A5-Regresión logística

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Trabaja con el set de datos Weekly, que forma parte de la librería ISLR. Este set de datos contiene información sobre el rendimiento porcentual semanal del índice bursátil S&P 500 entre los años 1990 y 2010. Se busca predecir el tendimiento (positivo o negativo) dependiendo del comportamiento previo de diversas variables de la bolsa bursátil S&P 500.

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library(ISLR)

# Cargar el conjunto de datos Weekly
data("Weekly")
df <- Weekly
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df
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	Year	Lag1	Lag2	Lag3	Lag4	Lag5	Volume	Today	Direction
1	1990	0.816	1.572	−3.936	−0.229	−3.484	0.1549760	−0.270	Down
2	1990	−0.270	0.816	1.572	−3.936	−0.229	0.1485740	−2.576	Down
3	1990	−2.576	−0.270	0.816	1.572	−3.936	0.1598375	3.514	Up
4	1990	3.514	−2.576	−0.270	0.816	1.572	0.1616300	0.712	Up
5	1990	0.712	3.514	−2.576	−0.270	0.816	0.1537280	1.178	Up
6	1990	1.178	0.712	3.514	−2.576	−0.270	0.1544440	−1.372	Down
7	1990	−1.372	1.178	0.712	3.514	−2.576	0.1517220	0.807	Up
8	1990	0.807	−1.372	1.178	0.712	3.514	0.1323100	0.041	Up
9	1990	0.041	0.807	−1.372	1.178	0.712	0.1439720	1.253	Up
10	1990	1.253	0.041	0.807	−1.372	1.178	0.1336350	−2.678	Down
11	1990	−2.678	1.253	0.041	0.807	−1.372	0.1490240	−1.793	Down
12	1990	−1.793	−2.678	1.253	0.041	0.807	0.1357900	2.820	Up
13	1990	2.820	−1.793	−2.678	1.253	0.041	0.1398980	4.022	Up
14	1990	4.022	2.820	−1.793	−2.678	1.253	0.1643420	0.750	Up
15	1990	0.750	4.022	2.820	−1.793	−2.678	0.1756480	−0.017	Down
16	1990	−0.017	0.750	4.022	2.820	−1.793	0.1634700	2.420	Up
17	1990	2.420	−0.017	0.750	4.022	2.820	0.1726250	−1.225	Down
18	1990	−1.225	2.420	−0.017	0.750	4.022	0.1684460	1.171	Up
19	1990	1.171	−1.225	2.420	−0.017	0.750	0.1552920	−2.061	Down
20	1990	−2.061	1.171	−1.225	2.420	−0.017	0.1433920	0.729	Up
21	1990	0.729	−2.061	1.171	−1.225	2.420	0.1405540	0.112	Up
22	1990	0.112	0.729	−2.061	1.171	−1.225	0.1250750	2.480	Up
23	1990	2.480	0.112	0.729	−2.061	1.171	0.1716040	−1.552	Down
24	1990	−1.552	2.480	0.112	0.729	−2.061	0.1669560	−2.259	Down
25	1990	−2.259	−1.552	2.480	0.112	0.729	0.1717180	−2.428	Down
26	1990	−2.428	−2.259	−1.552	2.480	0.112	0.2098160	−2.708	Down
27	1990	−2.708	−2.428	−2.259	−1.552	2.480	0.1927060	−2.292	Down
28	1990	−2.292	−2.708	−2.428	−2.259	−1.552	0.1482520	−4.978	Down
29	1990	−4.978	−2.292	−2.708	−2.428	−2.259	0.1898580	3.547	Up

30	1990	3.547	−4.978	−2.292	−2.708	−2.428	0.1278840	0.260	Up
31	1990	0.260	3.547	−4.978	−2.292	−2.708	0.1157425	−2.032	Down
32	1990	−2.032	0.260	3.547	−4.978	−2.292	0.1239240	−1.739	Down
33	1990	−1.739	−2.032	0.260	3.547	−4.978	0.1490820	−1.693	Down
34	1990	−1.693	−1.739	−2.032	0.260	3.547	0.1718560	1.781	Up
35	1990	1.781	−1.693	−1.739	−2.032	0.260	0.1649700	−3.682	Down
36	1990	−3.682	1.781	−1.693	−1.739	−2.032	0.1564540	4.150	Up
37	1990	4.150	−3.682	1.781	−1.693	−1.739	0.1802800	−2.487	Down
38	1990	−2.487	4.150	−3.682	1.781	−1.693	0.1439780	2.343	Up
39	1990	2.343	−2.487	4.150	−3.682	1.781	0.1542920	0.606	Up
40	1990	0.606	2.343	−2.487	4.150	−3.682	0.1480060	1.077	Up
41	1990	1.077	0.606	2.343	−2.487	4.150	0.1635500	−0.637	Down
42	1990	−0.637	1.077	0.606	2.343	−2.487	0.1265325	2.260	Up
43	1990	2.260	−0.637	1.077	0.606	2.343	0.1515780	1.716	Up
44	1990	1.716	2.260	−0.637	1.077	0.606	0.1979940	−0.284	Down
45	1990	−0.284	1.716	2.260	−0.637	1.077	0.1558740	1.508	Up
46	1990	1.508	−0.284	1.716	2.260	−0.637	0.1767000	−0.913	Down
47	1990	−0.913	1.508	−0.284	1.716	2.260	0.0874650	−2.349	Down
48	1991	−2.349	−0.913	1.508	−0.284	1.716	0.1306700	−1.798	Down
49	1991	−1.798	−2.349	−0.913	1.508	−0.284	0.1425320	5.393	Up
50	1991	5.393	−1.798	−2.349	−0.913	1.508	0.1822480	1.156	Up
51	1991	1.156	5.393	−1.798	−2.349	−0.913	0.1798940	2.077	Up
52	1991	2.077	1.156	5.393	−1.798	−2.349	0.1949980	4.751	Up
53	1991	4.751	2.077	1.156	5.393	−1.798	0.2596560	2.702	Up
54	1991	2.702	4.751	2.077	1.156	5.393	0.2381400	−0.924	Down
55	1991	−0.924	2.702	4.751	2.077	1.156	0.1937775	1.318	Up
56	1991	1.318	−0.924	2.702	4.751	2.077	0.2027840	1.209	Up
57	1991	1.209	1.318	−0.924	2.702	4.751	0.2239460	−0.363	Down
58	1991	−0.363	1.209	1.318	−0.924	2.702	0.1967520	−1.635	Down
59	1991	−1.635	−0.363	1.209	1.318	−0.924	0.1795400	2.106	Up
60	1991	2.106	−1.635	−0.363	1.209	1.318	0.1763050	0.037	Up
61	1991	0.037	2.106	−1.635	−0.363	1.209	0.1865580	1.343	Up
62	1991	1.343	0.037	2.106	−1.635	−0.363	0.1743280	0.999	Up
63	1991	0.999	1.343	0.037	2.106	−1.635	0.2072280	−1.348	Down
64	1991	−1.348	0.999	1.343	0.037	2.106	0.1641080	0.470	Up
65	1991	0.470	−1.348	0.999	1.343	0.037	0.1766460	−1.329	Down
66	1991	−1.329	0.470	−1.348	0.999	1.343	0.1585660	−0.892	Down
67	1991	−0.892	−1.329	0.470	−1.348	0.999	0.1718580	1.370	Up
68	1991	1.370	−0.892	−1.329	0.470	−1.348	0.1486320	3.269	Up
69	1991	3.269	1.370	−0.892	−1.329	0.470	0.2043200	−2.668	Down
70	1991	−2.668	3.269	1.370	−0.892	−1.329	0.1757660	0.754	Up
71	1991	0.754	−2.668	3.269	1.370	−0.892	0.1538140	−1.188	Down
72	1991	−1.188	0.754	−2.668	3.269	1.370	0.1606320	−1.745	Down
73	1991	−1.745	−1.188	0.754	−2.668	3.269	0.1615340	0.787	Up
74	1991	0.787	−1.745	−1.188	0.754	−2.668	0.1338150	1.649	Up
75	1991	1.649	0.787	−1.745	−1.188	0.754	0.1602280	1.044	Up
76	1991	1.044	1.649	0.787	−1.745	−1.188	0.1863660	−0.856	Down
77	1991	−0.856	1.044	1.649	0.787	−1.745	0.1483000	1.641	Up
78	1991	1.641	−0.856	1.044	1.649	0.787	0.1609440	−0.015	Down
79	1991	−0.015	1.641	−0.856	1.044	1.649	0.1564720	−0.398	Down
80	1991	−0.398	−0.015	1.641	−0.856	1.044	0.1693200	2.228	Up

81	1991	2.228	−0.398	−0.015	1.641	−0.856	0.2018520	0.320	Up
82	1991	0.320	2.228	−0.398	−0.015	1.641	0.1485440	−1.601	Down
83	1991	−1.601	0.320	2.228	−0.398	−0.015	0.1600150	−1.416	Down
84	1991	−1.416	−1.601	0.320	2.228	−0.398	0.1473080	1.129	Up
85	1991	1.129	−1.416	−1.601	0.320	2.228	0.1895540	−0.521	Down
86	1991	−0.521	1.129	−1.416	−1.601	0.320	0.1579680	−1.205	Down
87	1991	−1.205	−0.521	1.129	−1.416	−1.601	0.1630180	0.052	Up
88	1991	0.052	−1.205	−0.521	1.129	−1.416	0.1650700	2.897	Up
89	1991	2.897	0.052	−1.205	−0.521	1.129	0.1958320	−2.115	Down
90	1991	−2.115	2.897	0.052	−1.205	−0.521	0.1760080	1.853	Up
91	1991	1.853	−2.115	2.897	0.052	−1.205	0.1870600	0.401	Up
92	1991	0.401	1.853	−2.115	2.897	0.052	0.1767860	−2.614	Down
93	1991	−2.614	0.401	1.853	−2.115	2.897	0.1903460	−1.694	Down
94	1991	−1.694	−2.614	0.401	1.853	−2.115	0.2123900	−0.245	Down
95	1991	−0.245	−1.694	−2.614	0.401	1.853	0.1585575	1.034	Up
96	1991	1.034	−0.245	−1.694	−2.614	0.401	0.1858220	1.417	Up
97	1991	1.417	1.034	−0.245	−1.694	−2.614	0.1925060	0.668	Up
98	1991	0.668	1.417	1.034	−0.245	−1.694	0.2144540	5.018	Up
99	1991	5.018	0.668	1.417	1.034	−0.245	0.1746800	3.169	Up
100	1992	3.169	5.018	0.668	1.417	1.034	0.2311300	−1.011	Down
101	1992	−1.011	3.169	5.018	0.668	1.417	0.2646440	0.906	Up
102	1992	0.906	−1.011	3.169	5.018	0.668	0.2809220	−0.807	Down
103	1992	−0.807	0.906	−1.011	3.169	5.018	0.2152000	−1.613	Down
104	1992	−1.613	−0.807	0.906	−1.011	3.169	0.2101220	0.565	Up
105	1992	0.565	−1.613	−0.807	0.906	−1.011	0.2309160	0.338	Up
106	1992	0.338	0.565	−1.613	−0.807	0.906	0.2133280	−0.255	Down
107	1992	−0.255	0.338	0.565	−1.613	−0.807	0.2498925	0.309	Up
108	1992	0.309	−0.255	0.338	0.565	−1.613	0.2093640	−2.001	Down
109	1992	−2.001	0.309	−0.255	0.338	0.565	0.1958180	0.346	Up
110	1992	0.346	−2.001	0.309	−0.255	0.338	0.1816380	1.345	Up
111	1992	1.345	0.346	−2.001	0.309	−0.255	0.1956880	−1.896	Down
112	1992	−1.896	1.345	0.346	−2.001	0.309	0.1768340	−0.483	Down
113	1992	−0.483	−1.896	1.345	0.346	−2.001	0.1753340	0.682	Up
114	1992	0.682	−0.483	−1.896	1.345	0.346	0.2130720	2.906	Up
115	1992	2.906	0.682	−0.483	−1.896	1.345	0.2093025	−1.687	Down
116	1992	−1.687	2.906	0.682	−0.483	−1.896	0.2120920	0.858	Up
117	1992	0.858	−1.687	2.906	0.682	−0.483	0.1939760	0.853	Up
118	1992	0.853	0.858	−1.687	2.906	0.682	0.1825480	−1.433	Down
119	1992	−1.433	0.853	0.858	−1.687	2.906	0.1812680	0.958	Up
120	1992	0.958	−1.433	0.853	0.858	−1.687	0.1736520	0.321	Up
121	1992	0.321	0.958	−1.433	0.853	0.858	0.1948125	−0.450	Down
122	1992	−0.450	0.321	0.958	−1.433	0.853	0.2005260	−0.900	Down
123	1992	−0.900	−0.450	0.321	0.958	−1.433	0.1899600	−1.486	Down
124	1992	−1.486	−0.900	−0.450	0.321	0.958	0.2090600	−0.054	Down
125	1992	−0.054	−1.486	−0.900	−0.450	0.321	0.1779640	2.062	Up
126	1992	2.062	−0.054	−1.486	−0.900	−0.450	0.2016825	0.692	Up
127	1992	0.692	2.062	−0.054	−1.486	−0.900	0.1973500	0.241	Up
128	1992	0.241	0.692	2.062	−0.054	−1.486	0.1900040	−0.967	Down
129	1992	−0.967	0.241	0.692	2.062	−0.054	0.1738120	3.064	Up
130	1992	3.064	−0.967	0.241	0.692	2.062	0.2049880	−1.256	Down
131	1992	−1.256	3.064	−0.967	0.241	0.692	0.1751500	0.246	Up

132	1992	0.246	−1.256	3.064	−0.967	0.241	0.1691100	−1.205	Down
133	1992	−1.205	0.246	−1.256	3.064	−0.967	0.1799740	−0.002	Down
134	1992	−0.002	−1.205	0.246	−1.256	3.064	0.1742340	0.540	Up
135	1992	0.540	−0.002	−1.205	0.246	−1.256	0.1717040	0.599	Up
136	1992	0.599	0.540	−0.002	−1.205	0.246	0.1856975	0.798	Up
137	1992	0.798	0.599	0.540	−0.002	−1.205	0.2239920	−2.029	Down
138	1992	−2.029	0.798	0.599	0.540	−0.002	0.1900160	−0.936	Down
139	1992	−0.936	−2.029	0.798	0.599	0.540	0.1813580	−1.903	Down
140	1992	−1.903	−0.936	−2.029	0.798	0.599	0.2116740	2.253	Up
141	1992	2.253	−1.903	−0.936	−2.029	0.798	0.1877460	0.576	Up
142	1992	0.576	2.253	−1.903	−0.936	−2.029	0.2229840	1.106	Up
143	1992	1.106	0.576	2.253	−1.903	−0.936	0.2004360	−0.263	Down
144	1992	−0.263	1.106	0.576	2.253	−1.903	0.2061720	1.161	Up
145	1992	1.161	−0.263	1.106	0.576	2.253	0.2166900	0.999	Up
146	1992	0.999	1.161	−0.263	1.106	0.576	0.2113040	0.823	Up
147	1992	0.823	0.999	1.161	−0.263	1.106	0.1869475	0.442	Up
148	1992	0.442	0.823	0.999	1.161	−0.263	0.2418440	0.387	Up
149	1992	0.387	0.442	0.823	0.999	1.161	0.2174480	1.741	Up
150	1992	1.741	0.387	0.442	0.823	0.999	0.2595760	−0.342	Down
151	1992	−0.342	1.741	0.387	0.442	0.823	0.2011225	−0.923	Down
152	1993	−0.923	−0.342	1.741	0.387	0.442	0.1768675	−1.529	Down
153	1993	−1.529	−0.923	−0.342	1.741	0.387	0.2610240	1.888	Up
154	1993	1.888	−1.529	−0.923	−0.342	1.741	0.2585360	−0.238	Down
155	1993	−0.238	1.888	−1.529	−0.923	−0.342	0.2598000	0.612	Up
156	1993	0.612	−0.238	1.888	−1.529	−0.923	0.2768100	2.313	Up
157	1993	2.313	0.612	−0.238	1.888	−1.529	0.3062780	−0.969	Down
158	1993	−0.969	2.313	0.612	−0.238	1.888	0.2419440	−2.330	Down
159	1993	−2.330	−0.969	2.313	0.612	−0.238	0.3142350	2.110	Up
160	1993	2.110	−2.330	−0.969	2.313	0.612	0.2888800	0.616	Up
161	1993	0.616	2.110	−2.330	−0.969	2.313	0.2534580	0.834	Up
162	1993	0.834	0.616	2.110	−2.330	−0.969	0.2668100	0.078	Up
163	1993	0.078	0.834	0.616	2.110	−2.330	0.2473720	−0.533	Down
164	1993	−0.533	0.078	0.834	0.616	2.110	0.2436800	−1.427	Down
165	1993	−1.427	−0.533	0.078	0.834	0.616	0.2536420	0.102	Up
166	1993	0.102	−1.427	−0.533	0.078	0.834	0.2935325	1.607	Up
167	1993	1.607	0.102	−1.427	−0.533	0.078	0.2736760	−2.653	Down
168	1993	−2.653	1.607	0.102	−1.427	−0.533	0.2840400	0.723	Up
169	1993	0.723	−2.653	1.607	0.102	−1.427	0.2665200	0.482	Up
170	1993	0.482	0.723	−2.653	1.607	0.102	0.2493100	−0.622	Down
171	1993	−0.622	0.482	0.723	−2.653	1.607	0.2513140	1.429	Up
172	1993	1.429	−0.622	0.482	0.723	−2.653	0.2805160	0.976	Up
173	1993	0.976	1.429	−0.622	0.482	0.723	0.2405880	−0.029	Down
174	1993	−0.029	0.976	1.429	−0.622	0.482	0.2593150	−0.622	Down
175	1993	−0.622	−0.029	0.976	1.429	−0.622	0.2431880	−0.800	Down
176	1993	−0.800	−0.622	−0.029	0.976	1.429	0.2504720	0.884	Up
177	1993	0.884	−0.800	−0.622	−0.029	0.976	0.2478640	−0.393	Down
178	1993	−0.393	0.884	−0.800	−0.622	−0.029	0.2624620	0.509	Up
179	1993	0.509	−0.393	0.884	−0.800	−0.622	0.2515250	−0.527	Down
180	1993	−0.527	0.509	−0.393	0.884	−0.800	0.2554740	0.303	Up
181	1993	0.303	−0.527	0.509	−0.393	0.884	0.2488360	0.230	Up
182	1993	0.230	0.303	−0.527	0.509	−0.393	0.2536180	0.123	Up

