Supplemental Figures for "Process-based allometry describes the influence of management on orchard tree aboveground architecture"

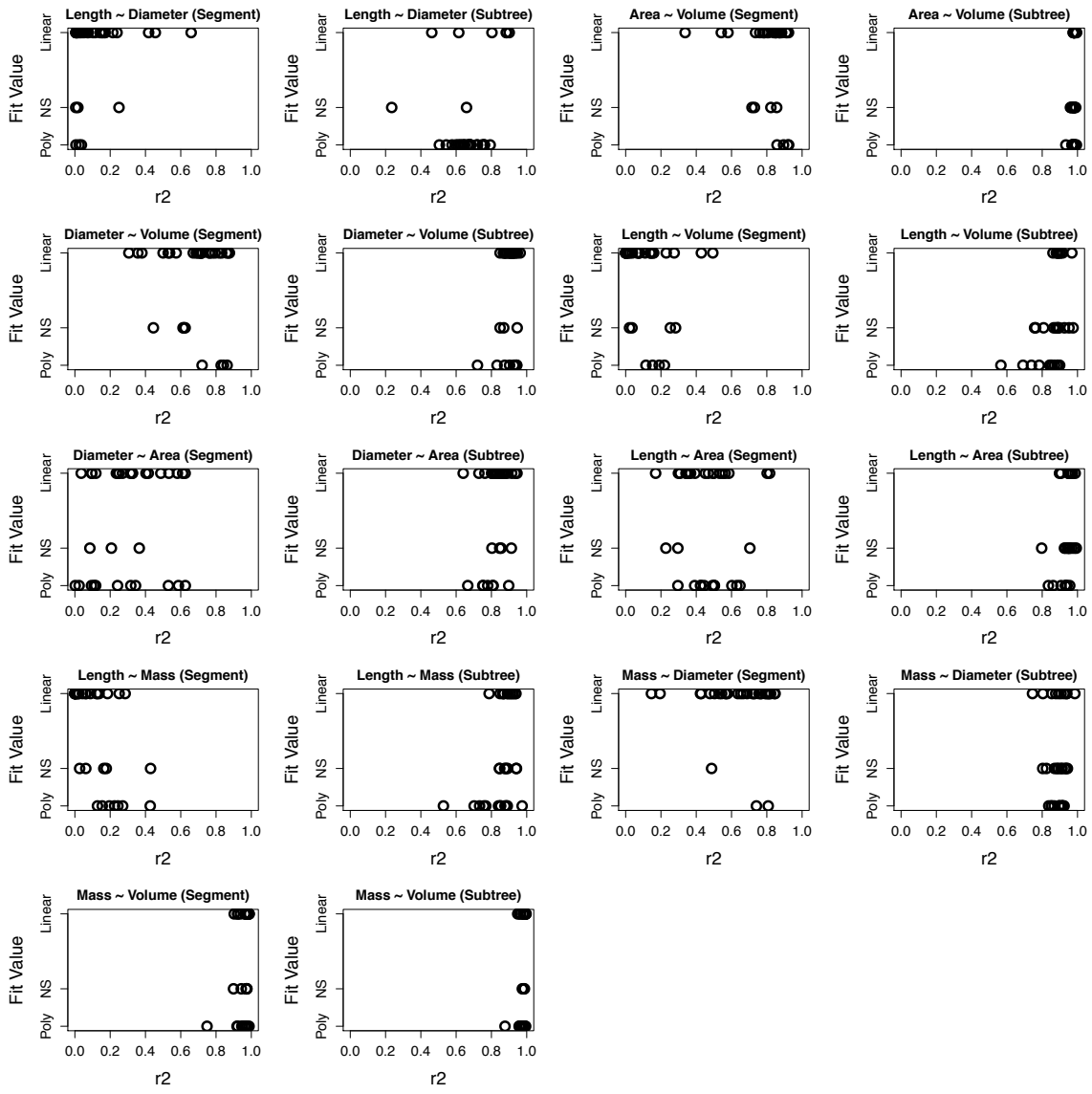


Figure S1-1. Strongest model fitted in relation to the r^2 of the linear model. The strongest model fitted was determined by comparing AIC of linear or polynomial (Poly) models with the lower AIC identifying the strongest model. The polynomial model was reported as not significant (NS) if expressing the lower AIC but the 2*standard error of the polynomial term overlapped with 0.

