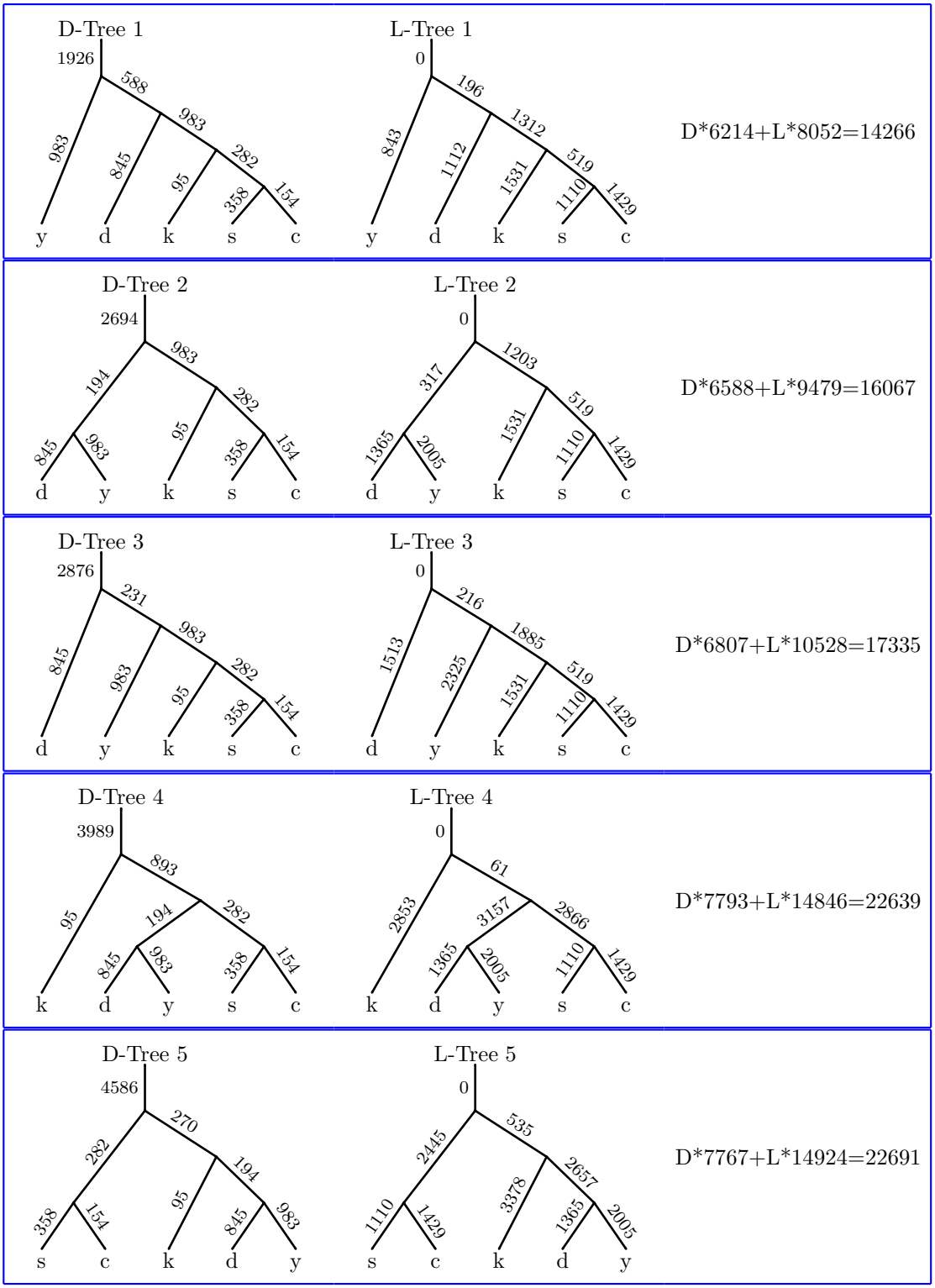
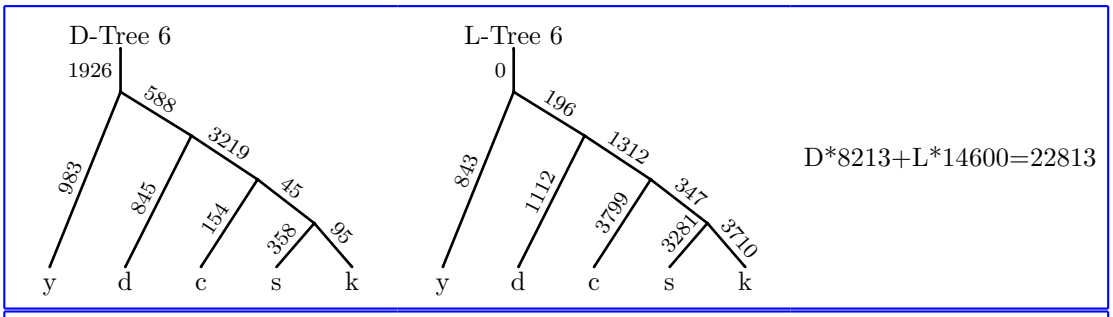
In columns:

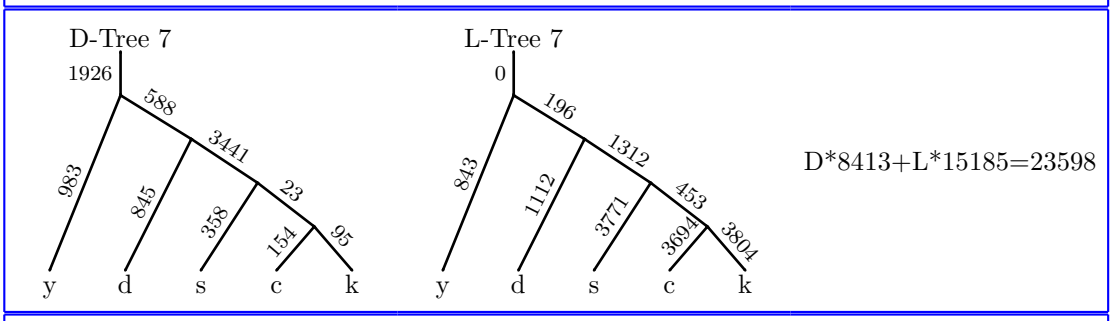
D-tree - distribution of gene duplications

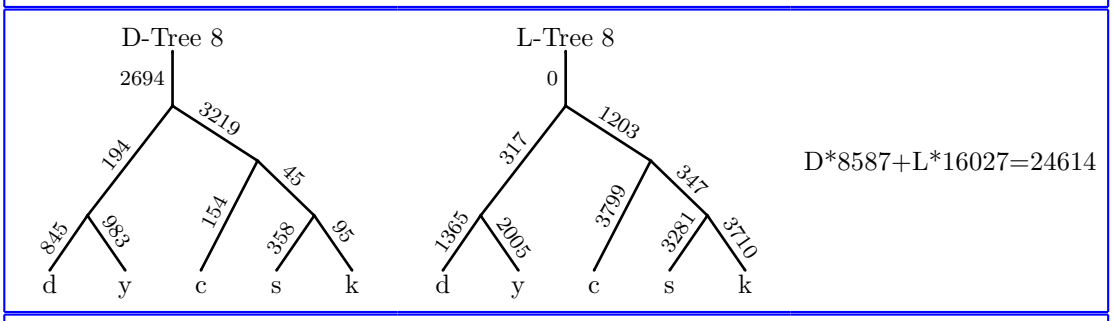
L-tree - distribution of gene losses

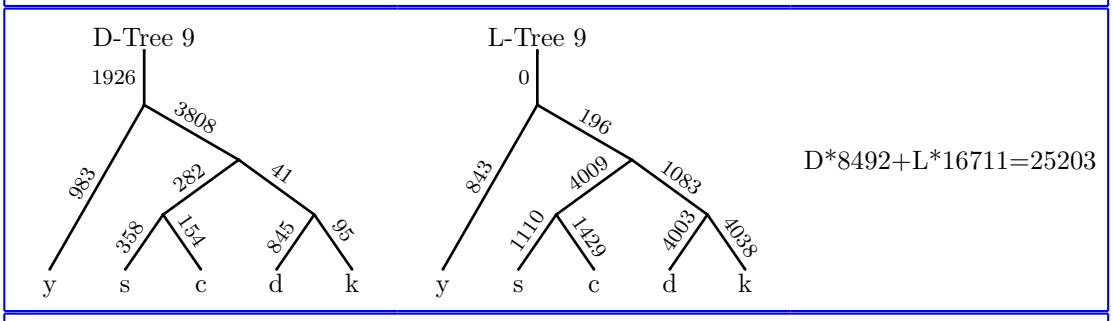
mutation cost (sum of duplications and losses)

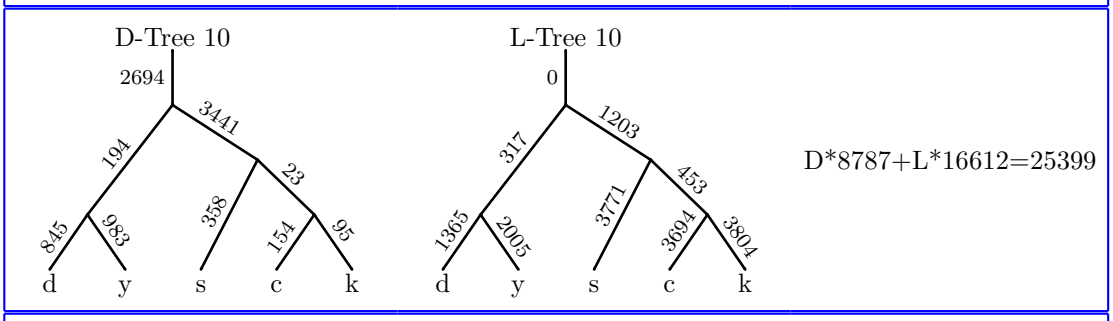


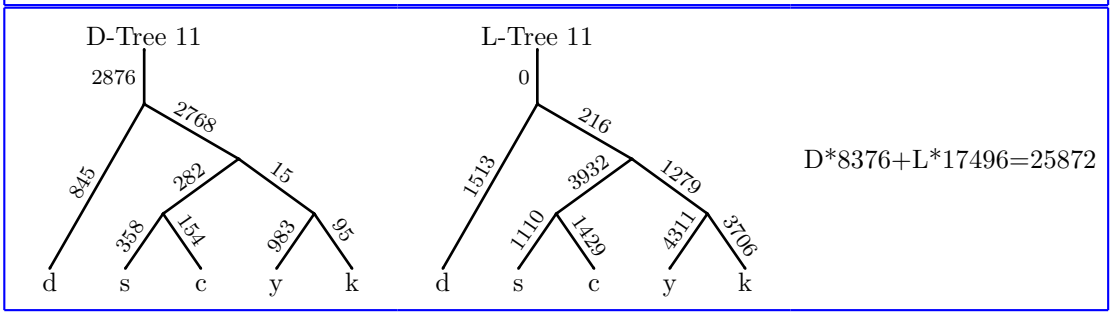

D-Tree 6
1926
588
3219
45
983
845
154
358
95
y
d
c
s
k
L-Tree 6
0
196
1312
347
843
1112
3799
3281
3710
y
d
c
s
k
D*8213+L*14600=22813


D-Tree 7
1926
588
3441
23
983
845
358
154
95
y
d
s
c
k
L-Tree 7
0
196
1312
453
843
1112
3771
3694
3804
y
d
s
c
k
D*8413+L*15185=23598

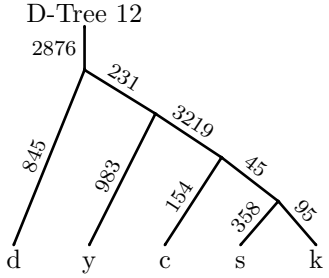

D-Tree 8
2694
3219
194
45
845
983
154
358
95
d
y
c
s
k
L-Tree 8
0
1203
317
347
1365
2005
3799
3281
3710
d
y
c
s
k
D*8587+L*16027=24614


D-Tree 9
1926
3808
983
282
41
358
154
845
95
y
s
c
d
k
L-Tree 9
0
196
843
4009
1083
1110
1429
4003
4038
y
s
c
d
k
D*8492+L*16711=25203

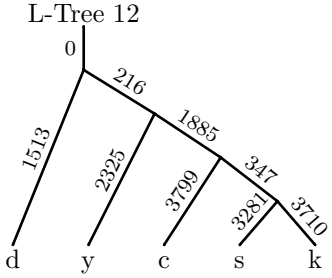

D-Tree 10
2694
3441
194
23
845
983
358
154
95
d
y
s
c
k
L-Tree 10
0
1203
317
453
1365
2005
3771
3694
3804
d
y
s
c
k
D*8787+L*16612=25399


D-Tree 11
2876
2768
845
282
15
358
154
983
95
d
s
c
y
k
L-Tree 11
0
216
1513
3932
1279
1110
1429
4311
3706
d
s
c
y
k
D*8376+L*17496=25872