183	1993	0.123	0.230	0.303	−0.527	0.509	0.2393200	0.325	Up
184	1993	0.325	0.123	0.230	0.303	−0.527	0.2499000	1.337	Up
185	1993	1.337	0.325	0.123	0.230	0.303	0.2756060	0.960	Up
186	1993	0.960	1.337	0.325	0.123	0.230	0.2470120	0.174	Up
187	1993	0.174	0.960	1.337	0.325	0.123	0.2298160	0.082	Up
188	1993	0.082	0.174	0.960	1.337	0.325	0.2601550	−0.626	Down
189	1993	−0.626	0.082	0.174	0.960	1.337	0.2818200	−0.262	Down
190	1993	−0.262	−0.626	0.082	0.174	0.960	0.2708040	0.798	Up
191	1993	0.798	−0.262	−0.626	0.082	0.174	0.2607580	−0.210	Down
192	1993	−0.210	0.798	−0.262	−0.626	0.082	0.2599660	1.996	Up
193	1993	1.996	−0.210	0.798	−0.262	−0.626	0.2913200	−1.327	Down
194	1993	−1.327	1.996	−0.210	0.798	−0.262	0.3061380	0.984	Up
195	1993	0.984	−1.327	1.996	−0.210	0.798	0.2792920	−1.766	Down
196	1993	−1.766	0.984	−1.327	1.996	−0.210	0.3126480	1.266	Up
197	1993	1.266	−1.766	0.984	−1.327	1.996	0.2808420	−0.599	Down
198	1993	−0.599	1.266	−1.766	0.984	−1.327	0.2976820	0.099	Up
199	1993	0.099	−0.599	1.266	−1.766	0.984	0.2153450	0.395	Up
200	1993	0.395	0.099	−0.599	1.266	−1.766	0.2755940	−0.207	Down
201	1993	−0.207	0.395	0.099	−0.599	1.266	0.2851420	0.528	Up
202	1993	0.528	−0.207	0.395	0.099	−0.599	0.3023540	0.214	Up
203	1993	0.214	0.528	−0.207	0.395	0.099	0.2572375	−0.199	Down
204	1994	−0.199	0.214	0.528	−0.207	0.395	0.2012360	0.740	Up
205	1994	0.740	−0.199	0.214	0.528	−0.207	0.3375300	1.066	Up
206	1994	1.066	0.740	−0.199	0.214	0.528	0.3037120	−0.040	Down
207	1994	−0.040	1.066	0.740	−0.199	0.214	0.3021980	0.838	Up
208	1994	0.838	−0.040	1.066	0.740	−0.199	0.3174640	−1.857	Down
209	1994	−1.857	0.838	−0.040	1.066	0.740	0.3342140	0.079	Up
210	1994	0.079	−1.857	0.838	−0.040	1.066	0.3080220	−0.530	Down
211	1994	−0.530	0.079	−1.857	0.838	−0.040	0.2997340	−0.346	Down
212	1994	−0.346	−0.530	0.079	−1.857	0.838	0.2993575	−0.285	Down
213	1994	−0.285	−0.346	−0.530	0.079	−1.857	0.3075820	0.366	Up
214	1994	0.366	−0.285	−0.346	−0.530	0.079	0.3133540	0.990	Up
215	1994	0.990	0.366	−0.285	−0.346	−0.530	0.3275420	−2.225	Down
216	1994	−2.225	0.990	0.366	−0.285	−0.346	0.2729000	−3.216	Down
217	1994	−3.216	−2.225	0.990	0.366	−0.285	0.3467025	0.298	Up
218	1994	0.298	−3.216	−2.225	0.990	0.366	0.3131500	−0.206	Down
219	1994	−0.206	0.298	−3.216	−2.225	0.990	0.2727760	0.325	Up
220	1994	0.325	−0.206	0.298	−3.216	−2.225	0.3271540	0.733	Up
221	1994	0.733	0.325	−0.206	0.298	−3.216	0.2924025	−0.685	Down
222	1994	−0.685	0.733	0.325	−0.206	0.298	0.2799880	−0.822	Down
223	1994	−0.822	−0.685	0.733	0.325	−0.206	0.2701540	2.427	Up
224	1994	2.427	−0.822	−0.685	0.733	0.325	0.2965020	0.530	Up
225	1994	0.530	2.427	−0.822	−0.685	0.733	0.2452100	0.612	Up
226	1994	0.612	0.530	2.427	−0.822	−0.685	0.2599325	−0.317	Down
227	1994	−0.317	0.612	0.530	2.427	−0.822	0.2450220	−0.048	Down
228	1994	−0.048	−0.317	0.612	0.530	2.427	0.2863540	−3.414	Down
229	1994	−3.414	−0.048	−0.317	0.612	0.530	0.2594200	0.768	Up
230	1994	0.768	−3.414	−0.048	−0.317	0.612	0.2549380	0.751	Up
231	1994	0.751	0.768	−3.414	−0.048	−0.317	0.2319750	1.025	Up
232	1994	1.025	0.751	0.768	−3.414	−0.048	0.2678500	−0.231	Down
233	1994	−0.231	1.025	0.751	0.768	−3.414	0.2601100	1.137	Up

234	1994	1.137	−0.231	1.025	0.751	0.768	0.2426740	−0.255	Down
235	1994	−0.255	1.137	−0.231	1.025	0.751	0.2712360	1.061	Up
236	1994	1.061	−0.255	1.137	−0.231	1.025	0.2562580	0.377	Up
237	1994	0.377	1.061	−0.255	1.137	−0.231	0.2806120	2.183	Up
238	1994	2.183	0.377	1.061	−0.255	1.137	0.2885940	−0.593	Down
239	1994	−0.593	2.183	0.377	1.061	−0.255	0.2828460	−0.597	Down
240	1994	−0.597	−0.593	2.183	0.377	1.061	0.2695925	0.643	Up
241	1994	0.643	−0.597	−0.593	2.183	0.377	0.3056400	−2.445	Down
242	1994	−2.445	0.643	−0.597	−0.593	2.183	0.3120520	0.661	Up
243	1994	0.661	−2.445	0.643	−0.597	−0.593	0.2974120	−1.645	Down
244	1994	−1.645	0.661	−2.445	0.643	−0.597	0.3022540	3.076	Up
245	1994	3.076	−1.645	0.661	−2.445	0.643	0.2855740	−0.897	Down
246	1994	−0.897	3.076	−1.645	0.661	−2.445	0.2924040	1.910	Up
247	1994	1.910	−0.897	3.076	−1.645	0.661	0.3281440	−2.425	Down
248	1994	−2.425	1.910	−0.897	3.076	−1.645	0.3029700	0.015	Up
249	1994	0.015	−2.425	1.910	−0.897	3.076	0.2770760	−0.190	Down
250	1994	−0.190	0.015	−2.425	1.910	−0.897	0.3147460	−1.989	Down
251	1994	−1.989	−0.190	0.015	−2.425	1.910	0.3073375	0.223	Up
252	1994	0.223	−1.989	−0.190	0.015	−2.425	0.2842840	−1.399	Down
253	1994	−1.399	0.223	−1.989	−0.190	0.015	0.3079280	2.649	Up
254	1994	2.649	−1.399	0.223	−1.989	−0.190	0.3524980	0.224	Up
255	1994	0.224	2.649	−1.399	0.223	−1.989	0.3028760	−0.122	Down
256	1995	−0.122	0.224	2.649	−1.399	0.223	0.2410875	0.307	Up
257	1995	0.307	−0.122	0.224	2.649	−1.399	0.2997700	1.148	Up
258	1995	1.148	0.307	−0.122	0.224	2.649	0.3254660	−0.255	Down
259	1995	−0.255	1.148	0.307	−0.122	0.224	0.3334800	1.207	Up
260	1995	1.207	−0.255	1.148	0.307	−0.122	0.3256220	1.756	Up
261	1995	1.756	1.207	−0.255	1.148	0.307	0.3777120	0.587	Up
262	1995	0.587	1.756	1.207	−0.255	1.148	0.3159840	0.106	Up
263	1995	0.106	0.587	1.756	1.207	−0.255	0.3287980	1.274	Up
264	1995	1.274	0.106	0.587	1.756	1.207	0.3361900	−0.551	Down
265	1995	−0.551	1.274	0.106	0.587	1.756	0.3252960	0.855	Up
266	1995	0.855	−0.551	1.274	0.106	0.587	0.3412920	1.215	Up
267	1995	1.215	0.855	−0.551	1.274	0.106	0.3370060	1.100	Up
268	1995	1.100	1.215	0.855	−0.551	1.274	0.3317740	−0.052	Down
269	1995	−0.052	1.100	1.215	0.855	−0.551	0.3437140	1.140	Up
270	1995	1.140	−0.052	1.100	1.215	0.855	0.3154800	0.555	Up
271	1995	0.555	1.140	−0.052	1.100	1.215	0.3002750	−0.145	Down
272	1995	−0.145	0.555	1.140	−0.052	1.100	0.3656720	1.223	Up
273	1995	1.223	−0.145	0.555	1.140	−0.052	0.3400340	1.051	Up
274	1995	1.051	1.223	−0.145	0.555	1.140	0.3538260	1.044	Up
275	1995	1.044	1.051	1.223	−0.145	0.555	0.3472000	−1.210	Down
276	1995	−1.210	1.044	1.051	1.223	−0.145	0.3472520	0.859	Up
277	1995	0.859	−1.210	1.044	1.051	1.223	0.3346200	1.692	Up
278	1995	1.692	0.859	−1.210	1.044	1.051	0.3382800	−0.858	Down
279	1995	−0.858	1.692	0.859	−1.210	1.044	0.3246500	2.252	Up
280	1995	2.252	−0.858	1.692	0.859	−1.210	0.3475580	1.830	Up
281	1995	1.830	2.252	−0.858	1.692	0.859	0.3692460	−0.902	Down
282	1995	−0.902	1.830	2.252	−0.858	1.692	0.3272920	2.133	Up
283	1995	2.133	−0.902	1.830	2.252	−0.858	0.3406975	0.633	Up
284	1995	0.633	2.133	−0.902	1.830	2.252	0.3806520	−1.120	Down

285	1995	−1.120	0.633	2.133	−0.902	1.830	0.3999660	1.682	Up
286	1995	1.682	−1.120	0.633	2.133	−0.902	0.3500260	−0.709	Down
287	1995	−0.709	1.682	−1.120	0.633	2.133	0.3332680	−0.685	Down
288	1995	−0.685	−0.709	1.682	−1.120	0.633	0.2922080	0.739	Up
289	1995	0.739	−0.685	−0.709	1.682	−1.120	0.3320220	0.159	Up
290	1995	0.159	0.739	−0.685	−0.709	1.682	0.2882340	0.668	Up
291	1995	0.668	0.159	0.739	−0.685	−0.709	0.2933280	1.568	Up
292	1995	1.568	0.668	0.159	0.739	−0.685	0.3354675	1.863	Up
293	1995	1.863	1.568	0.668	0.159	0.739	0.3736020	−0.278	Down
294	1995	−0.278	1.863	1.568	0.668	0.159	0.3670400	0.461	Up
295	1995	0.461	−0.278	1.863	1.568	0.668	0.3502040	−0.329	Down
296	1995	−0.329	0.461	−0.278	1.863	1.568	0.3422940	0.345	Up
297	1995	0.345	−0.329	0.461	−0.278	1.863	0.3495020	0.506	Up
298	1995	0.506	0.345	−0.329	0.461	−0.278	0.3728760	−1.321	Down
299	1995	−1.321	0.506	0.345	−0.329	0.461	0.4046820	1.875	Up
300	1995	1.875	−1.321	0.506	0.345	−0.329	0.3640420	0.364	Up
301	1995	0.364	1.875	−1.321	0.506	0.345	0.3426020	1.240	Up
302	1995	1.240	0.364	1.875	−1.321	0.506	0.3773680	−0.017	Down
303	1995	−0.017	1.240	0.364	1.875	−1.321	0.3180800	1.168	Up
304	1995	1.168	−0.017	1.240	0.364	1.875	0.3999260	1.730	Up
305	1995	1.730	1.168	−0.017	1.240	0.364	0.3935560	−0.185	Down
306	1995	−0.185	1.730	1.168	−0.017	1.240	0.4418640	−0.712	Down
307	1995	−0.712	−0.185	1.730	1.168	−0.017	0.4095280	0.650	Up
308	1996	0.650	−0.712	−0.185	1.730	1.168	0.2698725	0.127	Up
309	1996	0.127	0.650	−0.712	−0.185	1.730	0.4457050	−2.416	Down
310	1996	−2.416	0.127	0.650	−0.712	−0.185	0.3673580	1.665	Up
311	1996	1.665	−2.416	0.127	0.650	−0.712	0.4276500	1.600	Up
312	1996	1.600	1.665	−2.416	0.127	0.650	0.4260600	2.288	Up
313	1996	2.288	1.600	1.665	−2.416	0.127	0.4362680	3.229	Up
314	1996	3.229	2.288	1.600	1.665	−2.416	0.4518080	−1.278	Down
315	1996	−1.278	3.229	2.288	1.600	1.665	0.4244220	1.713	Up
316	1996	1.713	−1.278	3.229	2.288	1.600	0.4389325	−2.232	Down
317	1996	−2.232	1.713	−1.278	3.229	2.288	0.4406220	−1.687	Down
318	1996	−1.687	−2.232	1.713	−1.278	3.229	0.4527060	1.252	Up
319	1996	1.252	−1.687	−2.232	1.713	−1.278	0.4680220	1.433	Up
320	1996	1.433	1.252	−1.687	−2.232	1.713	0.3963500	−0.787	Down
321	1996	−0.787	1.433	1.252	−1.687	−2.232	0.3854660	1.605	Up
322	1996	1.605	−0.787	1.433	1.252	−1.687	0.3921950	−2.920	Down
323	1996	−2.920	1.605	−0.787	1.433	1.252	0.4493460	1.313	Up
324	1996	1.313	−2.920	1.605	−0.787	1.433	0.4231440	1.301	Up
325	1996	1.301	1.313	−2.920	1.605	−0.787	0.4413860	−1.810	Down
326	1996	−1.810	1.301	1.313	−2.920	1.605	0.4038020	1.630	Up
327	1996	1.630	−1.810	1.301	1.313	−2.920	0.4229460	2.579	Up
328	1996	2.579	1.630	−1.810	1.301	1.313	0.4247240	1.435	Up
329	1996	1.435	2.579	1.630	−1.810	1.301	0.3958560	−1.384	Down
330	1996	−1.384	1.435	2.579	1.630	−1.810	0.3554800	0.626	Up
331	1996	0.626	−1.384	1.435	2.579	1.630	0.3995040	−1.108	Down
332	1996	−1.108	0.626	−1.384	1.435	2.579	0.3856620	0.149	Up
333	1996	0.149	−1.108	0.626	−1.384	1.435	0.4033420	0.568	Up
334	1996	0.568	0.149	−1.108	0.626	−1.384	0.3976600	−1.967	Down
335	1996	−1.967	0.568	0.149	−1.108	0.626	0.3128700	−1.711	Down

