can inflict costs on the employer by stopping work and (in most cases) disrupting any attempt to hire replacements. In turn, the employer can inflict costs by stopping their wages and (in many cases) permanently replacing them. The result is a war of attrition, an iterated game of ‘chicken.’ Chicken is named for a contest between two drivers (inevitably adolescent males): each wants to gain a reputation for courage by making the other swerve. If neither swerves, however, both lose more than their reputations. The game has no dominant strategy; swerving and not swerving are equally (ir)rational. In a strike, each side wants to win by waiting for the other side to capitulate. While neither capitulates, both sides suffer increasing costs. This ends when one eventually concedes defeat.

A strike is costly for both sides, and it can be avoided. The very threat of conflict—and indeed defeat—may suffice to induce workers to accept worse conditions, or induce the employer to offer concessions. This has been pointed out by neoclassical economists since Hicks. It is also recognized by some historians (e.g. Perrot 1984, p. 256). The possibility of deterrence is shown in Figure 1: some paths result in gains or losses for workers without any strike. So there is no reason to assume that an increase in the power of labor relative to capital will automatically cause strikes. Consider an example from one of the largest firms in Chicago: McCormick Harvesting Machine Company. In April 1881, molders in the foundry (organized as Local 233 of the National Union of

Iron Molders) signed a petition threatening to strike unless piece rates were increased by 15 percent and daily wages by 25¢. The workers obviously believed that their relative power had increased; the economy was booming, and unemployment was low. The company concurred, and granted increases before the deadline (Ozanne 1967, p. 9).

The risk of defeat and the costs inherent in a strike do not always prevent its occurrence, of course. A strike may occur for two very different reasons. First, because the employer or workers (or both) have overestimated their power. In other words, the two sides' respective expectations of relative power have diverged. Relative power depends not only on external conditions like unemployment, but also on internal factors: workers' determination and solidarity, for example, or the employer's arrangements with detective agencies. Information on such factors is liable to be deliberately obscured or exaggerated. Second, a strike may occur because the employer or workers (or both) are not acting instrumentally. Most obviously, when one side is defending the status quo against the other's attempt to initiate change, it may consider resistance to be imperative—regardless of the prospects for success. This action would be value-rational rather than instrumentally rational (Weber 1922, p. 24-25). The simplest bargaining experiment demonstrates how people respond to a conspicuously unfair offer. Defying the dictates of instrumental rationality, most refuse the offer—and thus suffer costs—in order to punish their adversary (Camerer and Thaler 1995).

These two reasons may be difficult to differentiate in reality, but the distinction is still important. Neoclassical economists do not even admit the second; historians tend to downplay the first. Some activists in the labor movement certainly treated strikes instrumentally. McGuire advised carpenters how to maximize the chance of success if they decided to strike in the spring of 1886. "Don't be too greedy or you may get beaten," was one recommendation (quoted in Galenson 1983, p. 45). Buchanan posed this question to angry workers intent on striking: "Have you an even chance to win?" (Buchanan 1903, p. 155) Buchanan's question suggests a way to tease indirect evidence from aggregate statistics. If the chance of success did *not* enter workers' decisions to strike, then most strikes should end in their defeat. In the years from 1881 to 1890, workers won concessions in an average of 62 percent of establishments (USCL 1906, table iv, pp. 278-9; table xvi, pp. 736-7). As we will see, concessions did not always endure. Nevertheless, this success rate was quite stable from year to year (the standard deviation is 6 percentage points), despite fluctuations in economic

conditions and indeed in strike frequency. Workers were indeed striking when they had (on average) a better than even chance to win.

The variegated logic of conflict matches the various sequences of interaction in Figure 1. One path is null: both sides decide to do nothing (or make no decisions). The employer may decide to initiate change that benefits workers, either to preempt a possible threat or to attract scarce labor; this is the top path. The rest of the tree branches into two subtrees, which are mirror images. One begins if the employer imposes negative change on workers—for example by reducing wages or victimizing ‘agitators.’ The other begins if workers demand positive change—for instance higher wages or reinstatement of victimized comrades. It is important to distinguish which side is taking the offensive, and which is defending the status quo. In each subtree, only one path ends in a strike; it can be averted by either side.

All these paths derive from the iteration of a single basic sequence: one side makes a demand, and the other refuses to concede. When a strike does occur, the sequence is repeated until one side finally capitulates. The diagram also permits further elaboration. One complication is to add another possible decision: to initiate negotiations. It is nonetheless simpler—and quite realistic before collective bargaining—to treat negotiation and compromise as concessions by the employer. Another complication is to allow sequences to be truncated. Workers often struck before articulating a demand, partly because they knew that the individuals who actually presented it were vulnerable to retaliation. A workers’ demand can be conceived, anyway, as the 0th iteration of a strike. Likewise, a lockout is what happens when an employer makes an initial demand (or refuses to concede) but does not allow workers the possibility of surrendering *without* resistance; it is a strike ‘shortcircuited.’

3. The workers’ offensive of May 1886

Let us turn to real interactions, in the strike wave of 1886. The May strikes originated in a resolution passed eighteen months earlier by the Federation of Organized Trades and Labor Unions. A mere two dozen delegates at its congress resolved “that eight hours shall constitute a legal day’s labor from and after May 1, 1886” (FOTLU 1884, p. 14). The Federation itself was impotent, but the campaign was taken up by labor activists in cities from the Atlantic seaboard to the Mississippi. Chicago was no exception. Organization and agitation had produced some results by the end of 1885. Even so, the Eight Hour Association predicted “that next May some of the stronger unions, such as the building trades, would get an eight-hour day, while the rest would be left in the cold” (*Tribune*,

Dec. 7, p. 8). In the first four months of 1886, however, the expectations of ordinary workers were transformed. Existing organizations multiplied their membership, while previously unrepresented workers founded new trade unions and Local Assemblies of the Knights of Labor. By mid April, over 30,000 workers had resolved to introduce shorter hours (*Tribune*, April 19, p. 2). The newly organized were especially confident in their overwhelming power. A freight handler predicted the response of railroads: “I know some of them will fight it, but you’ll see that the majority will give in after a few days” (*Tribune*, April 30, p. 1). Although the Trades and Labor Assembly urged workers to accept an equivalent reduction in daily wages, it was clear that most were determined to demand eight hours’ work for ten hours’ wages. For the employer, this would increase labor costs by 25 percent.

Why did workers’ expectations change so dramatically? The economy began to recover in 1886, after three years of depression. There are contrary indications on the strength of the revival (Frickey 1947, table 6, p. 54; Friedman and Schwartz 1982, table 4.8, pp. 122-3). Even by mid 1886, trade unions and Local Assemblies in Cook County reported that 18 percent of their members were unemployed.¹ It is clear that optimism among ordinary workers increased out of all proportion to objective economic conditions. By the spring, mobilization thus became a self-reinforcing process. New hopes gave rise to new organization; new organization became evidence that such hopes were justified. Because confrontation was delayed until May, these expectations remained largely untested. Nevertheless, some employers seemed to concur: they offered concessions in advance. In Chicago, 11 percent of employers surveyed by the Illinois Bureau of Labor Statistics reduced their hours before May (IBLS 1886, table 2, pp. 482-90). Such concessions justified workers’ expectations, and stiffened their resolve.

When the confrontation between labor and capital finally arrived, at least 200,000 workers went out on strike across the United States (*Bradstreet’s*, Jan. 8, 1887, p. 21). Figure 2 shows the number of workers involved in strikes and lockouts in Cook County (USCL 1887, table 1, pp. 140-71). On just two days—Saturday, May 1, and the following Monday—64,000 workers went out on strike. This was a remarkably high proportion of the city’s wage-earners: one in four. We can decompose these events into sequences of interaction, thanks to the Illinois Bureau of Labor Statistics. Towards the end of 1886, it conducted a survey of Chicago’s industrial employers, which recorded the events of May along with

¹ Some of the ‘unemployed’ members were either striking or blacklisted—but the unemployment rate was just as high in the rest of Illinois, where class conflict was muted (IBLS 1886, table 1, pp. 172-8 and table 2, p. 191).

current conditions. The Bureau was staffed by reformers sympathetic to labor's cause, and it had paid activists in the Trades and Labor Assembly to survey labor organizations (*Tribune*, March 22, p. 3). It did not explain how information was gathered from employers. Although only 432 firms responded, they employed 40,000 workers—about one sixth of the total (IBLS 1886, table 2, pp. 482-90). In other words, the 'sample' was drawn disproportionately from larger firms. The mean size was 92 employees (the median was 35). For all the city's establishments, the mean size was 10 (Chicago Department of Health 1885, p. 92).