D-Tree 12

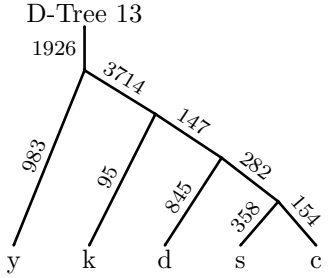


L-Tree 12

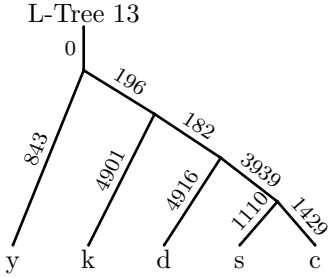


D*8806+L*17076=25882

D-Tree 13

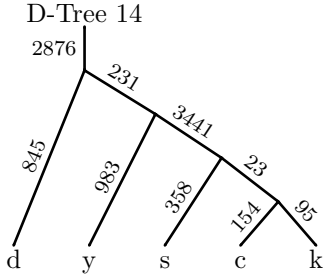


L-Tree 13

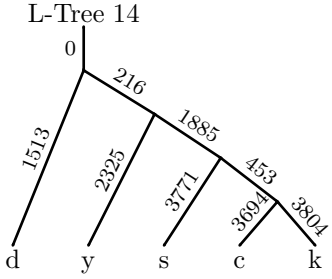


D*8504+L*17516=26020

D-Tree 14

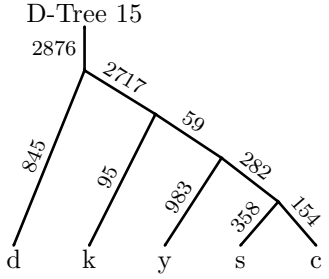


L-Tree 14

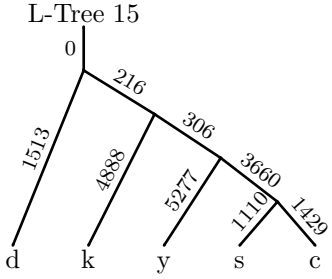


D*9006+L*17661=26667

D-Tree 15

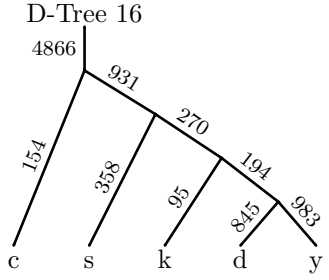


L-Tree 15

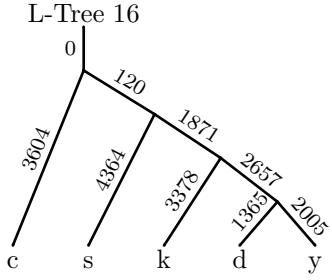


D*8369+L*18399=26768

D-Tree 16

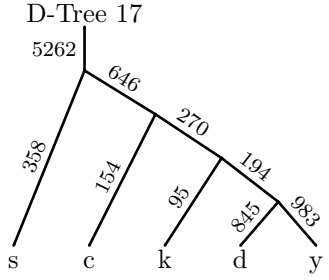


L-Tree 16

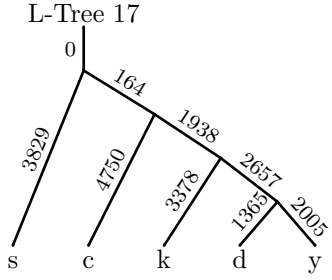


D*8696+L*19364=28060

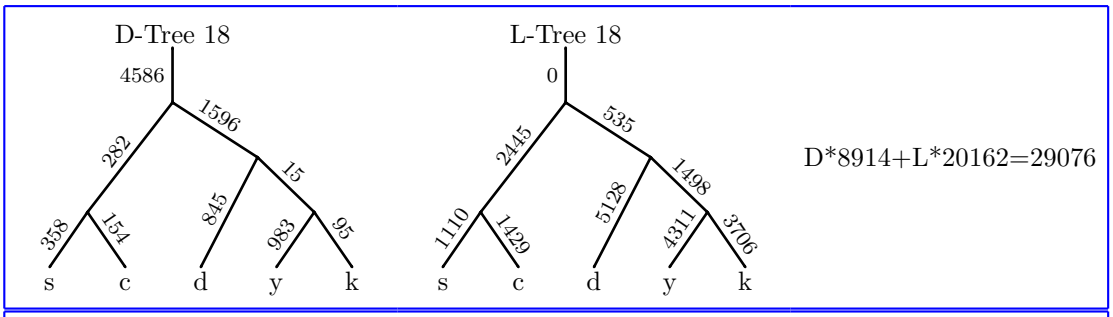
D-Tree 17

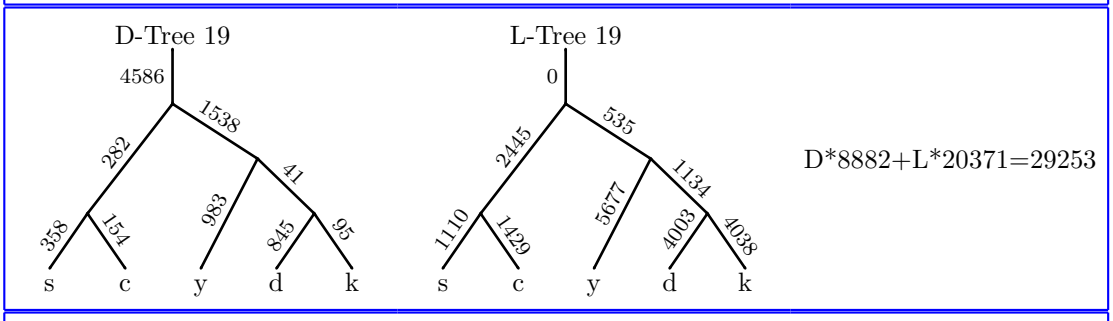


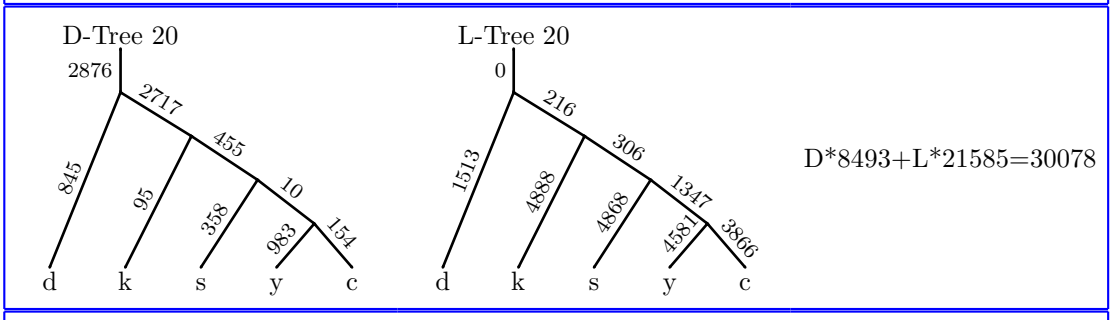
L-Tree 17

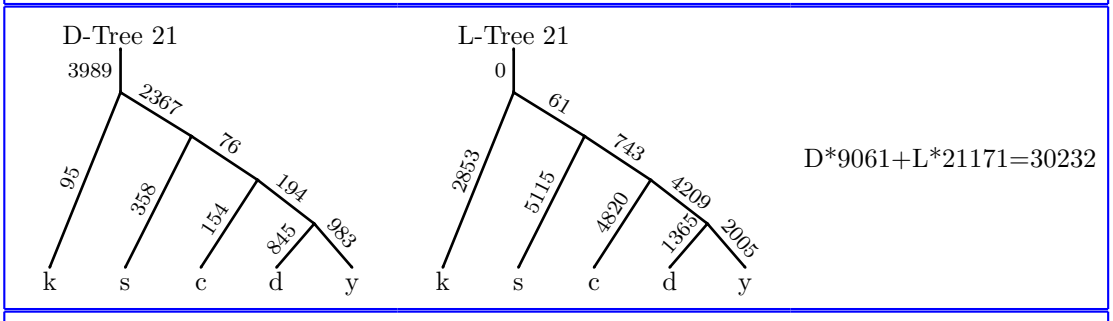


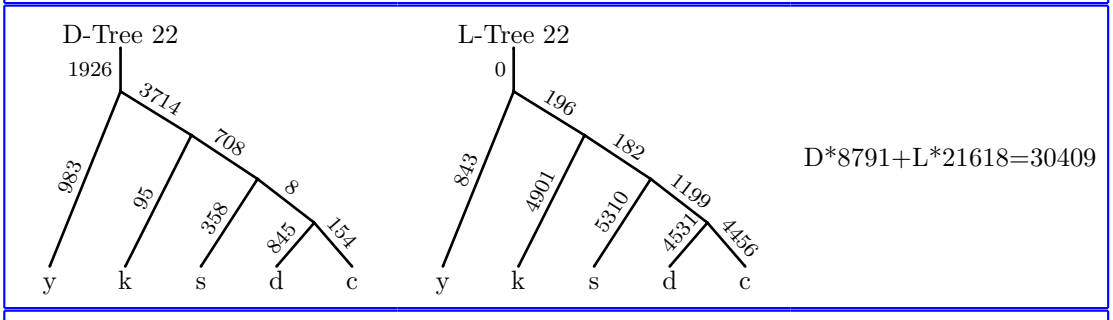
D*8807+L*20086=28893

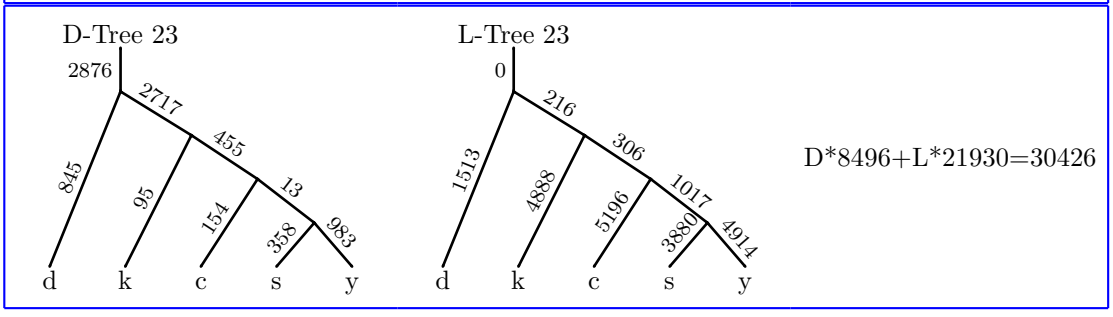

D-Tree 18
4586
1596
282
15
358
154
845
983
95
s
c
d
y
k
L-Tree 18
0
535
2445
1498
1110
1429
5128
4311
3706
s
c
d
y
k
D*8914+L*20162=29076

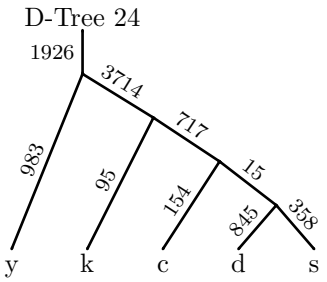

D-Tree 19
4586
1538
282
41
358
154
983
845
95
s
c
y
d
k
L-Tree 19
0
535
2445
1134
1110
1429
5677
4003
4038
s
c
y
d
k
D*8882+L*20371=29253

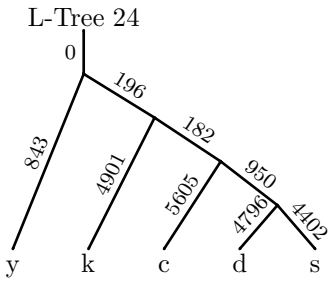

D-Tree 20
2876
2717
455
845
95
10
358
983
154
d
k
s
y
c
L-Tree 20
0
216
306
1513
4888
1347
4868
4581
3866
d
k
s
y
c
D*8493+L*21585=30078


D-Tree 21
3989
2367
76
95
358
194
154
845
983
k
s
c
d
y
L-Tree 21
0
61
743
2853
5115
4209
4820
1365
2005
k
s
c
d
y
D*9061+L*21171=30232

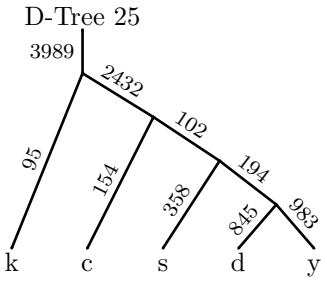

D-Tree 22
1926
3714
708
983
95
8
358
845
154
y
k
s
d
c
L-Tree 22
0
196
182
843
4901
1199
5310
4531
4456
y
k
s
d
c
D*8791+L*21618=30409

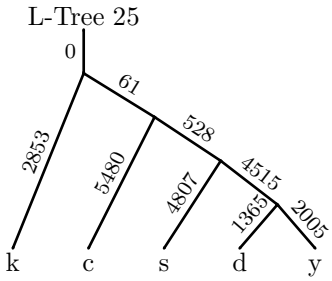

D-Tree 23
2876
2717
455
845
95
13
154
358
983
d
k
c
s
y
L-Tree 23
0
216
306
1513
4888
1017
5196
3880
4914
d
k
c
s
y
D*8496+L*21930=30426



