Supporting Information

For the paper

**P-Chiral Tetrphosphine Dirhodium Complex as a Catalyst for
Asymmetric Hydrogenation: Synthesis, Structure, Enantioselectivity,
and Mechanism. Stereoselective Formation of a Dirhodium
Tetrahydride Complex and Its Reaction with Methyl
(Z)- α -Acetamidocinnamate**

Tsuneo Imamoto,^{*,†} Keiji Yashio,[†] Karen V. L. Crépy,[†] Kosuke
Katagiri,[†] Hidetoshi Takahashi,[†] Mitsuhiro Kouchi,[‡] and Ilya D.
Gridnev^{*,‡}

*Department of Chemistry, Faculty of Science, Chiba University, Yayoi-cho, Inage-ku,
Chiba 263-8522, Japan and COE Laboratory, Department of Chemistry, Graduate
School of Science, Tohoku University, Sendai 980-8578, Japan*

[†]Chiba University
[‡]Tohoku University

Full reference 28:

Gaussian 03, Revision B.05,

M. J. Frisch, G. W. Trucks, H. B. Schlegel, G. E. Scuseria,
M. A. Robb, J. R. Cheeseman, J. A. Montgomery, Jr., T. Vreven,
K. N. Kudin, J. C. Burant, J. M. Millam, S. S. Iyengar, J. Tomasi,
V. Barone, B. Mennucci, M. Cossi, G. Scalmani, N. Rega,
G. A. Petersson, H. Nakatsuji, M. Hada, M. Ehara, K. Toyota,
R. Fukuda, J. Hasegawa, M. Ishida, T. Nakajima, Y. Honda, O. Kitao,
H. Nakai, M. Klene, X. Li, J. E. Knox, H. P. Hratchian, J. B. Cross,
C. Adamo, J. Jaramillo, R. Gomperts, R. E. Stratmann, O. Yazyev,
A. J. Austin, R. Cammi, C. Pomelli, J. W. Ochterski, P. Y. Ayala,
K. Morokuma, G. A. Voth, P. Salvador, J. J. Dannenberg,
V. G. Zakrzewski, S. Dapprich, A. D. Daniels, M. C. Strain,
O. Farkas, D. K. Malick, A. D. Rabuck, K. Raghavachari,
J. B. Foresman, J. V. Ortiz, Q. Cui, A. G. Baboul, S. Clifford,
J. Cioslowski, B. B. Stefanov, G. Liu, A. Liashenko, P. Piskorz,
I. Komaromi, R. L. Martin, D. J. Fox, T. Keith, M. A. Al-Laham,
C. Y. Peng, A. Nanayakkara, M. Challacombe, P. M. W. Gill,
B. Johnson, W. Chen, M. W. Wong, C. Gonzalez, and J. A. Pople,
Gaussian, Inc., Pittsburgh PA, 2003.

Tetrahydride **6a**

E(RB+HF-LYP) = -6374.10543096 A.U.

Standard orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms)		
			X	Y	Z
1	45	0	-3.930337	-0.148484	0.356140
2	45	0	3.692740	-0.007094	-0.181717
3	15	0	-4.689548	1.935517	-0.290758
4	15	0	-2.062817	0.156695	-1.362742
5	15	0	1.727448	0.174346	1.397984
6	15	0	3.940726	2.277729	0.082148
7	6	0	-5.328406	3.170493	1.064947
8	6	0	-6.652690	2.622345	1.649369
9	6	0	-5.567788	4.556863	0.409572
10	6	0	-4.265008	3.288952	2.182263