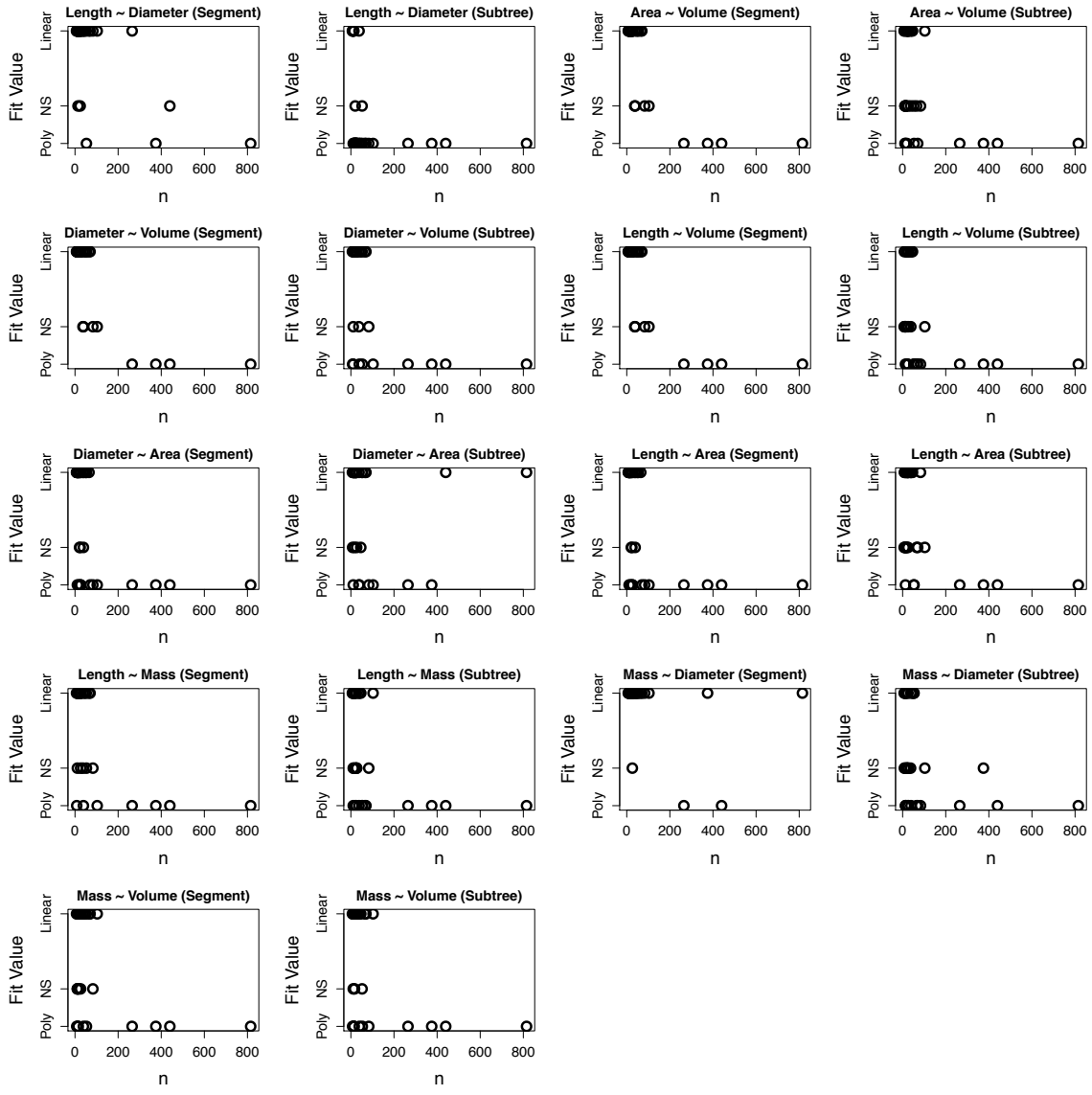


Figure S1-2. Strongest model fitted in relation to the branch sample size (n). The strongest model fitted was determined by comparing AIC of linear or polynomial (Poly) models with the lower AIC identifying the strongest model. The polynomial model was reported as not significant (NS) if expressing the lower AIC but the 2*standard error of the polynomial term overlapped with 0.