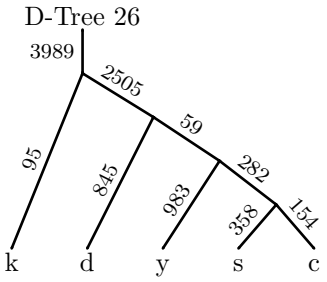


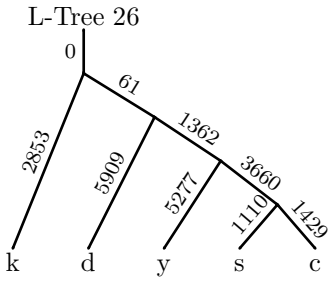
D*8807+L*21875=30682



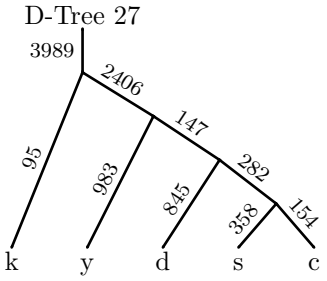


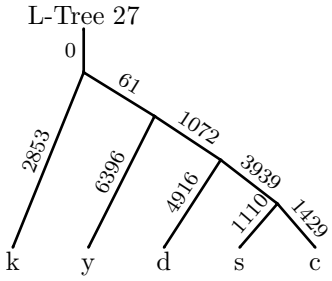
D*9152+L*21614=30766



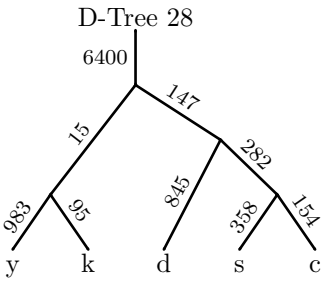


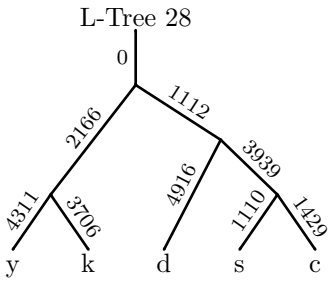
D*9270+L*21661=30931



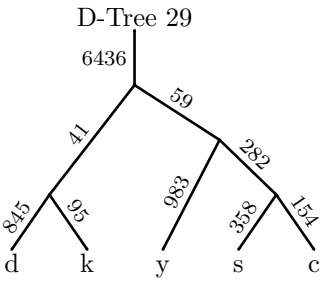


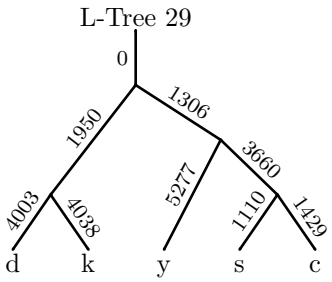
D*9259+L*21776=31035



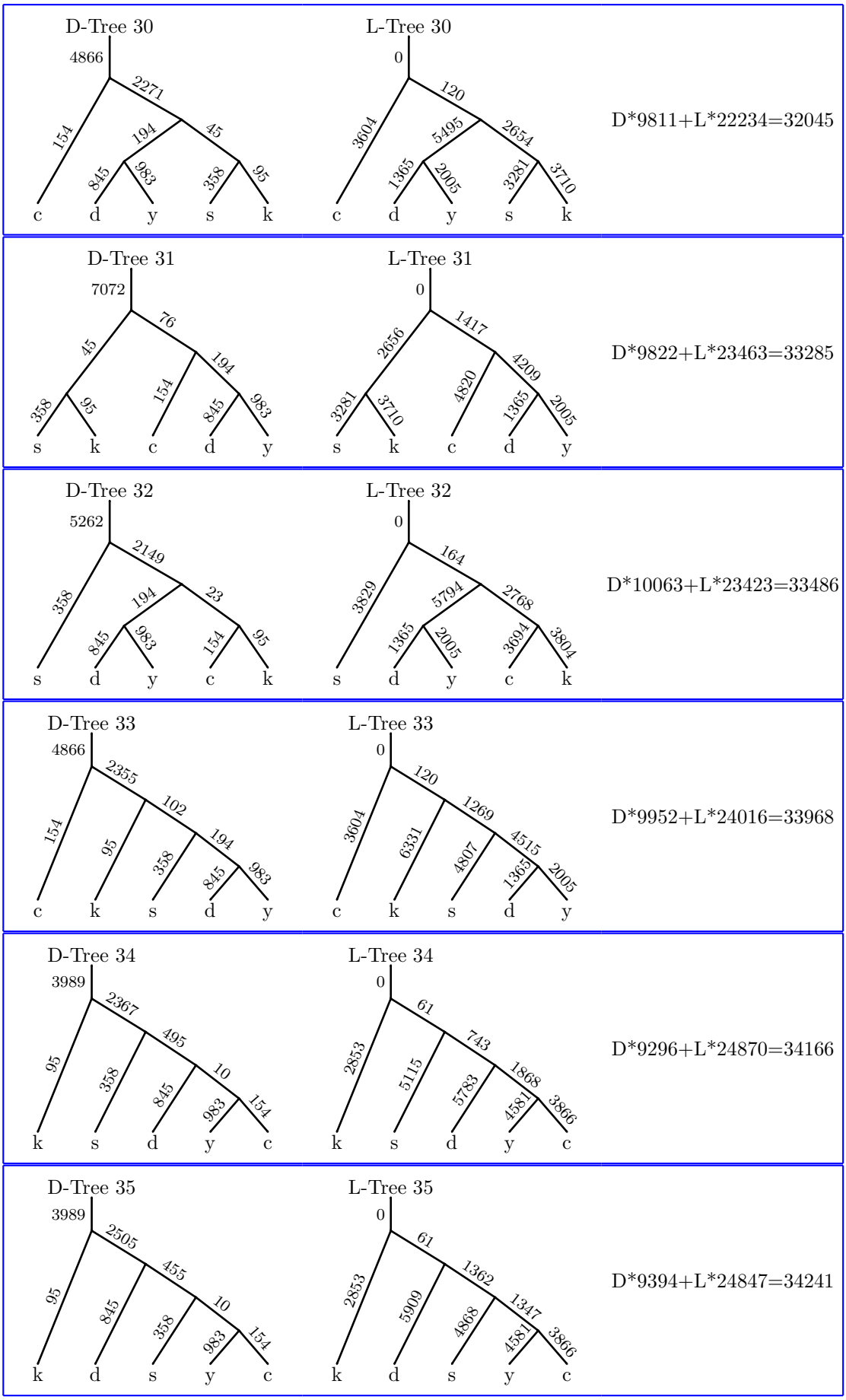


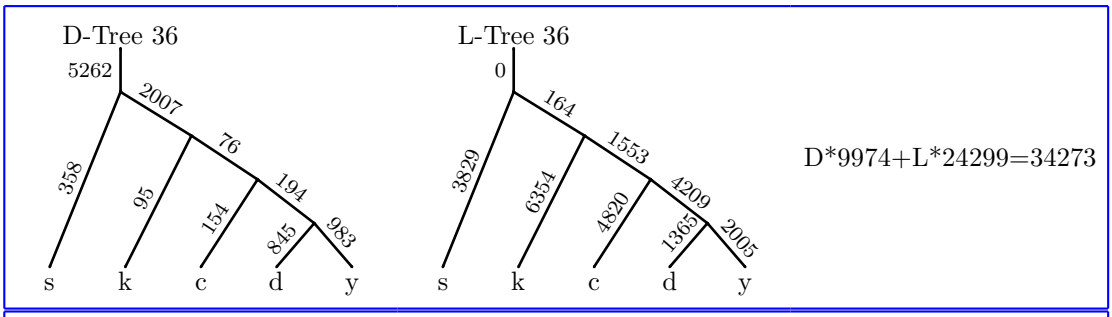
D*9279+L*22689=31968

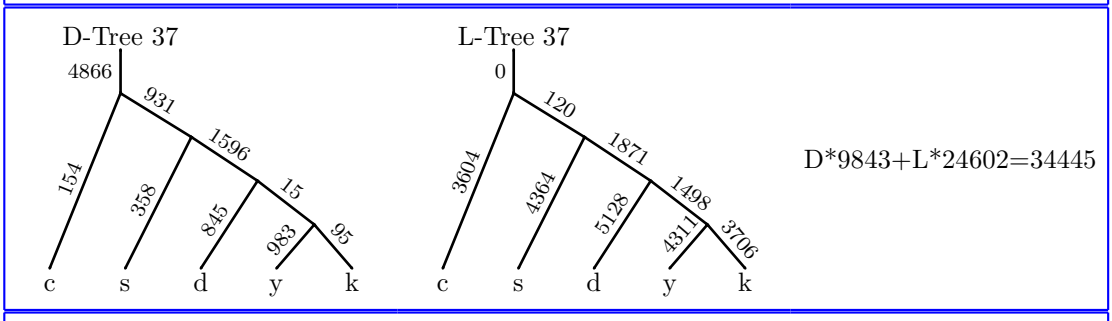


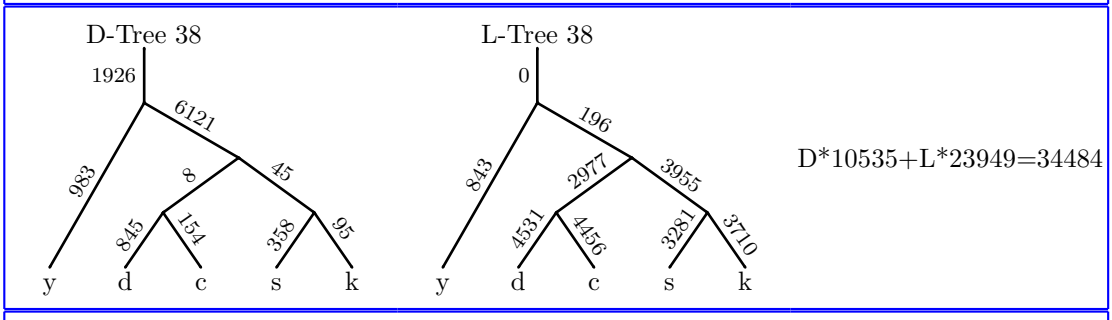


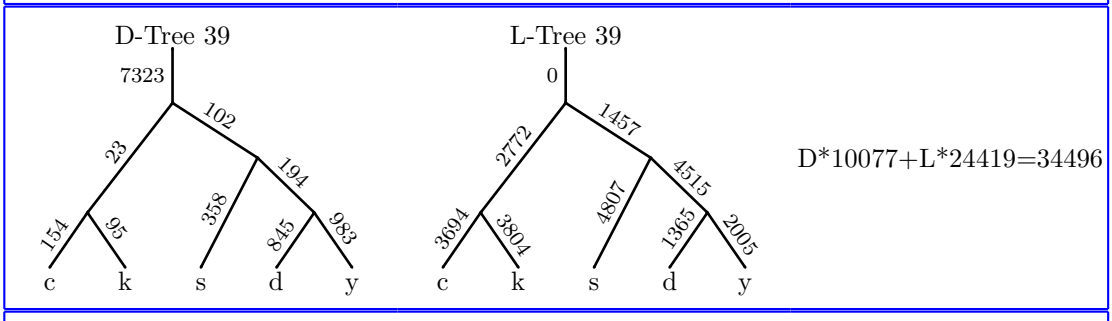
D*9253+L*22773=32026

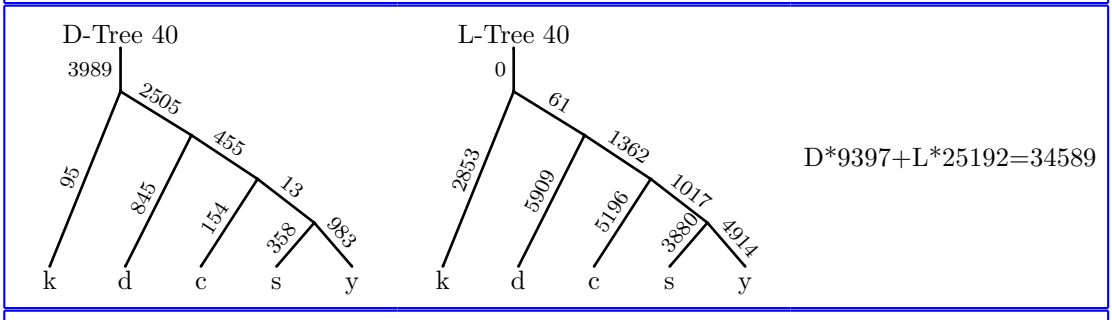

D-Tree 30
4866
2271
154
194
45
845
983
358
95
c
d
y
s
k
L-Tree 30
0
120
3604
5495
2654
1365
2005
3281
3710
c
d
y
s
k
D*9811+L*22234=32045
D-Tree 31
7072
76
45
194
358
95
154
845
983
s
k
c
d
y
L-Tree 31
0
1417
2656
4209
3281
3710
4820
1365
2005
s
k
c
d
y
D*9822+L*23463=33285
D-Tree 32
5262
2149
358
194
23
845
983
154
95
s
d
y
c
k
L-Tree 32
0
164
3829
5794
2768
1365
2005
3694
3804
s
d
y
c
k
D*10063+L*23423=33486
D-Tree 33
4866
2355
102
154
95
194
358
845
983
c
k
s
d
y
L-Tree 33
0
120
1269
3604
6331
4807
4515
1365
2005
c
k
s
d
y
D*9952+L*24016=33968
D-Tree 34
3989
2367
495
95
358
10
845
983
154
k
s
d
y
c
L-Tree 34
0
61
743
2853
5115
5783
1868
4581
3866
k
s
d
y
c
D*9296+L*24870=34166
D-Tree 35
3989
2505
455
95
845
10
358
983
154
k
d
s
y
c
L-Tree 35
0
61
1362
2853
5909
4868
1347
4581
3866
k
d
s
y
c
D*9394+L*24847=34241

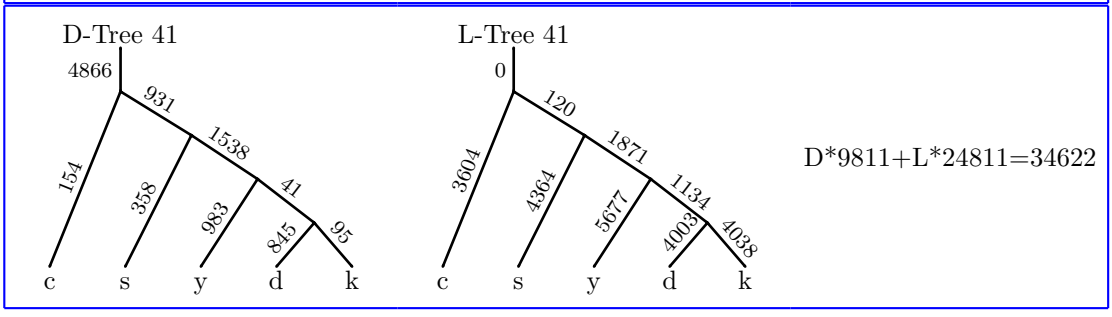

D-Tree 36
5262
2007
76
194
358
95
154
845
983
s k c d y
L-Tree 36
0
164
1553
4209
3829
6354
4820
1365
2005
s k c d y
D*9974+L*24299=34273