S4

11	6	0	-6.020323	1.839952	-1.610614
12	6	0	-3.240664	2.786509	-1.173453
13	6	0	-2.531075	1.834571	-2.154827
14	6	0	-1.625525	-0.939227	-2.925408
15	6	0	-2.956873	-1.382565	-3.579635
16	6	0	-0.778080	-0.146664	-3.950972
17	6	0	-0.840064	-2.182836	-2.446303
18	6	0	-0.362283	0.602760	-0.590441
19	6	0	0.041492	-0.274627	0.607871
20	6	0	1.603635	-0.642727	3.172925
21	6	0	0.339254	-0.166544	3.931015
22	6	0	1.567419	-2.179242	2.976174
23	6	0	2.862619	-0.254031	3.986205
24	6	0	1.603327	2.050291	1.750294
25	6	0	2.245531	2.929051	0.655654
26	6	0	5.105615	2.760362	1.473435
27	6	0	4.442667	3.356283	-1.453362
28	6	0	3.533640	2.985392	-2.648657
29	6	0	4.272443	4.858080	-1.102420
30	6	0	5.920962	3.054697	-1.800258
31	1	0	-7.450224	2.569929	0.899008
32	1	0	-6.994255	3.300536	2.441757
33	1	0	-6.523360	1.629194	2.093995
34	1	0	-6.318473	4.522325	-0.388729
35	1	0	-4.646733	4.997282	0.009481
36	1	0	-5.947803	5.242457	1.177407
37	1	0	-4.629246	3.994100	2.940124
38	1	0	-3.307824	3.677880	1.809560
39	1	0	-4.087713	2.327758	2.675942
40	1	0	-5.676295	1.207879	-2.433533
41	1	0	-6.241817	2.841198	-1.993401
42	1	0	-6.928310	1.398225	-1.196661
43	1	0	-2.552886	3.144138	-0.398262
44	1	0	-3.621781	3.664168	-1.708368
45	1	0	-3.179569	1.622672	-3.012895

S5

46	1	0	-1.625276	2.311247	-2.547059
47	1	0	-3.555591	-2.005895	-2.905149
48	1	0	-2.740081	-1.979687	-4.475306
49	1	0	-3.572174	-0.532098	-3.900798
50	1	0	-0.525248	-0.809581	-4.789650
51	1	0	0.167898	0.215145	-3.528053
52	1	0	-1.319829	0.708284	-4.369861
53	1	0	-1.388158	-2.753294	-1.687921
54	1	0	0.141335	-1.917489	-2.033994
55	1	0	-0.668632	-2.851116	-3.300966
56	1	0	-0.456669	1.650113	-0.276974
57	1	0	0.392614	0.561465	-1.383846
58	1	0	-0.723096	-0.207953	1.387495
59	1	0	0.119112	-1.325905	0.312524
60	1	0	-0.590707	-0.497295	3.454264
61	1	0	0.306903	0.923962	4.045550
62	1	0	0.350934	-0.597240	4.941284
63	1	0	1.551271	-2.668590	3.959011
64	1	0	2.454763	-2.542649	2.442881
65	1	0	0.673670	-2.509930	2.433471
66	1	0	2.821494	-0.752457	4.963584
67	1	0	2.924212	0.824351	4.181168
68	1	0	3.787038	-0.575158	3.495811
69	1	0	2.103290	2.223909	2.709499
70	1	0	0.551356	2.328816	1.887242
71	1	0	1.611801	2.972989	-0.236874
72	1	0	2.374662	3.953384	1.024357
73	1	0	4.811382	2.250371	2.394194
74	1	0	5.070034	3.842655	1.633978
75	1	0	6.125914	2.460759	1.226158
76	1	0	3.654354	1.935173	-2.934221
77	1	0	3.813476	3.604699	-3.510440
78	1	0	2.471776	3.174976	-2.441182
79	1	0	4.585696	5.455801	-1.967785
80	1	0	4.898176	5.166824	-0.256798

