```
% this is ../../crops/18r/planning/current_pedigrees/primary_dominants/les7-_w23
% generated Friday, June 01, 2018 at 21:28:50 UTC (=1527888530.840493) 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/Les7-

 06R0023:0000000 x 06R0023:0000000
      06R0023:0002305 x 06R0023:0002310
           06N301:W0008703 x 06N1348:0014902
           06N301:W0008704 x 06N1348:0014908
           06N301:W0036205 x 06N1348:0014902
           09R201:S0041103 x 09R1348:0019508          09R1348:0019508: [09r/bet/3.9-[85]]
           09R201:S0042006 x 09R1348:0019508          09R1348:0019508: [09r/bet/3.9-[85]]
           09R401:M0040603 x 09R1348:0019508          09R1348:0019508: [09r/bet/3.9-[85]]
           09R401:M0042110 x 09R1348:0019508          09R1348:0019508: [09r/bet/3.9-[85]]
      06R0023:0002306 x 06R0023:0002312
           06N301:W0006303 x 06N1349:0015008
                07R201:S0021116 x 07R2798:0050315     !!!
                07R201:S0119104 x 07R2798:0050315
                07R301:W0021813 x 07R2798:0050301
                     09R201:S0043004 x 09R1707:0020612          09R1707:0020612: [09r/bet/3.9-[215,220]]
                     09R301:W0040709 x 09R1707:0020601          09R1707:0020601: [09r/bet/3.9-[170]]
                     09R301:W0040711 x 09R1707:0020604          09R1707:0020604: [09r/bet/3.9-[175]]
                     12R305:W0001104 x 12R3227:0026108
                          13R305:W0000703 x 13R3978:0022805
                          13R305:W0000704 x 13R3978:0023002
                          13R305:W0000705 x 13R3978:0023013
                               15R305:W0000601 x 15R4359:0012512          15R4359:0012512: [15r/bet/8.8-[2615]]
                               15R305:W0000710 x 15R4359:0012512          15R4359:0012512: [15r/bet/8.8-[2615]]
                               15R305:W0000901 x 15R4359:0012510          15R4359:0012510: [15r/bet/8.8-[2620,2621]
]
                               15R305:W0000902 x 15R4359:0012507
                               15R305:W0001004 x 15R4359:0012512          15R4359:0012512: [15r/bet/8.8-[2615]]
                          13R305:W0000801 x 13R3978:0022905
                               15R305:W0000707 x 15R4360:0012608          15R4360:0012608: [15r/bet/8.8-[2617]]
                               15R305:W0000709 x 15R4360:0012605          15R4360:0012605: [15r/bet/8.8-[2622]]
                               15R305:W0001001 x 15R4360:0012612          15R4360:0012612: [15r/bet/8.8-[2625]]
                               15R305:W0001005 x 15R4360:0012612          15R4360:0012612: [15r/bet/8.8-[2625]]
                          13R305:W0000804 x 13R3978:0023002
                          13R305:W0003501 x 13R3978:0023002
                     12R305:W0001105 x 12R3227:0026106
                     12R305:W0001112 x 12R3227:0026101
                09R301:W0042507 x 09R1707:0020604          09R1707:0020604: [09r/bet/3.9-[175]]
                09R301:W0042512 x 09R1707:0020601          09R1707:0020601: [09r/bet/3.9-[170]]
                09R301:W0043113 x 09R1707:0020612          09R1707:0020612: [09r/bet/3.9-[215,220]]
```

```
              09R301:W0043709 x 09R1707:0020611          09R1707:0020611: [09r/bet/3.9-[225]]
              09R301:W0048511 x 09R1707:0020601          09R1707:0020601: [09r/bet/3.9-[170]]
              09R301:W0048513 x 09R1707:0020610          09R1707:0020610: [09r/bet/3.9-[245,250]]
              09R401:M0045008 x 09R1707:0020612          09R1707:0020612: [09r/bet/3.9-[215,220]]
          07R301:W0032605 x 07R2798:0050315      !!!
          09R201:S0042904 x 09R2798:0020108          09R2798:0020108: [09r/bet/3.9-[117,125]]
          09R301:W0043101 x 09R2798:0020108          09R2798:0020108: [09r/bet/3.9-[117,125]]
          09R401:M0045001 x 09R2798:0020108          09R2798:0020108: [09r/bet/3.9-[117,125]]
06N301:W0006606 x 06N1349:0015011
          07R201:S0030416 x 07R2797:0050403      !!!