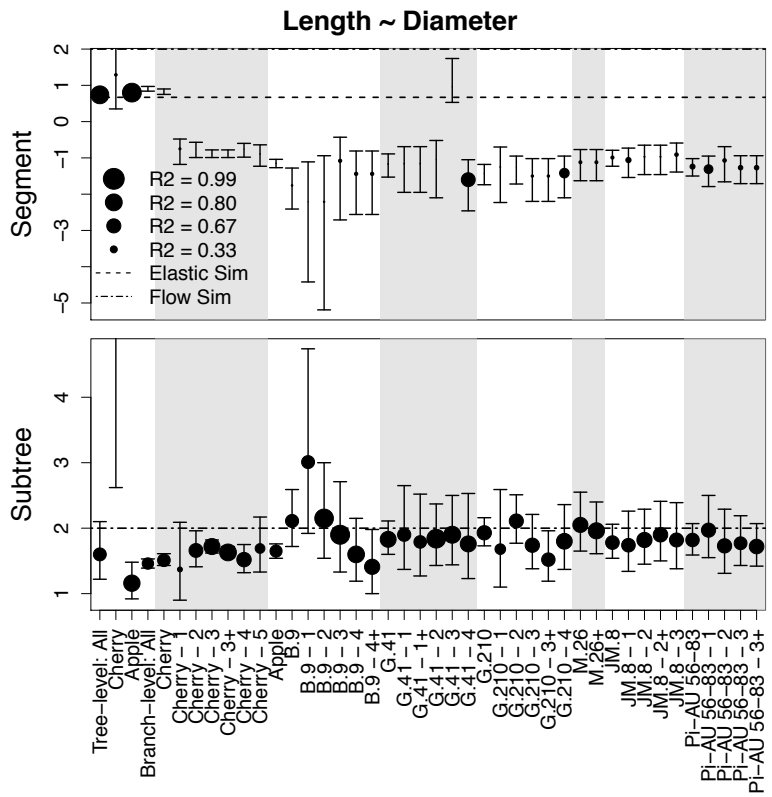


Figure S2-1. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the FS model: elastic similarity is marked by a dashed line and flow similarity by a dot-dash line. R^2 is shown by scaled dot size.

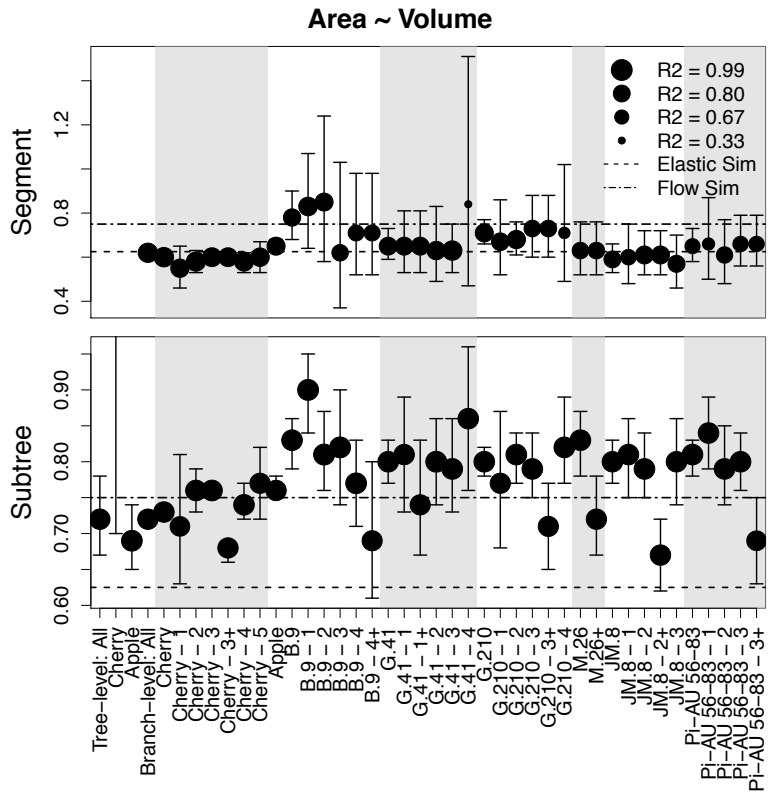


Figure S2-2. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the FS model: elastic similarity is marked by a dashed line and flow similarity by a dot-dash line. R^2 is shown by scaled dot size.

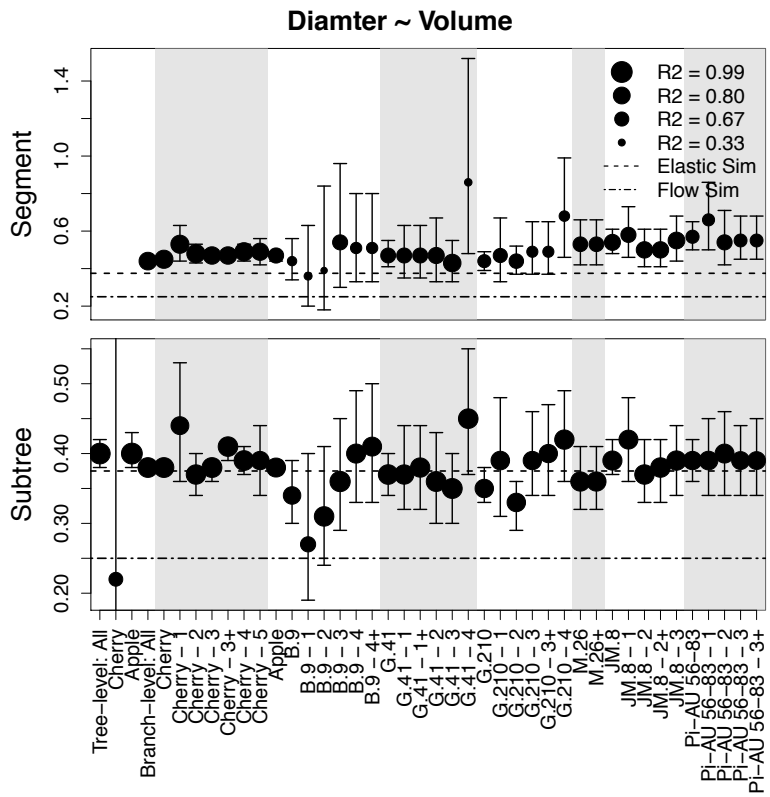


Figure S2-3. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the FS model: elastic similarity is marked by a dashed line and flow similarity by a dot-dash line. R^2 is shown by scaled dot size.