The interaction of employers and workers can be reconstructed by combining three pieces of information: whether workers made a demand, whether they struck, and whether the employer granted a concession. The result is Figure 3, based on a subtree from Figure 1. Here only offensive strikes are relevant; it was workers who initiated change. One minor addition is that workers may also decide to strike immediately without allowing the employer a chance to concede (labeled "demand-by-strike").² At each node is the branching probability, the probability of each decision. The employer offered preemptive concessions in 18 firms ($18/432 = .04$).³ Of the remainder, workers made a demand in 235 firms ($235/414 = .57$), and struck immediately in 17 ($17/414 = .04$). And so on. On the right is the overall probability of each path. The single most likely outcome, of course, was for nothing to happen. Those firms untouched by agitation employed less than a third of workers in the survey. This was lower than the proportion in the city as a whole, because larger firms (as we will see below) were more prone to conflict.

A great deal of interaction would be missed by an exclusive focus on strikes. On one hand, some employers—albeit a small minority—offered preemptive concessions. On the other, workers usually gave their employers a chance to grant their demands before going out on strike. To be sure, the distinction between a demand and a strike was not always clear. The newly organized lumberyard workers, for example, presented a petition and took Saturday as a 'holiday' while awaiting a response (*Tribune*, May 1, p. 2). Of workers making demands, four-fifths claimed shorter hours. The great majority of them claimed 'eight for ten,' and only one-sixth offered to reduce their daily wage by an equivalent amount (IBLS 1886, table 3, p. 491). In response to workers' demands, almost a quarter of employers offered concessions, thus averting a strike. In the city as a whole,

² Another addition could be made: in responding to a demand, the employer may also move away. One firm in the survey removed to Michigan.

³ This excludes reductions in hours that came into effect *before* May, mentioned above; these concessions belong to an earlier round of interaction.

about 37,000 workers gained a shorter working day without a strike.⁴ (This was almost the same number as won it by striking.)

In the absence of concessions, workers usually struck to enforce their demands. The decision to strike was not always confined to the workers in each firm. When one group of workers struck, they would often move *en masse* to other establishments to encourage their fellows to join. When seventy freight-handlers walked out of the Chicago, Burlington, and Quincy Railroad's transfer house on April 30, they proceeded to four other depots; being "received with cheers," they were assured that the others would stop work (*Tribune*, May 1, p. 1). Persuasion easily crossed the line into intimidation. After freight-handlers on the Wabash, St. Louis, and Pacific Railway remained at work the following day, hundreds of strikers returned, pulled down the doors of the freight house, and forced their wayward fellows to fall into line (*Tribune*, May 2, p. 9). Eight employers in the Bureau's survey claimed that their employees had been intimidated into striking; four were in the lumber trade. Lumber-shovers and railroad freight-handlers most frequently resorted to force; both groups were unskilled, easily replaced, and only recently organized.

By decomposing a gross event—strike or no strike—into a sequence of decisions, we can analyze the decisions at each branching point. Table 1 shows that workers were less likely to make demands if the employer had reduced hours *before* May. The Illinois Bureau reported the number of workers employed in each firm; Table 1 also shows how the decisions of both sides varied with firm size.⁵ The results are strong and consistent: workers were more aggressive and employers more intransigent in larger firms. The correlation itself is not unexpected. Over the period 1881-1905, the average struck firm was eight times larger than the average firm in manufacturing (Friedman 1988, p. 229). This seems quite general, for in postwar Italy the probability of a strike increased with firm size, though tailing off in the very largest firms (Franzosi 1995, pp. 86-88). The correlation is invariably interpreted as a reflection of workers' militancy. Here we see that *both* sides—labor and capital—were responsible for the greater degree of conflict in larger firms.

The large number of strikes expressed workers' confidence in their power. Whether this confidence was justified remained unknown, of course, until one

⁴ This is estimated from *Bradstreet's* (May 8, p. 290; June 12, p. 394), replacing the exaggerated figure of 35,000 in the packinghouses by 12,000: a total of 20,000 minus 8,000 who struck.

⁵ Unfortunately the Illinois Bureau did not record additional information on each firm, besides industry.

side or the other capitulated.⁶ This interaction is depicted in Figure 4a. (The two longest strikes lasted seventy days.) Overall, the probability that the employer would capitulate was 3.0 percent per day, while for workers it was 4.6 percent. Figure 4b shows how the probabilities changed as conflict continued.⁷ In the first week, workers were no more likely to capitulate than were employers. In the second week the probability that workers would capitulate increased markedly.⁸ After two weeks, workers were far more likely to capitulate than were employers.⁹ This pattern is confirmed by the comprehensive data collected by the United States Commissioner of Labor (1887, table 1, pp. 140-71), presented in Figure 5.¹⁰ In the first week of May, workers' optimism seemed vindicated: strike settlements were heavily in their favor. After that, the number of victorious workers fell precipitously. By the end of the month, though some strikes were still unresolved, it was clear that the hopes of many workers had been disappointed.

4. The employers' counteroffensive from May onwards

About 70,000 workers in Chicago gained concessions in May, either with or without striking. Though the most optimistic expectations were not fulfilled, this figure is nonetheless impressive. The campaign would have been a qualified success if these concessions had indicated a new equilibrium. But they did not. Employers immediately launched a counteroffensive, attempting to recapture the ground so recently lost (or surrendered) to workers. We must therefore analyze not just one sequential interaction, but a *series* of two or more connected ones. This can be represented in another tree diagram. Figure 6 traces the possible consequences of an interaction that ended with the employer making concessions. The employer may accept the result, or revoke those concessions. If workers choose to defend their gains, a strike follows. The series continues until one side or the other finally accepts the outcome.

Like the workers' offensive before May, the employers' counteroffensive was concerted. Capital had begun to organize, throughout industrial America, at the

⁶ Any concession by the employer is treated as a capitulation. Firm size has no effect on the probability of capitulation.

⁷ The probability is calculated by dividing the number of workers' or employers' capitulations by the total number of strike days. The large number of strikes ending on the sixth, twelfth, and eighteenth day implies a week of six days (excluding Sunday).

⁸ The difference is significantly different from zero: $p = .009$ ($n = 758 + 547$).

⁹ The difference is significantly different from zero: $p = .003$ ($n = 529 + 529$).

¹⁰ Two corrections are made: the strike of lumber-shovers (#964) began on May 1, not May 10; a lockout of packinghouse employees (#57) on May 24 is not mentioned in any newspapers, and so it is excluded.

end of April. Organizations in Chicago were generally local in scope, though the Western Boot and Shoe Manufacturers' Association extended to Wisconsin and Indiana. Like unions, employers' organizations applied collective pressure to prevent their members from capitulating. In their conflict with the freight-handlers, the general managers of all the railroads met daily "to stiffen the backbones of the few roads that are inclined to yield" (*Tribune*, May 5, p. 2). The first indication that organized capital would shift to the offensive came from the Metal Manufacturers' Association. Of the employees it covered, at least half had been granted eight hours. On May 4, however, it announced that its members would close by the end of that week, and reopen only on the old basis (*Tribune*, May 5, p. 3). In the following weeks, an increasing number of employers followed this example, revoking concessions which they had recently offered.

Those concessions had not represented an acceptance of shorter hours. The Illinois Bureau queried employers for their detailed views on the eight-hour question (IBLS 1886, pp. 492-7). One supported it as a means of curbing overproduction, while another found that his employees produced as much in eight hours as they had in ten. But they were exceptional; only three out of twenty-three responses were favorable. Resistance to shorter hours and higher hourly wages was reinforced by competition from other industrial centers. Because workers had made substantial gains in only a few cities besides Chicago, local employers were very reluctant to make concessions permanent. The Western Boot and Shoe Manufacturers' Association, for example, tried 'eight for eight' for a fortnight, while waiting to see what happened in the East. It then reverted to the old system (*Tribune*, May 11, p. 2).

Faced with the employers' counteroffensive, most workers surrendered without striking to defend their gains. Within a matter of weeks, they dramatically lowered their estimation of their relative bargaining power—they lost hope. There were two main exceptions: building tradesmen and packinghouse employees. Associations of master steam-fitters, painters, and carpenters had all introduced the eight-hour day, as agreed before May. They reneged by the end of the month. In each trade, workers resisted: they struck or were locked out (*Knights of Labor*, June 5, p. 5; 12th, p. 6; 19th, p. 2; Schneirov 1998, pp. 202-3). In the packinghouses, workers struck twice to defend their gains, as will be discussed below. Because the employers' counterattack met with little resistance, the reversal is almost invisible in the strike record. It is misleading to assess the (enduring) success of the eight-hour campaign by the results of strikes (e.g. David 1936, pp. 539-40; Ross 1986, p. 186).

