```
les1-_w23        Fri Jun 01 16:28:50 2018        1

% this is ../../crops/18r/planning/current_pedigrees/primary_dominants/les1-_w23
% generated Friday, June 01, 2018 at 21:28:50 UTC (=1527888530.783995) by compute_pedigrees/1.

% Horizontal pedigrees, generations at same indentation.  S: Mo20W; W: W23; M: M14.
% !!! => cross was not by Toni; references to image locations on right.

% W23/Les1-

 06R0019:0000000 x 06R0019:0000000
      06R0019:0001901 x 06R0019:0001902
      06R0019:0001913 x 06R0019:0001909
      06R300:W00I7304 x 06R0019:0001903
          06N301:W0004201 x 06N1301:0016305
               07R201:S0021113 x 07R2739:0035812     !!!
               07R201:S0033701 x 07R2739:0035801     !!!    07R2739:0035801: [07r/bet/10.8-[77,78,79]]
               07R301:W0021208 x 07R2739:0035803     !!!    07R2739:0035803: [07r/bet/10.8-[80,81,83],07r/bet/11.8-[7,8,9
]]
               07R301:W0027207 x 07R2739:0035812     !!!
               07R301:W0033801 x 07R2739:0035801     !!!    07R2739:0035801: [07r/bet/10.8-[77,78,79]]
               07R401:M0022302 x 07R2739:0035803     !!!    07R2739:0035803: [07r/bet/10.8-[80,81,83],07r/bet/11.8-[7,8,9
]]
               07R401:M0022304 x 07R2739:0035813     !!!
               07R401:M0025501 x 07R2739:0035801     !!!    07R2739:0035801: [07r/bet/10.8-[77,78,79]]
               09R301:W0041610 x 09R2739:0013510
                   10R305:W0004215 x 10R1725:0015807        10R1725:0015807: [10r/gimmel/8.8-[706]]
                   10R305:W0004515 x 10R1725:0015802        10R1725:0015802: [10r/bet/18.8-[46,47],10r/gimmel/18.8-[
691,692,694,722],10r/gimmel/8.8-[692,695,701,704]]
                       11R305:W0051504 x 11R3229:0052711        11R3229:0052711: [11r/aleph/18.8-[1014]]
                        11N305:W0031406 x 11N3397:0007404
                          12N3556:0007110 x 12N3556:0007101
                               13R4109:0011304 x 13R4110:0011603        13R4109:0011304: [13r/bet/6.8-[1842,
1843]]   13R4110:0011603: [13r/bet/17.7-[1246],13r/bet/22.7-[1518],13r/bet/27.7-[1668]]
                               13R4109:0011306 x 13R4111:0011911        13R4111:0011911: [13r/bet/6.8-[1829,
1831]]
                               13R4109:0011412 x 13R4112:0012209
                               13R4109:0011413 x 13R4112:0012213
                               13R4110:0011603 x 13R4109:0011304        13R4110:0011603: [13r/bet/17.7-[1246
],13r/bet/22.7-[1518],13r/bet/27.7-[1668]] 13R4109:0011304: [13r/bet/6.8-[1842,1843]]
                               13R4111:0011911 x 13R4109:0011306        13R4111:0011911: [13r/bet/6.8-[1829,
1831]]
                               13R4112:0012209 x 13R4109:0011412
                               13R4112:0012213 x 13R4109:0011413
                          12N3556:0007112 x 12N3556:0007111
                          12R3556:0018505 x 12R3556:0018505        12R3556:0018505: [12r/bet/6.8-[62],12r/be
t/8.8-[121]] 12R3556:0018505: [12r/bet/6.8-[62],12r/bet/8.8-[121]]
                          12R3556:0018507 x 12R3556:0018507        12R3556:0018507: [12r/bet/6.8-[63],12r/be
t/8.8-[122]] 12R3556:0018507: [12r/bet/6.8-[63],12r/bet/8.8-[122]]
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                              12N305:W0036808 x 12N3906:0007310
                              12N305:W0036809 x 12N3906:0007306
                              12N305:W0036810 x 12N3906:0007304
                              12N305:W0036811 x 12N3906:0007303
                              12N305:W0036813 x 12N3906:0007302
                         12R3556:0018510 x 12R3556:0018510          12R3556:0018510: [12r/bet/6.8-[64],12r/be
t/8.8-[125]] 12R3556:0018510: [12r/bet/6.8-[64],12r/bet/8.8-[125]]
                         12N305:W0036805 x 12N3907:0007406
                         12N305:W0036806 x 12N3907:0007401
                         12R503:B0012206 x 12R3556:0018510          12R3556:0018510: [12r/bet/6.8-[64],12r/be
t/8.8-[125]]
                         12R503:B0012208 x 12R3556:0018505          12R3556:0018505: [12r/bet/6.8-[62],12r/be
t/8.8-[121]]
                         12R503:B0012601 x 12R3556:0018507          12R3556:0018507: [12r/bet/6.8-[63],12r/be
t/8.8-[122]]
                         13R3556:0003802 x 13R3556:0003805
                         13R3556:0003807 x 13R3556:0003808