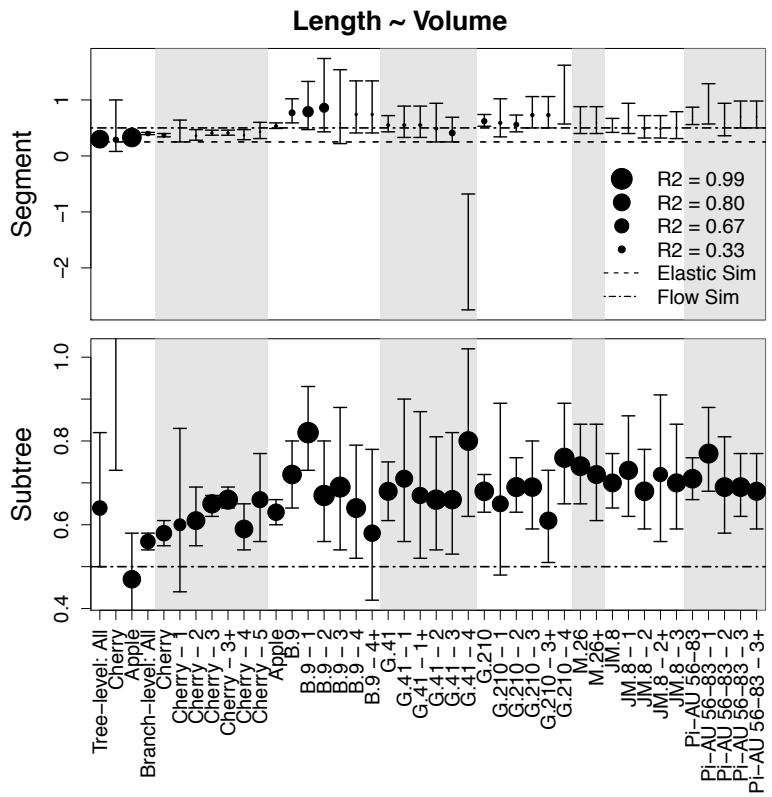


Figure S2-4. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the FS model: elastic similarity is marked by a dashed line and flow similarity by a dot-dash line. R^2 is shown by scaled dot size.

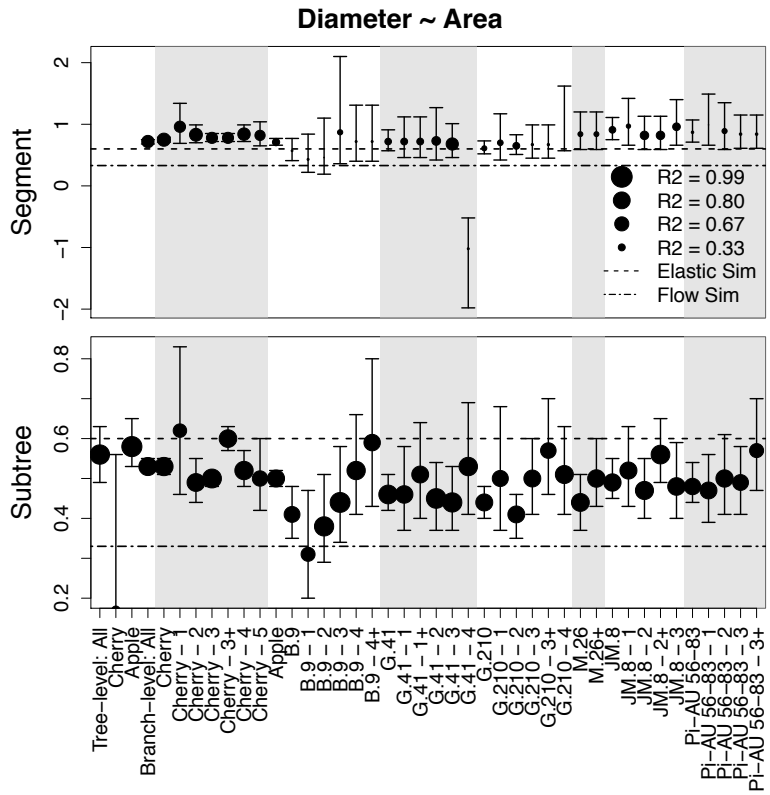


Figure S2-5. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the FS model: elastic similarity is marked by a dashed line and flow similarity by a dot-dash line. R^2 is shown by scaled dot size.