The Illinois Bureau asked employers in its survey about the length of their ‘trial’ with shorter hours, and their employment conditions in November. We can thus reconstruct the outcome of subsequent interactions in firms where workers had gained concessions—whether the result of a strike or not. As Figure 7a shows, almost a third of employers revoked concessions before a month had passed.¹¹ By the date of the survey, that fraction had risen to nearly half the employers, though the remaining concessions were probably secure. Considering the number of workers (rather than employers), only a third retained their gains. Prominent among them were building tradesmen. Outside Chicago, workers in other cities fared worse, except for Cincinnati and St. Louis. By the year’s end, *Bradstreet’s* estimated that only 15,000 workers in the United States were still working shorter hours for the old daily wage (Jan. 8, 1887, p. 21).

Using the Illinois Bureau’s survey, we can examine how the employer’s decision to revoke concessions depended on the origin of those concessions. Figure 7b depicts a complex relationship.¹² For employers who had offered concessions without any strike, the probability of revoking concessions was .43. For employers who had been forced to concede by a strike, the probability varied according to the length of the strike. Employers who had capitulated after a few days were most likely to revoke their concessions. Only when workers had won concessions after a strike of at least two weeks was the employer more likely to retain those concessions than to revoke them. This relationship is readily interpreted: a lengthy strike was a real trial of strength between labor and capital, and if workers eventually prevailed their victory was likely to be permanent. By contrast, employers who capitulated quickly did not intend their concessions to be permanent.

What explains the sudden reversal? Why did employers shift from concession to aggression in the course of a month? It was certainly not due to any change in objective economic conditions. Unemployment continued to fall. The firms surveyed by the Illinois Bureau increased their workforce by 5 percent from May to November. This should have strengthened workers’ relative power.

It is tempting to attribute reversal to repression by the state, following the Haymarket bomb in Chicago (described by Avrigh 1984, chs 14-15). On May 4,

¹¹ The graph depicts 139 out of 159 firms where workers had gained concessions. In 3 firms concessions were revoked, but how long they lasted is unknown; in 17 firms the fate of concessions is unknown.

¹² This is estimated from logistic regression: the dependent variable is 1 if concessions were revoked, and 0 otherwise. The independent variables are strike duration ($p = .03$) and a dummy variable for strike duration of zero, i.e. for concessions granted without a strike ($p = .006$); $n = 141$. A strike of 52 days is excluded as an outlier. Firm size has no effect.

anarchists held a meeting to protest the killing of two workers by police outside McCormick's. As the meeting dispersed, the police attacked, someone threw a bomb, and the policemen in panic opened fire on each other and the crowd. Seven policemen and at least four demonstrators died; about a hundred people were injured. Hitherto restrained by the city's mayor, the police now arrested anarchists *en masse* and suppressed their newspapers. This affected trade unions affiliated with the Central Labor Union. Moreover, the suppression of public gatherings made picketing impossible. That prevented workers like the freight handlers from disrupting employers' attempts to operate with replacements. Contemporaries seized upon Haymarket to explain the fate of the campaign for eight hours. According to the Illinois Bureau, it "materially reduced the degree of success which seemed possible on the first of May" (1886, p. 480). Because the 'red scare' was national in scope, the bomb has been used to explain the campaign's failure elsewhere as well (Fink 1988, p. 132; Voss 1993, pp. 78-9, 239). Nevertheless, the effect of state repression should not be overstated (David 1936, pp. 536-40; Schneirov 1998, p. 202). Many groups of workers, like those in the packing houses, were not affected. Unskilled workers were always vulnerable to replacement. Although workers in Chicago were more likely to capitulate after the first week (as depicted in Figure 7b), that need not be due to the Haymarket bomb. The same temporal pattern holds generally for strikes in America in the 1880s (Card and Olson 1995, table 3, p. 43).¹³

5. Series of attack and counterattack in the mid 1880s

Reversal was not peculiar to the eight-hour campaign. It was quite common for employers to offer concessions and then to revoke them. In the historical record, such reversal is most apparent if workers won the initial concession by striking and then struck again to defend their gains—indicated by a series of two or more strikes, involving the same workers and employer(s), within a matter of months. These series violate the assumption of statistical analyses of strikes, that each one is an isolated event. In fact, subsequent sequences are explicable only with reference to the struggle commenced by the initial strike. The recurrence of strikes in the same workplace helped shape the 'strike wave' that crested in 1886. The wave's volume was amplified by workers striking two (or more) times. Its duration was lengthened by series extending over one calendar year—beginning before 1886, or continuing afterwards. This was further pronounced because

¹³ Fortunately for my purpose, these data omit many strikes in Chicago in May 1886 because Card and Olson (1995, p. 36) believe, for unspecified reasons, that these were affected by "clerical errors."

series were staggered rather than synchronized. Strikes in series accounted for a small fraction of the total, but their significance exceeded their frequency. As they involved the most intransigent employers and the most determined workers, they represented the extremes of class conflict.

Figure 8 compares five series of strikes in the mid 1880s.¹⁴ (This provides the same information as the tree diagram in Figure 6, but it is less unwieldy.) Chicago's packinghouse workers—organized by the Knights of Labor—won 'eight for ten' at the beginning of May. By the month's end, it was clear that the packers would revoke those concessions, though an uneasy truce continued over the summer. When the pork packers imposed ten hours in October, about 13,000 workers struck to defend their gains. The strike ended in some confusion when leading Knights called it off. The workers, however, were not cowed. In November, 20,000 struck again.¹⁵ Powderly, General Master Workman of the Knights of Labor, ordered his members back to work, ensuring a humiliating defeat (General Assembly 1887, pp. 1477-1503; Wade 1987, chs. 13-14). Switchmen on the Lake Shore and Michigan Southern Railway were not involved in the eight-hour campaign. They struck in April to force the dismissal of a few 'scabs' remaining from a strike in 1881. Although the conflict stemmed ultimately from this earlier strike, switchmen had 'accepted' these scabs for years; in the spring of 1886 it was they who attempted to change the status quo. The company covertly agreed to transfer the men within sixty days (*Tribune*, April 24, p. 1). Predictably, it reneged. With the support of other railroads, it defeated the switchmen when they struck again (McMurry 1953, pp. 164-5).

The timing of these two series was similar; the attack came before mid May and the counterattack came afterwards. The timing of the other three series was quite different. They began earlier, while the economy was still in recession, when workers struck to defend existing conditions. What followed, however, was exactly the same: employers counterattacked, and workers struck again. One series occurred at McCormick's. It involved the molders in the foundry along with employees in the reaper works—organized by the Knights of Labor and the Metallarbeiter Union. Outside Chicago, two series occurred on Western railroads: on the Union Pacific Railway and on Jay Gould's railroad empire, comprising the Wabash, St. Louis, and Pacific Railway and the Southwestern system. Both

¹⁴ Many other examples could be cited, including leatherworkers in Newark, New Jersey (Voss 1993, pp. 209-22), and drivers and conductors on the Toronto Street Railway (Kealey and Palmer 1987, pp. 116-26).

¹⁵ The figures collected by the United States Commissioner of Labor (shown in Figure 2) apparently underestimated the number involved (*Tribune*, Nov. 13, p. 1).

predominantly involved ‘shopmen’ in the workshops—organized by the Knights of Labor (Buchanan 1903).

By comparing these series, we can explain reversal as a consequence of the asymmetry between labor and capital. Making a concession would not erode an employer’s capacity to act in the future. Therefore it was possible, even desirable, to gain time by granting a temporary concession. A delay could be used to accumulate inventory or to introduce machines. This was how Cyrus McCormick, Jr. responded after capitulating in April 1885. Even before the strike had ended, the company was inquiring about pneumatic molding machines. These were installed in August, at a cost of \$75,000. They replaced one task of the molders, who were the most skilled and best organized of McCormick’s employees (Ozanne 1967, pp. 20-1; Toharia 1979, pp. 144-6). In addition, a delay could be used to prepare concerted action with other employers, or to arrange for the hiring of strikebreakers and private detectives. This was what Chicago’s packers did over the summer. When workers struck, 152 Pinkerton guards were immediately deputized as policemen (*Tribune*, Oct. 9, p. 8). “We had figured ahead a little,” boasted the head of the largest firm (*Tribune*, Oct. 12, p. 5). Alternatively, when workers were roused for confrontation or were already on strike, a delay could be used to let their militancy subside. This did not succeed in these cases, of course. Presumably it helps explain why other employers could revoke concessions without provoking a defensive strike.