336	1996	−1.711	−1.967	0.568	0.149	−1.108	0.4212580	−1.154	Down
337	1996	−1.154	−1.711	−1.967	0.568	0.149	0.4996720	−0.443	Down
338	1996	−0.443	−1.154	−1.711	−1.967	0.568	0.3935040	4.181	Up
339	1996	4.181	−0.443	−1.154	−1.711	−1.967	0.3814800	−0.059	Down
340	1996	−0.059	4.181	−0.443	−1.154	−1.711	0.3421440	0.470	Up
341	1996	0.470	−0.059	4.181	−0.443	−1.154	0.3359400	0.274	Up
342	1996	0.274	0.470	−0.059	4.181	−0.443	0.3281640	−2.255	Down
343	1996	−2.255	0.274	0.470	−0.059	4.181	0.2935780	0.566	Up
344	1996	0.566	−2.255	0.274	0.470	−0.059	0.3517925	3.791	Up
345	1996	3.791	0.566	−2.255	0.274	0.470	0.3897100	0.954	Up
346	1996	0.954	3.791	0.566	−2.255	0.274	0.4389060	−0.122	Down
347	1996	−0.122	0.954	3.791	0.566	−2.255	0.4250500	2.225	Up
348	1996	2.225	−0.122	0.954	3.791	0.566	0.4201380	−0.114	Down
349	1996	−0.114	2.225	−0.122	0.954	3.791	0.4030540	1.450	Up
350	1996	1.450	−0.114	2.225	−0.122	0.954	0.4347920	−1.393	Down
351	1996	−1.393	1.450	−0.114	2.225	−0.122	0.4108400	0.407	Up
352	1996	0.407	−1.393	1.450	−0.114	2.225	0.4427260	3.844	Up
353	1996	3.844	0.407	−1.393	1.450	−0.114	0.4599800	0.930	Up
354	1996	0.930	3.844	0.407	−1.393	1.450	0.4529980	1.506	Up
355	1996	1.506	0.930	3.844	0.407	−1.393	0.4676080	1.107	Up
356	1996	1.107	1.506	0.930	3.844	0.407	0.3488525	−2.301	Down
357	1996	−2.301	1.107	1.506	0.930	3.844	0.4822980	−1.482	Down
358	1996	−1.482	−2.301	1.107	1.506	0.930	0.4546720	2.776	Up
359	1996	2.776	−1.482	−2.301	1.107	1.506	0.5297280	1.058	Up
360	1996	1.058	2.776	−1.482	−2.301	1.107	0.2542150	−1.158	Down
361	1997	−1.158	1.058	2.776	−1.482	−2.301	0.4137550	1.533	Up
362	1997	1.533	−1.158	1.058	2.776	−1.482	0.5456600	2.195	Up
363	1997	2.195	1.533	−1.158	1.058	2.776	0.5147840	−0.728	Down
364	1997	−0.728	2.195	1.533	−1.158	1.058	0.5657940	2.030	Up
365	1997	2.030	−0.728	2.195	1.533	−1.158	0.5176880	0.432	Up
366	1997	0.432	2.030	−0.728	2.195	1.533	0.5222440	2.396	Up
367	1997	2.396	0.432	2.030	−0.728	2.195	0.5207640	−0.830	Down
368	1997	−0.830	2.396	0.432	2.030	−0.728	0.4910325	−1.366	Down
369	1997	−1.366	−0.830	2.396	0.432	2.030	0.5073520	1.789	Up
370	1997	1.789	−1.366	−0.830	2.396	0.432	0.5112380	−1.466	Down
371	1997	−1.466	1.789	−1.366	−0.830	2.396	0.4902660	−1.144	Down
372	1997	−1.144	−1.466	1.789	−1.366	−0.830	0.5268820	−1.303	Down
373	1997	−1.303	−1.144	−1.466	1.789	−1.366	0.4807375	−2.065	Down
374	1997	−2.065	−1.303	−1.144	−1.466	1.789	0.5184900	−2.672	Down
375	1997	−2.672	−2.065	−1.303	−1.144	−1.466	0.4444500	3.889	Up
376	1997	3.889	−2.672	−2.065	−1.303	−1.144	0.4771380	−0.127	Down
377	1997	−0.127	3.889	−2.672	−2.065	−1.303	0.4604280	6.219	Up
378	1997	6.219	−0.127	3.889	−2.672	−2.065	0.4936760	1.453	Up
379	1997	1.453	6.219	−0.127	3.889	−2.672	0.5286960	0.603	Up
380	1997	0.603	1.453	6.219	−0.127	3.889	0.4798080	2.083	Up
381	1997	2.083	0.603	1.453	6.219	−0.127	0.4361380	0.148	Up
382	1997	0.148	2.083	0.603	1.453	6.219	0.4808225	1.147	Up
383	1997	1.147	0.148	2.083	0.603	1.453	0.4742620	4.110	Up
384	1997	4.110	1.147	0.148	2.083	0.603	0.5350140	0.608	Up
385	1997	0.608	4.110	1.147	0.148	2.083	0.5278160	−1.268	Down
386	1997	−1.268	0.608	4.110	1.147	0.148	0.5221900	3.338	Up

387	1997	3.338	−1.268	0.608	4.110	1.147	0.5018450	−0.026	Down
388	1997	−0.026	3.338	−1.268	0.608	4.110	0.5370580	−0.151	Down
389	1997	−0.151	−0.026	3.338	−1.268	0.608	0.5901360	2.566	Up
390	1997	2.566	−0.151	−0.026	3.338	−1.268	0.5497100	0.889	Up
391	1997	0.889	2.566	−0.151	−0.026	3.338	0.5283020	−1.436	Down
392	1997	−1.436	0.889	2.566	−0.151	−0.026	0.5372720	−3.506	Down
393	1997	−3.506	−1.436	0.889	2.566	−0.151	0.5270280	2.523	Up
394	1997	2.523	−3.506	−1.436	0.889	2.566	0.5080780	−2.606	Down
395	1997	−2.606	2.523	−3.506	−1.436	0.889	0.4460920	3.289	Up
396	1997	3.289	−2.606	2.523	−3.506	−1.436	0.5341600	−0.553	Down
397	1997	−0.553	3.289	−2.606	2.523	−3.506	0.5210840	2.879	Up
398	1997	2.879	−0.553	3.289	−2.606	2.523	0.5785660	−0.557	Down
399	1997	−0.557	2.879	−0.553	3.289	−2.606	0.5367020	2.096	Up
400	1997	2.096	−0.557	2.879	−0.553	3.289	0.5522780	0.202	Up
401	1997	0.202	2.096	−0.557	2.879	−0.553	0.5346440	−2.360	Down
402	1997	−2.360	0.202	2.096	−0.557	2.879	0.5184860	−0.267	Down
403	1997	−0.267	−2.360	0.202	2.096	−0.557	0.6061160	−2.869	Down
404	1997	−2.869	−0.267	−2.360	0.202	2.096	0.8048480	1.409	Up
405	1997	1.409	−2.869	−0.267	−2.360	0.202	0.5529760	0.091	Up
406	1997	0.091	1.409	−2.869	−0.267	−2.360	0.5549720	3.742	Up
407	1997	3.742	0.091	1.409	−2.869	−0.267	0.5708500	−0.798	Down
408	1997	−0.798	3.742	0.091	1.409	−2.869	0.4449075	2.972	Up
409	1997	2.972	−0.798	3.742	0.091	1.409	0.5976180	−3.090	Down
410	1997	−3.090	2.972	−0.798	3.742	0.091	0.5685580	−0.693	Down
411	1997	−0.693	−3.090	2.972	−0.798	3.742	0.6502880	−1.090	Down
412	1997	−1.090	−0.693	−3.090	2.972	−0.798	0.3666550	4.120	Up
413	1998	4.120	−1.090	−0.693	−3.090	2.972	0.4441675	−4.856	Down
414	1998	−4.856	4.120	−1.090	−0.693	−3.090	0.6624760	3.646	Up
415	1998	3.646	−4.856	4.120	−1.090	−0.693	0.6389200	−0.408	Down
416	1998	−0.408	3.646	−4.856	4.120	−1.090	0.6383225	2.369	Up
417	1998	2.369	−0.408	3.646	−4.856	4.120	0.6613660	3.283	Up
418	1998	3.283	2.369	−0.408	3.646	−4.856	0.6770980	0.754	Up
419	1998	0.754	3.283	2.369	−0.408	3.646	0.5820660	1.384	Up
420	1998	1.384	0.754	3.283	2.369	−0.408	0.5970025	1.463	Up
421	1998	1.463	1.384	0.754	3.283	2.369	0.5945440	0.605	Up
422	1998	0.605	1.463	1.384	0.754	3.283	0.6323760	1.224	Up
423	1998	1.224	0.605	1.463	1.384	0.754	0.6209240	2.859	Up
424	1998	2.859	1.224	0.605	1.463	1.384	0.6356360	−0.338	Down
425	1998	−0.338	2.859	1.224	0.605	1.463	0.6205160	2.488	Up
426	1998	2.488	−0.338	2.859	1.224	0.605	0.6355720	−1.072	Down
427	1998	−1.072	2.488	−0.338	2.859	1.224	0.6154600	1.085	Up
428	1998	1.085	−1.072	2.488	−0.338	2.859	0.6470180	−1.320	Down
429	1998	−1.320	1.085	−1.072	2.488	−0.338	0.6509300	1.182	Up
430	1998	1.182	−1.320	1.085	−1.072	2.488	0.6561840	−1.147	Down
431	1998	−1.147	1.182	−1.320	1.085	−1.072	0.5784000	0.053	Up
432	1998	0.053	−1.147	1.182	−1.320	1.085	0.5931280	0.157	Up
433	1998	0.157	0.053	−1.147	1.182	−1.320	0.5336800	−1.770	Down
434	1998	−1.770	0.157	0.053	−1.147	1.182	0.5922825	2.112	Up
435	1998	2.112	−1.770	0.157	0.053	−1.147	0.5697960	−1.348	Down
436	1998	−1.348	2.112	−1.770	0.157	0.053	0.5954360	0.165	Up
437	1998	0.165	−1.348	2.112	−1.770	0.157	0.6621520	2.957	Up

438	1998	2.957	0.165	−1.348	2.112	−1.770	0.6187000	1.167	Up
439	1998	1.167	2.957	0.165	−1.348	2.112	0.6333400	1.562	Up
440	1998	1.562	1.167	2.957	0.165	−1.348	0.5973100	1.926	Up
441	1998	1.926	1.562	1.167	2.957	0.165	0.6589820	−3.872	Down
442	1998	−3.872	1.926	1.562	1.167	2.957	0.6800560	−1.765	Down
443	1998	−1.765	−3.872	1.926	1.562	1.167	0.6602500	−2.786	Down
444	1998	−2.786	−1.765	−3.872	1.926	1.562	0.7704200	−2.451	Down
445	1998	−2.451	−2.786	−1.765	−3.872	1.926	0.6740020	1.740	Up
446	1998	1.740	−2.451	−2.786	−1.765	−3.872	0.6511880	−5.004	Down
447	1998	−5.004	1.740	−2.451	−2.786	−1.765	0.7352000	−5.184	Down
448	1998	−5.184	−5.004	1.740	−2.451	−2.786	0.9379000	3.611	Up
449	1998	3.611	−5.184	−5.004	1.740	−2.451	0.8046250	1.093	Up
450	1998	1.093	3.611	−5.184	−5.004	1.740	0.7451400	2.417	Up
451	1998	2.417	1.093	3.611	−5.184	−5.004	0.7494360	−4.034	Down
452	1998	−4.034	2.417	1.093	3.611	−5.184	0.8106600	−1.816	Down
453	1998	−1.816	−4.034	2.417	1.093	3.611	0.9265800	7.317	Up
454	1998	7.317	−1.816	−4.034	2.417	1.093	0.8390800	1.349	Up
455	1998	1.349	7.317	−1.816	−4.034	2.417	0.7668880	2.615	Up
456	1998	2.615	1.349	7.317	−1.816	−4.034	0.7072620	3.854	Up
457	1998	3.854	2.615	1.349	7.317	−1.816	0.7545000	−1.340	Down
458	1998	−1.340	3.854	2.615	1.349	7.317	0.6489120	3.361	Up
459	1998	3.361	−1.340	3.854	2.615	1.349	0.6730980	2.473	Up
460	1998	2.473	3.361	−1.340	3.854	2.615	0.5952075	−1.308	Down
461	1998	−1.308	2.473	3.361	−1.340	3.854	0.7426600	−0.874	Down
462	1998	−0.874	−1.308	2.473	3.361	−1.340	0.7061200	1.849	Up
463	1998	1.849	−0.874	−1.308	2.473	3.361	0.7648400	3.219	Up
464	1998	3.219	1.849	−0.874	−1.308	2.473	0.5924450	0.241	Up
465	1999	0.241	3.219	1.849	−0.874	−1.308	0.6078675	3.731	Up
466	1999	3.731	0.241	3.219	1.849	−0.874	0.8879400	−2.496	Down
467	1999	−2.496	3.731	0.241	3.219	1.849	0.8290000	−1.453	Down
468	1999	−1.453	−2.496	3.731	0.241	3.219	0.8372250	4.444	Up
469	1999	4.444	−1.453	−2.496	3.731	0.241	0.8559800	−3.145	Down
470	1999	−3.145	4.444	−1.453	−2.496	3.731	0.8495600	−0.748	Down
471	1999	−0.748	−3.145	4.444	−1.453	−2.496	0.7340200	0.739	Up
472	1999	0.739	−0.748	−3.145	4.444	−1.453	0.7078150	−0.072	Down
473	1999	−0.072	0.739	−0.748	−3.145	4.444	0.7613400	2.999	Up
474	1999	2.999	−0.072	0.739	−0.748	−3.145	0.7621200	1.499	Up
475	1999	1.499	2.999	−0.072	0.739	−0.748	0.8181600	0.363	Up
476	1999	0.363	1.499	2.999	−0.072	0.739	0.7954200	−1.269	Down
477	1999	−1.269	0.363	1.499	2.999	−0.072	0.7445600	0.851	Up
478	1999	0.851	−1.269	0.363	1.499	2.999	0.7760500	4.223	Up
479	1999	4.223	0.851	−1.269	0.363	1.499	0.7732600	−2.177	Down
480	1999	−2.177	4.223	0.851	−1.269	0.363	0.9331600	2.870	Up
481	1999	2.870	−2.177	4.223	0.851	−1.269	0.9585200	−1.597	Down
482	1999	−1.597	2.870	−2.177	4.223	0.851	0.8991000	0.735	Up
483	1999	0.735	−1.597	2.870	−2.177	4.223	0.8696600	−0.535	Down
484	1999	−0.535	0.735	−1.597	2.870	−2.177	0.7919200	−0.561	Down
485	1999	−0.561	−0.535	0.735	−1.597	2.870	0.7317600	−2.139	Down
486	1999	−2.139	−0.561	−0.535	0.735	−1.597	0.7827120	1.990	Up
487	1999	1.990	−2.139	−0.561	−0.535	0.735	0.7064750	−2.569	Down
488	1999	−2.569	1.990	−2.139	−0.561	−0.535	0.6853800	3.803	Up