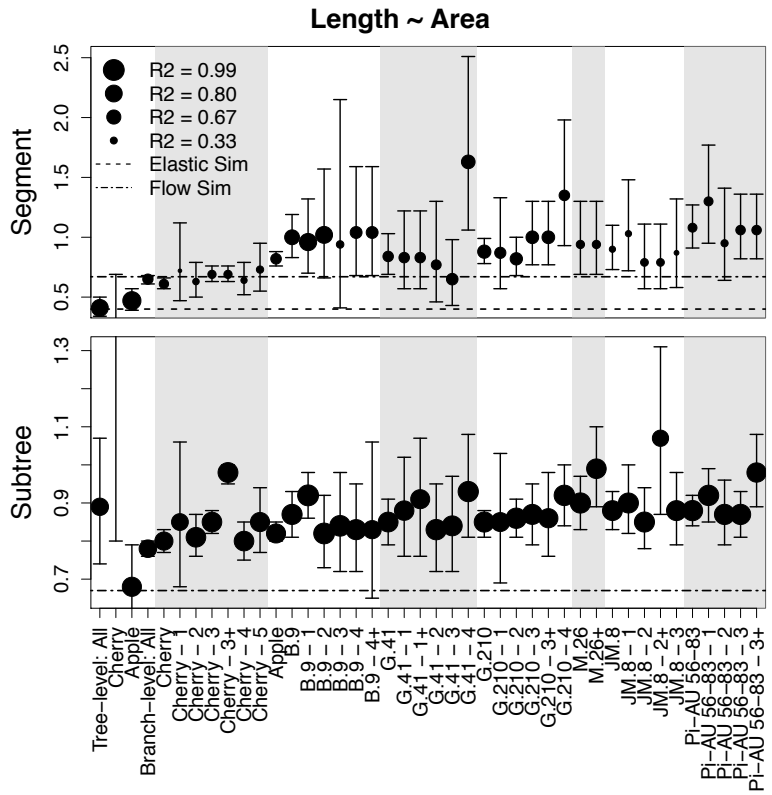


Figure S2-6. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the FS model: elastic similarity is marked by a dashed line and flow similarity by a dot-dash line. R^2 is shown by scaled dot size.

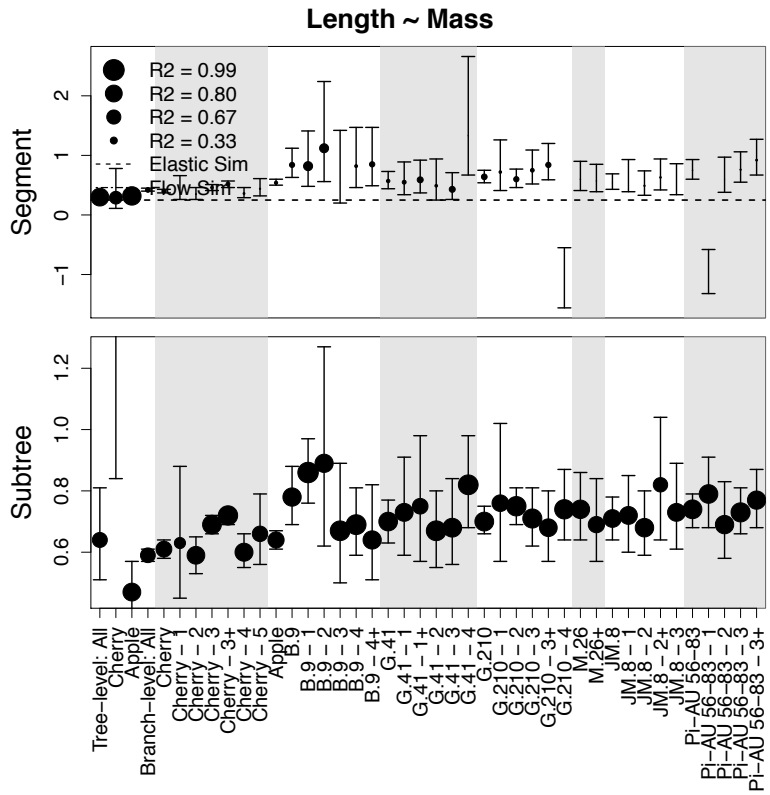


Figure S2-7. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the WBE model is marked by a dashed line. R^2 is shown by scaled dot size.