Labor, by contrast, had far less scope for temporary retreat. When the employer imposed negative change, workers would either strike immediately or not at all. In the packinghouses, both strikes in the fall began with a spontaneous walkout. Even if local or national leaders had tried to delay the conflict, they surely would have found it very difficult. Only workers with exceptional discipline—McCormick’s molders—could exercise such restraint. They accepted a wage reduction at the end of 1884, waiting until production reached its seasonal peak; then, in the following March, they struck to restore wages (Ozanne 1967, p. 13). When the employer counterattacked by victimizing prominent agitators, workers had even less scope for delay. Failing to strike for their reinstatement would seriously erode the potential for collective action in the future. When Gould’s Southwestern system dismissed a Master Workman for attending a meeting of the Knights of Labor, that led eventually to a strike of eleven thousand workers, which halted freight traffic for weeks (Allen 1942, p. 50). Such a disproportionate response was hard to justify in the court of ‘public opinion,’ but the alternative was to accept gradual destruction.

These series illustrate the intransigence of employers. Gould, for example, capitulated twice—in March and then again (on the Wabash) in September 1885—before he triumphed in the spring of 1886. Even when workers too refused to accept an initial defeat, employers like McCormick and Chicago’s packers were prepared to continue the struggle until they eventually triumphed. Including the Lake Shore switchmen, in all four cases the final equilibrium was complete defeat for workers. These employers succeeded in destroying workers’ capacity for collective action. Strikers were forced to renounce affiliation with organized labor (symbolized by the ‘ironclad’ agreement) as a condition of reemployment. Agitators were victimized and blacklisted. The Lake Shore Railway simply replaced all the strikers.

The Union Pacific Railway was an exception. Following a successful strike, the company counterattacked by victimizing leading Knights. When workers also won the subsequent strike, however, it accepted this verdict; a new equilibrium was established. Although the company did not officially recognize the Knights of Labor, it tolerated the organization for several years (Stromquist 1987, pp. 66-9). Workers were fortunate that Gould had lost control of the company in June 1884 (Grodinsky 1957, pp. 422-3). Although the new President, Charles Francis Adams, Jr., had been hysterically anti-union during the railroad strikes of 1877, he apparently changed his views. He even wrote a paper in the summer of 1886 which advocated giving employees a voice in management (Klein 1987, pp. 493-5). Such sentiments were rare among American capitalists; the company’s officers rejected his plan.

Conclusion

What happened in 1886 is now explicable. Workers’ expectations of relative power rose sharply in the spring. Those expectations were not tested until May. In many cases, employers seemed to concur, by offering concessions or by capitulating in the early days of May. But they did not necessarily intend this to be a new equilibrium. After the first week of May, the balance of power shifted. The intransigence of the remaining employers became clear as more and more strikes ended with the capitulation of workers. At the same time, those employers who had conceded began to revoke their concessions. Now aware of the extent of resistance, most workers drastically revised their expectations; they surrendered. The more determined workers struck to defend their gains. Some succeeded, but most were finally defeated. Throughout this analysis, the tree diagram proved its utility. It allowed us to *decompose* strikes into sequences of interaction, and to *uncover* sequences that did not lead to a strike. Conversely, the sudden reversal in

May prompted an extension to the model. Sequences could be iterated, as the employer counterattacked to recover what had been ceded weeks or months before. It was therefore necessary to *connect* strikes into series involving the same workers and employer(s).

We can draw out two important implications for the statistical analysis of strikes. Firstly, strikes did not establish a new equilibrium. In this instance, 26 out of 43 ‘victorious’ strikes (60 percent) were reversed within a matter of months. This figure is so high because the May strikes swept up workers with minimal power in the labor market. Nevertheless, it is unwarranted to interpret the immediate outcome of strikes as more than a temporary lull in the struggle between labor and capital. The ‘outcomes’ recorded by statistical agencies, like the United States Commissioner of Labor, are momentary snapshots of a continuing process. Secondly, because employers often revoked prior concessions, workers sometimes struck again to defend their gains. Those strikes stemmed from previous interactions; they were endogenous rather than exogenous. To be sure, such strikes accounted for a small fraction of the total number. Nevertheless, frequency should not be confused with significance. Subsequent defensive strikes on Gould’s Southwestern system and in Chicago’s packinghouses were two of the largest strikes in 1886. Crushing defeat in both cases demonstrated the power of capital to workers throughout America.

This leads to an important implication for labor history. Conflict between capital and labor is ultimately about power: the power to inflict costs. This was recognized at the time, at least by some activists in the labor movement. It is sometimes overlooked by historians who celebrate the Knights of Labor as a manifestation of class consciousness. Those two crushing defeats revealed that the paramount leaders of the Knights of Labor were unable—and unwilling—to lead strikes. Workers had little reason to belong to an organization which could not help them win improved conditions of employment.

The dynamics of mobilization and countermobilization require further investigation. We know that countermobilization is common, for all kinds of collective protest. Doug McAdam demonstrates how actions by the Civil Rights movement prompted reactions from organized white supremacists in the late 1950s (McAdam 1982, pp. 142-5). And we know that countermobilization is often effective. Larry Griffin, Michael Wallace, and Beth Rubin (1986) show how employers’ organization had a negative effect on union growth before the New Deal. Yet we need greater understanding of the decisions that lead to counterattack. The reversal of employers’ actions in America in 1885-6 was not unique. During the British strike wave of 1889-90, for instance, the South

Metropolitan Gas Company acted in exactly the same way: it offered concessions to workers and then revoked them (Clegg, Fox, and Thompson 1964, pp. 67-8). On the other hand, this does not seem to characterize all strike waves. American workers in the mid 1930s or Italian workers in the late 1960s were able to preserve their organization and maintain substantial gains (Piven and Cloward 1978, ch. 3; Franzosi 1995, chs. 7-8). Such differences will repay future investigation.

The method of analyzing strikes as sequences of interaction has its own limitations. It focuses on the vertical interaction between workers and employer(s), and not on the horizontal interactions among workers (and among employers if more than one is involved) which constitute collective action. Moreover, it does not capture interdependence among sequences. In reality, as we have seen, workers and their employers use the result of other conflicts to adjust their own expectations. These limitations are shared by statistical analysis of aggregate time series or disaggregated data. Sequences of interaction nevertheless have the advantage of being intelligible, rather like a historical narrative. Instead of external variables causing events to ‘happen,’ actors make decisions in response to previous actions, and those decisions affect subsequent possibilities. These component decisions can be analyzed statistically. In addition, whole series of sequences can be compared to reveal similarities—similarities invisible in detailed narratives of singular events. A sequence of interaction is an abstraction; it does not represent the full context of particular decisions made by idiosyncratic individuals. But it captures what is essential: how social conflict unfolds over time.

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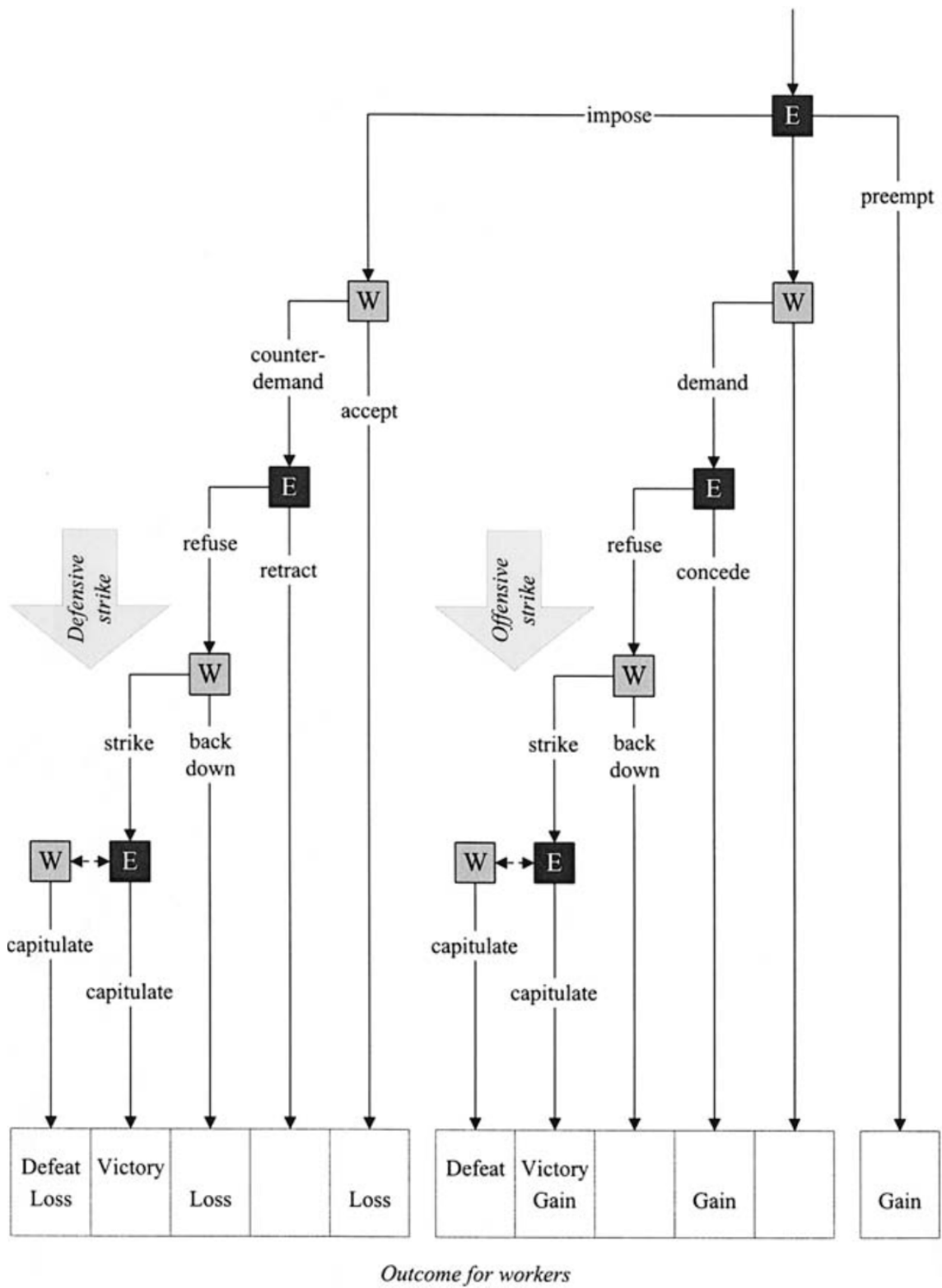