          07R301:W0029004 x 07R2797:0050403      !!!
          07R301:W0031109 x 07R2797:0050406      !!!
          07R401:M0031209 x 07R2797:0050403      !!!
06N301:W0008406 x 06N1349:0015003
          07R301:W0030516 x 07R2800:0050112
              09R201:S0043009 x 09R1803:0020709          09R1803:0020709: [09r/bet/3.9-[265,270]]
              09R301:W0040401 x 09R1803:0020703          09R1803:0020703: [09r/bet/3.9-[260]]
              09R301:W0040402 x 09R1803:0020704          09R1803:0020704: [09r/bet/3.9-[255]]
              09R301:W0040712 x 09R1803:0020701          09R1803:0020701: [09r/bet/3.9-[235,240]]
              09R301:W0041013 x 09R1803:0020703          09R1803:0020703: [09r/bet/3.9-[260]]
              09R301:W0041907 x 09R1803:0020704          09R1803:0020704: [09r/bet/3.9-[255]]
              09R301:W0043114 x 09R1803:0020709          09R1803:0020709: [09r/bet/3.9-[265,270]]
              09R301:W0048204 x 09R1803:0020701          09R1803:0020701: [09r/bet/3.9-[235,240]]
              09R401:M0045009 x 09R1803:0020709          09R1803:0020709: [09r/bet/3.9-[265,270]]
          09R201:S0042312 x 09R2800:0020010          09R2800:0020010: [09r/bet/3.9-[108,112]]
          09R301:W0040414 x 09R2800:0020002          09R2800:0020002: [09r/bet/3.9-[90]]
          09R301:W0040701 x 09R2800:0020007
          09R301:W0042805 x 09R2800:0020010          09R2800:0020010: [09r/bet/3.9-[108,112]]
          09R301:W0048503 x 09R2800:0020007
          09R401:M0044708 x 09R2800:0020010          09R2800:0020010: [09r/bet/3.9-[108,112]]
06N301:W0008709 x 06N1349:0015002
          07R301:W0007403 x 07R2801:0050007
              09R201:S0043001 x 09R1676:0020401
              09R201:S0043003 x 09R1676:0020409          09R1676:0020409: [09r/bet/3.9-[150,155]]
              09R301:W0040703 x 09R1676:0020412          09R1676:0020412: [09r/bet/3.9-[160]]
              09R301:W0040706 x 09R1676:0020413          09R1676:0020413: [09r/bet/3.9-[205]]
              09R301:W0040707 x 09R1676:0020414          09R1676:0020414: [09r/bet/3.9-[190]]
              09R301:W0043111 x 09R1676:0020401
              09R301:W0043112 x 09R1676:0020409          09R1676:0020409: [09r/bet/3.9-[150,155]]
              09R301:W0048506 x 09R1676:0020409          09R1676:0020409: [09r/bet/3.9-[150,155]]
              09R401:M0045004 x 09R1676:0020401
              09R401:M0045007 x 09R1676:0020409          09R1676:0020409: [09r/bet/3.9-[150,155]]
          07R301:W0026603 x 07R2801:0050011      !!!
          07R301:W0033515 x 07R2801:0050003      !!!
          07R301:W0034712 x 07R2801:0050013      !!!
          07R401:M0031204 x 07R2801:0050013      !!!
          09R201:S0042915 x 09R2801:0020206          09R2801:0020206: [09r/bet/3.9-[130,135]]
```

```
        09R301:W0043107 x 09R2801:0020206        09R2801:0020206: [09r/bet/3.9-[130,135]]
        09R301:W0048505 x 09R2801:0020213
        09R401:M0045003 x 09R2801:0020206        09R2801:0020206: [09r/bet/3.9-[130,135]]
    06N301:W0011111 x 06N1349:0015006
        07R201:S0030414 x 07R2799:0050204     !!!
        07R201:S0030415 x 07R2799:0050209     !!!
        07R301:W0020310 x 07R2799:0050204
            09R301:W0042506 x 09R1692:0020503        09R1692:0020503: [09r/bet/3.9-[195]]
            09R301:W0048507 x 09R1692:0020504        09R1692:0020504: [09r/bet/3.9-[180,185]]
            09R301:W0056309 x 09R1692:0020502
            09R301:W0056311 x 09R1692:0020507
        07R301:W0029906 x 07R2799:0050209     !!!