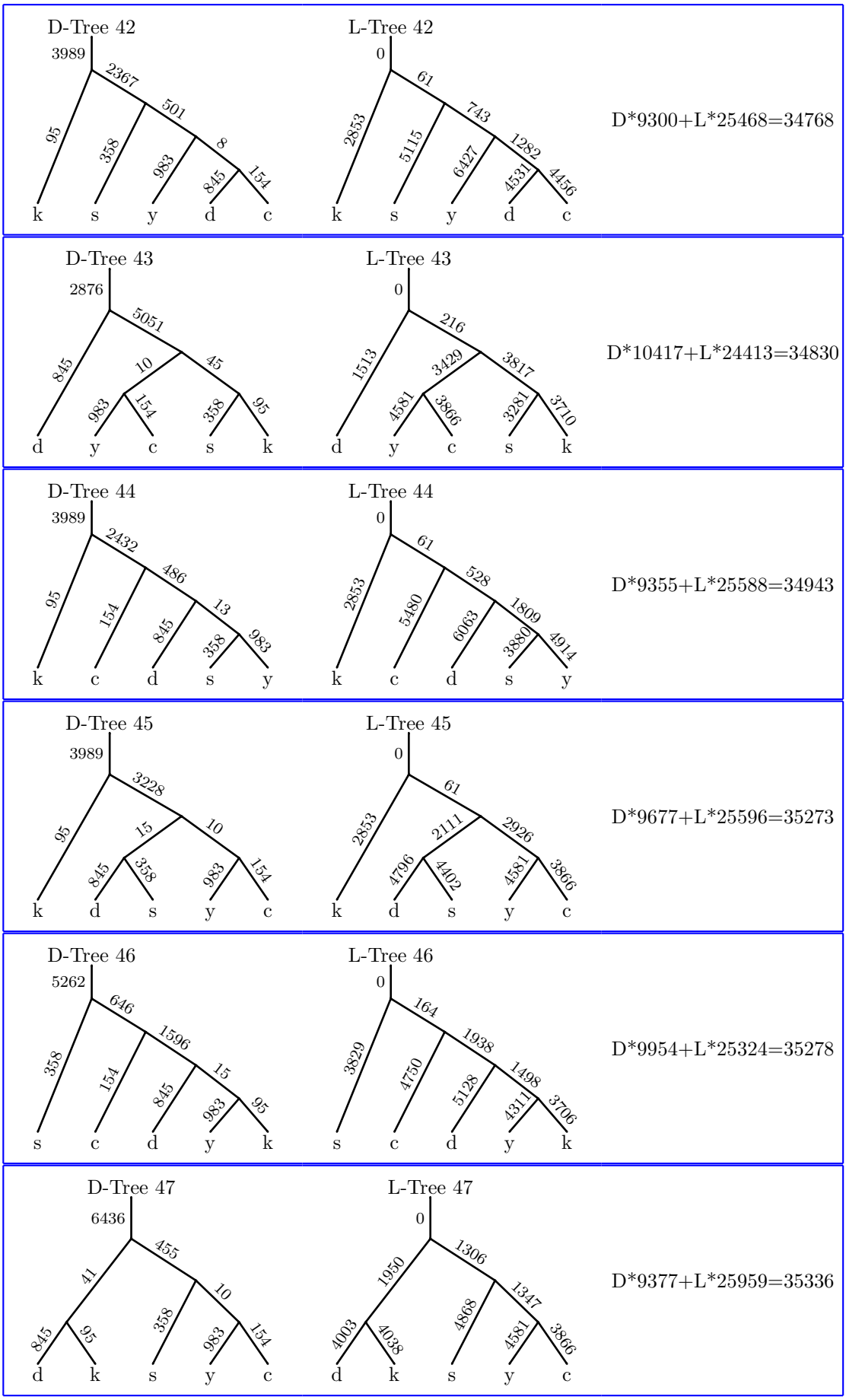

D-Tree 37
4866
931
1596
15
154
358
845
983
95
c s d y k
L-Tree 37
0
120
1871
1498
3604
4364
5128
4311
3706
c s d y k
D*9843+L*24602=34445

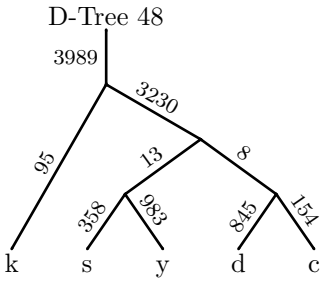

D-Tree 38
1926
6121
45
983
8
845
154
358
95
y d c s k
L-Tree 38
0
196
843
2977
3955
4531
4456
3281
3710
y d c s k
D*10535+L*23949=34484

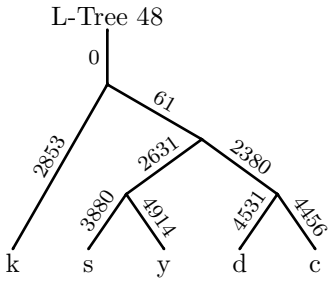

D-Tree 39
7323
102
23
194
154
95
358
845
983
c k s d y
L-Tree 39
0
1457
2772
4515
3694
3804
4807
1365
2005
c k s d y
D*10077+L*24419=34496


D-Tree 40
3989
2505
455
95
845
13
154
358
983
k d c s y
L-Tree 40
0
61
1362
2853
5909
1017
5196
3880
4914
k d c s y
D*9397+L*25192=34589

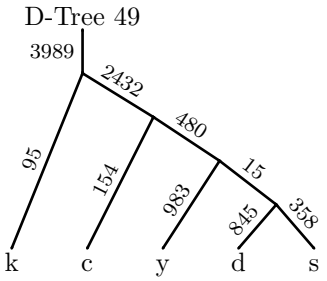

D-Tree 41
4866
931
1538
41
154
358
983
845
95
c s y d k
L-Tree 41
0
120
1871
1134
3604
4364
5677
4003
4038
c s y d k
D*9811+L*24811=34622

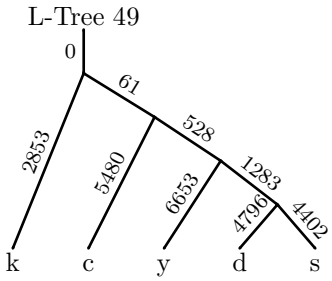

D-Tree 42
3989
2367
501
8
95
358
983
845
154
k s y d c
L-Tree 42
0
61
743
1282
2853
5115
6427
4531
4456
k s y d c
D*9300+L*25468=34768
D-Tree 43
2876
5051
45
845
10
983
154
358
95
d y c s k
L-Tree 43
0
216
3817
1513
3429
4581
3866
3281
3710
d y c s k
D*10417+L*24413=34830
D-Tree 44
3989
2432
486
13
95
154
845
358
983
k c d s y
L-Tree 44
0
61
528
1809
2853
5480
6063
3880
4914
k c d s y
D*9355+L*25588=34943
D-Tree 45
3989
3228
10
95
15
845
358
983
154
k d s y c
L-Tree 45
0
61
2926
2853
2111
4796
4402
4581
3866
k d s y c
D*9677+L*25596=35273
D-Tree 46
5262
646
1596
15
358
154
845
983
95
s c d y k
L-Tree 46
0
164
1938
1498
3829
4750
5128
4311
3706
s c d y k
D*9954+L*25324=35278
D-Tree 47
6436
455
41
10
845
95
358
983
154
d k s y c
L-Tree 47
0
1306
1950
1347
4003
4038
4868
4581
3866
d k s y c
D*9377+L*25959=35336



