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Another difficulty is multiple equilibria. The dominant strategy equilibrium of any game is unique if it exists. Each player has at most one strategy whose payoff in any strategy combination is strictly higher than the payoff from any other strategy, so only one strategy combination can be formed out of dominant strategies. A strong iterated dominance equilibrium is unique if it exists. A weak iterated dominance equilibrium may not be, because the order in which strategies are deleted can matter to the final solution. Nor does it help uniqeness to eliminate weakly dominated strategies simultaneously at each round.

Table 1.4's Iteration Path Game illustrates this. The strategy combinations (r_1, c_1) and (r_1, c_3) are both iterated dominance equilibria because each can be generated by iterated deletion. One order the deletion can proceed in is (r_2, c_2, c_1, r_3), leaving (r_1, c_3). First r_2 is deleted, since it is dominated by r_1, then c_2, since it is dominated by c_3. This leaves the 2-by-2 game of table 1.5. In that game, c_1 is dominated by c_3, and so would next be deleted. Finally, r_3 is deleted because it is dominated by r_1, and we are left with (r_1, c_3). If, however, deletion proceeds in the order (r_3, c_3, c_2, r_2) it leaves (r_1, c_1) as the game shrinks to its northwest corner. And if dominated strategies are deleted simultaneously at each iteration, r_3, r_2, and c_2 would be deleted in the first round, leaving (r_1, c_1) and (r_1, c_3) with no further iterations possible.

Table 1.4 The Iteration Path Game

		Column		
		c_1	c_2	c_3
	r_1	**2,12**	1,10	**1,12**
Row:	r_2	0,12	0,10	0,11
	r_3	0,12	1,10	0,13

Payoffs to: (Row, Column)

Table 1.5 The Iteration Path Game After Two Iterations

		Column	
		c_1	c_3
	r_1	2,12	**1,12**
Row:			
	r_3	0,12	0,13

Payoffs to: (Row, Column)

Despite these problems, deletion of weakly dominated strategies is a useful tool, and it is part of many more complicated equilibrium concepts, such as the subgame perfectness concept of section 4.1.