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489   1999    3.803   -2.569    1.990   -2.139   -0.561 0.7575200   -2.050        Down
490   1999   -2.050    3.803   -2.569    1.990   -2.139 0.6897520    5.771          Up
491   1999    5.771   -2.050    3.803   -2.569    1.990 0.8093960    0.867          Up
492   1999    0.867    5.771   -2.050    3.803   -2.569 0.7614250    1.105          Up
493   1999    1.105    0.867    5.771   -2.050    3.803 0.7420600   -4.359        Down
494   1999   -4.359    1.105    0.867    5.771   -2.050 0.7169820   -2.080        Down
495   1999   -2.080   -4.359    1.105    0.867    5.771 0.7070100   -2.140        Down
496   1999   -2.140   -2.080   -4.359    1.105    0.867 0.7473300    2.106          Up
497   1999    2.106   -2.140   -2.080   -4.359    1.105 0.7500200    0.673          Up
498   1999    0.673    2.106   -2.140   -2.080   -4.359 0.6606500    0.872          Up
499   1999    0.872    0.673    2.106   -2.140   -2.080 0.7137900    0.665          Up
500   1999    0.665    0.872    0.673    2.106   -2.140 0.7036200   -0.411        Down
501   1999   -0.411    0.665    0.872    0.673    2.106 0.7722250   -1.201        Down
502   1999   -1.201   -0.411    0.665    0.872    0.673 0.7561200   -4.348        Down
503   1999   -4.348   -1.201   -0.411    0.665    0.872 0.7942200    0.427          Up
504   1999    0.427   -4.348   -1.201   -0.411    0.665 0.8871600    4.148          Up
505   1999    4.148    0.427   -4.348   -1.201   -0.411 0.8778600   -6.632        Down
506   1999   -6.632    4.148    0.427   -4.348   -1.201 0.8121200    4.348          Up
507   1999    4.348   -6.632    4.148    0.427   -4.348 0.9249800    4.708          Up
508   1999    4.708    4.348   -6.632    4.148    0.427 0.9722000    0.536          Up
509   1999    0.536    4.708    4.348   -6.632    4.148 0.9337800    1.885          Up
510   1999    1.885    0.536    4.708    4.348   -6.632 0.8874600    1.858          Up
511   1999    1.858    1.885    0.536    4.708    4.348 0.9229000   -0.378        Down
512   1999   -0.378    1.858    1.885    0.536    4.708 0.7116300    1.177          Up
513   1999    1.177   -0.378    1.858    1.885    0.536 0.9217400   -1.134        Down
514   1999   -1.134    1.177   -0.378    1.858    1.885 1.0137800    0.282          Up
515   1999    0.282   -1.134    1.177   -0.378    1.858 1.0918800    2.626          Up
516   1999    2.626    0.282   -1.134    1.177   -0.378 0.8616750    0.748          Up
517   2000    0.748    2.626    0.282   -1.134    1.177 0.5749180   -1.891        Down
518   2000   -1.891    0.748    2.626    0.282   -1.134 1.0687600    1.643          Up
519   2000    1.643   -1.891    0.748    2.626    0.282 1.0339400   -1.624        Down
520   2000   -1.624    1.643   -1.891    0.748    2.626 1.1137500   -5.634        Down
521   2000   -5.634   -1.624    1.643   -1.891    0.748 1.1064200    4.721          Up
522   2000    4.721   -5.634   -1.624    1.643   -1.891 1.0410000   -2.615        Down
523   2000   -2.615    4.721   -5.634   -1.624    1.643 1.0201600   -2.958        Down
524   2000   -2.958   -2.615    4.721   -5.634   -1.624 1.0230600   -0.946        Down
525   2000   -0.946   -2.958   -2.615    4.721   -5.634 1.0634750    5.686          Up
526   2000    5.686   -0.946   -2.958   -2.615    4.721 1.1707600   -1.001        Down
527   2000   -1.001    5.686   -0.946   -2.958   -2.615 1.1615800    4.975          Up
528   2000    4.975   -1.001    5.686   -0.946   -2.958 1.2380600    4.301          Up
529   2000    4.301    4.975   -1.001    5.686   -0.946 1.0384400   -1.891        Down
530   2000   -1.891    4.301    4.975   -1.001    5.686 1.0685600    1.186          Up
531   2000    1.186   -1.891    4.301    4.975   -1.001 1.1094120  -10.538        Down
532   2000  -10.538    1.186   -1.891    4.301    4.975 1.0625400    5.748          Up
533   2000    5.748  -10.538    1.186   -1.891    4.301 1.0529250    1.247          Up
534   2000    1.247    5.748  -10.538    1.186   -1.891 1.0070000   -1.363        Down
535   2000   -1.363    1.247    5.748  -10.538    1.186 0.9401400   -0.815        Down
536   2000   -0.815   -1.363    1.247    5.748  -10.538 0.9004800   -0.986        Down
537   2000   -0.986   -0.815   -1.363    1.247    5.748 0.8584400   -2.056        Down
538   2000   -2.056   -0.986   -0.815   -1.363    1.247 0.9196600    7.202          Up
539   2000    7.202   -2.056   -0.986   -0.815   -1.363 0.9818000   -1.375        Down
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540	2000	−1.375	7.202	−2.056	−0.986	−0.815	0.8567200	0.515	Up
541	2000	0.515	−1.375	7.202	−2.056	−0.986	0.9803800	−1.569	Down
542	2000	−1.569	0.515	−1.375	7.202	−2.056	0.9666200	0.910	Up
543	2000	0.910	−1.569	0.515	−1.375	7.202	1.1194400	1.671	Up
544	2000	1.671	0.910	−1.569	0.515	−1.375	0.8375500	2.102	Up
545	2000	2.102	1.671	0.910	−1.569	0.515	0.9615600	−1.973	Down
546	2000	−1.973	2.102	1.671	0.910	−1.569	0.9513200	−4.074	Down
547	2000	−4.074	−1.973	2.102	1.671	0.910	1.0443800	3.031	Up
548	2000	3.031	−4.074	−1.973	2.102	1.671	0.9874800	0.609	Up
549	2000	0.609	3.031	−4.074	−1.973	2.102	0.9354600	1.351	Up
550	2000	1.351	0.609	3.031	−4.074	−1.973	0.8706600	0.987	Up
551	2000	0.987	1.351	0.609	3.031	−4.074	0.7888200	0.951	Up
552	2000	0.951	0.987	1.351	0.609	3.031	0.8343800	−1.727	Down
553	2000	−1.727	0.951	0.987	1.351	0.609	0.9450250	−1.920	Down
554	2000	−1.920	−1.727	0.951	0.987	1.351	1.0482400	−1.166	Down
555	2000	−1.166	−1.920	−1.727	0.951	0.987	1.0764600	−0.843	Down
556	2000	−0.843	−1.166	−1.920	−1.727	0.951	1.1334000	−1.916	Down
557	2000	−1.916	−0.843	−1.166	−1.920	−1.727	1.1285800	−2.471	Down
558	2000	−2.471	−1.916	−0.843	−1.166	−1.920	1.1521200	1.656	Up
559	2000	1.656	−2.471	−1.916	−0.843	−1.166	1.2167800	−1.242	Down
560	2000	−1.242	1.656	−2.471	−1.916	−0.843	1.1822200	3.415	Up
561	2000	3.415	−1.242	1.656	−2.471	−1.916	1.1850200	−4.255	Down
562	2000	−4.255	3.415	−1.242	1.656	−2.471	0.9589200	0.127	Up
563	2000	0.127	−4.255	3.415	−1.242	1.656	1.0683200	−1.897	Down
564	2000	−1.897	0.127	−4.255	3.415	−1.242	0.8652425	−1.978	Down
565	2000	−1.978	−1.897	0.127	−4.255	3.415	0.9516260	4.156	Up
566	2000	4.156	−1.978	−1.897	0.127	−4.255	1.1777800	−4.215	Down
567	2000	−4.215	4.156	−1.978	−1.897	0.127	1.2206600	−0.473	Down
568	2000	−0.473	−4.215	4.156	−1.978	−1.897	1.2946800	1.097	Up
569	2001	1.097	−0.473	−4.215	4.156	−1.978	0.9875000	−1.661	Down
570	2001	−1.661	1.097	−0.473	−4.215	4.156	1.6429750	1.556	Up
571	2001	1.556	−1.661	1.097	−0.473	−4.215	1.2581000	1.819	Up
572	2001	1.819	1.556	−1.661	1.097	−0.473	1.3519000	0.924	Up
573	2001	0.924	1.819	1.556	−1.661	1.097	1.2123200	−0.404	Down
574	2001	−0.404	0.924	1.819	1.556	−1.661	1.1330800	−2.572	Down
575	2001	−2.572	−0.404	0.924	1.819	1.556	1.0827200	−1.006	Down
576	2001	−1.006	−2.572	−0.404	0.924	1.819	1.1351000	−4.277	Down
577	2001	−4.277	−1.006	−2.572	−0.404	0.924	1.2294750	−0.938	Down
578	2001	−0.938	−4.277	−1.006	−2.572	−0.404	1.2118200	−0.062	Down
579	2001	−0.062	−0.938	−4.277	−1.006	−2.572	1.0706400	−6.720	Down
580	2001	−6.720	−0.062	−0.938	−4.277	−1.006	1.3580720	−0.930	Down
581	2001	−0.930	−6.720	−0.062	−0.938	−4.277	1.3594500	1.799	Up
582	2001	1.799	−0.930	−6.720	−0.062	−0.938	1.2553800	−2.749	Down
583	2001	−2.749	1.799	−0.930	−6.720	−0.062	1.3402780	4.880	Up
584	2001	4.880	−2.749	1.799	−0.930	−6.720	1.2011750	5.026	Up
585	2001	5.026	4.880	−2.749	1.799	−0.930	1.3535800	0.810	Up
586	2001	0.810	5.026	4.880	−2.749	1.799	1.1738400	1.082	Up
587	2001	1.082	0.810	5.026	4.880	−2.749	1.2020600	−1.653	Down
588	2001	−1.653	1.082	0.810	5.026	4.880	1.0101200	3.716	Up
589	2001	3.716	−1.653	1.082	0.810	5.026	1.1643400	−1.089	Down
590	2001	−1.089	3.716	−1.653	1.082	0.810	1.0997800	−1.348	Down

591	2001	−1.348	−1.089	3.716	−1.653	1.082	1.1065500	0.340	Up
592	2001	0.340	−1.348	−1.089	3.716	−1.653	0.9662000	−4.000	Down
593	2001	−4.000	0.340	−1.348	−1.089	3.716	1.1897300	0.905	Up
594	2001	0.905	−4.000	0.340	−1.348	−1.089	1.2765240	−0.079	Down
595	2001	−0.079	0.905	−4.000	0.340	−1.348	1.3141520	−2.760	Down
596	2001	−2.760	−0.079	0.905	−4.000	0.340	0.9355025	2.107	Up
597	2001	2.107	−2.760	−0.079	0.905	−4.000	1.2418600	−0.397	Down
598	2001	−0.397	2.107	−2.760	−0.079	0.905	1.2217200	−0.415	Down
599	2001	−0.415	−0.397	2.107	−2.760	−0.079	1.1391000	0.707	Up
600	2001	0.707	−0.415	−0.397	2.107	−2.760	1.1073600	−1.992	Down
601	2001	−1.992	0.707	−0.415	−0.397	2.107	1.0026800	−2.369	Down
602	2001	−2.369	−1.992	0.707	−0.415	−0.397	0.9795000	1.976	Up
603	2001	1.976	−2.369	−1.992	0.707	−0.415	1.0158600	−4.334	Down
604	2001	−4.334	1.976	−2.369	−1.992	0.707	0.9741000	−4.217	Down
605	2001	−4.217	−4.334	1.976	−2.369	−1.992	1.3367000	−11.050	Down
606	2001	−11.050	−4.217	−4.334	1.976	−2.369	1.9500816	7.780	Up
607	2001	7.780	−11.050	−4.217	−4.334	1.976	1.5956000	2.924	Up
608	2001	2.924	7.780	−11.050	−4.217	−4.334	1.4053600	1.892	Up
609	2001	1.892	2.924	7.780	−11.050	−4.217	1.3110360	−1.664	Down
610	2001	−1.664	1.892	2.924	7.780	−11.050	1.2490400	2.900	Up
611	2001	2.900	−1.664	1.892	2.924	7.780	1.2736200	−1.576	Down
612	2001	−1.576	2.900	−1.664	1.892	2.924	1.2390600	3.045	Up
613	2001	3.045	−1.576	2.900	−1.664	1.892	1.3292600	1.637	Up
614	2001	1.637	3.045	−1.576	2.900	−1.664	1.3194000	1.027	Up
615	2001	1.027	1.637	3.045	−1.576	2.900	1.0216500	−0.947	Down
616	2001	−0.947	1.027	1.637	3.045	−1.576	1.3121600	1.655	Up
617	2001	1.655	−0.947	1.027	1.637	3.045	1.4045600	−3.041	Down
618	2001	−3.041	1.655	−0.947	1.027	1.637	1.3707800	1.941	Up
619	2001	1.941	−3.041	1.655	−0.947	1.027	1.4567600	1.409	Up
620	2001	1.409	1.941	−3.041	1.655	−0.947	0.7561175	0.990	Up
621	2002	0.990	1.409	1.941	−3.041	1.655	1.2566250	−2.295	Down
622	2002	−2.295	0.990	1.409	1.941	−3.041	1.3060000	−1.573	Down
623	2002	−1.573	−2.295	0.990	1.409	1.941	1.3738400	0.506	Up
624	2002	0.506	−1.573	−2.295	0.990	1.409	1.4221750	−0.978	Down
625	2002	−0.978	0.506	−1.573	−2.295	0.990	1.5885200	−2.315	Down
626	2002	−2.315	−0.978	0.506	−1.573	−2.295	1.5390400	0.726	Up
627	2002	0.726	−2.315	−0.978	0.506	−1.573	1.2202400	−1.299	Down
628	2002	−1.299	0.726	−2.315	−0.978	0.506	1.3553500	3.848	Up
629	2002	3.848	−1.299	0.726	−2.315	−0.978	1.3838200	2.874	Up
630	2002	2.874	3.848	−1.299	0.726	−2.315	1.5228600	0.159	Up
631	2002	0.159	2.874	3.848	−1.299	0.726	1.3142600	−1.497	Down
632	2002	−1.497	0.159	2.874	3.848	−1.299	1.2623800	−0.114	Down
633	2002	−0.114	−1.497	0.159	2.874	3.848	1.1523000	−2.149	Down
634	2002	−2.149	−0.114	−1.497	0.159	2.874	1.1682600	−1.044	Down
635	2002	−1.044	−2.149	−0.114	−1.497	0.159	1.3132600	1.275	Up
636	2002	1.275	−1.044	−2.149	−0.114	−1.497	1.2765800	−4.342	Down
637	2002	−4.342	1.275	−1.044	−2.149	−0.114	1.3670200	−0.269	Down
638	2002	−0.269	−4.342	1.275	−1.044	−2.149	1.4086400	−1.718	Down
639	2002	−1.718	−0.269	−4.342	1.275	−1.044	1.2608400	4.891	Up
640	2002	4.891	−1.718	−0.269	−4.342	1.275	1.2908600	−2.058	Down
641	2002	−2.058	4.891	−1.718	−0.269	−4.342	1.0809800	−1.539	Down

642	2002	−1.539	−2.058	4.891	−1.718	−0.269	1.1605500	−3.712	Down
643	2002	−3.712	−1.539	−2.058	4.891	−1.718	1.4067600	−1.972	Down
644	2002	−1.972	−3.712	−1.539	−2.058	4.891	1.4377640	−1.800	Down
645	2002	−1.800	−1.972	−3.712	−1.539	−2.058	1.3305400	0.069	Up
646	2002	0.069	−1.800	−1.972	−3.712	−1.539	1.8212380	−0.080	Down
647	2002	−0.080	0.069	−1.800	−1.972	−3.712	1.3689250	−6.839	Down
648	2002	−6.839	−0.080	0.069	−1.800	−1.972	1.6076160	−7.992	Down
649	2002	−7.992	−6.839	−0.080	0.069	−1.800	2.2750800	0.600	Up
650	2002	0.600	−7.992	−6.839	−0.080	0.069	2.3370880	1.337	Up
651	2002	1.337	0.600	−7.992	−6.839	−0.080	1.7728800	5.137	Up
652	2002	5.137	1.337	0.600	−7.992	−6.839	1.4743200	2.215	Up
653	2002	2.215	5.137	1.337	0.600	−7.992	1.3276800	1.302	Up
654	2002	1.302	2.215	5.137	1.337	0.600	1.2811800	−2.635	Down
655	2002	−2.635	1.302	2.215	5.137	1.337	1.1344400	−2.418	Down
656	2002	−2.418	−2.635	1.302	2.215	5.137	1.3119250	−0.460	Down
657	2002	−0.460	−2.418	−2.635	1.302	2.215	1.1252400	−4.992	Down
658	2002	−4.992	−0.460	−2.418	−2.635	1.302	1.4535600	−2.132	Down
659	2002	−2.132	−4.992	−0.460	−2.418	−2.635	1.5720280	−3.238	Down
660	2002	−3.238	−2.132	−4.992	−0.460	−2.418	1.7364200	4.339	Up
661	2002	4.339	−3.238	−2.132	−4.992	−0.460	1.8688640	5.874	Up
662	2002	5.874	4.339	−3.238	−2.132	−4.992	1.5889580	1.499	Up
663	2002	1.499	5.874	4.339	−3.238	−2.132	1.5262140	0.369	Up
664	2002	0.369	1.499	5.874	4.339	−3.238	1.4852600	−0.690	Down
665	2002	−0.690	0.369	1.499	5.874	4.339	1.5174800	1.687	Up
666	2002	1.687	−0.690	0.369	1.499	5.874	1.3745200	2.277	Up
667	2002	2.277	1.687	−0.690	0.369	1.499	1.6358400	0.619	Up
668	2002	0.619	2.277	1.687	−0.690	0.369	1.2778400	−2.572	Down
669	2002	−2.572	0.619	2.277	1.687	−0.690	1.4361200	−2.494	Down
670	2002	−2.494	−2.572	0.619	2.277	1.687	1.2957200	0.706	Up
671	2002	0.706	−2.494	−2.572	0.619	2.277	1.4276460	−2.273	Down
672	2002	−2.273	0.706	−2.494	−2.572	0.619	0.7624775	3.791	Up
673	2003	3.791	−2.273	0.706	−2.494	−2.572	1.1265750	2.089	Up
674	2003	2.089	3.791	−2.273	0.706	−2.494	1.4988800	−2.780	Down
675	2003	−2.780	2.089	3.791	−2.273	0.706	1.4201200	−4.478	Down
676	2003	−4.478	−2.780	2.089	3.791	−2.273	1.5538375	−0.662	Down
677	2003	−0.662	−4.478	−2.780	2.089	3.791	1.5158460	−3.040	Down
678	2003	−3.040	−0.662	−4.478	−2.780	2.089	1.3737200	0.627	Up
679	2003	0.627	−3.040	−0.662	−4.478	−2.780	1.3399200	1.591	Up
680	2003	1.591	0.627	−3.040	−0.662	−4.478	1.2296750	−0.828	Down
681	2003	−0.828	1.591	0.627	−3.040	−0.662	1.3496800	−1.458	Down
682	2003	−1.458	−0.828	1.591	0.627	−3.040	1.2931800	0.528	Up
683	2003	0.528	−1.458	−0.828	1.591	0.627	1.5321800	7.503	Up
684	2003	7.503	0.528	−1.458	−0.828	1.591	1.6103460	−3.605	Down
685	2003	−3.605	7.503	0.528	−1.458	−0.828	1.2812000	1.778	Up
686	2003	1.778	−3.605	7.503	0.528	−1.458	1.4255200	−1.200	Down
687	2003	−1.200	1.778	−3.605	7.503	0.528	1.2880000	2.911	Up
688	2003	2.911	−1.200	1.778	−3.605	7.503	1.4023500	0.585	Up
689	2003	0.585	2.911	−1.200	1.778	−3.605	1.4802000	3.479	Up
690	2003	3.479	0.585	2.911	−1.200	1.778	1.5077820	0.358	Up
691	2003	0.358	3.479	0.585	2.911	−1.200	1.4667000	1.167	Up
692	2003	1.167	0.358	3.479	0.585	2.911	1.4425800	−1.173	Down