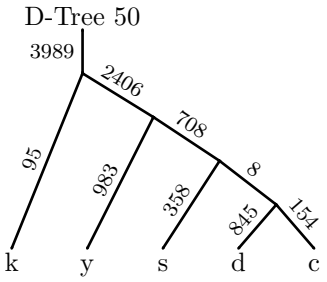


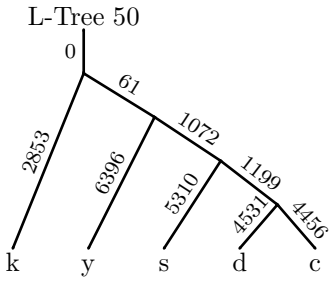
D*9675+L*25706=35381



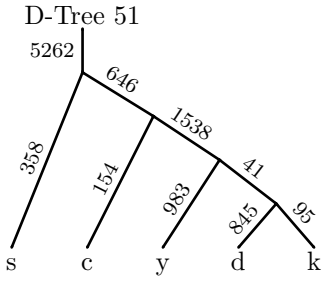


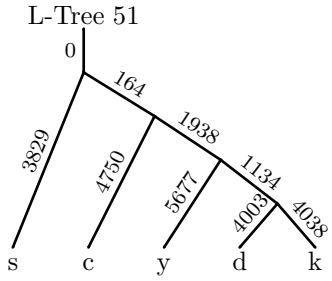
D*9351+L*26056=35407



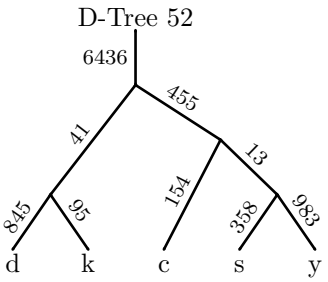


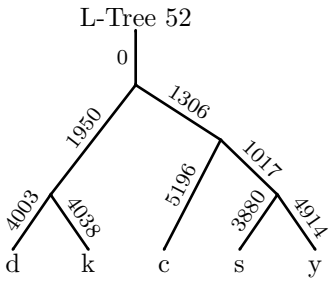
D*9546+L*25878=35424



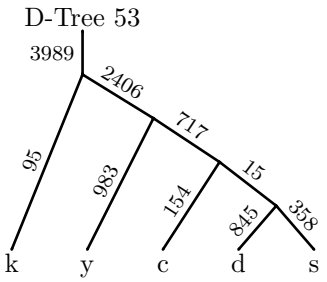


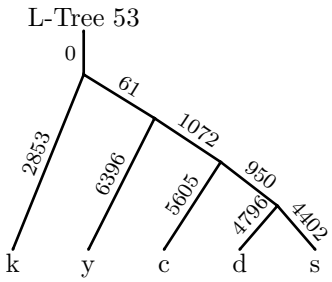
D*9922+L*25533=35455



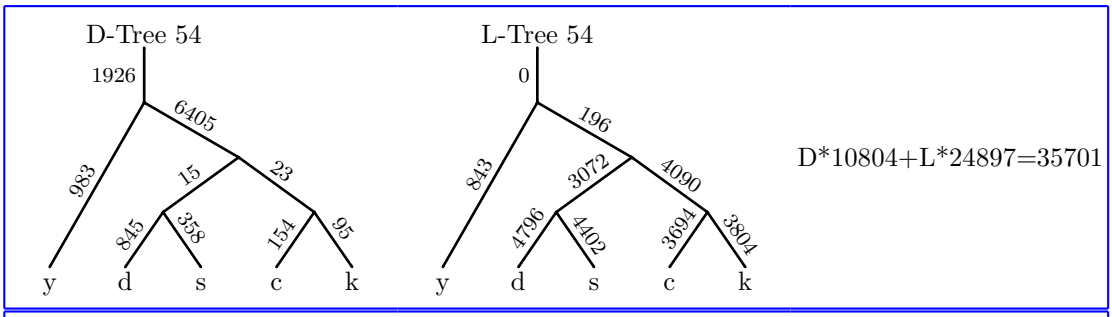


D*9380+L*26304=35684

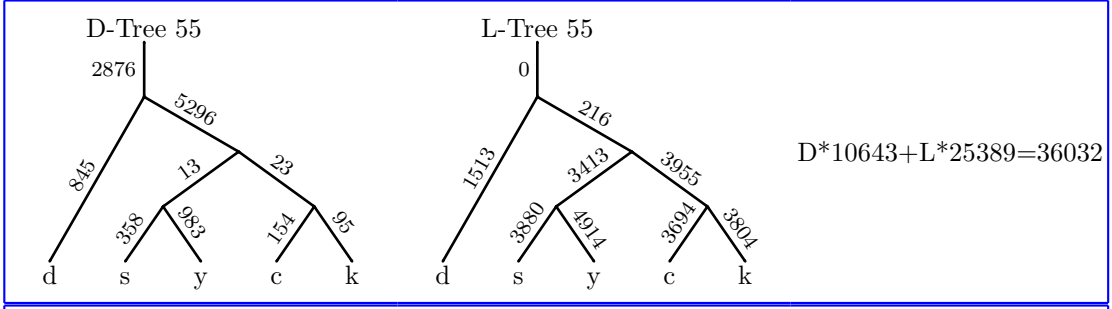




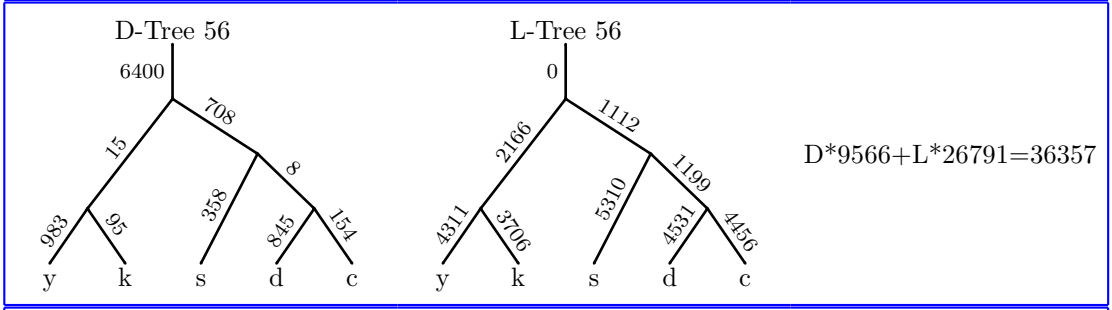
D*9562+L*26135=35697



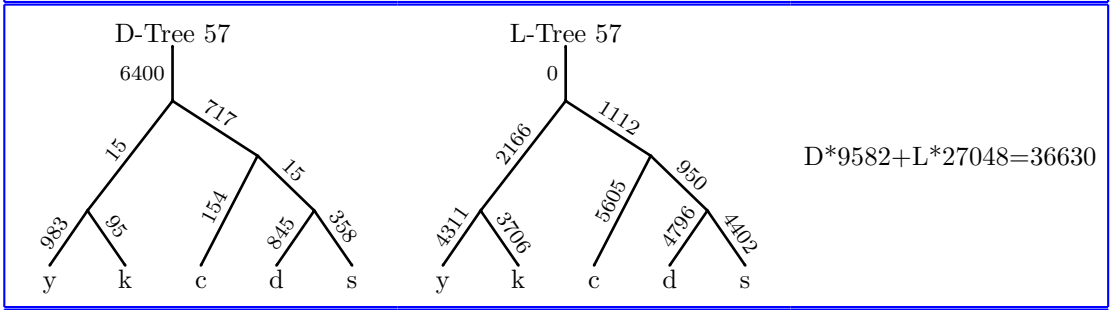
D*10804+L*24897=35701



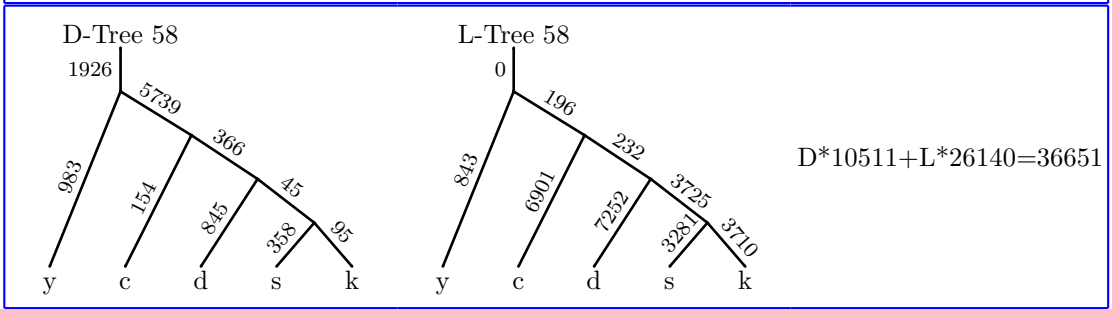
D*10643+L*25389=36032



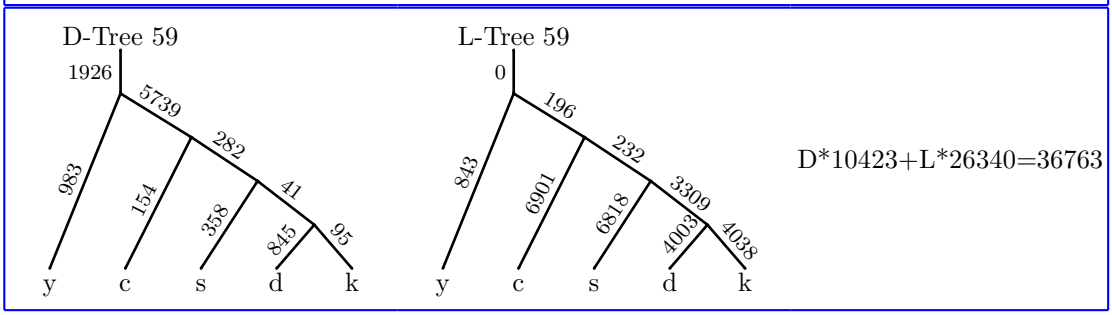
D*9566+L*26791=36357



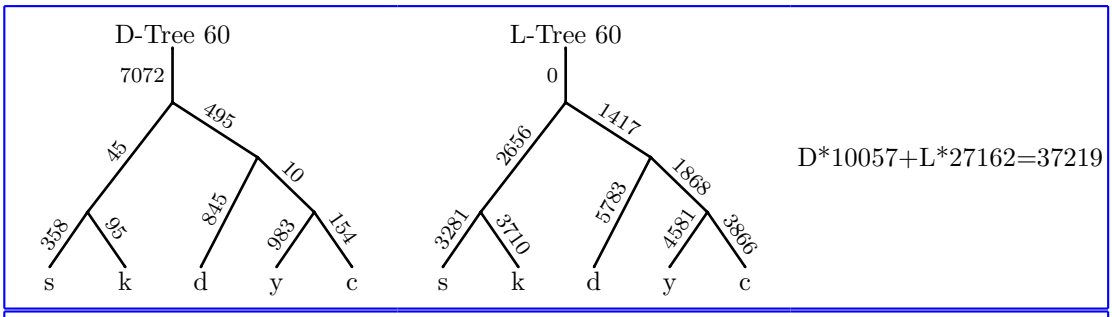
D*9582+L*27048=36630



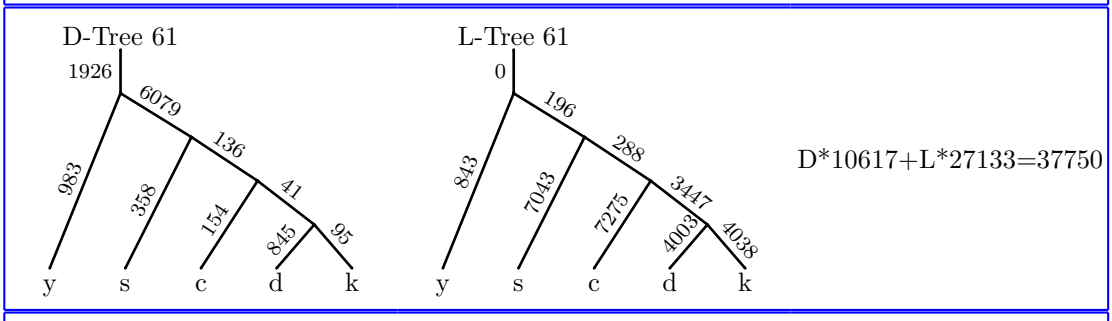
D*10511+L*26140=36651



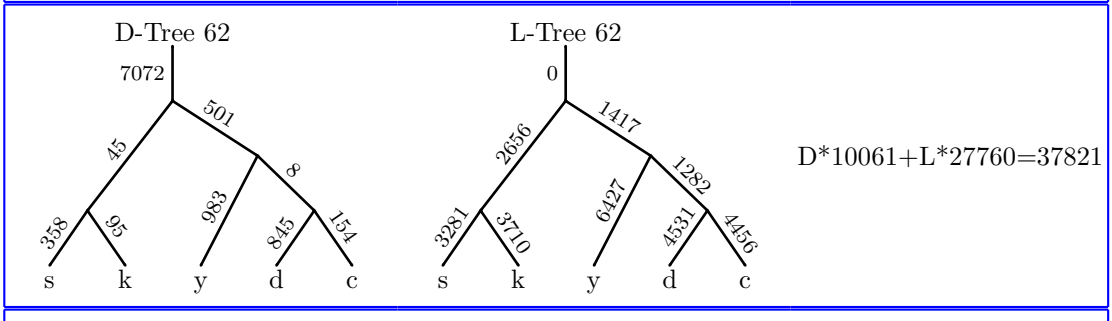
D*10423+L*26340=36763



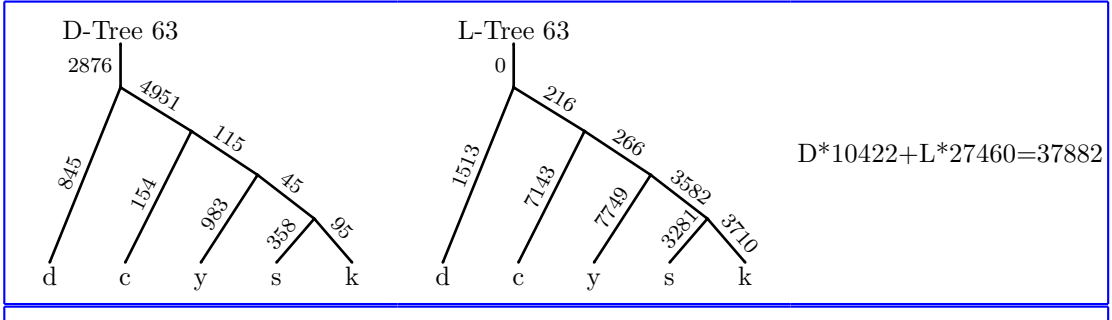
D*10057+L*27162=37219



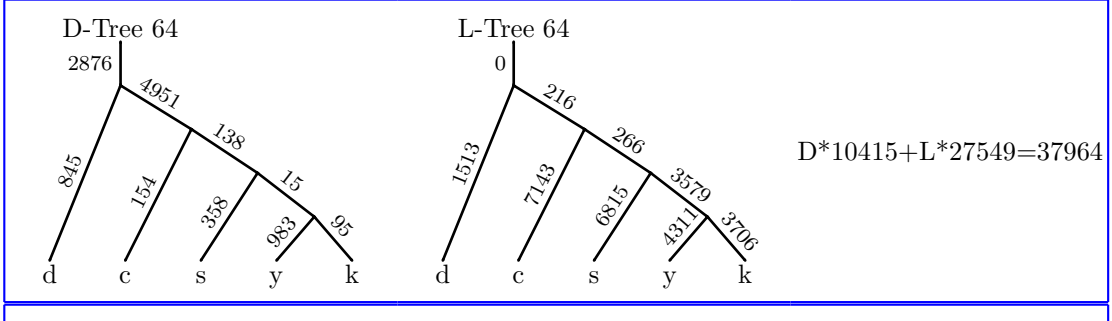
D*10617+L*27133=37750



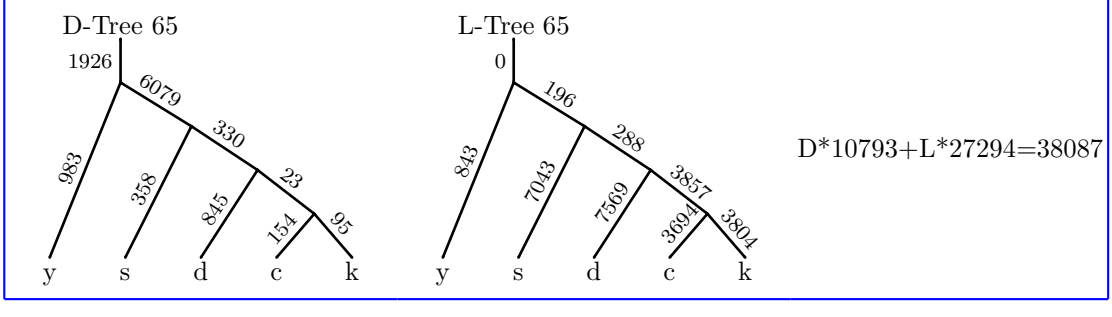
D*10061+L*27760=37821



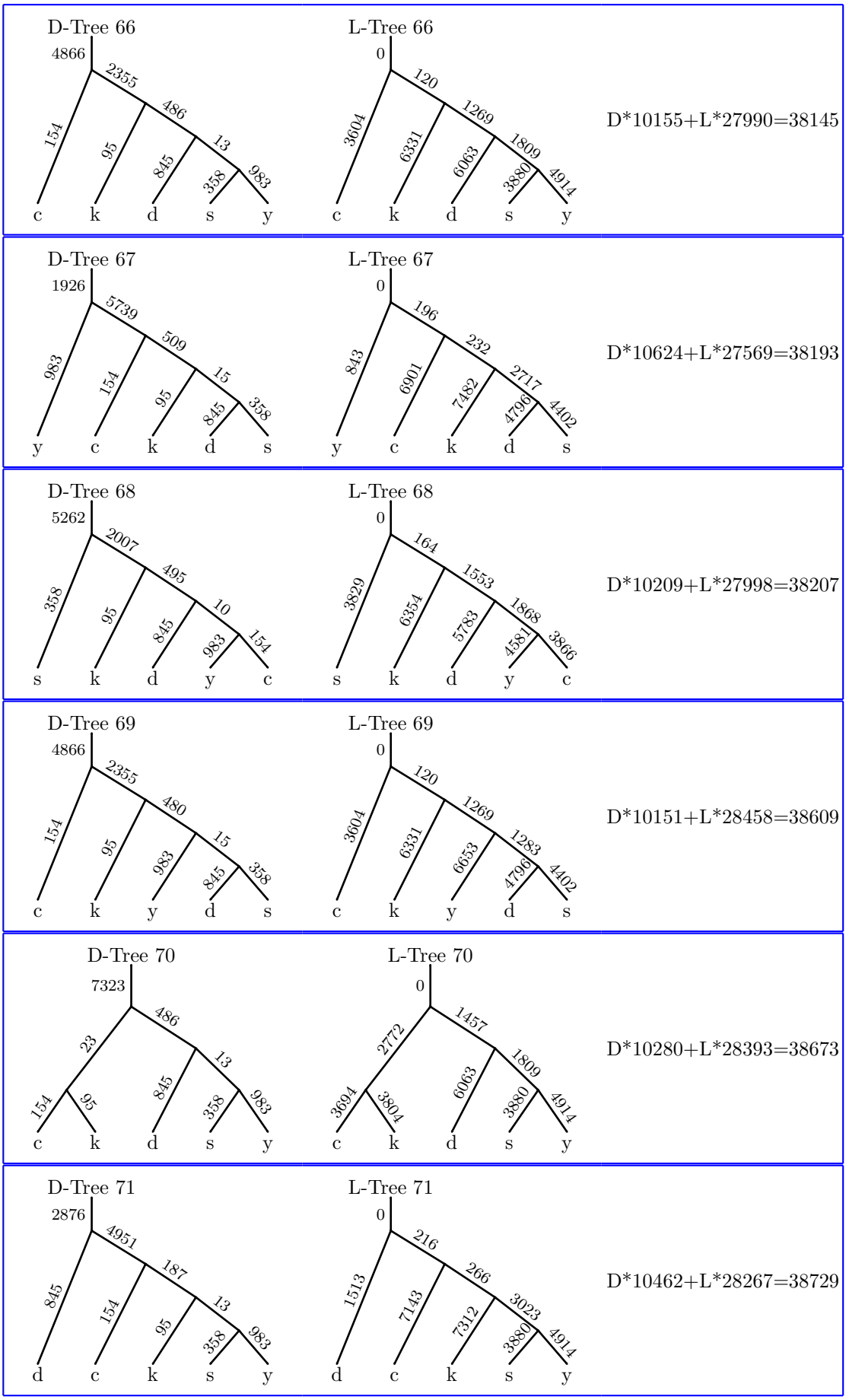
D*10422+L*27460=37882

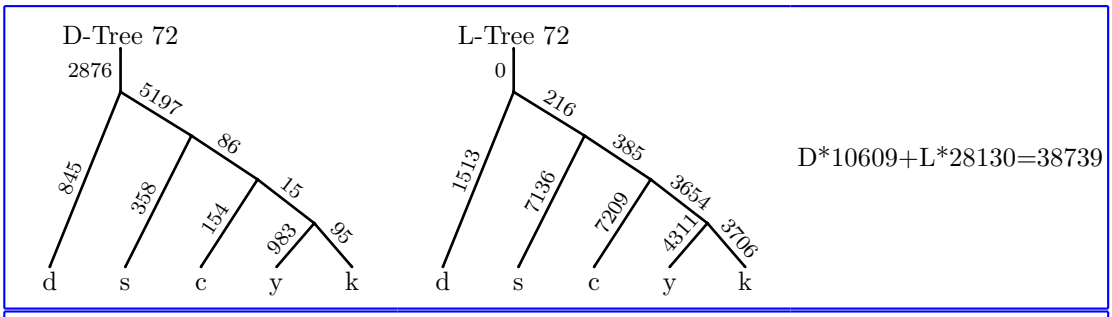


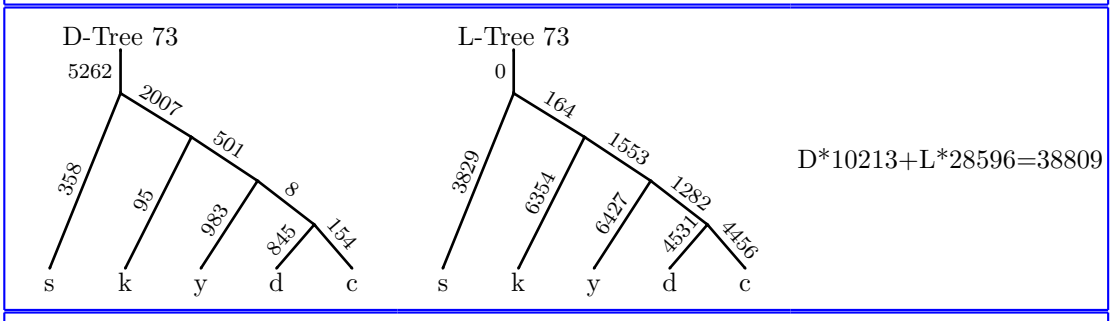
D*10415+L*27549=37964

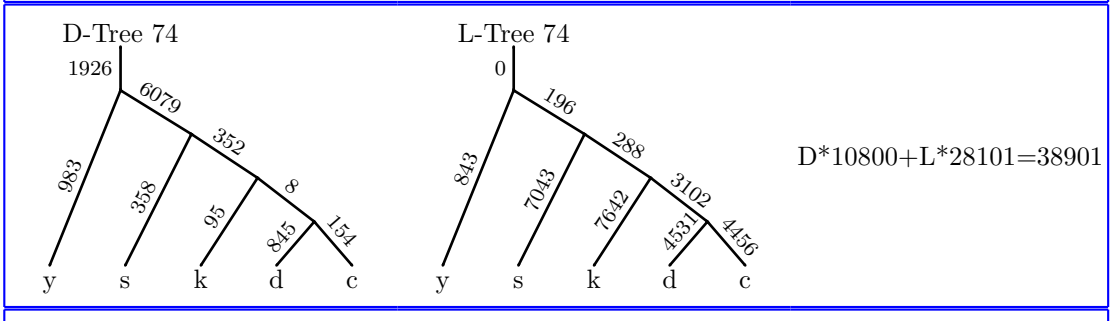


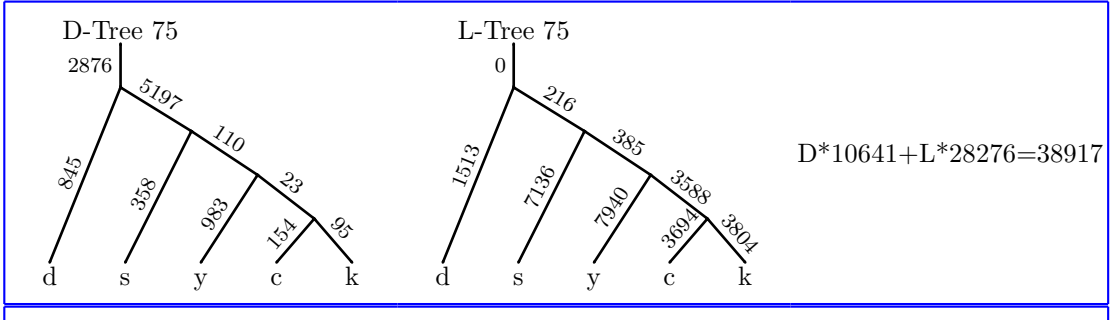
D*10793+L*27294=38087

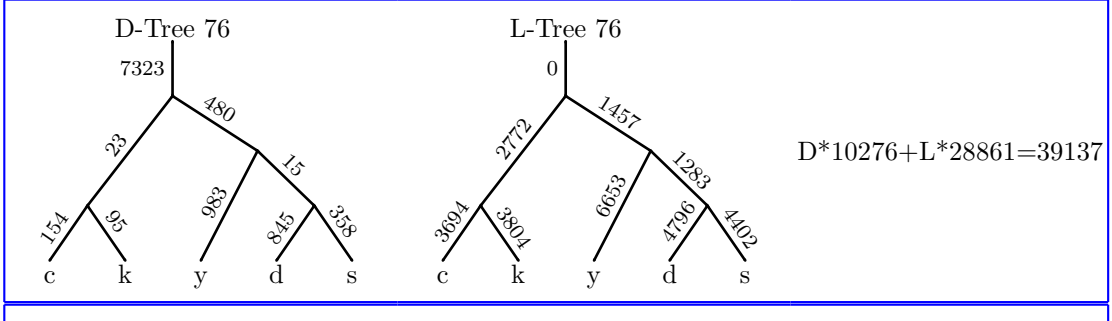

D-Tree 66
4866
2355
486
13
154
95
845
358
983
c k d s y
L-Tree 66
0
120
1269
1809
3604
6331
6063
3880
4914
c k d s y
D*10155+L*27990=38145