                         14R3556:0010701 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010702 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010704 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010706 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010709 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010711 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010715 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                         14R3556:0010716 x 14R3556:0010712          14R3556:0010712: [14r/bet/18.8-[2210]]
                    11N305:W0031408 x 11N3397:0007404
                10R305:W0006502 x 10R1725:0015805          10R1725:0015805: [10r/gimmel/8.8-[697,699]]
                10R305:W0006503 x 10R1725:0015808          10R1725:0015808: [10r/gimmel/8.8-[707]]
        06N301:W0029302 x 06N1301:0016303
            07R201:S0021110 x 07R2740:0035714      !!!     07R2740:0035714: [07r/bet/10.8-[74,75,76]]
            07R201:S0025306 x 07R2740:0035708
            07R201:S0025309 x 07R2740:0035712              07R2740:0035712: [07r/bet/10.8-[69,70,71]]
            07R301:W0021207 x 07R2740:0035714      !!!     07R2740:0035714: [07r/bet/10.8-[74,75,76]]
            07R301:W0025701 x 07R2740:0035708
            07R301:W0025707 x 07R2740:0035712              07R2740:0035712: [07r/bet/10.8-[69,70,71]]
            07R401:M0022301 x 07R2740:0035714      !!!     07R2740:0035714: [07r/bet/10.8-[74,75,76]]
            07R401:M0025503 x 07R2740:0035712              07R2740:0035712: [07r/bet/10.8-[69,70,71]]
        06N301:W0029303 x 06N1301:0016308
            07R201:S0021910 x 07R2738:0035910      !!!
            07R201:S0025617 x 07R2738:0035914              07R2738:0035914: [07r/bet/11.8-[4,5,6]]
            07R301:W0021211 x 07R2738:0035903      !!!     07R2738:0035903: [07r/bet/11.8-[1,2,3]]
            07R301:W0022410 x 07R2738:0035910
            07R301:W0028104 x 07R2738:0035914              07R2738:0035914: [07r/bet/11.8-[4,5,6]]
            07R401:M0022305 x 07R2738:0035903      !!!     07R2738:0035903: [07r/bet/11.8-[1,2,3]]
            07R401:M0025505 x 07R2738:0035914              07R2738:0035914: [07r/bet/11.8-[4,5,6]]
        07R201:S0119415 x 07R1301:0093808      !!!
        07R301:W0118918 x 07R1301:0093808      !!!
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          07R401:M0120510 x 07R1301:0093808
          09R201:S0041410 x 09R1301:0013403
             10R205:S0003415 x 10R2993:0015912         10R2993:0015912: [10r/gimmel/7.8-[687]]
                11N205:S0032204 x 11N3299:0007212
                11N205:S0032207 x 11N3299:0007201
             10R205:S0007011 x 10R2993:0015907         10R2993:0015907: [10r/gimmel/7.8-[681]]
                11N205:S0032201 x 11N3396:0007305
                11N205:S0034311 x 11N3396:0007309
                11N205:S0036701 x 11N3396:0007301
                   12R205:S0003406 x 12R3555:0018410         12R3555:0018410: [12r/aleph/8.8-[1928]]
                      12N205:S0036106 x 12N3904:0007013
                         14R205:S0000212 x 14R4144:0019801         14R4144:0019801: [14r/bet/23.8-[2332]]
                         14R205:S0000404 x 14R4144:0019803         14R4144:0019803: [14r/bet/24.8-[2424]]
                         14R205:S0000509 x 14R4144:0019805         14R4144:0019805: [14r/bet/23.8-[2326]]
                      12N205:S0036111 x 12N3904:0007004
                      12N205:S0038510 x 12N3904:0007010
                   12R205:S0003407 x 12R3555:0018405
             10R205:S0007012 x 10R2993:0015908         10R2993:0015908: [10r/gimmel/7.8-[682]]
             10R205:S0007302 x 10R2993:0015909         10R2993:0015909: [10r/gimmel/7.8-[684]]
       06R300:W00I7702 x 06R0019:0001909
          06N301:W0029903 x 06N1300:0016206
          06N301:W0030502 x 06N1300:0016202
             07R201:S0020802 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R201:S0020803 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R201:S0020804 x 07R2742:0036810         07R2742:0036810: [07r/bet/11.8-[42,43,44]]
             07R201:S0021112 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R201:S0029509 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R301:W0016703 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R301:W0016706 x 07R2742:0036810         07R2742:0036810: [07r/bet/11.8-[42,43,44]]
             07R301:W0029002 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R301:W0034106 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R401:M0010511 x 07R2742:0036806         07R2742:0036806: [07r/bet/11.8-[39,40,41]]
             07R401:M0010512 x 07R2742:0036810         07R2742:0036810: [07r/bet/11.8-[42,43,44]]
          07R201:S0020812 x 07R1300:0036906
          07R201:S0034002 x 07R1300:0036906     !!!