Figure 1 Sequences of interaction between employer and workers

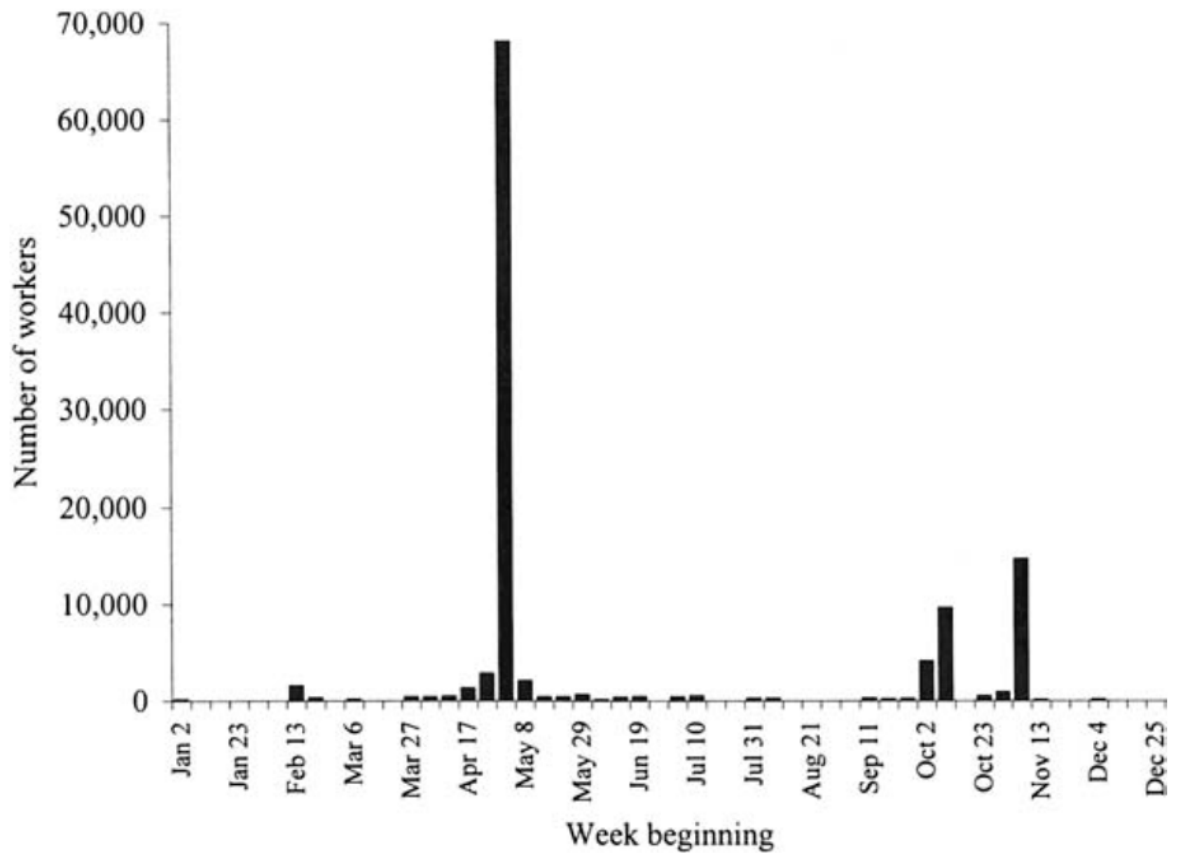


Figure 2 Strikes and lockouts initiated in Cook County, 1886

Source: See text.

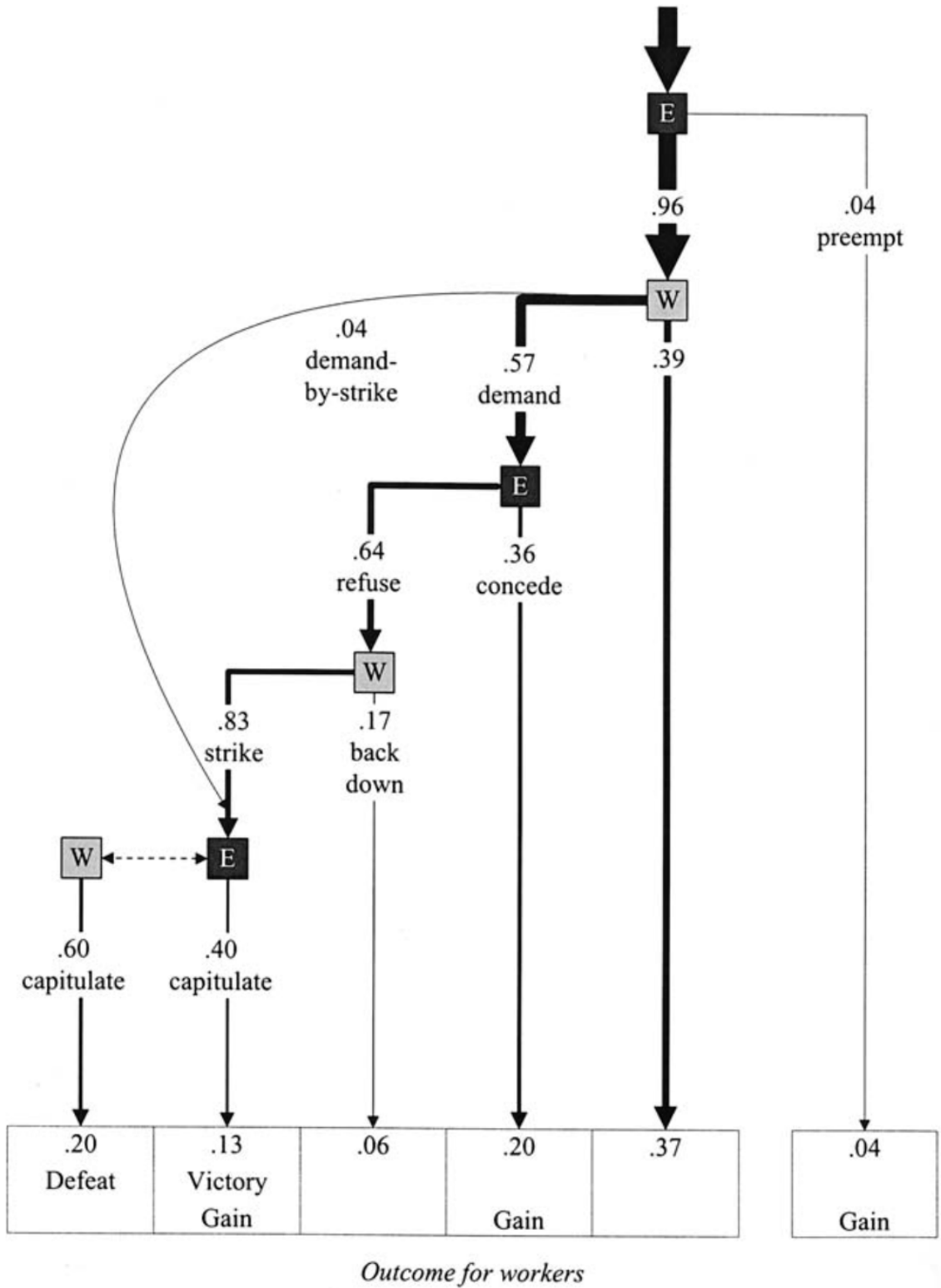


Figure 3 Sequences of interaction in 432 Chicago firms, May 1886

Source: See text.