D-Tree 67
1926
5739
509
15
983
154
95
845
358
y c k d s
L-Tree 67
0
196
232
2717
843
6901
7482
4796
4402
y c k d s
D*10624+L*27569=38193
D-Tree 68
5262
2007
495
10
358
95
845
983
154
s k d y c
L-Tree 68
0
164
1553
1868
3829
6354
5783
4581
3866
s k d y c
D*10209+L*27998=38207
D-Tree 69
4866
2355
480
15
154
95
983
845
358
c k y d s
L-Tree 69
0
120
1269
1283
3604
6331
6653
4796
4402
c k y d s
D*10151+L*28458=38609
D-Tree 70
7323
486
23
13
154
95
845
358
983
c k d s y
L-Tree 70
0
1457
2772
1809
3694
3804
6063
3880
4914
c k d s y
D*10280+L*28393=38673
D-Tree 71
2876
4951
187
13
845
154
95
358
983
d c k s y
L-Tree 71
0
216
266
3023
1513
7143
7312
3880
4914
d c k s y
D*10462+L*28267=38729

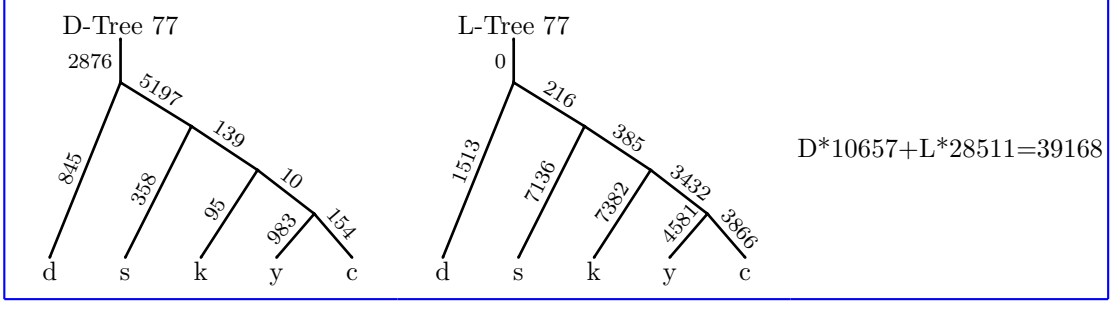

D-Tree 72
2876
5197
86
15
845
358
154
983
95
d
s
c
y
k
L-Tree 72
0
216
385
3654
1513
7136
7209
4311
3706
d
s
c
y
k
D*10609+L*28130=38739


D-Tree 73
5262
2007
501
8
358
95
983
845
154
s
k
y
d
c
L-Tree 73
0
164
1553
1282
3829
6354
6427
4531
4456
s
k
y
d
c
D*10213+L*28596=38809

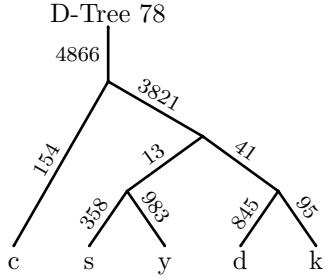

D-Tree 74
1926
6079
352
8
983
358
95
845
154
y
s
k
d
c
L-Tree 74
0
196
288
3102
843
7043
7642
4531
4456
y
s
k
d
c
D*10800+L*28101=38901


D-Tree 75
2876
5197
110
23
845
358
983
154
95
d
s
y
c
k
L-Tree 75
0
216
385
3588
1513
7136
7940
3694
3804
d
s
y
c
k
D*10641+L*28276=38917

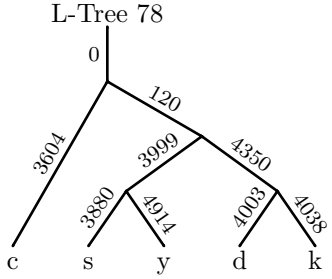

D-Tree 76
7323
480
23
15
154
95
983
845
358
c
k
y
d
s
L-Tree 76
0
1457
2772
1283
3694
3804
6653
4796
4402
c
k
y
d
s
D*10276+L*28861=39137


D-Tree 77
2876
5197
139
10
845
358
95
983
154
d
s
k
y
c
L-Tree 77
0
216
385
3432
1513
7136
7382
4581
3866
d
s
k
y
c
D*10657+L*28511=39168