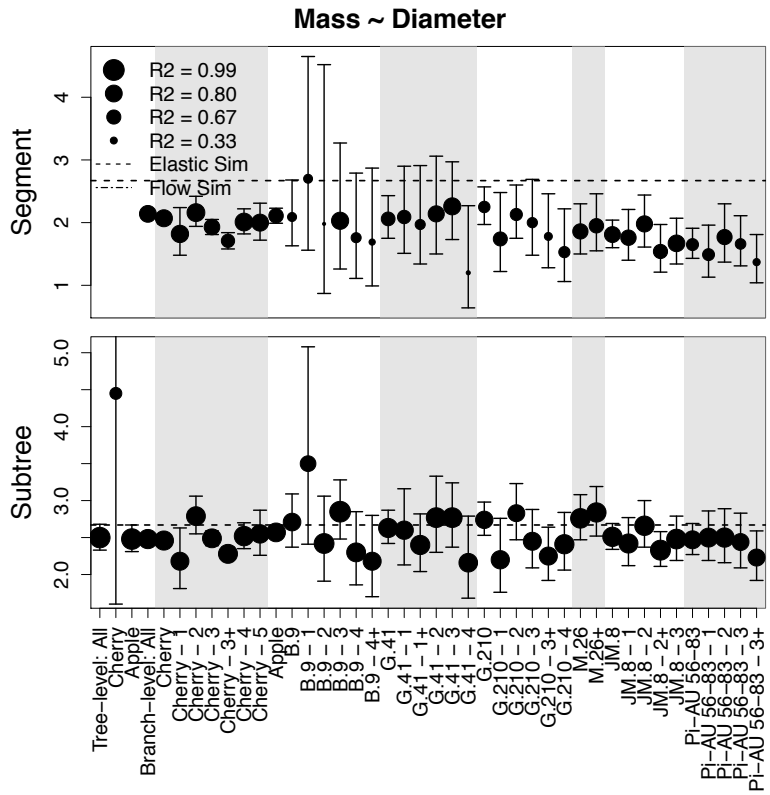


Figure S2-8. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. The predicted *a* from the process-bases models are marked as horizontal lines. The predicted *a* from the WBE model is marked by a dashed line. R^2 is shown by scaled dot size.