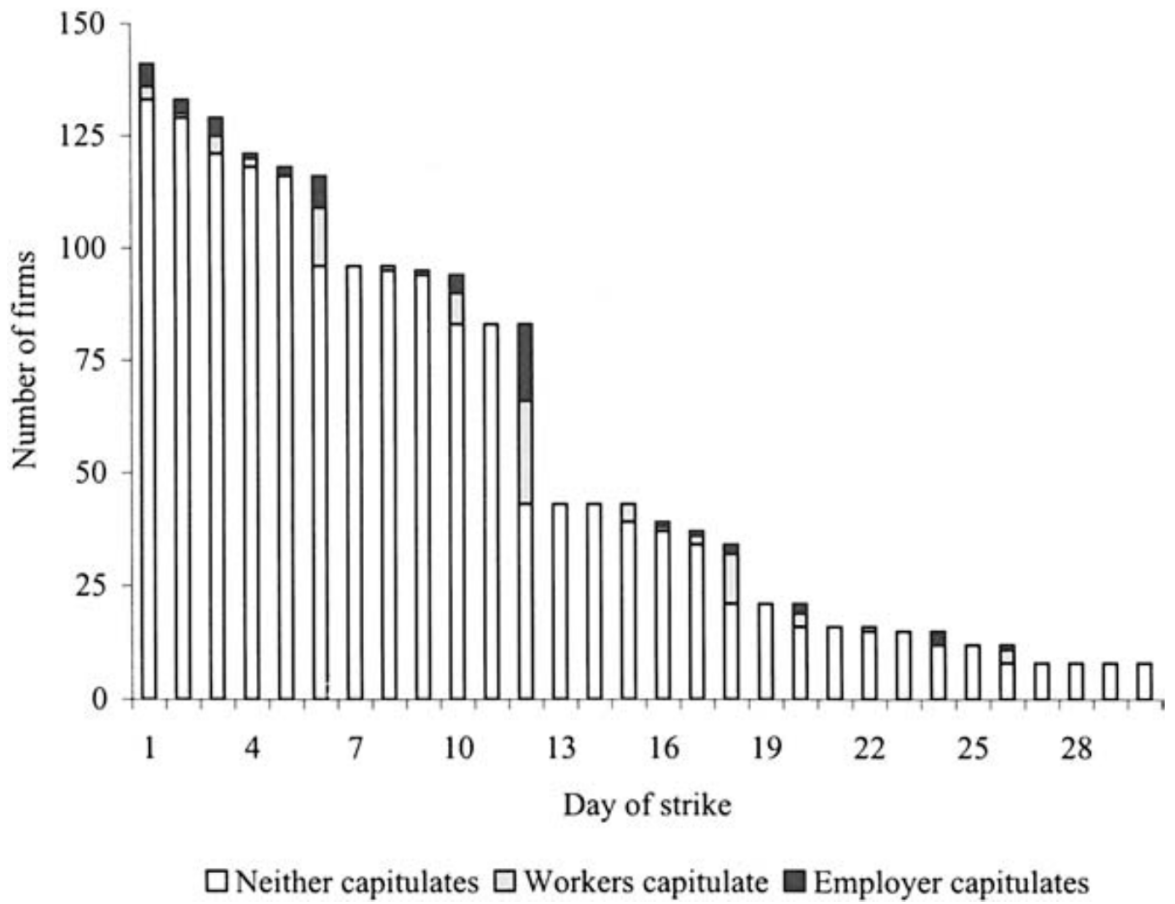


Figure 4a Fate of strikes begun in May 1886

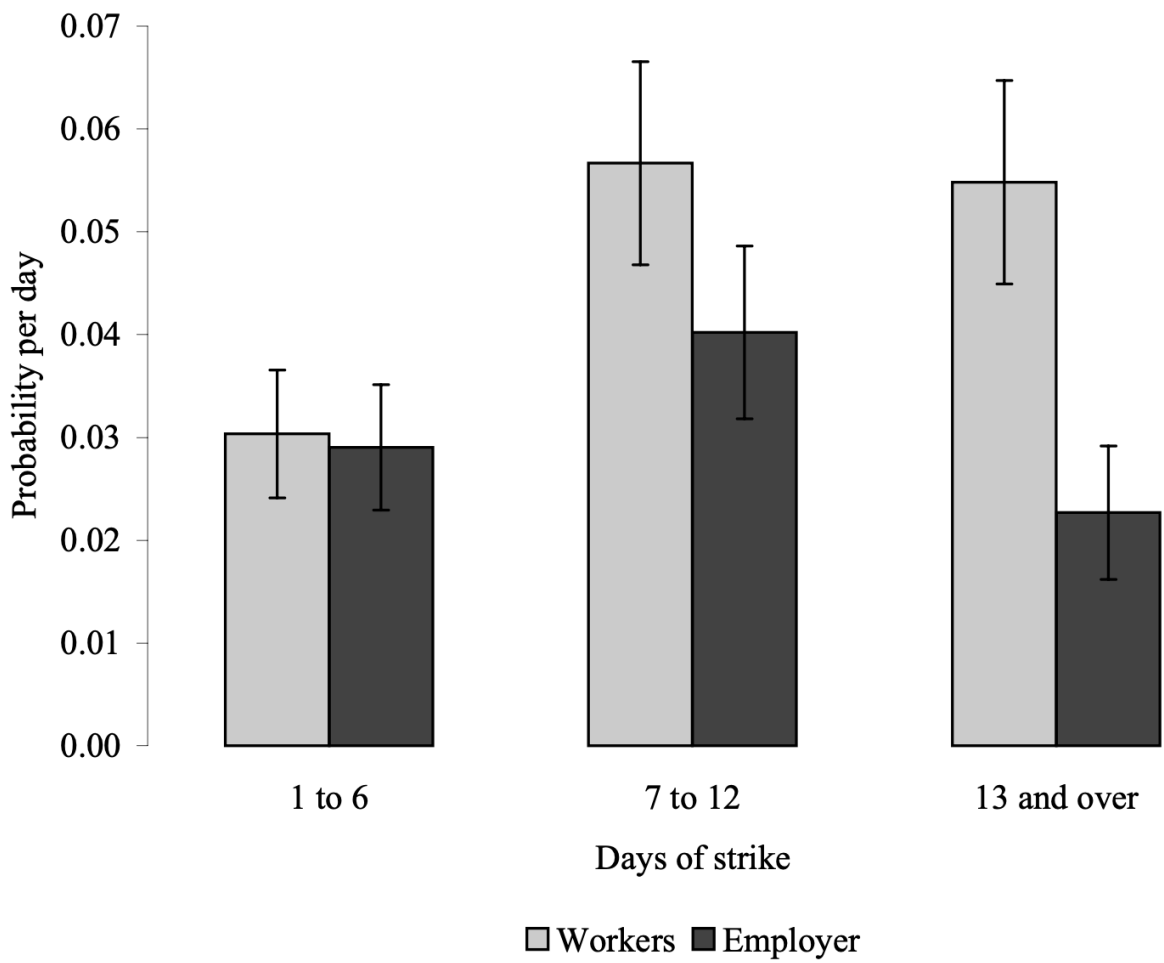


Figure 4b Probability of capitulation over time

Source: See text.