S6

81	1	0	3.230796	5.122627	-0.884399
82	1	0	6.084499	1.990194	-2.001431
83	1	0	6.606414	3.367653	-1.004093
84	1	0	6.193021	3.613893	-2.704711
85	1	0	-3.060869	0.668535	1.316425
86	1	0	2.742575	0.399734	-1.313505
87	6	0	7.264569	-1.179681	0.780659
88	1	0	7.059082	-1.727677	-0.133196
89	1	0	7.834137	-1.722257	1.530082
90	6	0	-7.170356	-2.093788	0.109398
91	1	0	-7.555835	-3.058914	-0.207503
92	1	0	-6.798719	-2.048645	1.128447
93	17	0	-5.644292	-1.792995	-0.998807
94	17	0	-8.455998	-0.819978	-0.131564
95	17	0	5.572345	-0.880000	1.595098
96	17	0	8.126509	0.384508	0.379358
97	17	0	-3.266939	-2.267603	1.823286
98	6	0	-3.030140	-3.998313	1.078502
99	1	0	-3.575471	-4.008379	0.139467
100	1	0	-3.409890	-4.678747	1.835526
101	17	0	-1.263723	-4.381820	0.765318
102	1	0	-5.003136	-0.027368	1.498638
103	1	0	4.794741	0.090536	-1.308864
104	17	0	3.270875	-2.492838	-0.792199
105	6	0	4.265768	-2.929207	-2.359080
106	1	0	3.719397	-3.749274	-2.816901
107	1	0	4.309555	-2.010598	-2.935800
108	17	0	5.960932	-3.486088	-1.960773

Tetrahydride **6b**.

E(RB+HF-LYP) = -6374.10364237 A.U.

Standard orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms)		
			X	Y	Z
1	45	0	3.713339	-0.246877	0.048433
2	45	0	-3.633884	0.084322	0.174912
3	15	0	4.535184	2.019631	0.784144
4	15	0	1.937509	0.062548	1.509148
5	15	0	-1.839040	-0.398966	-1.228743
6	15	0	-3.765329	2.303547	-0.999195
7	6	0	5.167200	3.368484	-0.466295
8	6	0	6.602411	2.976366	-0.899658
9	6	0	5.178600	4.772139	0.187712
10	6	0	4.224545	3.363638	-1.695330

S8

11	6	0	5.744176	2.085383	2.229855
12	6	0	2.951500	2.758887	1.549004
13	6	0	2.196694	1.726832	2.411315
14	6	0	1.582117	-1.262221	2.905501
15	6	0	2.659739	-1.126489	4.011912
16	6	0	0.180934	-1.008876	3.518137
17	6	0	1.655716	-2.680543	2.288002
18	6	0	0.286230	0.401807	0.606339
19	6	0	-0.216858	-0.741456	-0.285398
20	6	0	-1.946147	-1.894111	-2.486153
21	6	0	-0.664677	-1.932822	-3.358604
22	6	0	-2.084858	-3.202891	-1.671383
23	6	0	-3.180267	-1.698608	-3.398948
24	6	0	-1.484772	1.141644	-2.304472
25	6	0	-1.996740	2.462568	-1.693193
26	6	0	-4.820095	2.360895	-2.561067
27	6	0	-4.104455	3.995542	-0.100439
28	6	0	-3.233527	4.044424	1.179428
29	6	0	-3.761783	5.195342	-1.017791
30	6	0	-5.606738	4.038321	0.279198
31	1	0	7.311268	3.012141	-0.063766
32	1	0	6.956155	3.688238	-1.656636
33	1	0	6.639001	1.975591	-1.346773
34	1	0	5.829453	4.820766	1.068875
35	1	0	4.175001	5.106643	0.476623
36	1	0	5.565952	5.499148	-0.538451
37	1	0	4.586338	4.096475	-2.428248
38	1	0	3.197347	3.649213	-1.430532
39	1	0	4.198365	2.383467	-2.184561
40	1	0	5.362394	1.474748	3.054061
41	1	0	5.882834	3.111428	2.584566
42	1	0	6.711079	1.675862	1.926036
43	1	0	2.326229	3.118217	0.723041
44	1	0	3.214999	3.626481	2.164731
45	1	0	2.757533	1.519848	3.327686