693	2003	−1.173	1.167	0.358	3.479	0.585	1.3976600	3.254	Up
694	2003	3.254	−1.173	1.167	0.358	3.479	1.6164000	2.508	Up
695	2003	2.508	3.254	−1.173	1.167	0.358	1.6523400	0.086	Up
696	2003	0.086	2.508	3.254	−1.173	1.167	1.3854200	0.716	Up
697	2003	0.716	0.086	2.508	3.254	−1.173	1.5085200	−1.955	Down
698	2003	−1.955	0.716	0.086	2.508	3.254	1.3801600	0.971	Up
699	2003	0.971	−1.955	0.716	0.086	2.508	1.3356500	1.262	Up
700	2003	1.262	0.971	−1.955	0.716	0.086	1.4582400	−0.483	Down
701	2003	−0.483	1.262	0.971	−1.955	0.716	1.5312200	0.540	Up
702	2003	0.540	−0.483	1.262	0.971	−1.955	1.4026200	−1.855	Down
703	2003	−1.855	0.540	−0.483	1.262	0.971	1.4456000	−0.261	Down
704	2003	−0.261	−1.855	0.540	−0.483	1.262	1.3274600	1.338	Up
705	2003	1.338	−0.261	−1.855	0.540	−0.483	1.0372940	0.241	Up
706	2003	0.241	1.338	−0.261	−1.855	0.540	1.2710000	1.505	Up
707	2003	1.505	0.241	1.338	−0.261	−1.855	1.0624200	1.327	Up
708	2003	1.327	1.505	0.241	1.338	−0.261	1.5163000	−0.270	Down
709	2003	−0.270	1.327	1.505	0.241	1.338	1.3737600	1.735	Up
710	2003	1.735	−0.270	1.327	1.505	0.241	1.3820220	−3.807	Down
711	2003	−3.807	1.735	−0.270	1.327	1.505	1.4278000	3.310	Up
712	2003	3.310	−3.807	1.735	−0.270	1.327	1.4726200	0.797	Up
713	2003	0.797	3.310	−3.807	1.735	−0.270	1.2509200	0.121	Up
714	2003	0.121	0.797	3.310	−3.807	1.735	1.3206400	−1.002	Down
715	2003	−1.002	0.121	0.797	3.310	−3.807	1.4684800	2.119	Up
716	2003	2.119	−1.002	0.121	0.797	3.310	1.5384400	0.238	Up
717	2003	0.238	2.119	−1.002	0.121	0.797	1.4184000	−0.272	Down
718	2003	−0.272	0.238	2.119	−1.002	0.121	1.2989000	−1.435	Down
719	2003	−1.435	−0.272	0.238	2.119	−1.002	1.3310600	2.214	Up
720	2003	2.214	−1.435	−0.272	0.238	2.119	1.0553550	0.312	Up
721	2003	0.312	2.214	−1.435	−0.272	0.238	1.3857800	1.191	Up
722	2003	1.191	0.312	2.214	−1.435	−0.272	1.3585200	1.352	Up
723	2003	1.352	1.191	0.312	2.214	−1.435	1.5495200	0.664	Up
724	2003	0.664	1.352	1.191	0.312	2.214	0.8177825	1.149	Up
725	2004	1.149	0.664	1.352	1.191	0.312	1.0630250	1.207	Up
726	2004	1.207	1.149	0.664	1.352	1.191	1.6733400	1.602	Up
727	2004	1.602	1.207	1.149	0.664	1.352	1.6073600	0.151	Up
728	2004	0.151	1.602	1.207	1.149	0.664	1.6776750	−0.913	Down
729	2004	−0.913	0.151	1.602	1.207	1.149	1.7105200	1.028	Up
730	2004	1.028	−0.913	0.151	1.602	1.207	1.5510200	0.267	Up
731	2004	0.267	1.028	−0.913	0.151	1.602	1.4400400	−0.148	Down
732	2004	−0.148	0.267	1.028	−0.913	0.151	1.4553250	0.073	Up
733	2004	0.073	−0.148	0.267	1.028	−0.913	1.4418000	1.041	Up
734	2004	1.041	0.073	−0.148	0.267	1.028	1.3943200	−3.137	Down
735	2004	−3.137	1.041	0.073	−0.148	0.267	1.5361200	−0.963	Down
736	2004	−0.963	−3.137	1.041	0.073	−0.148	1.4836000	−0.155	Down
737	2004	−0.155	−0.963	−3.137	1.041	0.073	1.4458200	3.046	Up
738	2004	3.046	−0.155	−0.963	−3.137	1.041	1.4977000	−0.218	Down
739	2004	−0.218	3.046	−0.155	−0.963	−3.137	1.3675000	−0.413	Down
740	2004	−0.413	−0.218	3.046	−0.155	−0.963	1.4259600	0.528	Up
741	2004	0.528	−0.413	−0.218	3.046	−0.155	1.5328600	−2.920	Down
742	2004	−2.920	0.528	−0.413	−0.218	3.046	1.6315800	−0.777	Down
743	2004	−0.777	−2.920	0.528	−0.413	−0.218	1.5731200	−0.273	Down

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744   2004   −0.273   −0.777   −2.920    0.528   −0.413 1.5793600   −0.195     Down
745   2004   −0.195   −0.273   −0.777   −2.920    0.528 1.3602600    2.480     Up
746   2004    2.480   −0.195   −0.273   −0.777   −2.920 1.3525400    0.162     Up
747   2004    0.162    2.480   −0.195   −0.273   −0.777 1.2093500    1.245     Up
748   2004    1.245    0.162    2.480   −0.195   −0.273 1.2098750   −0.128     Down
749   2004   −0.128    1.245    0.162    2.480   −0.195 1.2982000   −0.052     Down
750   2004   −0.052   −0.128    1.245    0.162    2.480 1.4316400   −0.798     Down
751   2004   −0.798   −0.052   −0.128    1.245    0.162 1.3568200   −1.117     Down
752   2004   −1.117   −0.798   −0.052   −0.128    1.245 1.2998250   −1.026     Down
753   2004   −1.026   −1.117   −0.798   −0.052   −0.128 1.3270600   −1.379     Down
754   2004   −1.379   −1.026   −1.117   −0.798   −0.052 1.4927000    1.429     Up
755   2004    1.429   −1.379   −1.026   −1.117   −0.798 1.4813600   −3.426     Down
756   2004   −3.426    1.429   −1.379   −1.026   −1.117 1.3803800    0.078     Up
757   2004    0.078   −3.426    1.429   −1.379   −1.026 1.2644400    3.151     Up
758   2004    3.151    0.078   −3.426    1.429   −1.379 1.2411600    0.858     Up
759   2004    0.858    3.151    0.078   −3.426    1.429 1.0351200    0.529     Up
760   2004    0.529    0.858    3.151    0.078   −3.426 1.0331940    0.924     Up
761   2004    0.924    0.529    0.858    3.151    0.078 1.2733000    0.412     Up
762   2004    0.412    0.924    0.529    0.858    3.151 1.2593600   −1.634     Down
763   2004   −1.634    0.412    0.924    0.529    0.858 1.2888400    1.927     Up
764   2004    1.927   −1.634    0.412    0.924    0.529 1.4786400   −0.827     Down
765   2004   −0.827    1.927   −1.634    0.412    0.924 1.4216400   −1.242     Down
766   2004   −1.242   −0.827    1.927   −1.634    0.412 1.3889400   −1.124     Down
767   2004   −1.124   −1.242   −0.827    1.927   −1.634 1.5878200    3.145     Up
768   2004    3.145   −1.124   −1.242   −0.827    1.927 1.5873600    3.183     Up
769   2004    3.183    3.145   −1.124   −1.242   −0.827 1.6659000    1.544     Up
770   2004    1.544    3.183    3.145   −1.124   −1.242 1.4476800   −1.168     Down
771   2004   −1.168    1.544    3.183    3.145   −1.124 1.4970400    1.052     Up
772   2004    1.052   −1.168    1.544    3.183    3.145 1.1187950    0.720     Up
773   2004    0.720    1.052   −1.168    1.544    3.183 1.6092800   −0.266     Down
774   2004   −0.266    0.720    1.052   −1.168    1.544 1.4963800    0.522     Up
775   2004    0.522   −0.266    0.720    1.052   −1.168 1.7610400    1.334     Up
776   2004    1.334    0.522   −0.266    0.720    1.052 1.3133500    0.148     Up
777   2005    0.148    1.334    0.522   −0.266    0.720 0.8895200   −2.123     Down
778   2005   −2.123    0.148    1.334    0.522   −0.266 1.6035400   −0.141     Down
779   2005   −0.141   −2.123    0.148    1.334    0.522 1.4774000   −1.406     Down
780   2005   −1.406   −0.141   −2.123    0.148    1.334 1.6077500    0.299     Up
781   2005    0.299   −1.406   −0.141   −2.123    0.148 1.5966600    2.704     Up
782   2005    2.704    0.299   −1.406   −0.141   −2.123 1.6252280    0.189     Up
783   2005    0.189    2.704    0.299   −1.406   −0.141 1.4656900   −0.308     Down
784   2005   −0.308    0.189    2.704    0.299   −1.406 1.4877360    0.814     Up
785   2005    0.814   −0.308    0.189    2.704    0.299 1.5721150    0.887     Up
786   2005    0.887    0.814   −0.308    0.189    2.704 1.6650280   −1.803     Down
787   2005   −1.803    0.887    0.814   −0.308    0.189 1.5541460   −0.869     Down
788   2005   −0.869   −1.803    0.887    0.814   −0.308 1.7060900   −1.532     Down
789   2005   −1.532   −0.869   −1.803    0.887    0.814 1.9756250    0.128     Up
790   2005    0.128   −1.532   −0.869   −1.803    0.887 2.0899000    0.706     Up
791   2005    0.706    0.128   −1.532   −0.869   −1.803 1.8619840   −3.266     Down
792   2005   −3.266    0.706    0.128   −1.532   −0.869 2.1199760    0.831     Up
793   2005    0.831   −3.266    0.706    0.128   −1.532 2.1789720    0.411     Up
794   2005    0.411    0.831   −3.266    0.706    0.128 2.0901840    1.253     Up
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795	2005	1.253	0.411	0.831	−3.266	0.706	2.0315680	−1.477	Down
796	2005	−1.477	1.253	0.411	0.831	−3.266	1.9531060	3.053	Up
797	2005	3.053	−1.477	1.253	0.411	0.831	1.8836100	0.799	Up
798	2005	0.799	3.053	−1.477	1.253	0.411	1.6279780	−0.230	Down
799	2005	−0.230	0.799	3.053	−1.477	1.253	1.7730225	0.175	Up
800	2005	0.175	−0.230	0.799	3.053	−1.477	1.7204560	1.573	Up
801	2005	1.573	0.175	−0.230	0.799	3.053	1.8766700	−2.086	Down
802	2005	−2.086	1.573	0.175	−0.230	0.799	1.9414400	0.241	Up
803	2005	0.241	−2.086	1.573	0.175	−0.230	1.7967240	1.458	Up
804	2005	1.458	0.241	−2.086	1.573	0.175	1.8856350	1.325	Up
805	2005	1.325	1.458	0.241	−2.086	1.573	1.8711840	0.469	Up
806	2005	0.469	1.325	1.458	0.241	−2.086	1.9167100	0.041	Up
807	2005	0.041	0.469	1.325	1.458	0.241	1.8777680	−0.629	Down
808	2005	−0.629	0.041	0.469	1.325	1.458	1.9342940	0.324	Up
809	2005	0.324	−0.629	0.041	0.469	1.325	1.9049680	−0.868	Down
810	2005	−0.868	0.324	−0.629	0.041	0.469	1.7218800	−1.198	Down
811	2005	−1.198	−0.868	0.324	−0.629	0.041	1.6685900	1.072	Up
812	2005	1.072	−1.198	−0.868	0.324	−0.629	1.9502900	1.926	Up
813	2005	1.926	1.072	−1.198	−0.868	0.324	1.9869325	−0.288	Down
814	2005	−0.288	1.926	1.072	−1.198	−0.868	2.2477940	−1.827	Down
815	2005	−1.827	−0.288	1.926	1.072	−1.198	2.2683360	1.112	Up
816	2005	1.112	−1.827	−0.288	1.926	1.072	2.0758220	−2.678	Down
817	2005	−2.678	1.112	−1.827	−0.288	1.926	2.3807600	−0.780	Down
818	2005	−0.780	−2.678	1.112	−1.827	−0.288	2.3052800	−0.588	Down
819	2005	−0.588	−0.780	−2.678	1.112	−1.827	2.4086680	1.595	Up
820	2005	1.595	−0.588	−0.780	−2.678	1.112	2.3505560	1.813	Up
821	2005	1.813	1.595	−0.588	−0.780	−2.678	2.4881100	1.195	Up
822	2005	1.195	1.813	1.595	−0.588	−0.780	2.0637380	1.097	Up
823	2005	1.097	1.195	1.813	1.595	−0.588	2.2264120	1.601	Up
824	2005	1.601	1.097	1.195	1.813	1.595	1.7797775	−0.250	Down
825	2005	−0.250	1.601	1.097	1.195	1.813	2.2800680	−0.451	Down
826	2005	−0.451	−0.250	1.601	1.097	1.195	2.1210000	0.631	Up
827	2005	0.631	−0.451	−0.250	1.601	1.097	2.2353740	0.106	Up
828	2005	0.106	0.631	−0.451	−0.250	1.601	1.8889960	−1.606	Down
829	2006	−1.606	0.106	0.631	−0.451	−0.250	1.4472175	2.977	Up
830	2006	2.977	−1.606	0.106	0.631	−0.451	2.4874500	0.168	Up
831	2006	0.168	2.977	−1.606	0.106	0.631	2.3211120	−2.029	Down
832	2006	−2.029	0.168	2.977	−1.606	0.106	2.4257500	1.762	Up
833	2006	1.762	−2.029	0.168	2.977	−1.606	2.5924500	−1.534	Down
834	2006	−1.534	1.762	−2.029	0.168	2.977	2.4855920	0.234	Up
835	2006	0.234	−1.534	1.762	−2.029	0.168	2.3375120	1.598	Up
836	2006	1.598	0.234	−1.534	1.762	−2.029	2.1970720	0.170	Up
837	2006	0.170	1.598	0.234	−1.534	1.762	2.1009800	−0.171	Down
838	2006	−0.171	0.170	1.598	0.234	−1.534	2.2604080	−0.451	Down
839	2006	−0.451	−0.171	0.170	1.598	0.234	2.2509340	2.016	Up
840	2006	2.016	−0.451	−0.171	0.170	1.598	2.2740800	−0.329	Down
841	2006	−0.329	2.016	−0.451	−0.171	0.170	2.0942040	−0.620	Down
842	2006	−0.620	−0.329	2.016	−0.451	−0.171	2.1706180	0.049	Up
843	2006	0.049	−0.620	−0.329	2.016	−0.451	2.2851820	−0.492	Down
844	2006	−0.492	0.049	−0.620	−0.329	2.016	1.9903100	1.719	Up
845	2006	1.719	−0.492	0.049	−0.620	−0.329	2.3485900	−0.051	Down