          07R301:W0017004 x 07R1300:0036906
          07R301:W0034108 x 07R1300:0036906     !!!
          07R401:M0010802 x 07R1300:0036906
          07R401:M0034206 x 07R1300:0036906
       06R300:W00I7703 x 06R0019:0001912
          06N301:W0004508 x 06N1302:0016411
          06N301:W0024207 x 06N1302:0016401
             07R201:S0025911 x 07R2747:0037003     !!!
             07R201:S0025912 x 07R2747:0037006     !!!
             07R201:S0034603 x 07R2747:0037012     !!!   07R2747:0037012: [07r/bet/11.8-[66,67,68]]
             07R301:W0026004 x 07R2747:0037006     !!!
             07R301:W0027210 x 07R2747:0037003     !!!
```

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            07R301:W0034714 x 07R2747:0037012      !!!    07R2747:0037012: [07r/bet/11.8-[66,67,68]]
            07R401:M0026806 x 07R2747:0037003      !!!
            07R401:M0027106 x 07R2747:0037006      !!!
    06N301:W0025704 x 06N1302:0016406
            07R201:S0022504 x 07R2746:0037105
            07R201:S0026211 x 07R2746:0037105
            07R201:S0027305 x 07R2746:0037107
            07R301:W0017613 x 07R2746:0037105
            07R301:W0022110 x 07R2746:0037106
            07R301:W0029306 x 07R2746:0037107
            07R301:W0034403 x 07R2746:0037105      !!!
            07R401:M0022303 x 07R2746:0037106
            07R401:M0025506 x 07R2746:0037107
    06N301:W0025706 x 06N1302:0016410
            07R201:S0027311 x 07R2745:0037206
            07R301:W0029615 x 07R2745:0037206
    06N301:W0026309 x 06N1302:0016413
            07R201:S0026216 x 07R2743:0037408      !!!
            07R301:W0026007 x 07R2743:0037408      !!!
            07R401:M0027109 x 07R2743:0037408      !!!
        07R201:S0119701 x 07R1302:0094102
        07R201:S0119706 x 07R1302:0094108        !!!
        07R201:S0119709 x 07R1302:0094109        !!!
        07R301:W0004102 x 07R1302:0094101        !!!
        07R301:W0119503 x 07R1302:0094102        !!!
   06R400:M00I7406 x 06R0019:0001903
    06N201:S0008907 x 06N1701:0021506
            07R201:S0017701 x 07R2734:0093601      !!!
    06N201:S0011302 x 06N1701:0021511
    06N301:W0009301 x 06N1701:0021512
    06N301:W0026912 x 06N1701:0021503
            07R201:S0007801 x 07R2737:0036006      !!!
            07R201:S0007804 x 07R2737:0036009      !!!
            07R201:S0025902 x 07R2737:0036015      !!!
            07R301:W0022105 x 07R2737:0036006      !!!
            07R301:W0027205 x 07R2737:0036015      !!!
            07R401:M0022307 x 07R2737:0036006      !!!
            07R401:M0022308 x 07R2737:0036009      !!!
            07R401:M0025802 x 07R2737:0036015      !!!