46	1	0	1.215726	2.116223	2.710606
47	1	0	3.677906	-1.178347	3.612788
48	1	0	2.544259	-1.961857	4.714506
49	1	0	2.550593	-0.203521	4.592857
50	1	0	0.037986	-1.707797	4.352895
51	1	0	-0.628566	-1.187875	2.800862
52	1	0	0.078869	0.006543	3.923770
53	1	0	2.642522	-2.887556	1.864081
54	1	0	0.910430	-2.836486	1.500387
55	1	0	1.462117	-3.419090	3.077090
56	1	0	0.476548	1.305275	0.014617
57	1	0	-0.450390	0.654154	1.376612
58	1	0	0.545829	-0.995288	-1.028130
59	1	0	-0.422160	-1.635659	0.309444
60	1	0	0.238392	-2.162074	-2.782955
61	1	0	-0.501574	-0.999925	-3.911482
62	1	0	-0.782058	-2.731554	-4.102751
63	1	0	-2.194711	-4.043827	-2.368354
64	1	0	-2.965960	-3.190516	-1.022128
65	1	0	-1.198696	-3.404884	-1.056757
66	1	0	-3.252586	-2.558779	-4.076843
67	1	0	-3.099593	-0.802687	-4.028277
68	1	0	-4.111553	-1.647930	-2.830635
69	1	0	-1.964428	0.963874	-3.273228
70	1	0	-0.404678	1.193157	-2.488685
71	1	0	-1.357870	2.781563	-0.861666
72	1	0	-1.972020	3.250667	-2.454744
73	1	0	-4.578541	1.503103	-3.196196
74	1	0	-4.644993	3.281443	-3.126529
75	1	0	-5.879190	2.296354	-2.297440
76	1	0	-3.441660	3.199788	1.846311
77	1	0	-3.453502	4.969031	1.728984
78	1	0	-2.159747	4.051886	0.947878
79	1	0	-3.984205	6.127785	-0.481884
80	1	0	-4.359032	5.204487	-1.937024

S10

81	1	0	-2.699992	5.223910	-1.291008
82	1	0	-5.897062	3.199000	0.922773
83	1	0	-6.255726	4.038920	-0.604572
84	1	0	-5.810924	4.964050	0.832876
85	1	0	2.770350	0.436345	-0.938573
86	1	0	2.970081	-1.573946	-0.389978
87	1	0	-3.311388	-1.307098	0.856965
88	1	0	-2.515457	0.614651	1.070389
89	6	0	-6.817239	-2.255619	-0.386267
90	1	0	-7.809832	-2.238100	-0.827475
91	1	0	-6.785701	-2.127395	0.691075
92	6	0	-5.015948	-0.530682	3.572888
93	1	0	-5.627265	-0.105521	4.364561
94	1	0	-3.945487	-0.515727	3.750945
95	6	0	6.391635	-3.089392	0.875707
96	1	0	7.093098	-2.709197	0.139554
97	1	0	6.844754	-3.619147	1.708804
98	6	0	4.686405	-1.857659	-3.099896
99	1	0	5.509061	-2.076673	-3.775612
100	1	0	4.332532	-2.691936	-2.502343
101	17	0	5.419123	-0.619367	-1.846265
102	17	0	3.301812	-1.127109	-4.041058
103	17	0	5.572329	-1.567548	1.654438
104	17	0	5.181559	-4.193066	0.049432
105	17	0	-5.946675	-0.731973	-1.119176
106	17	0	-5.976025	-3.815484	-0.837917
107	17	0	-5.304712	0.620150	2.083110
108	17	0	-5.552796	-2.246303	3.239526

Tetrahydride 6c

E(RB+HF-LYP) = -6374.09611050 A. U.