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846   2006   −0.051    1.719   −0.492    0.049   −0.620  2.4356660    1.156    Up
847   2006    1.156   −0.051    1.719   −0.492    0.049  2.3923900   −2.604    Down
848   2006   −2.604    1.156   −0.051    1.719   −0.492  2.3353260   −1.875    Down
849   2006   −1.875   −2.604    1.156   −0.051    1.719  2.6483720    1.036    Up
850   2006    1.036   −1.875   −2.604    1.156   −0.051  2.5128080    0.630    Up
851   2006    0.630    1.036   −1.875   −2.604    1.156  2.3810125   −2.788    Down
852   2006   −2.788    0.630    1.036   −1.875   −2.604  2.6826160   −0.061    Down
853   2006   −0.061   −2.788    0.630    1.036   −1.875  2.7379280   −0.563    Down
854   2006   −0.563   −0.061   −2.788    0.630    1.036  2.2553660    2.065    Up
855   2006    2.065   −0.563   −0.061   −2.788    0.630  2.3676020   −0.372    Down
856   2006   −0.372    2.065   −0.563   −0.061   −2.788  1.8192125   −2.314    Down
857   2006   −2.314   −0.372    2.065   −0.563   −0.061  2.2857540    0.331    Up
858   2006    0.331   −2.314   −0.372    2.065   −0.563  2.4759620    3.085    Up
859   2006    3.085    0.331   −2.314   −0.372    2.065  2.5602980    0.063    Up
860   2006    0.063    3.085    0.331   −2.314   −0.372  2.5718300   −0.986    Down
861   2006   −0.986    0.063    3.085    0.331   −2.314  2.2930820    2.807    Up
862   2006    2.807   −0.986    0.063    3.085    0.331  2.2997880   −0.554    Down
863   2006   −0.554    2.807   −0.986    0.063    3.085  1.8319100    1.229    Up
864   2006    1.229   −0.554    2.807   −0.986    0.063  1.9528780   −0.922    Down
865   2006   −0.922    1.229   −0.554    2.807   −0.986  2.2257725    1.597    Up
866   2006    1.597   −0.922    1.229   −0.554    2.807  2.6888960   −0.370    Down
867   2006   −0.370    1.597   −0.922    1.229   −0.554  2.4098640    1.603    Up
868   2006    1.603   −0.370    1.597   −0.922    1.229  2.5608060    1.029    Up
869   2006    1.029    1.603   −0.370    1.597   −0.922  2.6394580    1.188    Up
870   2006    1.188    1.029    1.603   −0.370    1.597  2.3659160    0.218    Up
871   2006    0.218    1.188    1.029    1.603   −0.370  2.5261240    0.639    Up
872   2006    0.639    0.218    1.188    1.029    1.603  2.7125320   −0.947    Down
873   2006   −0.947    0.639    0.218    1.188    1.029  2.6921080    1.217    Up
874   2006    1.217   −0.947    0.639    0.218    1.188  2.6574020    1.470    Up
875   2006    1.470    1.217   −0.947    0.639    0.218  2.7613560   −0.018    Down
876   2006   −0.018    1.470    1.217   −0.947    0.639  2.0537275   −0.303    Down
877   2006   −0.303   −0.018    1.470    1.217   −0.947  2.9898280    0.940    Up
878   2006    0.940   −0.303   −0.018    1.470    1.217  2.6861820    1.224    Up
879   2006    1.224    0.940   −0.303   −0.018    1.470  2.7079220   −1.144    Down
880   2006   −1.144    1.224    0.940   −0.303   −0.018  2.3285660    0.534    Up
881   2007    0.534   −1.144    1.224    0.940   −0.303  1.5411125   −0.606    Down
882   2007   −0.606    0.534   −1.144    1.224    0.940  3.1176733    1.491    Up
883   2007    1.491   −0.606    0.534   −1.144    1.224  2.8221460   −0.016    Down
884   2007   −0.016    1.491   −0.606    0.534   −1.144  2.7224275   −0.582    Down
885   2007   −0.582   −0.016    1.491   −0.606    0.534  2.7838640    1.843    Up
886   2007    1.843   −0.582   −0.016    1.491   −0.606  2.7795520   −0.713    Down
887   2007   −0.713    1.843   −0.582   −0.016    1.491  2.6869900    1.216    Up
888   2007    1.216   −0.713    1.843   −0.582   −0.016  2.5274980   −0.299    Down
889   2007   −0.299    1.216   −0.713    1.843   −0.582  2.3688900   −4.412    Down
890   2007   −4.412   −0.299    1.216   −0.713    1.843  3.5999640    1.130    Up
891   2007    1.130   −4.412   −0.299    1.216   −0.713  3.1235860   −1.133    Down
892   2007   −1.133    1.130   −4.412   −0.299    1.216  3.2246920    3.544    Up
893   2007    3.544   −1.133    1.130   −4.412   −0.299  2.9013760   −1.062    Down
894   2007   −1.062    3.544   −1.133    1.130   −4.412  2.8373620    1.612    Up
895   2007    1.612   −1.062    3.544   −1.133    1.130  2.6927975    0.630    Up
896   2007    0.630    1.612   −1.062    3.544   −1.133  2.6540600    2.168    Up
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897	2007	2.168	0.630	1.612	−1.062	3.544	3.0011180	0.655	Up
898	2007	0.655	2.168	0.630	1.612	−1.062	2.9783940	0.773	Up
899	2007	0.773	0.655	2.168	0.630	1.612	3.0906940	0.015	Up
900	2007	0.015	0.773	0.655	2.168	0.630	2.8056760	1.122	Up
901	2007	1.122	0.015	0.773	0.655	2.168	2.9180380	−0.461	Down
902	2007	−0.461	1.122	0.015	0.773	0.655	3.0183800	1.360	Up
903	2007	1.360	−0.461	1.122	0.015	0.773	2.9536375	−1.866	Down
904	2007	−1.866	1.360	−0.461	1.122	0.015	3.0349000	1.674	Up
905	2007	1.674	−1.866	1.360	−0.461	1.122	2.9758140	−1.980	Down
906	2007	−1.980	1.674	−1.866	1.360	−0.461	3.2172320	0.053	Up
907	2007	0.053	−1.980	1.674	−1.866	1.360	3.2512100	1.802	Up
908	2007	1.802	0.053	−1.980	1.674	−1.866	2.3175625	1.441	Up
909	2007	1.441	1.802	0.053	−1.980	1.674	3.0666500	−1.185	Down
910	2007	−1.185	1.441	1.802	0.053	−1.980	3.2635400	−4.899	Down
911	2007	−4.899	−1.185	1.441	1.802	0.053	4.1517860	−1.775	Down
912	2007	−1.775	−4.899	−1.185	1.441	1.802	4.5102080	1.436	Up
913	2007	1.436	−1.775	−4.899	−1.185	1.441	5.3423060	−0.530	Down
914	2007	−0.530	1.436	−1.775	−4.899	−1.185	4.3762360	2.312	Up
915	2007	2.312	−0.530	1.436	−1.775	−4.899	3.0536800	−0.364	Down
916	2007	−0.364	2.312	−0.530	1.436	−1.775	2.7245820	−1.387	Down
917	2007	−1.387	−0.364	2.312	−0.530	1.436	2.8522175	2.112	Up
918	2007	2.112	−1.387	−0.364	2.312	−0.530	2.8511180	2.796	Up
919	2007	2.796	2.112	−1.387	−0.364	2.312	3.3582480	0.066	Up
920	2007	0.066	2.796	2.112	−1.387	−0.364	3.0708000	2.020	Up
921	2007	2.020	0.066	2.796	2.112	−1.387	3.0117360	0.270	Up
922	2007	0.270	2.020	0.066	2.796	2.112	2.9434800	−3.917	Down
923	2007	−3.917	0.270	2.020	0.066	2.796	3.4752200	2.309	Up
924	2007	2.309	−3.917	0.270	2.020	0.066	3.7160660	−1.669	Down
925	2007	−1.669	2.309	−3.917	0.270	2.020	3.7635060	−3.706	Down
926	2007	−3.706	−1.669	2.309	−3.917	0.270	4.4156840	0.347	Up
927	2007	0.347	−3.706	−1.669	2.309	−3.917	4.0950360	−1.237	Down
928	2007	−1.237	0.347	−3.706	−1.669	2.309	3.6709375	2.807	Up
929	2007	2.807	−1.237	0.347	−3.706	−1.669	4.0964280	1.588	Up
930	2007	1.588	2.807	−1.237	0.347	−3.706	3.4153620	−2.440	Down
931	2007	−2.440	1.588	2.807	−1.237	0.347	3.7020560	1.125	Up
932	2007	1.125	−2.440	1.588	2.807	−1.237	3.7459000	−0.402	Down
933	2007	−0.402	1.125	−2.440	1.588	2.807	2.0160500	−4.522	Down
934	2008	−4.522	−0.402	1.125	−2.440	1.588	3.3722575	−0.752	Down
935	2008	−0.752	−4.522	−0.402	1.125	−2.440	4.7888020	−5.412	Down
936	2008	−5.412	−0.752	−4.522	−0.402	1.125	5.0064640	0.409	Up
937	2008	0.409	−5.412	−0.752	−4.522	−0.402	5.1009800	4.871	Up
938	2008	4.871	0.409	−5.412	−0.752	−4.522	4.5395420	−4.596	Down
939	2008	−4.596	4.871	0.409	−5.412	−0.752	4.0354580	1.405	Up
940	2008	1.405	−4.596	4.871	0.409	−5.412	3.7444520	0.231	Up
941	2008	0.231	1.405	−4.596	4.871	0.409	3.6883475	−1.661	Down
942	2008	−1.661	0.231	1.405	−4.596	4.871	4.0464840	−2.800	Down
943	2008	−2.800	−1.661	0.231	1.405	−4.596	4.4082660	−0.404	Down
944	2008	−0.404	−2.800	−1.661	0.231	1.405	4.8023480	3.212	Up
945	2008	3.212	−0.404	−2.800	−1.661	0.231	4.5919225	−1.075	Down
946	2008	−1.075	3.212	−0.404	−2.800	−1.661	4.0849400	4.195	Up
947	2008	4.195	−1.075	3.212	−0.404	−2.800	4.1755500	−2.742	Down

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948   2008   -2.742    4.195   -1.075    3.212   -0.404 3.6633780    4.314      Up
949   2008    4.314   -2.742    4.195   -1.075    3.212 3.8685760    0.540      Up
950   2008    0.540    4.314   -2.742    4.195   -1.075 3.9397780    1.149      Up
951   2008    1.149    0.540    4.314   -2.742    4.195 4.0666040   -1.812    Down
952   2008   -1.812    1.149    0.540    4.314   -2.742 3.7512440    2.670      Up
953   2008    2.670   -1.812    1.149    0.540    4.314 3.8095320   -3.467    Down
954   2008   -3.467    2.670   -1.812    1.149    0.540 3.9057240    1.777      Up
955   2008    1.777   -3.467    2.670   -1.812    1.149 3.8140425   -2.835    Down
956   2008   -2.835    1.777   -3.467    2.670   -1.812 4.3143580   -0.048    Down
957   2008   -0.048   -2.835    1.777   -3.467    2.670 4.5268560   -3.096    Down
958   2008   -3.096   -0.048   -2.835    1.777   -3.467 4.4438080   -3.001    Down
959   2008   -3.001   -3.096   -0.048   -2.835    1.777 5.0313200   -1.211    Down
960   2008   -1.211   -3.001   -3.096   -0.048   -2.835 4.8505750   -1.854    Down
961   2008   -1.854   -1.211   -3.001   -3.096   -0.048 5.8126320    1.710      Up
962   2008    1.710   -1.854   -1.211   -3.001   -3.096 6.5111240   -0.232    Down
963   2008   -0.232    1.710   -1.854   -1.211   -3.001 5.6634480    0.203      Up
964   2008    0.203   -0.232    1.710   -1.854   -1.211 5.0718900    2.857      Up
965   2008    2.857    0.203   -0.232    1.710   -1.854 4.1882400    0.145      Up
966   2008    0.145    2.857    0.203   -0.232    1.710 4.5344040   -0.462    Down
967   2008   -0.462    0.145    2.857    0.203   -0.232 4.0635480   -0.725    Down
968   2008   -0.725   -0.462    0.145    2.857    0.203 3.5300360   -3.159    Down
969   2008   -3.159   -0.725   -0.462    0.145    2.857 5.0175300    0.756      Up
970   2008    0.756   -3.159   -0.725   -0.462    0.145 6.8835840    0.270      Up
971   2008    0.270    0.756   -3.159   -0.725   -0.462 9.3282140   -3.331    Down
972   2008   -3.331    0.270    0.756   -3.159   -0.725 5.3198940   -9.399    Down
973   2008   -9.399   -3.331    0.270    0.756   -3.159 6.2053260  -18.195    Down
974   2008  -18.195   -9.399   -3.331    0.270    0.756 8.4033579    4.596      Up
975   2008    4.596  -18.195   -9.399   -3.331    0.270 7.3067940   -6.781    Down
976   2008   -6.781    4.596  -18.195   -9.399   -3.331 6.0359360   10.491      Up
977   2008   10.491   -6.781    4.596  -18.195   -9.399 6.4605960   -3.898    Down
978   2008   -3.898   10.491   -6.781    4.596  -18.195 5.2968160   -6.198    Down
979   2008   -6.198   -3.898   10.491   -6.781    4.596 5.8129340   -8.389    Down
980   2008   -8.389   -6.198   -3.898   10.491   -6.781 7.3490400   12.026      Up
981   2008   12.026   -8.389   -6.198   -3.898   10.491 5.8415650   -2.251    Down
982   2008   -2.251   12.026   -8.389   -6.198   -3.898 6.0939500    0.418      Up
983   2008    0.418   -2.251   12.026   -8.389   -6.198 5.9324540    0.926      Up
984   2008    0.926    0.418   -2.251   12.026   -8.389 5.8559720   -1.698    Down
985   2008   -1.698    0.926    0.418   -2.251   12.026 3.0871050    6.760      Up
986   2009    6.760   -1.698    0.926    0.418   -2.251 3.7931100   -4.448    Down
987   2009   -4.448    6.760   -1.698    0.926    0.418 5.0439040   -4.518    Down
988   2009   -4.518   -4.448    6.760   -1.698    0.926 5.9487580   -2.137    Down
989   2009   -2.137   -4.518   -4.448    6.760   -1.698 6.1297625   -0.730    Down
990   2009   -0.730   -2.137   -4.518   -4.448    6.760 5.6020040    5.173      Up
991   2009    5.173   -0.730   -2.137   -4.518   -4.448 6.2176320   -4.808    Down
992   2009   -4.808    5.173   -0.730   -2.137   -4.518 6.0088219   -6.868    Down
993   2009   -6.868   -4.808    5.173   -0.730   -2.137 6.4015151   -4.540    Down
994   2009   -4.540   -6.868   -4.808    5.173   -0.730 7.5507758   -7.035    Down
995   2009   -7.035   -4.540   -6.868   -4.808    5.173 7.5928440   10.707      Up
996   2009   10.707   -7.035   -4.540   -6.868   -4.808 7.4594358    1.585      Up
997   2009    1.585   10.707   -7.035   -4.540   -6.868 7.9632760    6.168      Up
998   2009    6.168    1.585   10.707   -7.035   -4.540 6.9528199    3.255      Up
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999	2009	3.255	6.168	1.585	10.707	−7.035	6.2868699	1.669	Up
1000	2009	1.669	3.255	6.168	1.585	10.707	6.2261876	1.522	Up
1001	2009	1.522	1.669	3.255	6.168	1.585	6.8393019	−0.388	Down
1002	2009	−0.388	1.522	1.669	3.255	6.168	7.0831699	1.303	Up
1003	2009	1.303	−0.388	1.522	1.669	3.255	6.0435580	5.893	Up
1004	2009	5.893	1.303	−0.388	1.522	1.669	7.9520240	−4.988	Down
1005	2009	−4.988	5.893	1.303	−0.388	1.522	6.3377520	0.467	Up
1006	2009	0.467	−4.988	5.893	1.303	−0.388	6.3397280	3.623	Up
1007	2009	3.623	0.467	−4.988	5.893	1.303	5.7888125	2.279	Up
1008	2009	2.279	3.623	0.467	−4.988	5.893	5.6624700	0.651	Up
1009	2009	0.651	2.279	3.623	0.467	−4.988	4.8663520	−2.640	Down
1010	2009	−2.640	0.651	2.279	3.623	0.467	5.1140260	−0.253	Down
1011	2009	−0.253	−2.640	0.651	2.279	3.623	5.1199160	−2.446	Down
1012	2009	−2.446	−0.253	−2.640	0.651	2.279	4.1724325	−1.929	Down
1013	2009	−1.929	−2.446	−0.253	−2.640	0.651	4.6733820	6.967	Up
1014	2009	6.967	−1.929	−2.446	−0.253	−2.640	4.7854640	4.134	Up
1015	2009	4.134	6.967	−1.929	−2.446	−0.253	5.0033000	0.839	Up
1016	2009	0.839	4.134	6.967	−1.929	−2.446	5.2949320	2.329	Up
1017	2009	2.329	0.839	4.134	6.967	−1.929	6.4279459	−0.632	Down
1018	2009	−0.632	2.329	0.839	4.134	6.967	5.3737640	2.195	Up
1019	2009	2.195	−0.632	2.329	0.839	4.134	4.6646500	0.273	Up
1020	2009	0.273	2.195	−0.632	2.329	0.839	5.7445820	−1.218	Down
1021	2009	−1.218	0.273	2.195	−0.632	2.329	5.2862600	2.591	Up
1022	2009	2.591	−1.218	0.273	2.195	−0.632	5.1379225	2.452	Up
1023	2009	2.452	2.591	−1.218	0.273	2.195	6.0469679	−2.239	Down
1024	2009	−2.239	2.452	2.591	−1.218	0.273	5.0813020	−1.836	Down
1025	2009	−1.836	−2.239	2.452	2.591	−1.218	5.2100800	4.514	Up
1026	2009	4.514	−1.836	−2.239	2.452	2.591	4.4667100	1.511	Up
1027	2009	1.511	4.514	−1.836	−2.239	2.452	4.7403700	−0.743	Down
1028	2009	−0.743	1.511	4.514	−1.836	−2.239	5.1184660	−4.021	Down
1029	2009	−4.021	−0.743	1.511	4.514	−1.836	6.0817140	3.195	Up
1030	2009	3.195	−4.021	−0.743	1.511	4.514	5.2902260	2.261	Up
1031	2009	2.261	3.195	−4.021	−0.743	1.511	4.2188720	−0.192	Down
1032	2009	−0.192	2.261	3.195	−4.021	−0.743	4.1225040	0.010	Up
1033	2009	0.010	−0.192	2.261	3.195	−4.021	3.2320000	1.328	Up
1034	2009	1.328	0.010	−0.192	2.261	3.195	4.5354680	0.039	Up
1035	2009	0.039	1.328	0.010	−0.192	2.261	4.1508760	−0.356	Down
1036	2009	−0.356	0.039	1.328	0.010	−0.192	5.6728740	2.178	Up
1037	2009	2.178	−0.356	0.039	1.328	0.010	3.0132625	−1.010	Down
1038	2010	−1.010	2.178	−0.356	0.039	1.328	2.3904275	2.680	Up
1039	2010	2.680	−1.010	2.178	−0.356	0.039	4.2230700	−0.782	Down
1040	2010	−0.782	2.680	−1.010	2.178	−0.356	4.3632460	−3.897	Down
1041	2010	−3.897	−0.782	2.680	−1.010	2.178	5.6545824	−1.639	Down
1042	2010	−1.639	−3.897	−0.782	2.680	−1.010	5.0795340	−0.715	Down
1043	2010	−0.715	−1.639	−3.897	−0.782	2.680	5.0822380	0.874	Up
1044	2010	0.874	−0.715	−1.639	−3.897	−0.782	4.4034160	3.130	Up
1045	2010	3.130	0.874	−0.715	−1.639	−3.897	4.0407250	−0.422	Down
1046	2010	−0.422	3.130	0.874	−0.715	−1.639	4.1940340	3.097	Up
1047	2010	3.097	−0.422	3.130	0.874	−0.715	4.0023300	0.991	Up
1048	2010	0.991	3.097	−0.422	3.130	0.874	4.8053180	0.862	Up
1049	2010	0.862	0.991	3.097	−0.422	3.130	4.5888000	0.577	Up