D-Tree 78

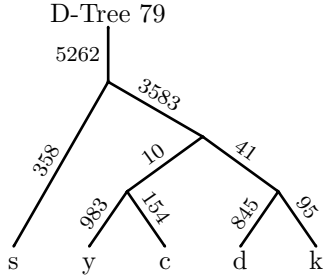


L-Tree 78

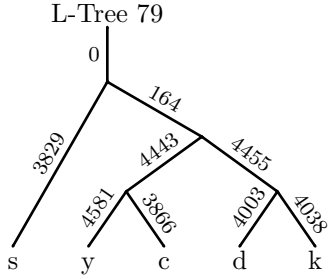


D*11176+L*28908=40084

D-Tree 79

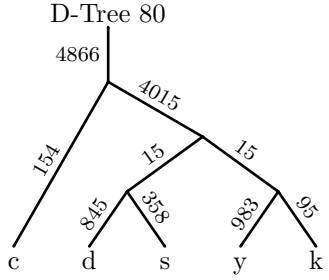


L-Tree 79

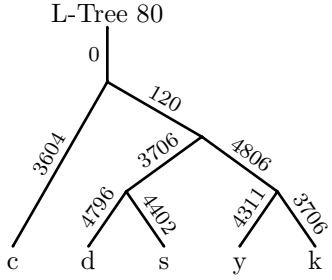


D*11331+L*29379=40710

D-Tree 80

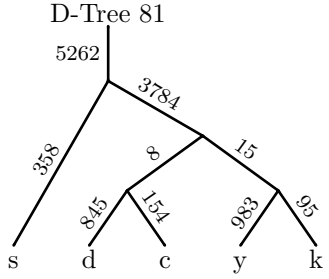


L-Tree 80

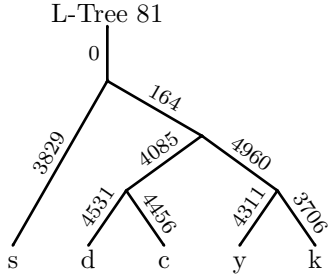


D*11346+L*29451=40797

D-Tree 81

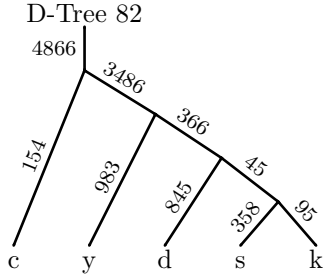


L-Tree 81

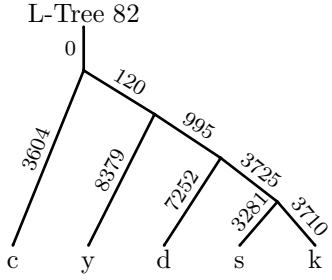


D*11504+L*30042=41546

D-Tree 82

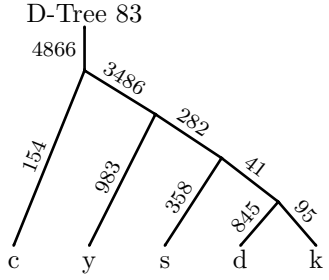


L-Tree 82

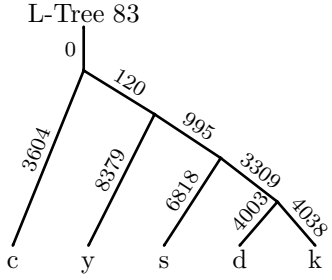


D*11198+L*31066=42264

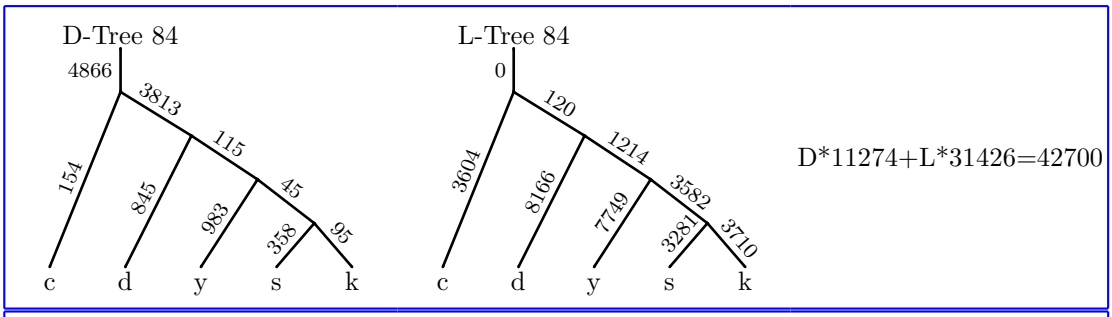
D-Tree 83



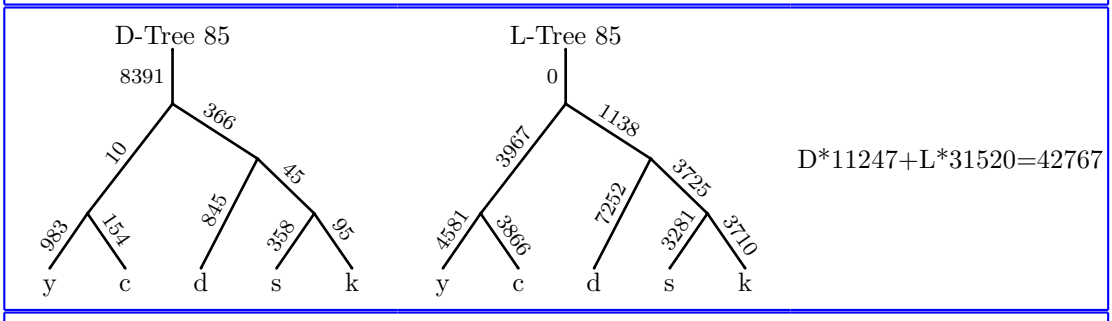
L-Tree 83



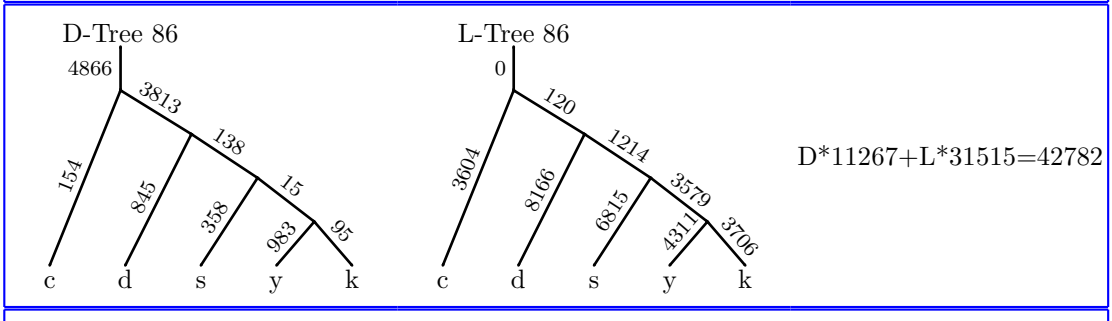
D*11110+L*31266=42376



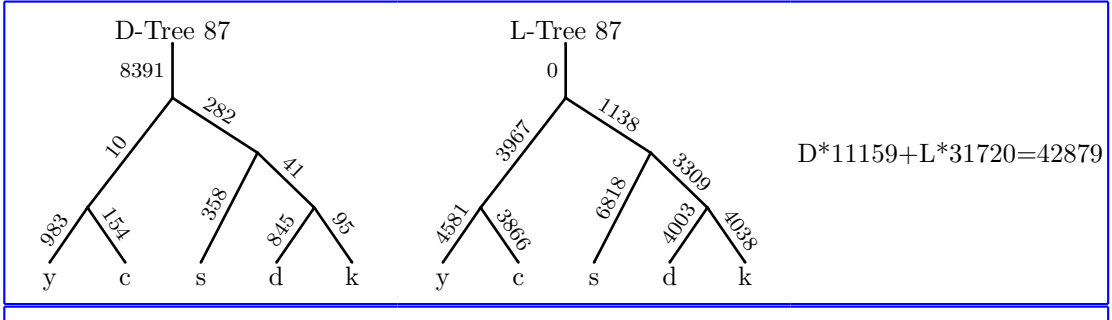
D*11274+L*31426=42700



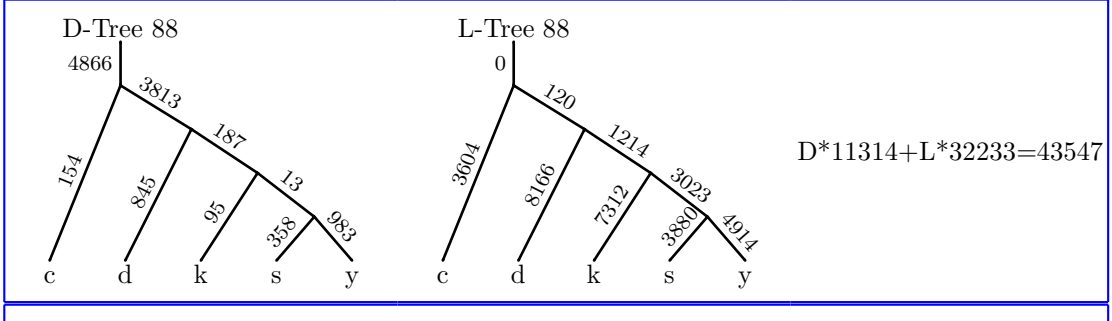
D*11247+L*31520=42767



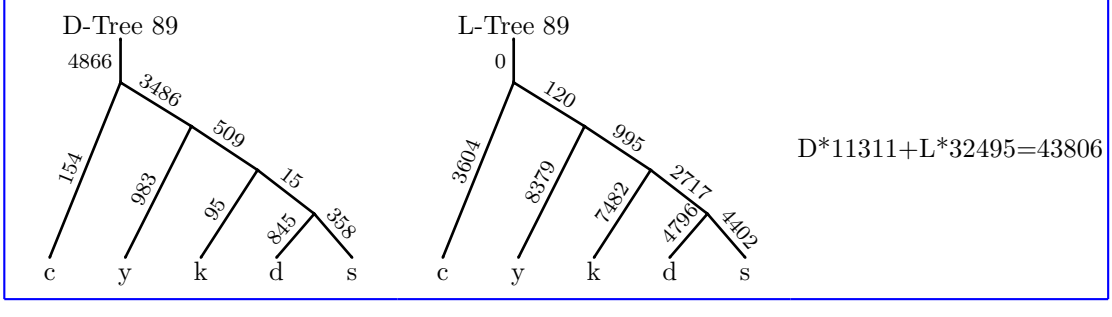
D*11267+L*31515=42782



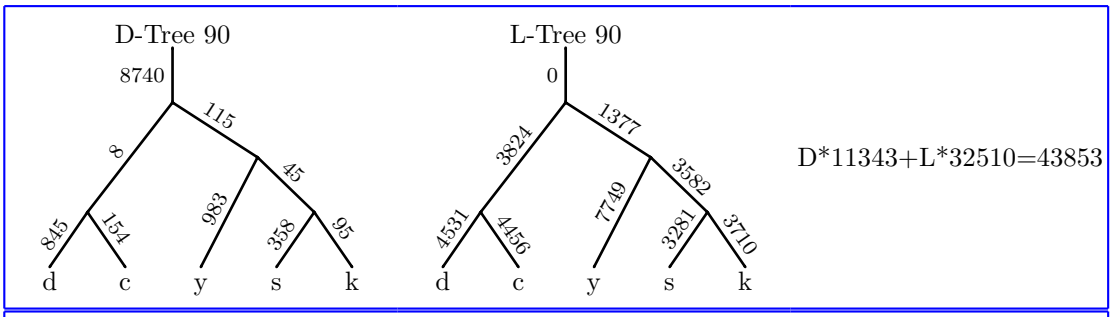
D*11159+L*31720=42879



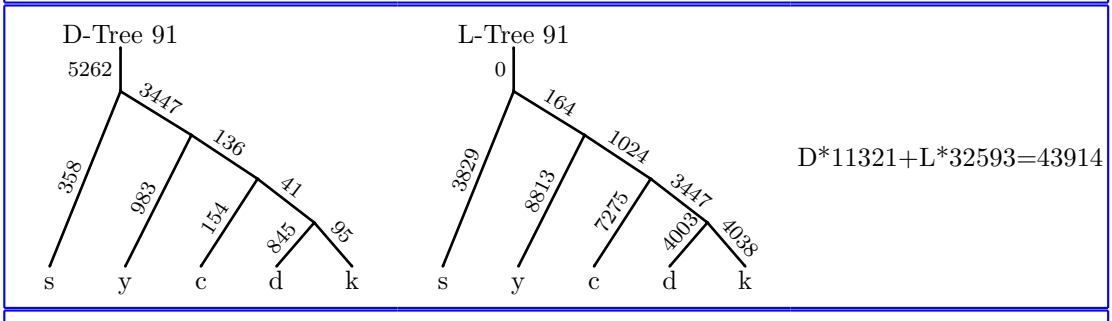
D*11314+L*32233=43547



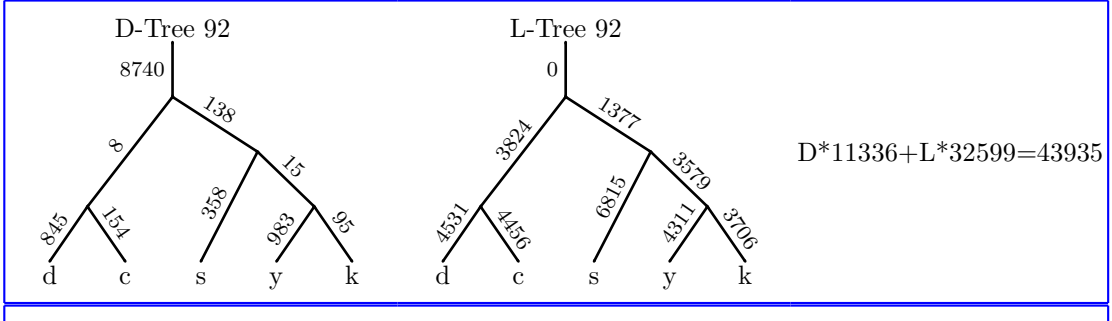
D*11311+L*32495=43806