        07R301:W0033207 x 07R2799:0050209
            09R201:S0040805 x 09R1828:0021410        09R1828:0021410: [09r/bet/3.9-[285,290]]
            09R201:S0043010 x 09R1828:0021402        09R1828:0021402: [09r/bet/3.9-[275,280]]
            09R301:W0040403 x 09R1828:0021401        09R1828:0021401: [09r/bet/3.9-[295]]
            09R301:W0040404 x 09R1828:0021408        09R1828:0021408: [09r/bet/3.9-[300]]
            09R301:W0041012 x 09R1828:0021410        09R1828:0021410: [09r/bet/3.9-[285,290]]
            09R301:W0043401 x 09R1828:0021402        09R1828:0021402: [09r/bet/3.9-[275,280]]
            09R301:W0045807 x 09R1828:0021401        09R1828:0021401: [09r/bet/3.9-[295]]
            09R401:M0041204 x 09R1828:0021410        09R1828:0021410: [09r/bet/3.9-[285,290]]
            09R401:M0045010 x 09R1828:0021402        09R1828:0021402: [09r/bet/3.9-[275,280]]
        07R401:M0031205 x 07R2799:0050204
        07R401:M0031206 x 07R2799:0050209     !!!
        09R201:S0042317 x 09R2799:0020311        09R2799:0020311: [09r/bet/3.9-[140,145]]
        09R301:W0043104 x 09R2799:0020311        09R2799:0020311: [09r/bet/3.9-[140,145]]
        09R401:M0045002 x 09R2799:0020311        09R2799:0020311: [09r/bet/3.9-[140,145]]
    09R201:S0032814 x 09R1349:0019903
    09R201:S0032816 x 09R1349:0019909
    09R201:S0033107 x 09R1349:0019914
    09R401:M0033301 x 09R1349:0019903
    09R401:M0033302 x 09R1349:0019909
    09R401:M0033309 x 09R1349:0019914
    10R205:S0007001 x 10R1349:0040809        10R1349:0040809: [10r/gimmel/7.8-[625,626]]
    10R205:S0007006 x 10R1349:0040808        10R1349:0040808: [10r/gimmel/7.8-[622,623]]
    10R205:S0007601 x 10R1349:0040813        10R1349:0040813: [10r/gimmel/7.8-[627,628,629]]
        11N205:S0032703 x 11N3441:0014209
        11N205:S0033001 x 11N3441:0014202
            12N205:S0037906 x 12N3977:0022302
                13R205:S0000406 x 13R4152:0022407
                    14R205:S0000109 x 14R4280:0021111        14R4280:0021111: [14r/bet/23.8-[2345]]
                        16R205:S0001201 x 16R4390:0010609        16R4390:0010609: [16r/gimmel/27.7-[154]]
                        16R205:S0001202 x 16R4390:0010609        16R4390:0010609: [16r/gimmel/27.7-[154]]
                        16R205:S0001213 x 16R4390:0010609        16R4390:0010609: [16r/gimmel/27.7-[154]]
                        16R205:S0001301 x 16R4390:0010611        16R4390:0010611: [16r/gimmel/27.7-[148]]
                        16R205:S0001302 x 16R4390:0010611        16R4390:0010611: [16r/gimmel/27.7-[148]]
                        16R205:S0002709 x 16R4390:0010605        16R4390:0010605: [16r/gimmel/27.7-[168]]
```

```
                              14R205:S0000111 x 14R4280:0021111        14R4280:0021111: [14r/bet/23.8-[2345]]
                              14R205:S0000112 x 14R4280:0021113        14R4280:0021113: [14r/bet/23.8-[2353]]
                              14R205:S0000113 x 14R4280:0021113        14R4280:0021113: [14r/bet/23.8-[2353]]
                    12N205:S0037913 x 12N3977:0022301
                    12N205:S0039101 x 12N3977:0022306
                11N205:S0034208 x 11N3441:0014212
          10R205:S0010202 x 10R1349:0040808        10R1349:0040808: [10r/gimmel/7.8-[622,623]]
          10R205:S0010203 x 10R1349:0040809        10R1349:0040809: [10r/gimmel/7.8-[625,626]]
          10R305:W0010106 x 10R1349:0040808        10R1349:0040808: [10r/gimmel/7.8-[622,623]]