1050	2010	0.577	0.862	0.991	3.097	-0.422	4.7512780	0.987	Up
1051	2010	0.987	0.577	0.862	0.991	3.097	4.2379475	1.381	Up
1052	2010	1.381	0.987	0.577	0.862	0.991	4.4615540	-0.188	Down
1053	2010	-0.188	1.381	0.987	0.577	0.862	5.9749020	2.110	Up
1054	2010	2.110	-0.188	1.381	0.987	0.577	5.8000960	-2.513	Down
1055	2010	-2.513	2.110	-0.188	1.381	0.987	6.3104560	-6.388	Down
1056	2010	-6.388	-2.513	2.110	-0.188	1.381	7.6838860	2.232	Up
1057	2010	2.232	-6.388	-2.513	2.110	-0.188	5.7917500	-4.226	Down
1058	2010	-4.226	2.232	-6.388	-2.513	2.110	6.5280519	0.158	Up
1059	2010	0.158	-4.226	2.232	-6.388	-2.513	5.5288680	-2.252	Down
1060	2010	-2.252	0.158	-4.226	2.232	-6.388	5.3685975	2.509	Up
1061	2010	2.509	-2.252	0.158	-4.226	2.232	5.3695140	2.374	Up
1062	2010	2.374	2.509	-2.252	0.158	-4.226	4.6372080	-3.646	Down
1063	2010	-3.646	2.374	2.509	-2.252	0.158	4.6997120	-5.032	Down
1064	2010	-5.032	-3.646	2.374	2.509	-2.252	5.1008920	5.416	Up
1065	2010	5.416	-5.032	-3.646	2.374	2.509	4.4193725	-1.213	Down
1066	2010	-1.213	5.416	-5.032	-3.646	2.374	4.4876640	3.548	Up
1067	2010	3.548	-1.213	5.416	-5.032	-3.646	4.5802860	-0.096	Down
1068	2010	-0.096	3.548	-1.213	5.416	-5.032	4.2713200	1.819	Up
1069	2010	1.819	-0.096	3.548	-1.213	5.416	3.9634600	-3.779	Down
1070	2010	-3.779	1.819	-0.096	3.548	-1.213	3.9065580	-0.700	Down
1071	2010	-0.700	-3.779	1.819	-0.096	3.548	3.7774060	-0.663	Down
1072	2010	-0.663	-0.700	-3.779	1.819	-0.096	3.9513280	3.750	Up
1073	2010	3.750	-0.663	-0.700	-3.779	1.819	3.7184700	0.456	Up
1074	2010	0.456	3.750	-0.663	-0.700	-3.779	3.1952375	1.446	Up
1075	2010	1.446	0.456	3.750	-0.663	-0.700	3.9724320	2.050	Up
1076	2010	2.050	1.446	0.456	3.750	-0.663	3.8845220	-0.212	Down
1077	2010	-0.212	2.050	1.446	0.456	3.750	4.0374100	1.650	Up
1078	2010	1.650	-0.212	2.050	1.446	0.456	3.9056160	0.948	Up
1079	2010	0.948	1.650	-0.212	2.050	1.446	4.4491600	0.586	Up
1080	2010	0.586	0.948	1.650	-0.212	2.050	4.5762820	0.015	Up
1081	2010	0.015	0.586	0.948	1.650	-0.212	4.1164140	3.599	Up
1082	2010	3.599	0.015	0.586	0.948	1.650	4.7987580	-2.173	Down
1083	2010	-2.173	3.599	0.015	0.586	0.948	4.2982620	0.043	Up
1084	2010	0.043	-2.173	3.599	0.015	0.586	4.1774360	-0.861	Down
1085	2010	-0.861	0.043	-2.173	3.599	0.015	3.2051600	2.969	Up
1086	2010	2.969	-0.861	0.043	-2.173	3.599	4.2425680	1.281	Up
1087	2010	1.281	2.969	-0.861	0.043	-2.173	4.8350820	0.283	Up
1088	2010	0.283	1.281	2.969	-0.861	0.043	4.4540440	1.034	Up
1089	2010	1.034	0.283	1.281	2.969	-0.861	2.7071050	0.069	Up

Encuentra un modelo logístico para encontrar el mejor conjunto de predictores que auxilien a clasificar la dirección de cada observación.

```
# Crear un modelo logístico sin la variable "Today"
model <- glm(Direction ~ Lag1 + Lag2 + Lag3 + Lag4 + Lag5 + Volume, data = df, family = b
```

```
# Obtener un resumen del modelo para ver los coeficientes y los intervalos de confianza
summary(model)
```

```
Call:
glm(formula = Direction ~ Lag1 + Lag2 + Lag3 + Lag4 + Lag5 +
    Volume, family = binomial, data = df)

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  0.26686    0.08593   3.106   0.0019 **
Lag1        -0.04127    0.02641  -1.563   0.1181
Lag2         0.05844    0.02686   2.175   0.0296 *
Lag3        -0.01606    0.02666  -0.602   0.5469
Lag4        -0.02779    0.02646  -1.050   0.2937
Lag5        -0.01447    0.02638  -0.549   0.5833
Volume      -0.02274    0.03690  -0.616   0.5377
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1496.2  on 1088  degrees of freedom
Residual deviance: 1486.4  on 1082  degrees of freedom
AIC: 1500.4

Number of Fisher Scoring iterations: 4
```

El resumen del modelo logístico muestra los coeficientes estimados para cada variable predictora (Lag1, Lag2, Lag3, Lag4, Lag5 y Volume) junto con sus errores estándar, valores z y valores p. En este contexto:

- El coeficiente de `Lag1` es -0.04127, pero no es estadísticamente significativo (p-value = 0.1181).
- El coeficiente de `Lag2` es 0.05844 y es estadísticamente significativo con un nivel de significancia del 0.05 (p-value = 0.0296).
- Los demás coeficientes (`Lag3`, `Lag4`, `Lag5` y `Volume`) no son estadísticamente significativos ya que sus valores p son mayores que 0.05.

Estos resultados sugieren que, en este modelo, solo la variable `Lag2` tiene un efecto significativo en la dirección del mercado, mientras que las otras variables no tienen un efecto significativo y podrían ser eliminadas del modelo para simplificarlo.

```
# Crear un modelo logístico sin la variable "Today"
model <- glm(Direction ~ Lag2, data = df, family = binomial)

# Obtener un resumen del modelo para ver los coeficientes y los intervalos de confianza
summary(model)
```

```
Call:
```

```
glm(formula = Direction ~ Lag2, family = binomial, data = df)


Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  0.21473    0.06123   3.507 0.000453 ***
Lag2         0.06279    0.02636   2.382 0.017230 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


(Dispersion parameter for binomial family taken to be 1)


    Null deviance: 1496.2  on 1088  degrees of freedom
Residual deviance: 1490.4  on 1087  degrees of freedom
AIC: 1494.4


Number of Fisher Scoring iterations: 4
```

```
# Interpretar el efecto de las variables en los odds (momios)

# Ejemplo: Lag2
coef_Lag2 <- coef(model)["Lag2"]
odds_ratio_Lag2 <- exp(coef_Lag2)
print(paste("Odds Ratio para Lag2:", odds_ratio_Lag2))
```

```
[1] "Odds Ratio para Lag2: 1.06480382608207"
```

Un aumento de una unidad en una variable predictora multiplicará el odds (momio) de la respuesta por el exponente del coeficiente correspondiente.

```
library(ggplot2)

ggplot(data = df, mapping = aes(x = Direction, y = Lag2)) +
geom_boxplot(aes(color = Direction)) +
geom_point(aes(color = Direction)) +
theme_bw() +
theme(legend.position = "null")
```
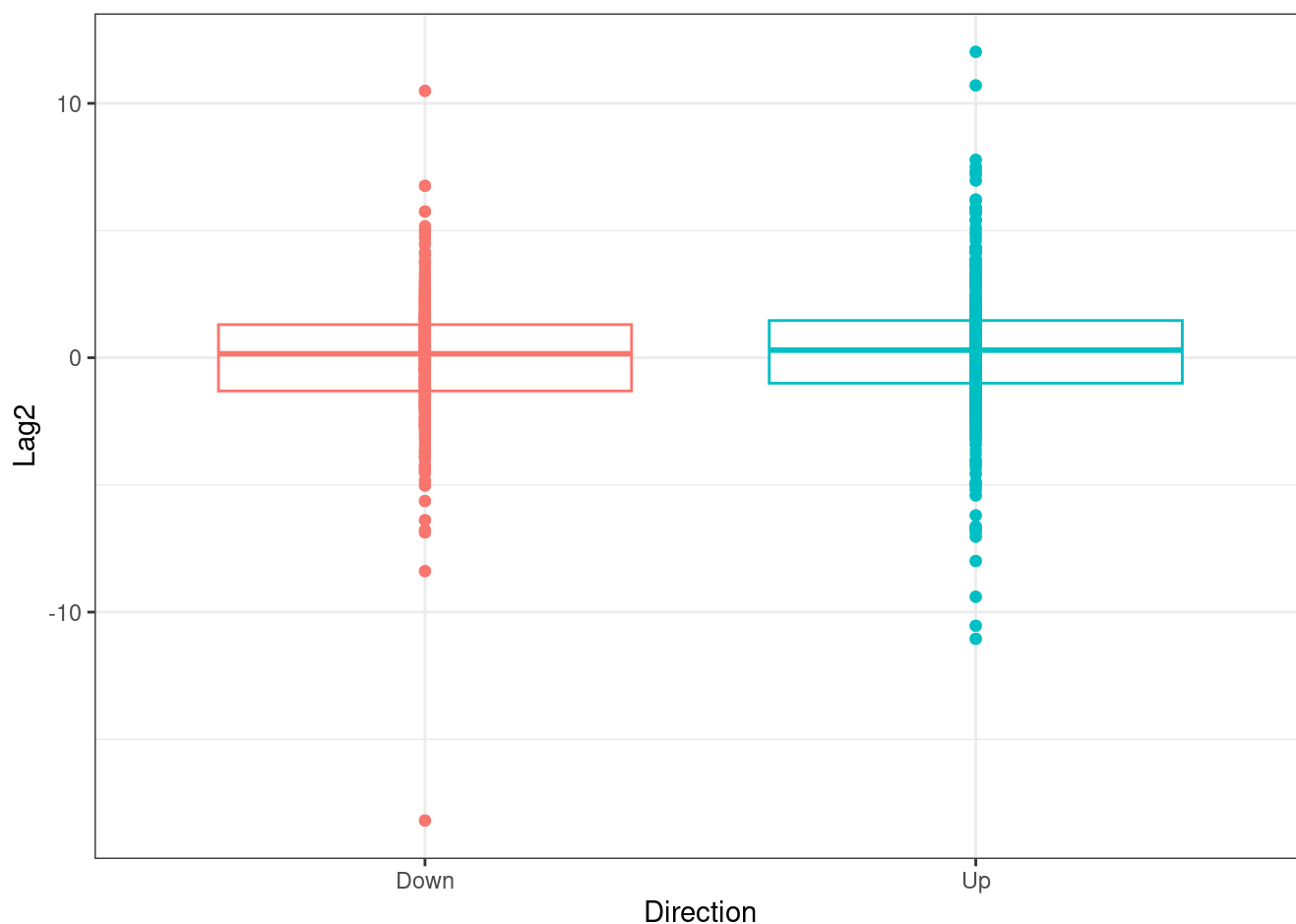
Divide la base de datos en un conjunto de entrenamiento (datos desde 1990 hasta 2008) y de prueba (2009 y 2010).

```r
# Filtrar datos de entrenamiento (1990-2008) y prueba (2009-2010)
train_data <- subset(df, Year >= 1990 & Year <= 2008)
test_data <- subset(df, Year >= 2009)

# Ajustar el modelo en el conjunto de entrenamiento
model <- glm(Direction ~ Lag2, family = binomial, data = train_data)

summary(model)
```

```
Call:
glm(formula = Direction ~ Lag2, family = binomial, data = train_data)

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  0.20326    0.06428   3.162  0.00157 **
Lag2         0.05810    0.02870   2.024  0.04298 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1354.7 on 984 degrees of freedom
Residual deviance: 1350.5 on 983 degrees of freedom
AIC: 1354.5

Number of Fisher Scoring iterations: 4

```r
# Realizar predicciones en el conjunto de prueba
predictions <- predict(model, newdata = test_data, type = "response")

predicciones <- predict(model, newdata = test_data, se.fit = TRUE, type = "response")

# Convertir las probabilidades en clases (Up o Down) usando un umbral de 0.5
predicted_direction <- ifelse(predictions > 0.5, "Up", "Down")

# Calcular la precisión del modelo en el conjunto de prueba
accuracy <- mean(predicted_direction == test_data$Direction)
print(paste("Precisión del modelo en el conjunto de prueba:", round(accuracy, 2)))
```

[1] "Precisión del modelo en el conjunto de prueba: 0.62"

Representacion grafica

```r
# Límites del intervalo de confianza (95%) de las predicciones
CI_inferior <- predicciones$fit - 1.96 * predicciones$se.fit
CI_superior <- predicciones$fit + 1.96 * predicciones$se.fit

# Matriz de datos con los nuevos puntos y sus predicciones
datos_curva <- data.frame(Lag2 = test_data$Lag2, probabilidad =
predicciones$fit, CI.inferior = CI_inferior, CI.superior = CI_superior)

datos_curva
```

	Lag2	probabilidad	CI.inferior	CI.superior
986	-1.698	0.5261291	0.4858438	0.5664144
987	6.760	0.6447364	0.5542388	0.7352340
988	-4.448	0.4862159	0.4149419	0.5574900
989	-4.518	0.4852001	0.4130502	0.5573500
990	-2.137	0.5197667	0.4753077	0.5642256
991	-0.730	0.5401255	0.5067662	0.5734848
992	5.173	0.6233482	0.5501510	0.6965455
993	-4.808	0.4809930	0.4051974	0.5567887
994	-6.868	0.4512204	0.3492246	0.5532163
995	-4.540	0.4848808	0.4124553	0.5573064
996	-7.035	0.4488192	0.3447067	0.5529317
997	10.707	0.6953567	0.5661988	0.8245147
998	1.585	0.5733026	0.5363731	0.6102320