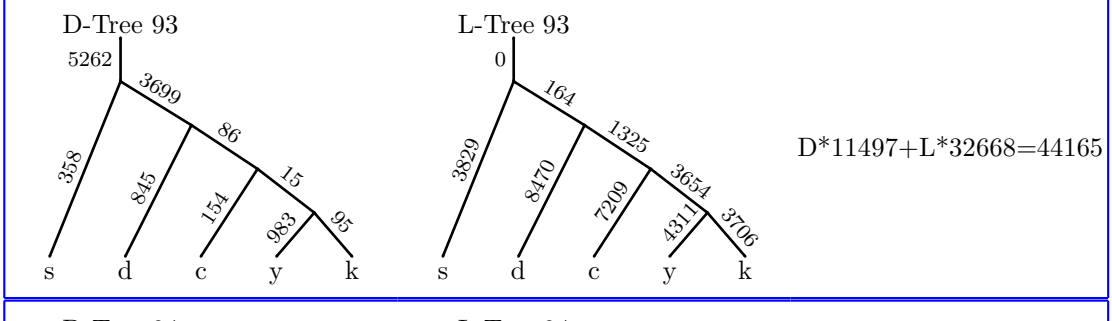
D*11343+L*32510=43853



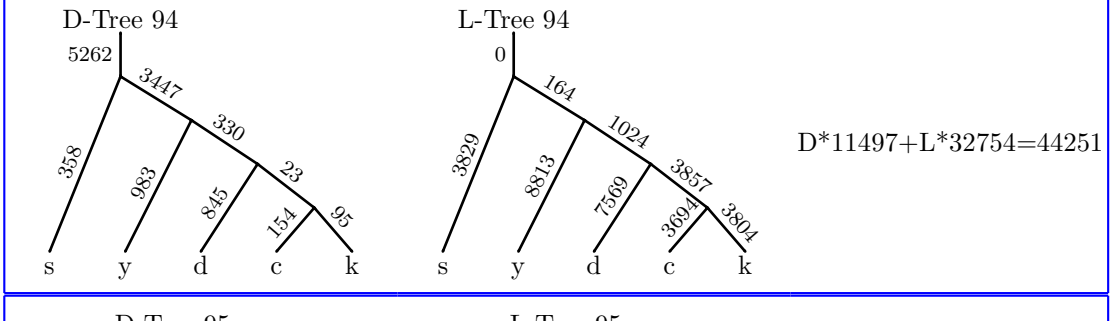
D*11321+L*32593=43914



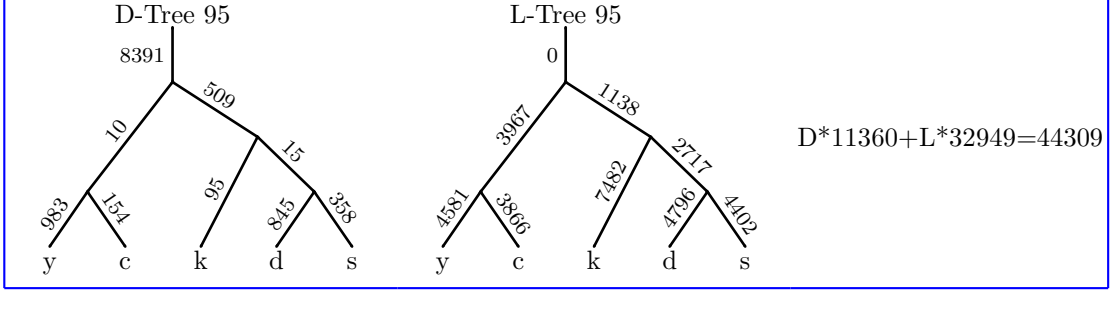
D*11336+L*32599=43935



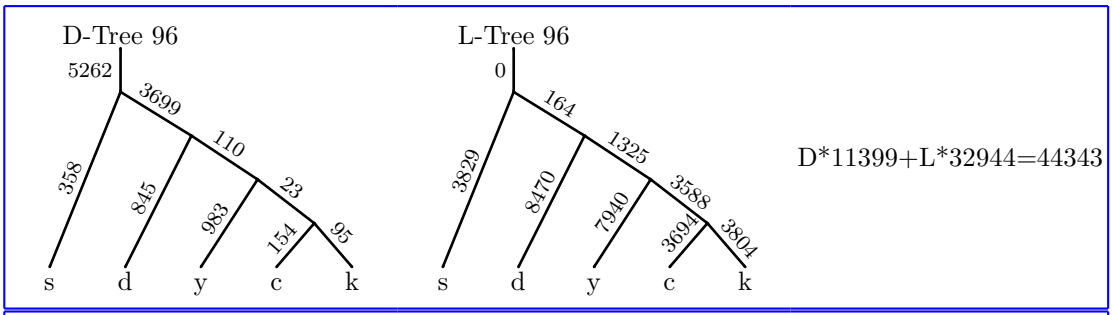
D*11497+L*32668=44165



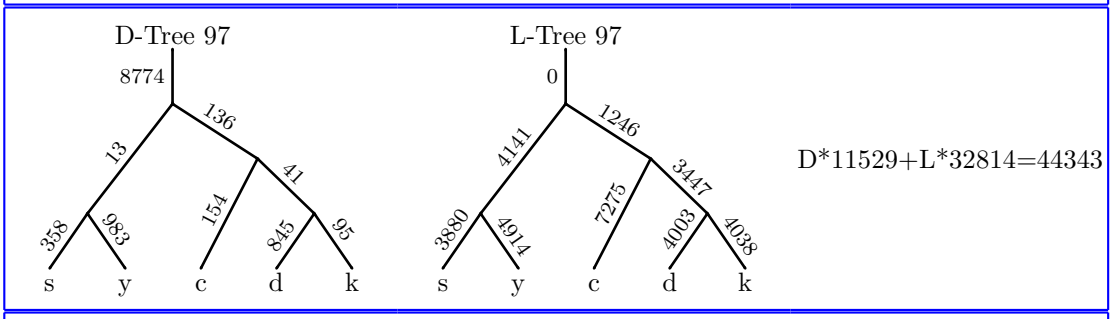
D*11497+L*32754=44251



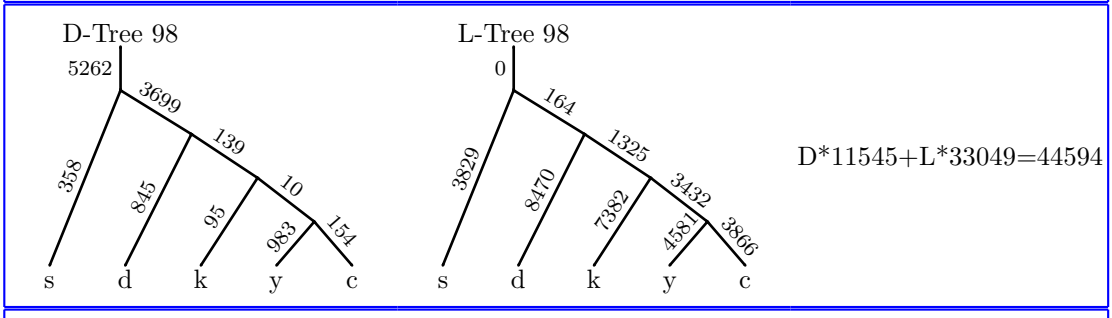
D*11360+L*32949=44309



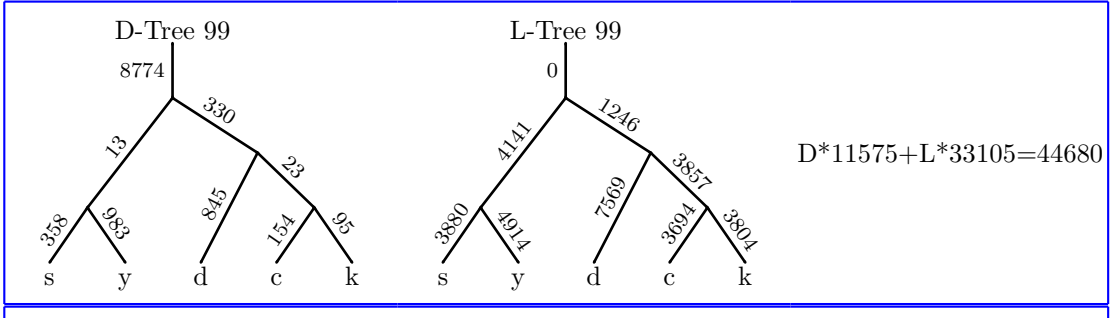
D*11399+L*32944=44343



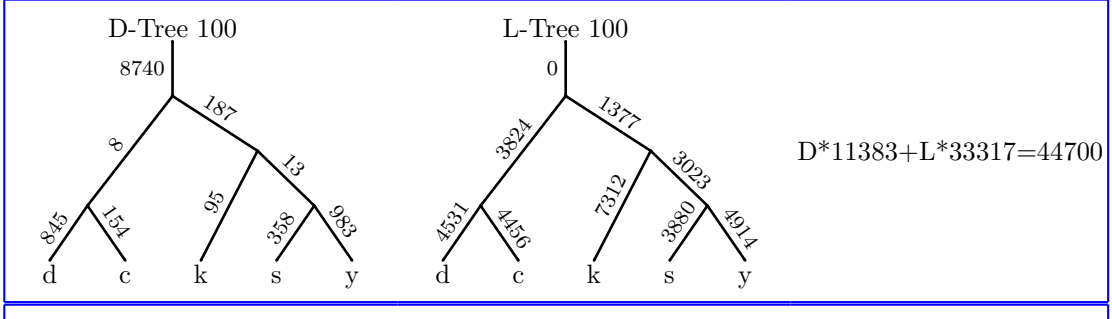
D*11529+L*32814=44343



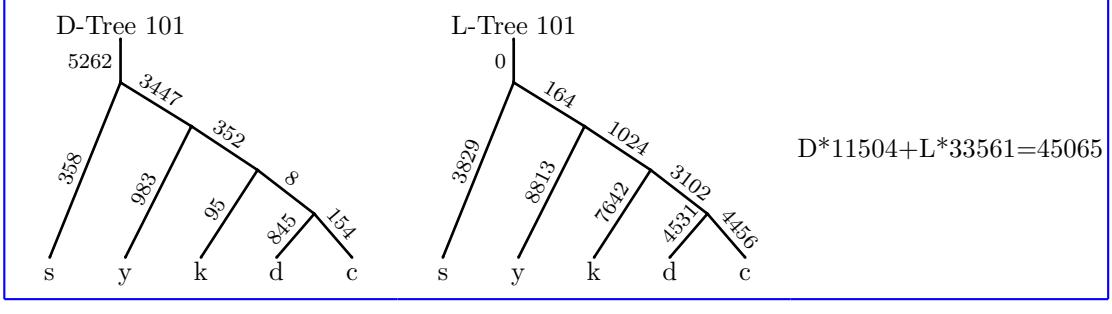
D*11545+L*33049=44594



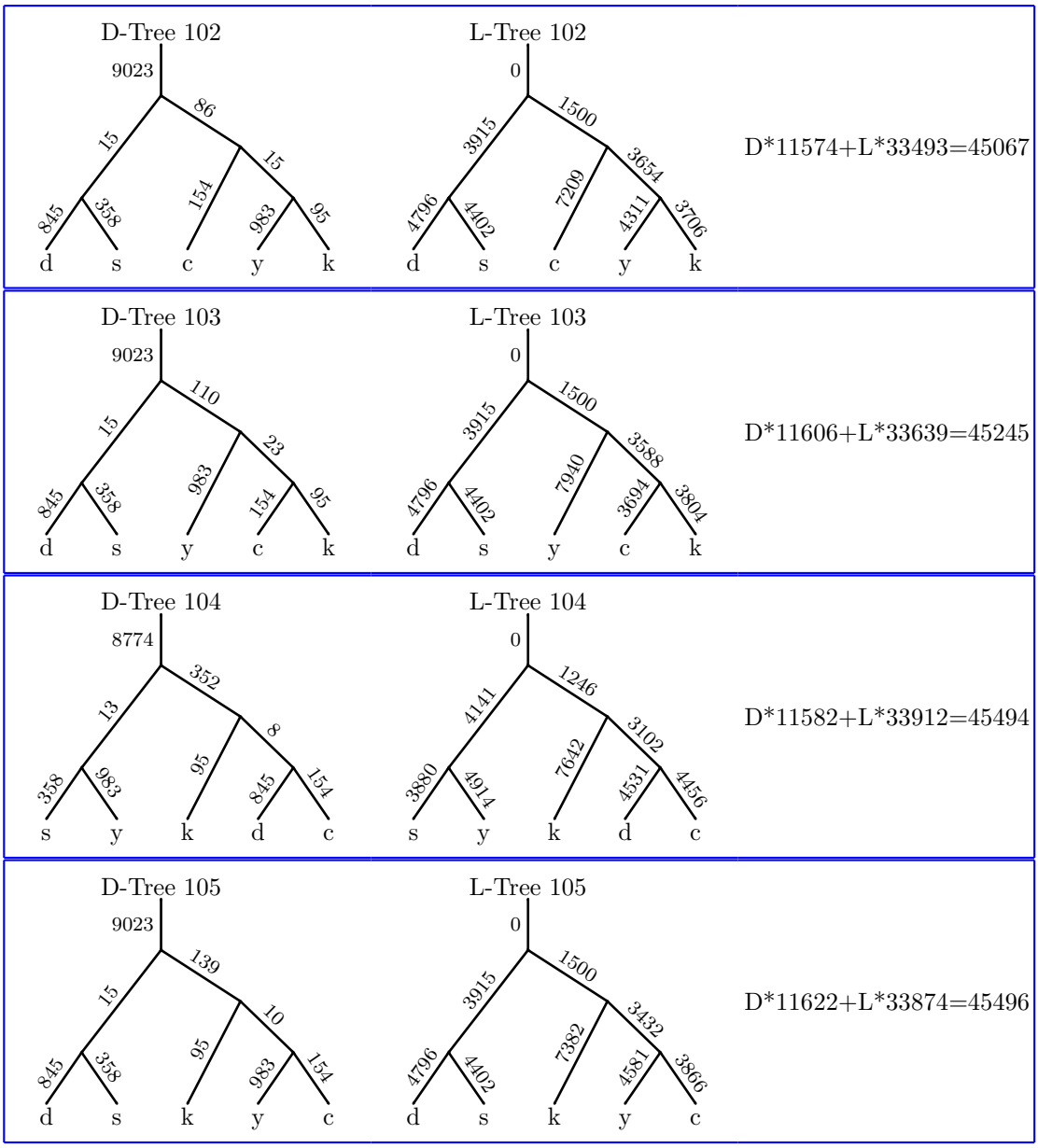
D*11575+L*33105=44680



D*11383+L*33317=44700



D*11504+L*33561=45065


D-Tree 102
9023
15
86
845
358
154
15
983
95
d
s
c
y
k
L-Tree 102
0
3915
1500
4796
4402
7209
3654
4311
3706
d
s
c
y
k
D*11574+L*33493=45067
D-Tree 103
9023
15
110
845
358
983
23
154
95
d
s
y
c
k
L-Tree 103
0
3915
1500
4796
4402
7940
3588
3694
3804
d
s
y
c
k
D*11606+L*33639=45245
D-Tree 104
8774
13
352
358
983
95
8
845
154
s
y
k
d
c
L-Tree 104
0
4141
1246
3880
4914
7642
3102
4531
4456
s
y
k
d
c
D*11582+L*33912=45494
D-Tree 105
9023
15
139
845
358
95
10
983
154
d
s
k
y
c
L-Tree 105
0
3915
1500
4796
4402
7382
3432
4581
3866
d
s
k
y
c
D*11622+L*33874=45496