Standard orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms)		
			X	Y	Z
1	45	0	3.717133	-0.084842	-0.798694
2	45	0	-3.855578	0.612614	-0.217140
3	15	0	4.525779	-2.052760	0.567896
4	15	0	1.822093	-1.350035	-1.246450
5	15	0	-1.722586	1.488860	0.025196
6	15	0	-3.610332	-0.318160	2.104710
7	6	0	5.476090	-2.082794	2.272246
8	6	0	6.778941	-1.264564	2.090850
9	6	0	5.815667	-3.536103	2.685826

S12

10	6	0	4.585847	-1.425703	3.355209
11	6	0	5.480189	-3.270008	-0.511072
12	6	0	2.892317	-2.976644	0.897462
13	6	0	2.001392	-3.039551	-0.359429
14	6	0	1.481634	-1.807063	-3.117585
15	6	0	2.699224	-2.589824	-3.671011
16	6	0	0.213061	-2.692997	-3.198671
17	6	0	1.297863	-0.516816	-3.953193
18	6	0	0.193810	-0.702422	-0.455684
19	6	0	-0.304530	0.660946	-0.967020
20	6	0	-1.510369	3.382980	-0.413141
21	6	0	-0.152268	3.899821	0.129978
22	6	0	-1.565090	3.534395	-1.953383
23	6	0	-2.659844	4.192610	0.232745
24	6	0	-1.262762	1.337489	1.872346
25	6	0	-1.791622	0.053833	2.548551
26	6	0	-4.557090	0.753966	3.331413
27	6	0	-3.911695	-2.145777	2.703962
28	6	0	-3.050708	-3.093708	1.833357
29	6	0	-3.539223	-2.318899	4.196731
30	6	0	-5.414776	-2.458450	2.490772
31	1	0	7.426881	-1.678694	1.307835
32	1	0	7.350398	-1.284916	3.027952
33	1	0	6.571310	-0.214602	1.853517
34	1	0	6.507701	-4.019836	1.987790
35	1	0	4.922143	-4.165619	2.785172
36	1	0	6.308217	-3.517731	3.667261
37	1	0	5.158144	-1.354060	4.289226
38	1	0	3.690530	-2.022492	3.571061
39	1	0	4.276512	-0.412252	3.078527
40	1	0	5.051168	-3.287497	-1.516094
41	1	0	5.456011	-4.278796	-0.088251
42	1	0	6.521529	-2.944710	-0.594673
43	1	0	2.382429	-2.447948	1.711033
44	1	0	3.104955	-3.994538	1.245821

45	1	0	2.419649	-3.744321	-1.084710
46	1	0	0.997167	-3.397019	-0.102442
47	1	0	3.619202	-1.995633	-3.640110
48	1	0	2.502531	-2.834590	-4.722657
49	1	0	2.874263	-3.538695	-3.150325
50	1	0	0.048845	-2.971938	-4.247651
51	1	0	-0.686235	-2.169401	-2.857317
52	1	0	0.315233	-3.624773	-2.629073
53	1	0	2.150074	0.161965	-3.844264
54	1	0	0.384497	0.027995	-3.691573
55	1	0	1.218919	-0.793163	-5.012657
56	1	0	0.425808	-0.660250	0.615085
57	1	0	-0.559883	-1.484981	-0.601829
58	1	0	0.520933	1.379799	-0.980025
59	1	0	-0.686567	0.576296	-1.987124
60	1	0	0.706981	3.365212	-0.291730
61	1	0	-0.099792	3.846829	1.223967
62	1	0	-0.048601	4.955497	-0.151858
63	1	0	-1.528529	4.601705	-2.207189
64	1	0	-2.493635	3.124881	-2.367054
65	1	0	-0.715435	3.052756	-2.452384
66	1	0	-2.503971	5.257354	0.015523
67	1	0	-2.692113	4.086328	1.324999
68	1	0	-3.634853	3.908798	-0.173384
69	1	0	-1.694767	2.221072	2.357163
70	1	0	-0.174015	1.411618	1.976226
71	1	0	-1.200998	-0.818524	2.247848
72	1	0	-1.699341	0.153429	3.636397
73	1	0	-4.292112	1.803086	3.169580
74	1	0	-4.325499	0.481744	4.365472
75	1	0	-5.631990	0.649164	3.161831
76	1	0	-3.269757	-2.979903	0.766188
77	1	0	-3.270841	-4.133035	2.109881
78	1	0	-1.974962	-2.937353	1.993846
79	1	0	-3.712227	-3.363744	4.488228