```
 999   6.168    0.6368201    0.5527080    0.7209323
1000   3.255    0.5968501    0.5445282    0.6491720
1001   1.669    0.5744959    0.5369428    0.6120490
1002   1.522    0.5724070    0.5359298    0.6088842
1003  -0.388    0.5450566    0.5131046    0.5770085
1004   1.303    0.5692901    0.5342721    0.6043081
1005   5.893    0.6331171    0.5520036    0.7142306
1006  -4.988    0.4783830    0.4003129    0.5564532
1007   0.467    0.5573436    0.5258856    0.5888015
1008   3.623    0.6019835    0.5457649    0.6582021
1009   2.279    0.5831351    0.5404564    0.6258137
1010   0.651    0.5599792    0.5280518    0.5919065
1011  -2.640    0.5124689    0.4627135    0.5622243
1012  -0.253    0.5470007    0.5154219    0.5785794
1013  -2.446    0.5152843    0.4676260    0.5629427
1014  -1.929    0.5227821    0.4803617    0.5652026
1015   6.967    0.6474861    0.5547824    0.7401897
1016   4.134    0.6090744    0.5473205    0.6708283
1017   0.839    0.5626685    0.5300667    0.5952704
1018   2.329    0.5838410    0.5407037    0.6269783
1019  -0.632    0.5415393    0.5086483    0.5744304
1020   2.195    0.5819483    0.5400288    0.6238678
1021   0.273    0.5545612    0.5233826    0.5857399
1022  -1.218    0.5330760    0.4966940    0.5694579
1023   2.591    0.5875345    0.5419197    0.6331492
1024   2.452    0.5855762    0.5412906    0.6298617
1025  -2.239    0.5182874    0.4727933    0.5637814
1026  -1.836    0.5241299    0.4825865    0.5656733
1027   4.514    0.6143180    0.5483930    0.6802429
1028   1.511    0.5722506    0.5358509    0.6086503
1029  -0.743    0.5399379    0.5065127    0.5733631
1030  -4.021    0.4924147    0.4264384    0.5583910
1031   3.195    0.5960111    0.5443147    0.6477075
1032   2.261    0.5828808    0.5403661    0.6253956
1033  -0.192    0.5478786    0.5164329    0.5793243
1034   0.010    0.5507839    0.5196175    0.5819502
1035   1.328    0.5696462    0.5344710    0.6048215
1036   0.039    0.5512007    0.5200539    0.5823475
1037  -0.356    0.5455175    0.5136637    0.5773713
1038   2.178    0.5817080    0.5399403    0.6234757
1039  -1.010    0.5360825    0.5011210    0.5710439
1040   2.680    0.5887869    0.5423051    0.6352686
1041  -0.782    0.5393750    0.5057471    0.5730030
1042  -3.897    0.4942153    0.4297601    0.5586705
1043  -1.639    0.5269836    0.4872193    0.5667479
1044  -0.715    0.5403419    0.5070575    0.5736263
1045   0.874    0.5631688    0.5304207    0.5959169
1046   3.130    0.5951015    0.5440791    0.6461239
1047  -0.422    0.5445667    0.5125040    0.5766294
1048   3.097    0.5946395    0.5439577    0.6453213
1049   0.991    0.5648403    0.5315584    0.5981222
```

```
1050   0.862     0.5629973     0.5303001     0.5956946
1051   0.577     0.5589196     0.5272043     0.5906348
1052   0.987     0.5647832     0.5315206     0.5980457
1053   1.381     0.5704009     0.5348842     0.6059176
1054  -0.188     0.5479362     0.5164985     0.5793739
1055   2.110     0.5807465     0.5395797     0.6219132
1056  -2.513     0.5143121     0.4659366     0.5626876
1057  -6.388     0.4581345     0.3622419     0.5540270
1058   2.232     0.5824712     0.5402191     0.6247233
1059  -4.226     0.4894383     0.4209290     0.5579475
1060   0.158     0.5529103     0.5217894     0.5840312
1061  -2.252     0.5180988     0.4724713     0.5637264
1062   2.509     0.5863795     0.5415527     0.6312063
1063   2.374     0.5844761     0.5409219     0.6280302
1064  -3.646     0.4978605     0.4364550     0.5592661
1065  -5.032     0.4777452     0.3991180     0.5563725
1066   5.416     0.6266569     0.5507803     0.7025336
1067  -1.213     0.5331483     0.4968026     0.5694940
1068   3.548     0.6009391     0.5455221     0.6563560
1069  -0.096     0.5492598     0.5179779     0.5805416
1070   1.819     0.5766247     0.5379028     0.6153466
1071  -3.779     0.4959289     0.4329127     0.5589452
1072  -0.700     0.5405584     0.5073477     0.5737690
1073  -0.663     0.5410922     0.5080584     0.5741259
1074   3.750     0.6037500     0.5461667     0.6613332
1075   0.456     0.5571859     0.5257498     0.5886220
1076   1.446     0.5713260     0.5353756     0.6072764
1077   2.050     0.5798975     0.5392523     0.6205428
1078  -0.212     0.5475908     0.5161039     0.5790777
1079   1.650     0.5742261     0.5368160     0.6116361
1080   0.948     0.5642262     0.5311483     0.5973040
1081   0.586     0.5590485     0.5273091     0.5907879
1082   0.015     0.5508557     0.5196931     0.5820183
1083   3.599     0.6016494     0.5456877     0.6576111
1084  -2.173     0.5192446     0.4744228     0.5640664
1085   0.043     0.5512582     0.5201137     0.5824027
1086  -0.861     0.5382346     0.5041727     0.5722964
1087   2.969     0.5928458     0.5434748     0.6422168
1088   1.281     0.5689767     0.5340950     0.6038585
1089   0.283     0.5547047     0.5235172     0.5858922
```

Evaluacion del modelo

Matriz de confusion

```
library(caret)
```

```
Loading required package: lattice
```

```
# Convertir la variable Direction en factor con los mismos niveles en ambos conjuntos
train_data$Direction <- factor(train_data$Direction, levels = c("Down", "Up"))
test_data$Direction <- factor(test_data$Direction, levels = c("Down", "Up"))

#predicted_direction <- factor(predicted_direction, levels = c("Down", "Up"))

# Realizar predicciones en el conjunto de prueba
predictions <- predict(model, newdata = data.frame(Lag2 = test_data$Lag2), type = "respon
predicted_direction <- ifelse(predictions > 0.5, "Up", "Down")

predicted_direction <- factor(predicted_direction, levels = levels(test_data$Direction))


# Crear la matriz de confusión y calcular otras métricas
confusion <- confusionMatrix(predicted_direction, test_data$Direction)
print(confusion)
```

```
Confusion Matrix and Statistics

          Reference
Prediction Down Up
      Down    9  5
      Up     34 56

               Accuracy : 0.625
                 95% CI : (0.5247, 0.718)
    No Information Rate : 0.5865
    P-Value [Acc > NIR] : 0.2439

                  Kappa : 0.1414

 Mcnemar's Test P-Value : 7.34e-06

            Sensitivity : 0.20930
            Specificity : 0.91803
         Pos Pred Value : 0.64286
         Neg Pred Value : 0.62222
             Prevalence : 0.41346
         Detection Rate : 0.08654
   Detection Prevalence : 0.13462
      Balanced Accuracy : 0.56367

       'Positive' Class : Down
```

```
# Mostrar otras métricas como precisión, sensibilidad, especificidad, etc.
print(confusion$byClass)
```

```
        Sensitivity             Specificity            Pos Pred Value
         0.20930233              0.91803279              0.64285714
       Neg Pred Value             Precision                Recall
         0.62222222              0.64285714              0.20930233
                 F1             Prevalence            Detection Rate
         0.31578947              0.41346154              0.08653846
 Detection Prevalence     Balanced Accuracy
         0.13461538              0.56366756
```

Chi squared

```
# Chi cuadrada: Se evalúa la significancia del modelo con predictores con respecto al

anova(model, test ='Chisq')
```

```
Analysis of Deviance Table

Model: binomial, link: logit

Response: Direction

Terms added sequentially (first to last)

     Df Deviance Resid. Df Resid. Dev Pr(>Chi)
NULL                   984      1354.7
Lag2  1   4.1666       983      1350.5  0.04123 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Resultado del ANOVA: En el resultado del ANOVA, el p-valor asociado con Lag1 es 0.04123. Este p-valor indica que hay evidencia significativa en contra de la hipótesis nula para Lag2. En otras palabras, Lag2 es un predictor significativo para predecir la dirección del mercado en este modelo

Representacion grafica

```
nuevos_puntos <- seq(from = min(df$Lag2), to = max(df$Lag2), by = 0.5)
predicciones <- predict(model, newdata = data.frame(Lag2 = nuevos_puntos),se.fit = TRUE,
```

```
# Límites del intervalo de confianza (95%) de las predicciones
CI_inferior <- predicciones$fit - 1.96 * predicciones$se.fit
CI_superior <- predicciones$fit + 1.96 * predicciones$se.fit

# Vector con nuevos valores interpolados en el rango del predictor Lag2:
#nuevos_puntos <- seq(from = min(df$Lag2), to = max(df$Lag2), by = 0.5)

# Matriz de datos con los nuevos puntos y sus predicciones
datos_curva <- data.frame(Lag2 = nuevos_puntos, probabilidad = predicciones$fit, CI.infer
# Codificación 0,1 de la variable respuesta Direction
```

```r
df$Direction <- ifelse(df$Direction == "Down", yes = 0, no = 1)
ggplot(df, aes(x = Lag2, y = Direction)) +
geom_point(aes(color = as.factor(Direction)), shape = "I", size = 3) + geom_line(data = d
scale_color_manual(labels = c("Down", "Up"), values = c("blue", "red")) + guides(color=gu
theme(plot.title = element_text(hjust = 0.5)) +
theme_bw()
```
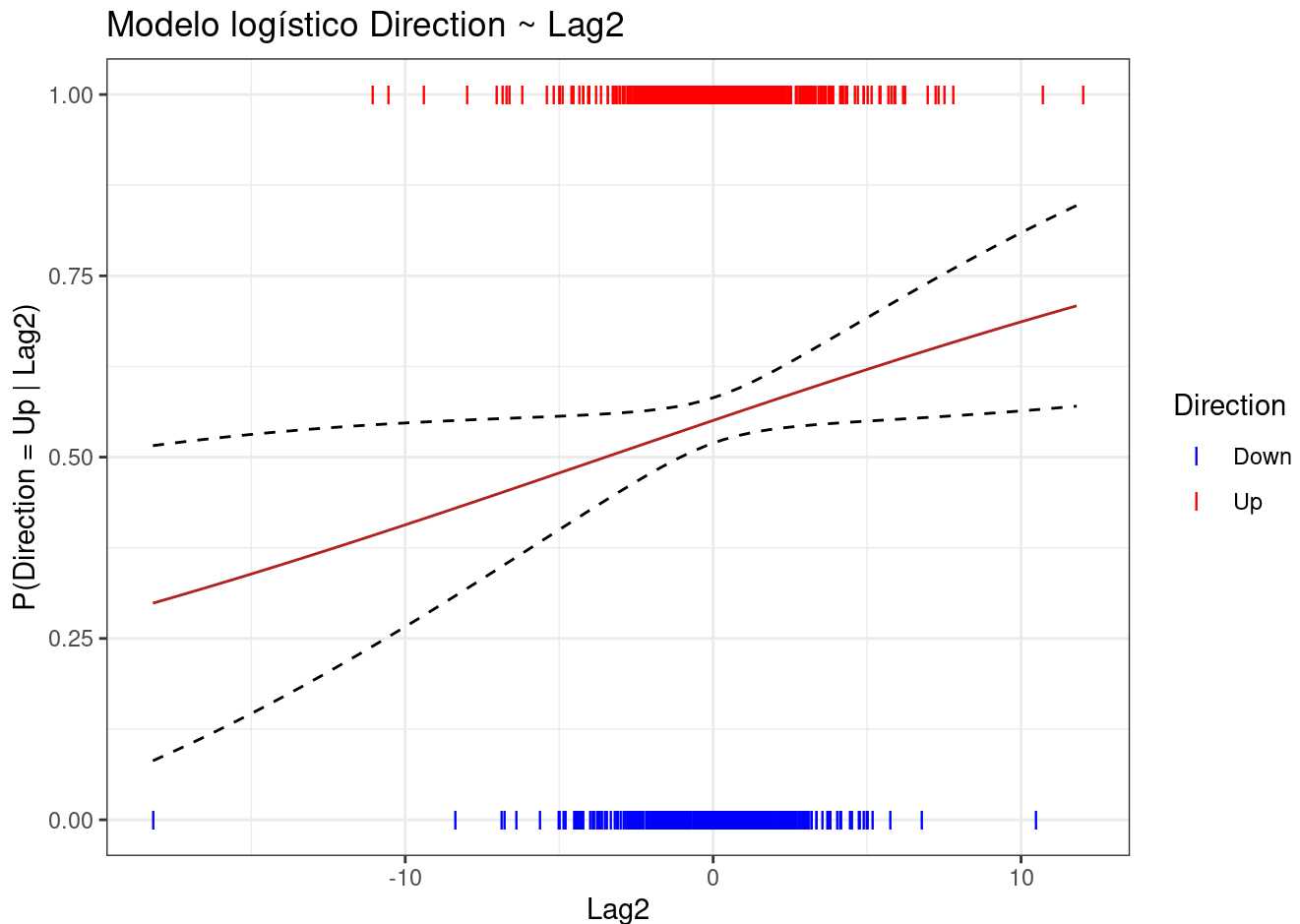

Para el modelo logístico significativo que hemos ajustado usando la variable `Lag2`, la ecuación es la siguiente:

$$[(p) = \_0 + \_1]$$

Donde: - ((p)) representa el logaritmo natural de la odds (o momio) de que la variable de respuesta sea 1 (es decir, "Up" en lugar de "Down"). - (_0) es el intercepto del modelo. - (_1) es el coeficiente asociado con la variable `Lag2`.

Para graficar el modelo logístico, puedes utilizar la función de sigmoide (función logística) para transformar las probabilidades en el rango de 0 a 1:

$$[p() =]$$

Interpretación en el Contexto del Problema:

En este contexto específico del problema:

- **Intercepto ((β_0)):** Representa el logaritmo de la odds de que la variable de respuesta sea 1 (es decir, "Up" en lugar de "Down") cuando `Lag2` es 0. Sin embargo, dado que `Lag2` es un valor real y no una variable binaria, la interpretación directa del intercepto puede no ser tan informativa en este caso.

- **Coeficiente de Lag2 ((β_1)):** Este coeficiente indica cómo cambia el logaritmo de las odds cuando `Lag2` aumenta en una unidad. Un (β_1) negativo indica que a medida que `Lag2` aumenta, las probabilidades de que la dirección del mercado sea "Up" en lugar de "Down" disminuyen.

En otras palabras, si el valor de `Lag2` es más alto, las probabilidades de que el mercado esté en alza disminuyen. Por otro lado, si el valor de `Lag2` es más bajo, las probabilidades de que el mercado esté en alza aumentan.

Conclusión Final:

Resultado del Análisis de Devianza:

El análisis de devianza compara el modelo actual (que incluye Lag1, Lag2, Lag3, Lag4, Lag5 y Volume) con un modelo nulo (sin predictores) para determinar si el modelo actual es significativamente mejor que un modelo sin predictores. Según el análisis de devianza:

- El p-valor asociado con Lag2 es 0.04123, lo que indica que Lag2 es estadísticamente significativo a un nivel del 5%. Esto confirma nuestra observación anterior de que Lag2 tiene un impacto significativo en la predicción de las tendencias del mercado en este modelo.

Matriz de Confusión:

La matriz de confusión proporciona información sobre el rendimiento del modelo en los datos de prueba. La matriz de confusión que proporcionaste muestra los siguientes resultados:

- **Verdaderos Positivos (TP):** 9 (El modelo predijo correctamente que la dirección sería "Down" y fue correcto).
- **Falsos Positivos (FP):** 5 (El modelo predijo "Up", pero la dirección real fue "Down").
- **Verdaderos Negativos (TN):** 56 (El modelo predijo correctamente que la dirección sería "Up" y fue correcto).
- **Falsos Negativos (FN):** 34 (El modelo predijo "Down", pero la dirección real fue "Up").

Evaluación del Rendimiento:

- **Precisión:** La precisión se refiere a la proporción de predicciones positivas (tanto verdaderas como falsas) que son realmente positivas. En este caso, la precisión para predecir la dirección "Down" sería 9 / (9 + 5) = 64.3%. Para la dirección "Up", sería 56 / (56 + 34) = 62.2%.

- **Sensibilidad (Recall):** La sensibilidad mide la proporción de casos positivos reales que fueron correctamente identificados por el modelo. En este caso, la sensibilidad para la dirección "Down" sería 9 / (9 + 34) = 20.9%. Para la dirección "Up", sería 56 / (56 + 5) = 91.3%.

- **Especificidad:** La especificidad mide la proporción de casos negativos reales que fueron correctamente identificados por el modelo. En este caso, la especificidad para la dirección "Down" sería 56 / (56 + 5) = 91.3%. Para la dirección "Up", sería 9 / (9 + 34) = 20.9%.

Conclusiones Finales:

- El análisis de devianza sugiere que solo Lag2 es un predictor significativo en este modelo. Por lo tanto, consideramos un modelo con solo Lag2 para el periodo requerido.

- La matriz de confusión muestra que el modelo tiene una precisión del 62.5%, lo que significa que acierta aproximadamente el 62.5% de las veces en las direcciones del mercado en los datos de prueba.

- La sensibilidad del modelo es baja (20.9%), lo que indica que el modelo tiene dificultades para identificar correctamente las direcciones "Down". Sin embargo, la especificidad es alta (91.3%), lo que indica que el modelo es bueno para identificar las direcciones "Up".

- En general, el modelo actual tiene limitaciones en su capacidad para predecir las tendencias del mercado de manera precisa y consistente. Se deben considerar otros enfoques y posiblemente datos adicionales para mejorar la capacidad predictiva del modelo en futuras iteraciones.