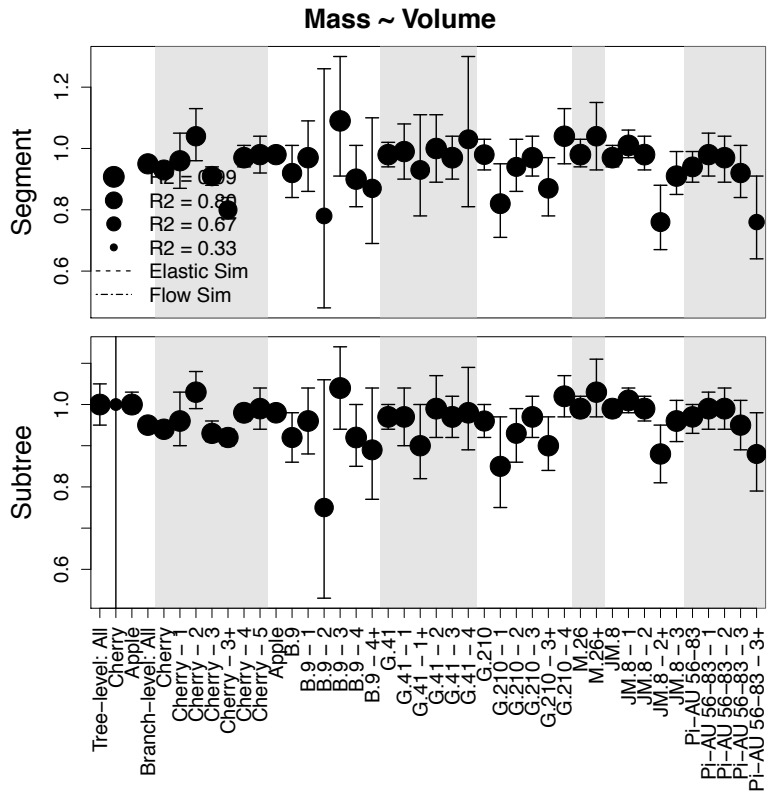
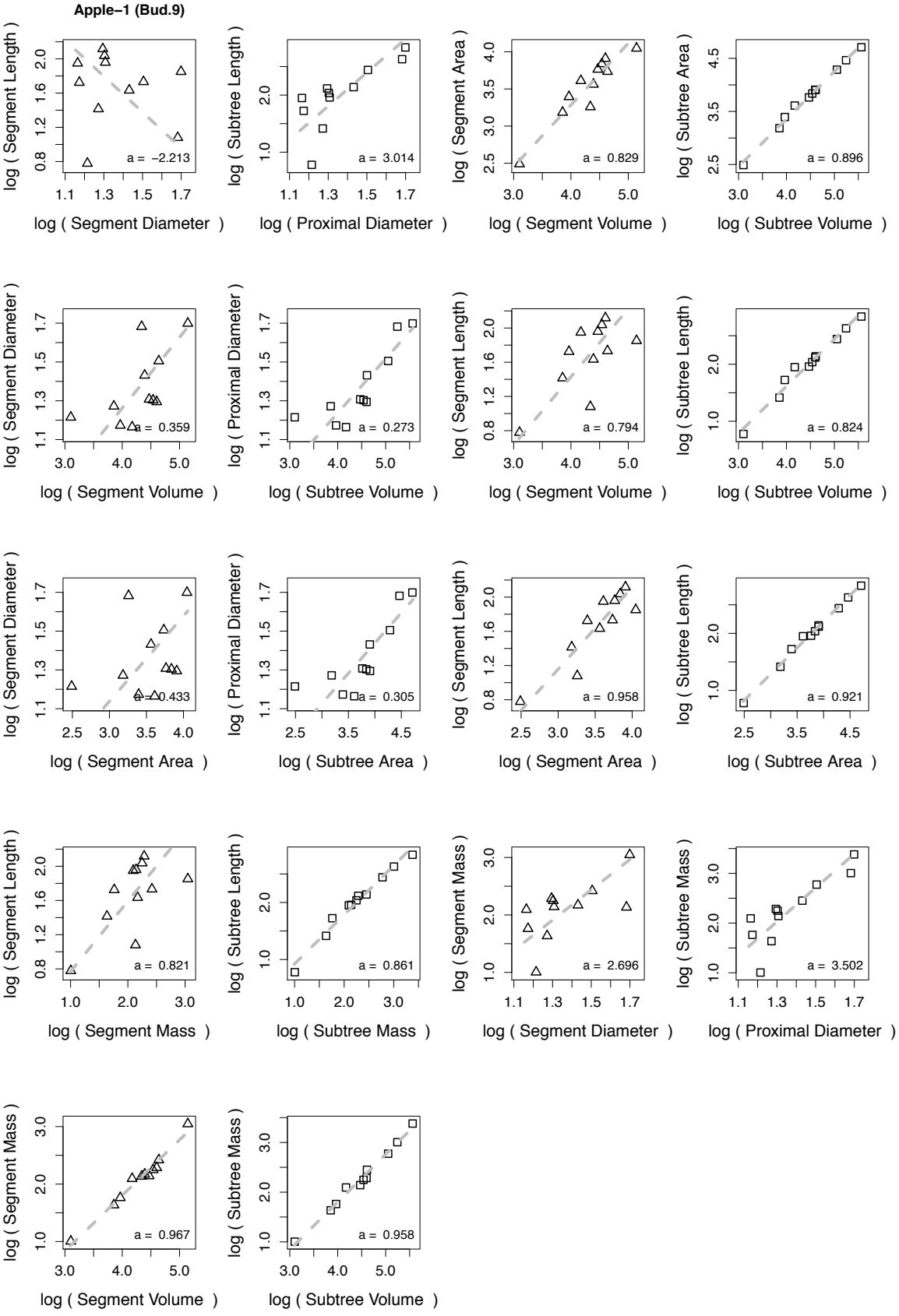