S14

80	1	0	-4.154776	-1.697158	4.856466
81	1	0	-2.482907	-2.096944	4.393912
82	1	0	-5.712249	-2.346612	1.441186
83	1	0	-6.060916	-1.820014	3.105353
84	1	0	-5.611888	-3.498349	2.782177
85	1	0	3.111182	0.972003	-1.807585
86	1	0	-3.945254	1.454785	-1.555835
87	6	0	-7.240912	1.688766	-1.012217
88	1	0	-8.259023	1.373563	-1.225107
89	1	0	-6.662152	2.026797	-1.866381
90	6	0	5.959032	2.432966	-2.227711
91	1	0	6.982881	2.796495	-2.255985
92	1	0	5.644488	1.847196	-3.085500
93	17	0	5.913770	1.241385	-0.741021
94	17	0	4.815396	3.846284	-2.001181
95	17	0	-6.370170	0.085666	-0.422297
96	17	0	-7.245842	2.968747	0.283291
97	1	0	-4.242435	1.921672	0.457147
98	17	0	-3.295174	-1.580466	-1.839877
99	6	0	-4.823358	-2.365583	-2.663327
100	1	0	-5.536610	-1.556755	-2.785189
101	1	0	-4.448992	-2.793255	-3.588858
102	17	0	-5.550988	-3.679897	-1.625148
103	1	0	4.235271	-0.763485	-2.059964
104	17	0	2.741739	1.404335	1.357359
105	6	0	3.733862	3.003427	1.695216
106	1	0	4.117036	3.315853	0.728757
107	1	0	3.013305	3.679347	2.146571
108	17	0	5.112137	2.713725	2.852331

Tetrahydride 6d

E(RB+HF-LYP) = -6374.09637957 A.U.

Standard orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms)		
			X	Y	Z
1	45	0	-3.911732	0.575039	-0.562138
2	45	0	3.896343	-1.044912	0.049557
3	15	0	-3.848356	2.395462	0.889732
4	15	0	-1.545593	1.220954	-1.252838
5	15	0	1.590085	-2.093358	-0.109475
6	15	0	3.661082	-1.184681	2.351349
7	6	0	-4.489161	2.265696	2.724657
8	6	0	-5.950233	1.755424	2.696017
9	6	0	-4.431245	3.669085	3.383953

S16

10	6	0	-3.587628	1.284181	3.511177
11	6	0	-4.730623	3.880094	0.151343
12	6	0	-2.032638	2.953552	0.991345
13	6	0	-1.338068	2.912849	-0.383575
14	6	0	-1.161371	1.626945	-3.127318
15	6	0	-2.374267	2.407421	-3.694215
16	6	0	0.122748	2.478893	-3.268184
17	6	0	-0.999779	0.300072	-3.910724
18	6	0	0.009180	0.318382	-0.564359
19	6	0	0.049932	-1.199725	-0.819287
20	6	0	1.440369	-3.873983	-0.911425
21	6	0	0.038927	-4.478577	-0.647246
22	6	0	1.688877	-3.744868	-2.435108
23	6	0	2.531423	-4.784699	-0.295388
24	6	0	1.124331	-2.384636	1.726830
25	6	0	1.799282	-1.394113	2.697757
26	6	0	4.450425	-2.715213	3.094323
27	6	0	4.251898	0.322741	3.422160
28	6	0	3.619558	1.606748	2.835005
29	6	0	3.801362	0.122588	4.891814
30	6	0	5.795988	0.403184	3.343148
31	1	0	-6.610098	2.414415	2.118023
32	1	0	-6.335473	1.728005	3.723537
33	1	0	-6.023051	0.744664	2.282967
34	1	0	-5.131880	4.375832	2.926988
35	1	0	-3.425288	4.107349	3.366791
36	1	0	-4.720384	3.566328	4.437909
37	1	0	-4.015043	1.140307	4.511579
38	1	0	-2.571855	1.677293	3.647520
39	1	0	-3.528313	0.301740	3.033877
40	1	0	-4.366867	4.049805	-0.864902
41	1	0	-4.552122	4.775451	0.753106
42	1	0	-5.804225	3.681038	0.102796
43	1	0	-1.527548	2.293476	1.706095
44	1	0	-2.000250	3.970030	1.401694