          10R305:W0010107 x 10R1349:0040809        10R1349:0040809: [10r/gimmel/7.8-[625,626]]
          10R305:W0010116 x 10R1349:0040813        10R1349:0040813: [10r/gimmel/7.8-[627,628,629]]
          10R305:W0010514 x 10R1349:0022802        10R1349:0022802: [10r/gimmel/18.8-[670]]
          10R305:W0010517 x 10R1349:0022802        10R1349:0022802: [10r/gimmel/18.8-[670]]
          10R305:W0010712 x 10R1349:0040809        10R1349:0040809: [10r/gimmel/7.8-[625,626]]
          10R405:M0000403 x 10R1349:0022802        10R1349:0022802: [10r/gimmel/18.8-[670]]
          10R405:M0007210 x 10R1349:0040813        10R1349:0040813: [10r/gimmel/7.8-[627,628,629]]
          10R405:M0007509 x 10R1349:0040809        10R1349:0040809: [10r/gimmel/7.8-[625,626]]
                11N405:M0032801 x 11N3214:0014406
                    12R405:M0001509 x 12R3610:0026210        12R3610:0026210: [12r/aleph/9.8-[2011]]
                        12N405:M0037806 x 12N3979:0022608
                            13R405:M0001901 x 13R4155:0024010
                                14R405:M0001210 x 14R4282:0021303        14R4282:0021303: [14r/bet/23.8-[2338]]
                                14R405:M0001211 x 14R4282:0021308        14R4282:0021308: [14r/bet/23.8-[2327]]
                                14R405:M0001212 x 14R4282:0021303        14R4282:0021303: [14r/bet/23.8-[2338]]
                                14R405:M0001516 x 14R4282:0021304        14R4282:0021304: [14r/bet/23.8-[2325]]
                            13R405:M0003604 x 13R4155:0024008
                        12N405:M0037808 x 12N3979:0022605
                        12N405:M0039506 x 12N3979:0022609
                    12R405:M0001510 x 12R3610:0026212        12R3610:0026212: [12r/aleph/9.8-[2007]]
                    12R405:M0008715 x 12R3610:0026205        12R3610:0026205: [12r/aleph/9.8-[2009]]
                11N405:M0036904 x 11N3214:0014408
          06R0023:0002311 x 06R0023:0002304
          06N301:W0036201 x 06N1350:0015101
              07R301:W0025111 x 07R2793:0049711        !!!
              09R301:W0042801 x 09R2793:0019408        09R2793:0019408: [09r/bet/3.9-[70]]
              09R301:W0042804 x 09R2793:0019408        09R2793:0019408: [09r/bet/3.9-[70]]
              09R301:W0042811 x 09R2793:0019401        09R2793:0019401: [09r/bet/3.9-[62]]
              09R301:W0043109 x 09R2793:0019404        09R2793:0019404: [09r/bet/3.9-[66]]
          09R201:S0040304 x 09R1350:0019312        09R1350:0019312: [09r/bet/3.9-[47]]
          09R201:S0040306 x 09R1350:0019310        09R1350:0019310: [09r/bet/3.9-[38]]
          09R201:S0040316 x 09R1350:0019303        09R1350:0019303: [09r/bet/3.9-[57]]
          09R201:S0042002 x 09R1350:0019303        09R1350:0019303: [09r/bet/3.9-[57]]
          09R201:S0042003 x 09R1350:0019310        09R1350:0019310: [09r/bet/3.9-[38]]
          09R201:S0042004 x 09R1350:0019312        09R1350:0019312: [09r/bet/3.9-[47]]
          09R401:M0040508 x 09R1350:0019303        09R1350:0019303: [09r/bet/3.9-[57]]
          09R401:M0040509 x 09R1350:0019310        09R1350:0019310: [09r/bet/3.9-[38]]
          09R401:M0040602 x 09R1350:0019312        09R1350:0019312: [09r/bet/3.9-[47]]
```

```
        09R401:M0042104 x 09R1350:0019303          09R1350:0019303: [09r/bet/3.9-[57]]
        09R401:M0042105 x 09R1350:0019310          09R1350:0019310: [09r/bet/3.9-[38]]
        09R401:M0042107 x 09R1350:0019312          09R1350:0019312: [09r/bet/3.9-[47]]
    06R400:M00I8109 x 06R0023:0002310
```