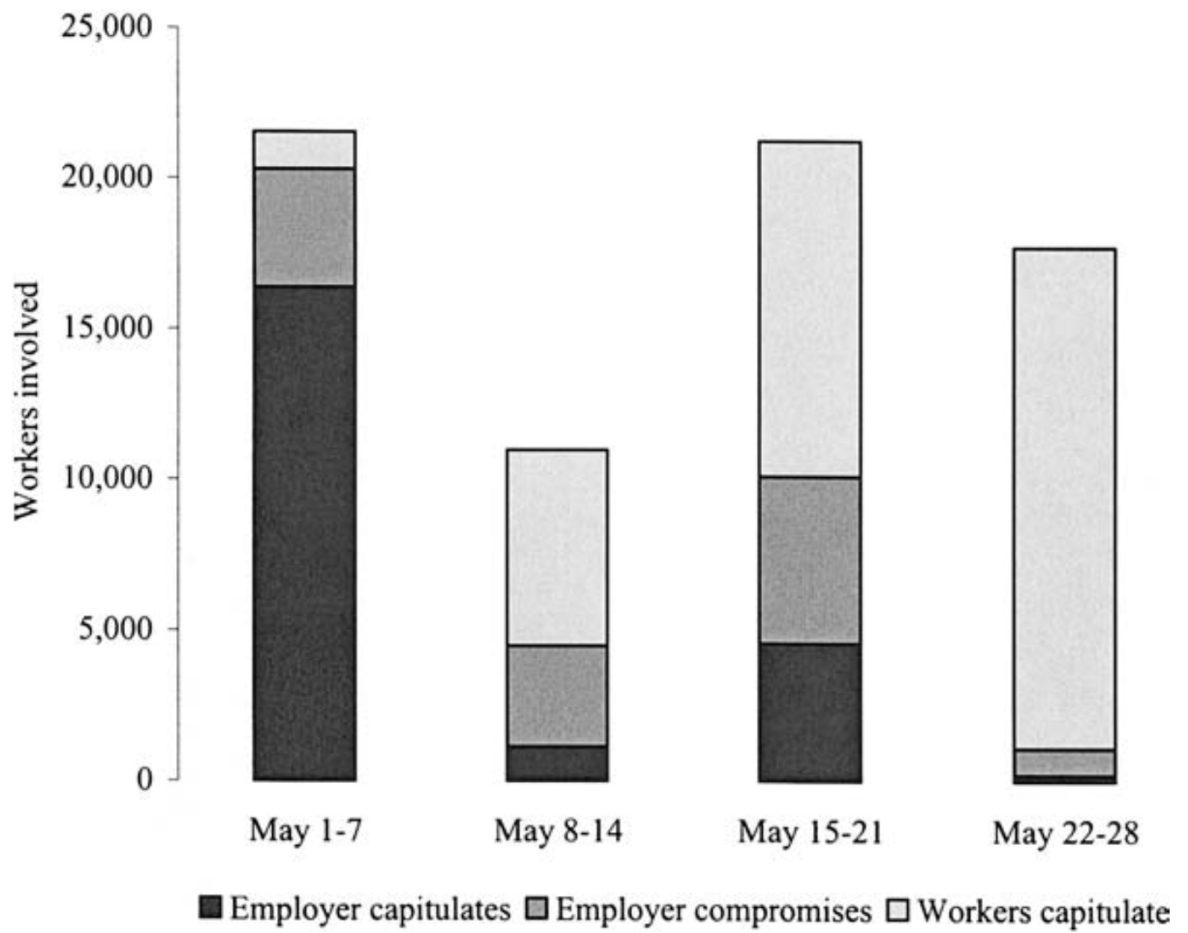


Figure 5 Strikes and lockouts in Cook County that ended during May 1886

Source: See text.

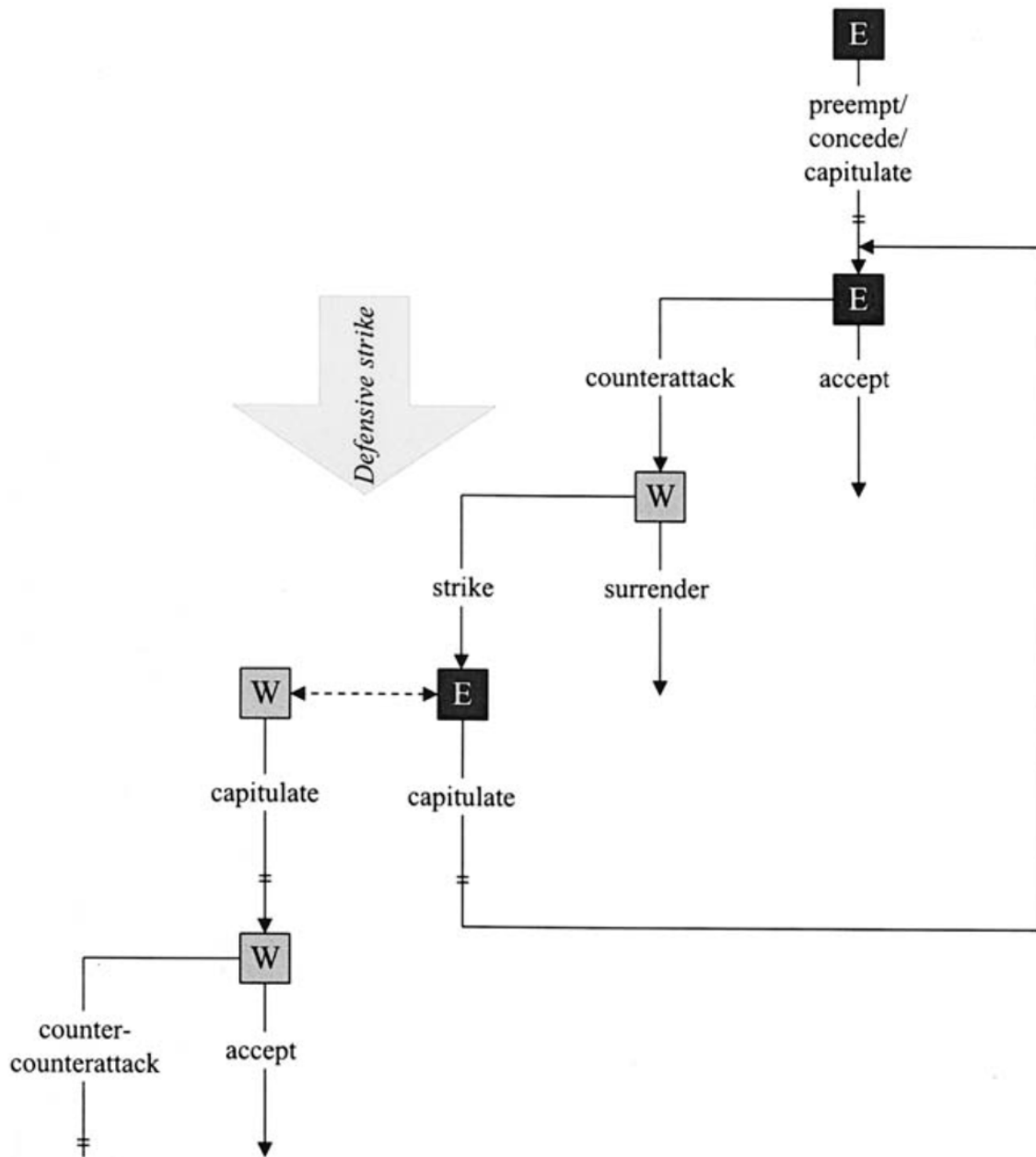


Figure 6 Series of sequences of interaction between employer and workers

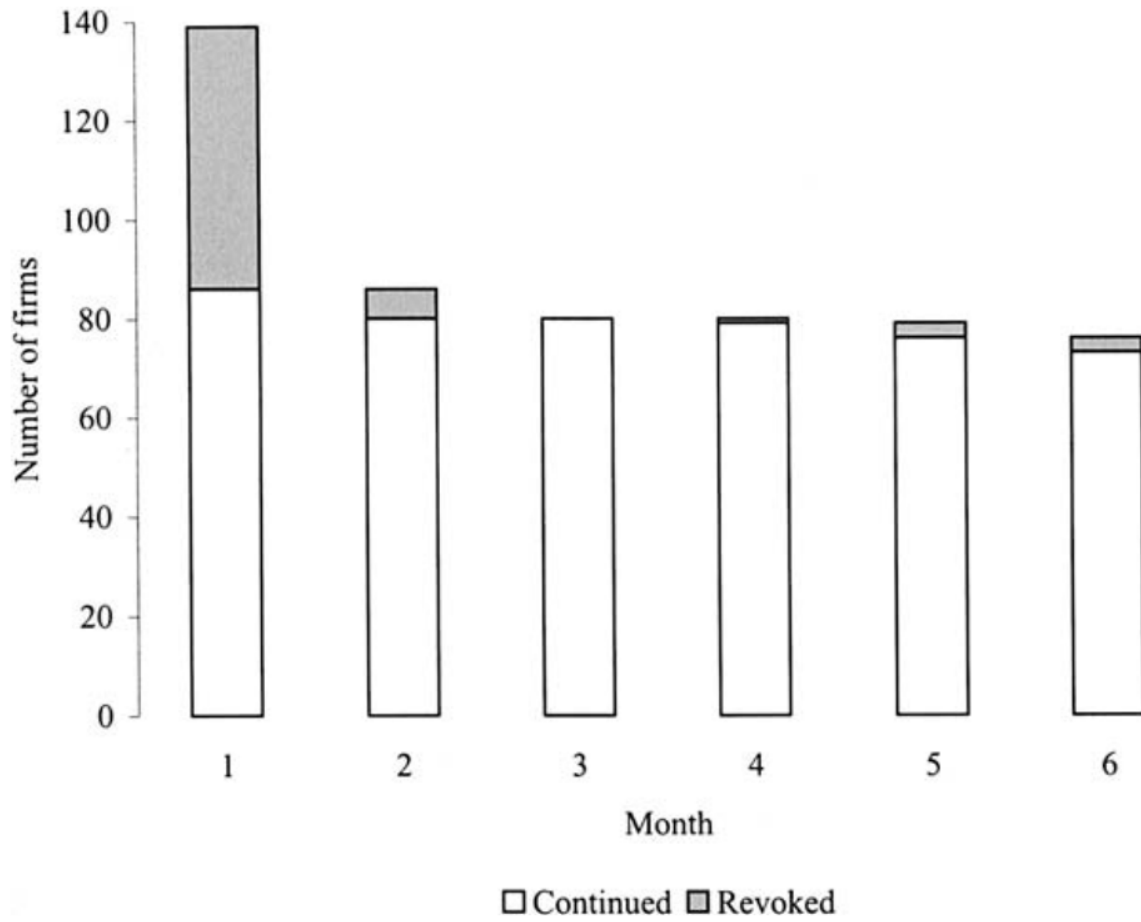


Figure 7a Fate of concessions granted during May 1886

Source: See text.