S17

45	1	0	-1.755225	3.679612	-1.045907
46	1	0	-0.269305	3.129432	-0.270926
47	1	0	-3.294035	1.814026	-3.652162
48	1	0	-2.179358	2.652747	-4.746502
49	1	0	-2.549138	3.355384	-3.169701
50	1	0	0.304183	2.672727	-4.334162
51	1	0	1.012315	1.971759	-2.876525
52	1	0	0.036180	3.452622	-2.773054
53	1	0	-1.841019	-0.384076	-3.746289
54	1	0	-0.066565	-0.215561	-3.654794
55	1	0	-0.959415	0.522112	-4.985191
56	1	0	-0.001918	0.528475	0.513878
57	1	0	0.894349	0.812363	-0.983924
58	1	0	-0.832662	-1.688084	-0.393537
59	1	0	0.054109	-1.407944	-1.892587
60	1	0	-0.761023	-3.897696	-1.121377
61	1	0	-0.180579	-4.567143	0.423752
62	1	0	0.001846	-5.490570	-1.072036
63	1	0	1.643300	-4.742565	-2.891311
64	1	0	2.678428	-3.326974	-2.653001
65	1	0	0.932072	-3.128471	-2.936246
66	1	0	2.489842	-5.769121	-0.779491
67	1	0	2.385573	-4.951597	0.779423
68	1	0	3.537519	-4.379005	-0.453085
69	1	0	1.418614	-3.410375	1.974020
70	1	0	0.034811	-2.327499	1.832658
71	1	0	1.347326	-0.398288	2.619766
72	1	0	1.674582	-1.734188	3.732639
73	1	0	4.040382	-3.608581	2.615567
74	1	0	4.257419	-2.763624	4.170264
75	1	0	5.528497	-2.693531	2.918529
76	1	0	3.910647	1.765675	1.791324
77	1	0	3.973509	2.472503	3.408953
78	1	0	2.523067	1.599407	2.901577
79	1	0	4.144509	0.983571	5.479984

S18

80	1	0	4.239892	-0.772293	5.349018
81	1	0	2.710755	0.072687	4.995985
82	1	0	6.147087	0.531819	2.313456
83	1	0	6.280649	-0.482721	3.771188
84	1	0	6.134002	1.271457	3.923159
85	1	0	4.597795	-2.381944	0.177458
86	17	0	3.241206	2.918859	-0.949276
87	6	0	4.833948	3.896989	-1.176134
88	1	0	5.383950	3.401478	-1.969963
89	1	0	4.536087	4.917719	-1.397287
90	17	0	5.865628	3.900013	0.345471
91	1	0	-4.451526	1.626907	-1.526068
92	17	0	-3.221001	-1.609899	1.003458
93	6	0	-4.777854	-2.653744	1.383608
94	1	0	-5.512141	-2.347392	0.645472
95	1	0	-4.443936	-3.684395	1.305005
96	17	0	-5.410086	-2.340554	3.066266
97	1	0	5.351783	-0.532557	0.349507
98	17	0	4.376414	-0.877649	-2.445122
99	6	0	6.269110	-0.767551	-2.739556
100	1	0	6.695429	-1.566296	-2.140691
101	1	0	6.372203	-0.880947	-3.815468
102	17	0	6.960877	0.832700	-2.211095
103	1	0	-5.424436	0.458080	-0.137054
104	17	0	-4.347193	-1.188685	-2.419243
105	6	0	-6.217623	-1.178675	-2.807453
106	1	0	-6.521045	-0.139396	-2.731565
107	1	0	-6.295003	-1.622120	-3.796486
108	17	0	-7.166375	-2.183556	-1.610959