    06N301:W0027803 x 06N1701:0021506
    06N301:W0027804 x 06N1701:0021507
            07R201:S0025905 x 07R2732:0036307      !!!    07R2732:0036307: [07r/bet/11.8-[25,26,27]]
            07R301:W0007405 x 07R2732:0036309             07R2732:0036309: [07r/bet/11.8-[28,29,30]]
            07R401:M0026103 x 07R2732:0036307      !!!    07R2732:0036307: [07r/bet/11.8-[25,26,27]]
    06N301:W0027805 x 06N1701:0021510
    06N301:W0027806 x 06N1701:0021511
    06N401:M0008502 x 06N1701:0021506
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                 07R201:S0025903 x 07R2736:0036211              07R2736:0036211: [07r/bet/11.8-[20,21]]
                 07R201:S0025904 x 07R2736:0036211      !!!     07R2736:0036211: [07r/bet/11.8-[20,21]]
                 07R301:W0025705 x 07R2736:0036211      !!!     07R2736:0036211: [07r/bet/11.8-[20,21]]
                 07R401:M0025808 x 07R2736:0036211      !!!     07R2736:0036211: [07r/bet/11.8-[20,21]]
                 10R405:M0003202 x 10R2736:0016013              10R2736:0016013: [10r/gimmel/8.8-[708]]
                 10R405:M0003801 x 10R2736:0016014              10R2736:0016014: [10r/gimmel/8.8-[709]]
              11R405:M0050306 x 11R3293:0052908                 11R3293:0052908: [11r/aleph/18.8-[1017]]
                11N405:M0034805 x 11N3398:0007503
                    12R3557:0018606 x 12R3557:0018606                12R3557:0018606: [12r/bet/6.8-[65],12r/bet/8.8
-[126]] 12R3557:0018606: [12r/bet/6.8-[65],12r/bet/8.8-[126]]
                    12R3557:0018607 x 12R3557:0018607                12R3557:0018607: [12r/bet/6.8-[66],12r/bet/8.8
-[127]] 12R3557:0018607: [12r/bet/6.8-[66],12r/bet/8.8-[127]]
                    12R3557:0018608 x 12R3557:0018608                12R3557:0018608: [12r/bet/6.8-[67],12r/bet/8.8
-[128]] 12R3557:0018608: [12r/bet/6.8-[67],12r/bet/8.8-[128]]
                    12R405:M0000311 x 12R3557:0018606               12R3557:0018606: [12r/bet/6.8-[65],12r/bet/8.8
-[126]]
                    12R405:M0003306 x 12R3557:0018607               12R3557:0018607: [12r/bet/6.8-[66],12r/bet/8.8
-[127]]
                       12N504:B0042801 x 12N3908:0007602
                       12N504:B0042902 x 12N3908:0007605
                       12N504:B0042903 x 12N3908:0007605
                       12N504:B0043002 x 12N3908:0007603
                       12N504:B0043003 x 12N3908:0007603
                       13R3908:0003901 x 13R3908:0003901
                       14R3908:0010801 x 14R3908:0010815             14R3908:0010815: [14r/bet/18.8-[2209]]
                       14R3908:0010803 x 14R3908:0010815             14R3908:0010815: [14r/bet/18.8-[2209]]
                       14R3908:0010808 x 14R3908:0010815             14R3908:0010815: [14r/bet/18.8-[2209]]
                       14R3908:0010809 x 14R3908:0010815             14R3908:0010815: [14r/bet/18.8-[2209]]
                       14R3908:0010817 x 14R3908:0010815             14R3908:0010815: [14r/bet/18.8-[2209]]
                    12R405:M0003308 x 12R3557:0018608               12R3557:0018608: [12r/bet/6.8-[67],12r/bet/8.8
-[128]]
                    12R503:B0012212 x 12R3557:0018607               12R3557:0018607: [12r/bet/6.8-[66],12r/bet/8.8
-[127]]
                    12R503:B0012707 x 12R3557:0018606               12R3557:0018606: [12r/bet/6.8-[65],12r/bet/8.8
-[126]]
                 11N405:M0035206 x 11N3398:0007502
                 11N405:M0035704 x 11N3398:0007508
            06N401:M0010601 x 06N1701:0021507
                 07R201:S0025910 x 07R2733:0036406      !!!     07R2733:0036406: [07r/bet/11.8-[31,32,33]]
                 07R201:S0033705 x 07R2733:0036406      !!!     07R2733:0036406: [07r/bet/11.8-[31,32,33]]
                 07R201:S0033715 x 07R2733:0036408      !!!     07R2733:0036408: [07r/bet/11.8-[36,37,38]]
                 07R301:W0027206 x 07R2733:0036406      !!!     07R2733:0036406: [07r/bet/11.8-[31,32,33]]
                 07R301:W0033802 x 07R2733:0036406      !!!     07R2733:0036406: [07r/bet/11.8-[31,32,33]]
                 07R301:W0033809 x 07R2733:0036408      !!!     07R2733:0036408: [07r/bet/11.8-[36,37,38]]
                 07R401:M0026106 x 07R2733:0036406      !!!     07R2733:0036406: [07r/bet/11.8-[31,32,33]]
                 07R401:M0033905 x 07R2733:0036406      !!!     07R2733:0036406: [07r/bet/11.8-[31,32,33]]
                 07R401:M0034203 x 07R2733:0036408      !!!     07R2733:0036408: [07r/bet/11.8-[36,37,38]]
```

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        06N401:M0011502 x 06N1701:0021511
      06R400:M00I7408 x 06R0019:0001909
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