Extending the Model

The Illinois coaching staff had a bit more difficult problem to evaluate in their 1999 matchup with Michigan (see sidebar). To some, going for two with a 34-27 lead may seem silly since failing at the two point conversion would open up a new path for Michigan to win. They could now beat you with a touchdown and two point conversion in regulation. But this is highly unlikely. If Michigan were to come back with a touchdown, they would find themselves in the same situation we just examined, trailing by one point. And the data shows that nearly every time a team finds itself in that position, they just kick the extra point. Losing in regulation is still unlikely. It is also no better or worse than losing in overtime, so what matters more is figuring out the highest probability way to avoid overtime.

For illustration, suppose that each team has a 50% chance of winning in overtime and a 100% chance of a successful extra point. If Michigan plays "the chart," Illinois will win in one of two ways if they attempt a two point conversion but give up a subsequent touchdown. First, they will convert successfully for a 36-27 lead, an insurmountable margin. Or second, they will fail to convert but prevail in overtime. If they go for one, they will lose if they lose in overtime. Their optimal strategy, then, is to go for two if their odds of converting exceed 50%. If they think Michigan will play their optimal strategy, rather than the chart, then the calculation is a little bit different. Going for two means they can win if they convert their own two point conversion for a 36-27 lead or stop Michigan's two point conversion for a 35-33 victory. Given a 50-50 shot of winning in overtime, this means that Illinois should go for two if they have a higher probability of converting a two point attempt than Michigan.

There were 10 instances in the NFL and 26 in NCAA I-A games during the observation period where a team scored to stretch a one point lead to seven with less than three minutes remaining. The scoring team successfully kicked an extra point in all 10 NFL games and 24 of 25 NCAA games. The lone two point attempt failed. It turns out that there were only two instances from among these 36 games where the recommended strategy was to attempt a two point conversion. Both of those involved the 2006 San Diego Chargers who, as noted above, had the highest predicted probability of success for two point attempts. It should surprise few NFL fans to find that a Marty Schottenheimer-coached team was too conservative.

Only one team that scored a touchdown to take a late 7-point lead went on to lose the game. With just over two minutes remaining, the 2003 Kansas Jayhawks kicked an extra point for a 32-24 lead over the Baylor Bears. This was the optimal strategy. Baylor responded with a touchdown with 78 seconds remaining, then forced a punt and kicked a last second field goal to snap their 29-game losing streak in dramatic fashion. There were two instances of a subsequent touchdown in the NFL. The 1997 Buffalo Bills stopped the Indianapolis Colts' two point attempt and won in regulation. The 1999 Jacksonville Jaguars stopped the Carolina Panthers' two point attempt and won in regulation. In NCAA I-A games, the 2002 California Bears turned back the Air Force Falcons' two point attempt and won in regulation and the 2006 New Mexico Lobos allowed a tying two point conversion to the UNLV Runnin' Rebels but went on to win 39-36 by kicking a field goal in the first overtime. The other 31 games ended without a score by the trailing team.

Date	Scoring Team	Score	Opposing Team	Score	Recommended Strategy
9/3/1995	Carolina Panthers	19	Atlanta Falcons	20	2
11/19/1995	Jacksonville Jaguars	16	Tampa Bay Buccaneers	17	1
8/31/1997	Oakland Raiders	20	Tennessee Oilers	21	2
10/12/1997	Chicago Bears	23	Green Bay Packers	24	1
10/19/1997	Detroit Lions	19	New York Giants	20	2
9/13/1998	Detroit Lions	27	Cincinnati Bengals	28	2
12/15/2002	Atlanta Falcons	23	Seattle Seahawks	24	2
9/14/2003	San Francisco 49ers	23	St. Louis Rams	24	2
12/19/2004	Detroit Lions	27	Minnesota Vikings	28	1
1/8/2005	San Diego Chargers	16	New York Jets	17	2
10/16/2005	New York Giants	12	Dallas Cowboys	13	2
10/18/1997	Boston College Eagles	30	Miami (FL) Hurricanes	31	2
10/24/1998	Oregon State Beavers	34	Washington Huskies	35	1
10/6/2001	Oklahoma St. Cowboys	27	Missouri Tigers	28	2
10/19/2002	New Mexico Lobos	30	Utah State Aggies	31	2
11/9/2002	Missouri Tigers	34	Colorado Buffaloes	35	2
11/16/2002	Texas A&M Aggies	23	Missouri Tigers	24	2
9/6/2003	Washington State Cougars	25	Notre Dame Fighting Irish	26	2
9/13/2003	North Carolina State Wolfpack	23	Ohio State Buckeyes	24	2
11/8/2003	East Carolina Pirates	27	South Florida Bulls	28	2
9/2/2004	Northwestern Wildcats	44	TCU Horned Frogs	45	2
9/11/2004	Southern Illinois Salukis	22	Northern Illinois Huskies	23	1
9/10/2005	Northern Illinois Huskies	37	Northwestern Wildcats	38	1
10/22/2005	Eastern Michigan Eagles	23	Miami (OH) RedHawks	24	2
11/5/2005	Vanderbilt Commodores	34	Florida Gators	35	2
9/9/2006	Air Force Falcons	30	Tennessee Volunteers	31	1
9/9/2006	UTEP Miners	34	Texas Tech Red Raiders	35	2
9/23/2006	Eastern Michigan Eagles	16	C. Michigan Chippewas	17	2

Table 5. Teams who lost after following a suboptimal strategy.

Source: © STATS LLC 2007. Used with permission.