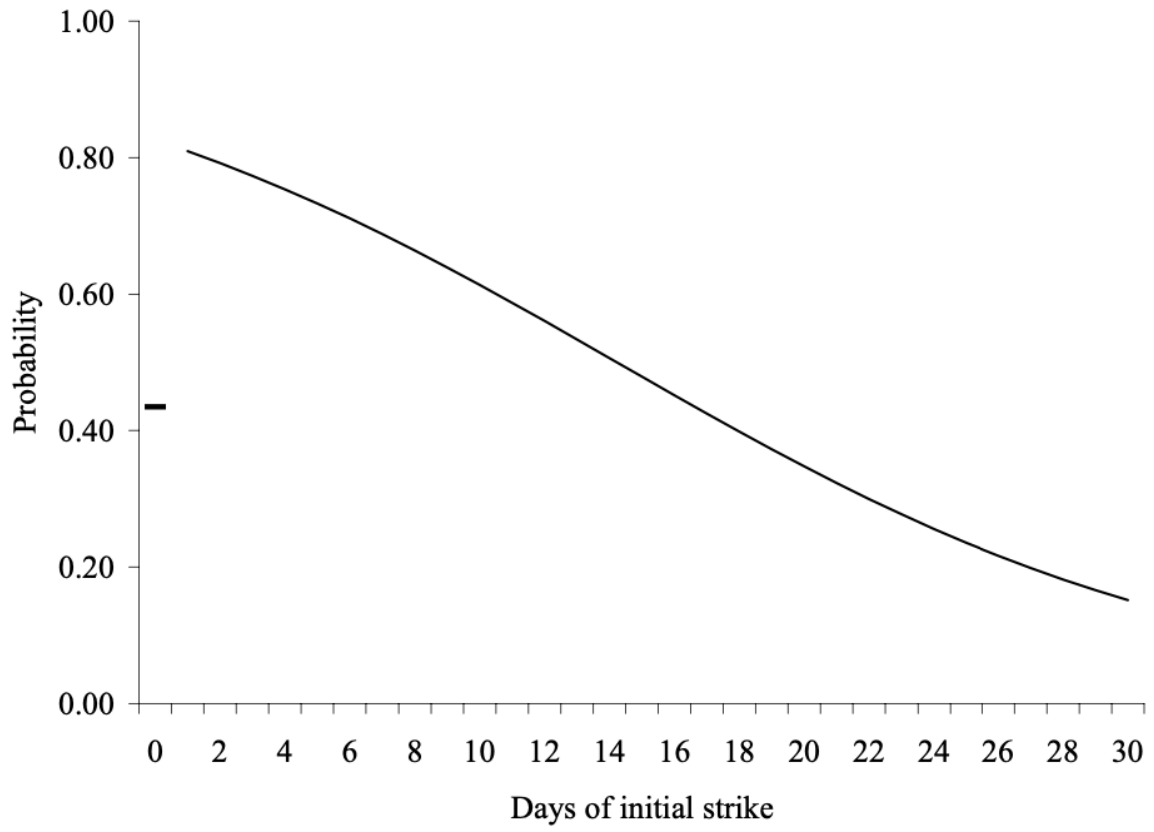


Figure 7b Probability of revoking concessions

Source: See text.

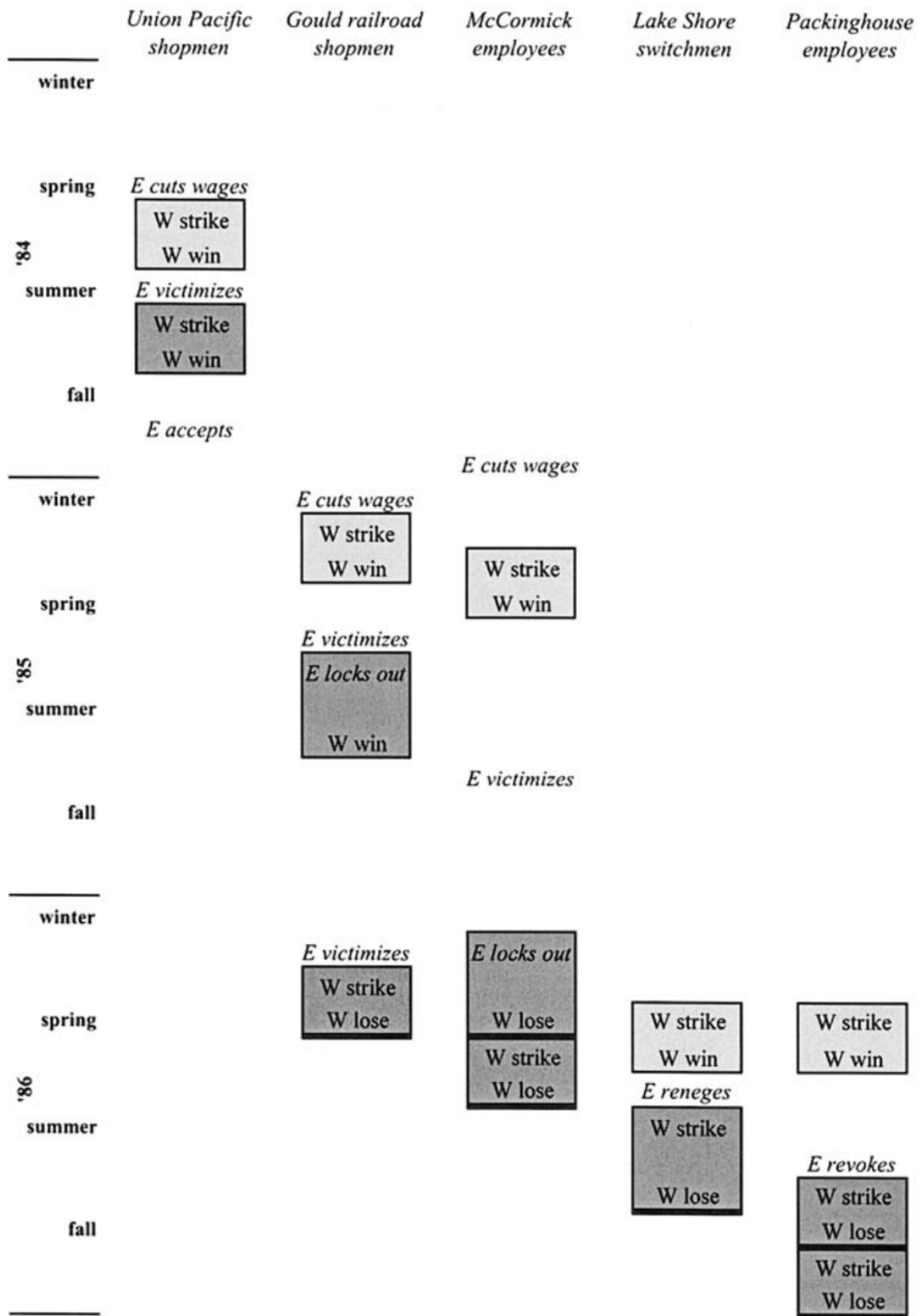


Figure 8 Series of strikes on western railroads and in Chicago, 1884–86

Source: See text.

Table 1 Firm size and the decisions of employer and workers in 432 firms in Chicago, May 1886

1. Probability that employer offers a preemptive concession ($n = 432$)

Firm size	Probability
(All)	.04
10	.07
100	.02
1000	.01

2. If employer fails to offer a preemptive concession, probability that workers make a demand or demand-by-strike ($n = 414$)

(All)	Employer offered concession before May?	
	No	Yes
(All)	.61	
10	.54	.32
100	.71	.49
1000	.83	.66

3. If workers make a demand, probability that employer offers a concession ($n = 235$)

(All)	.36
10	.55
100	.25
1000	.08

4. If employer refuses to offer a concession, probability that workers strike ($n = 149$)

(All)	.83
10	.69
100	.88
1000	.96

Note: Probabilities are derived from logistic regression; the coefficients for (logged) firm size and (in equation 2) pre-May concession are all significantly different from zero at the .05 level.