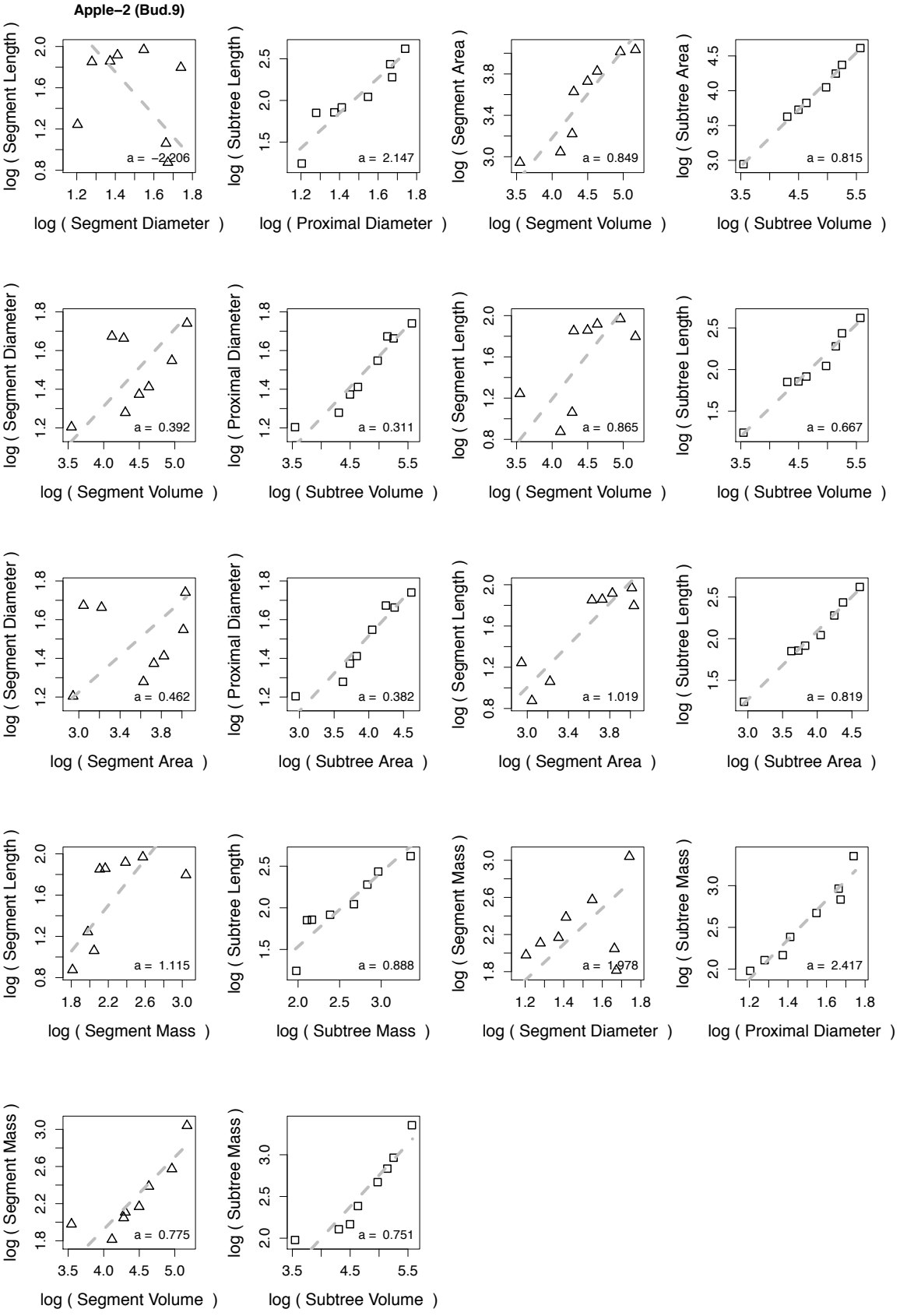
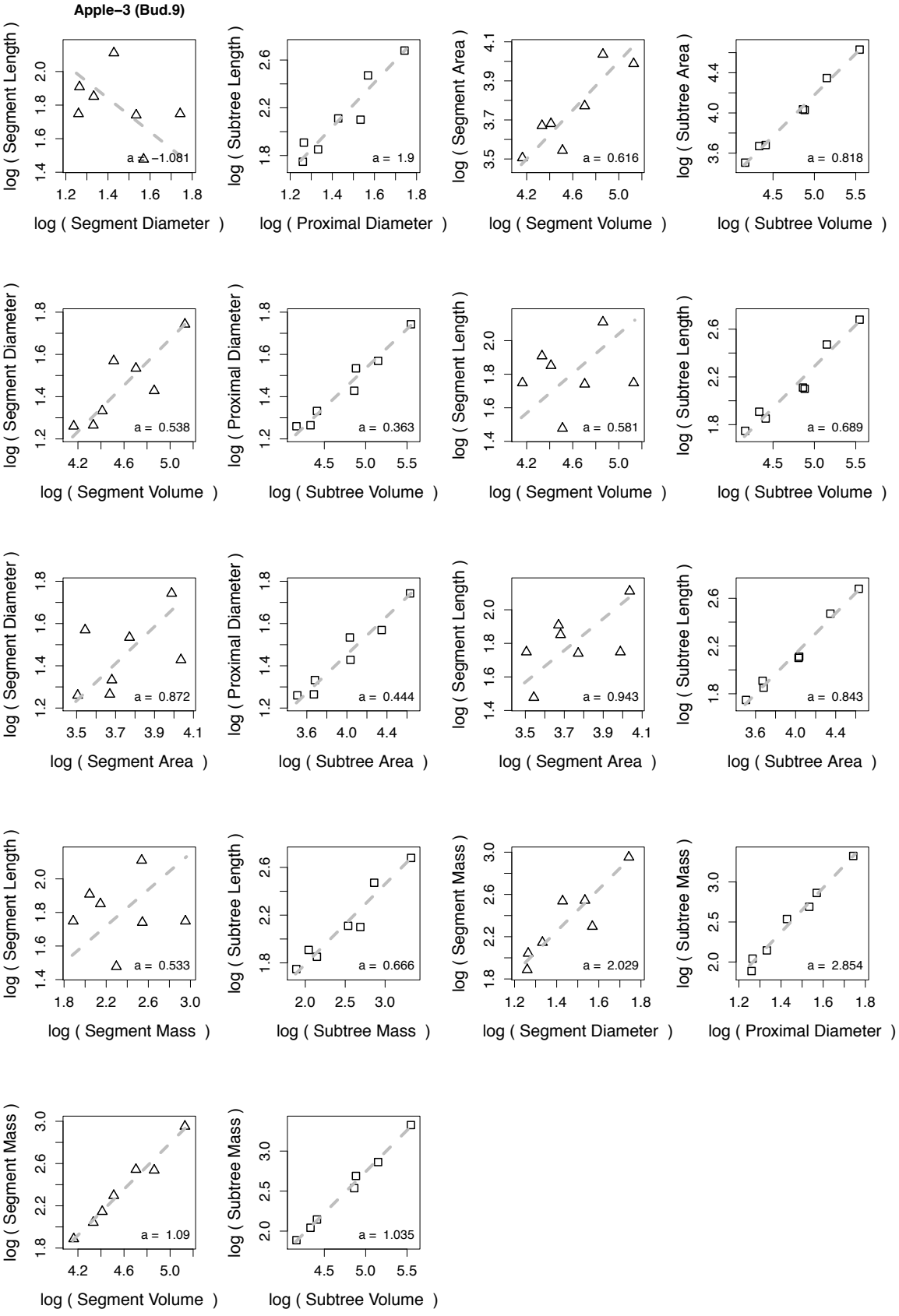


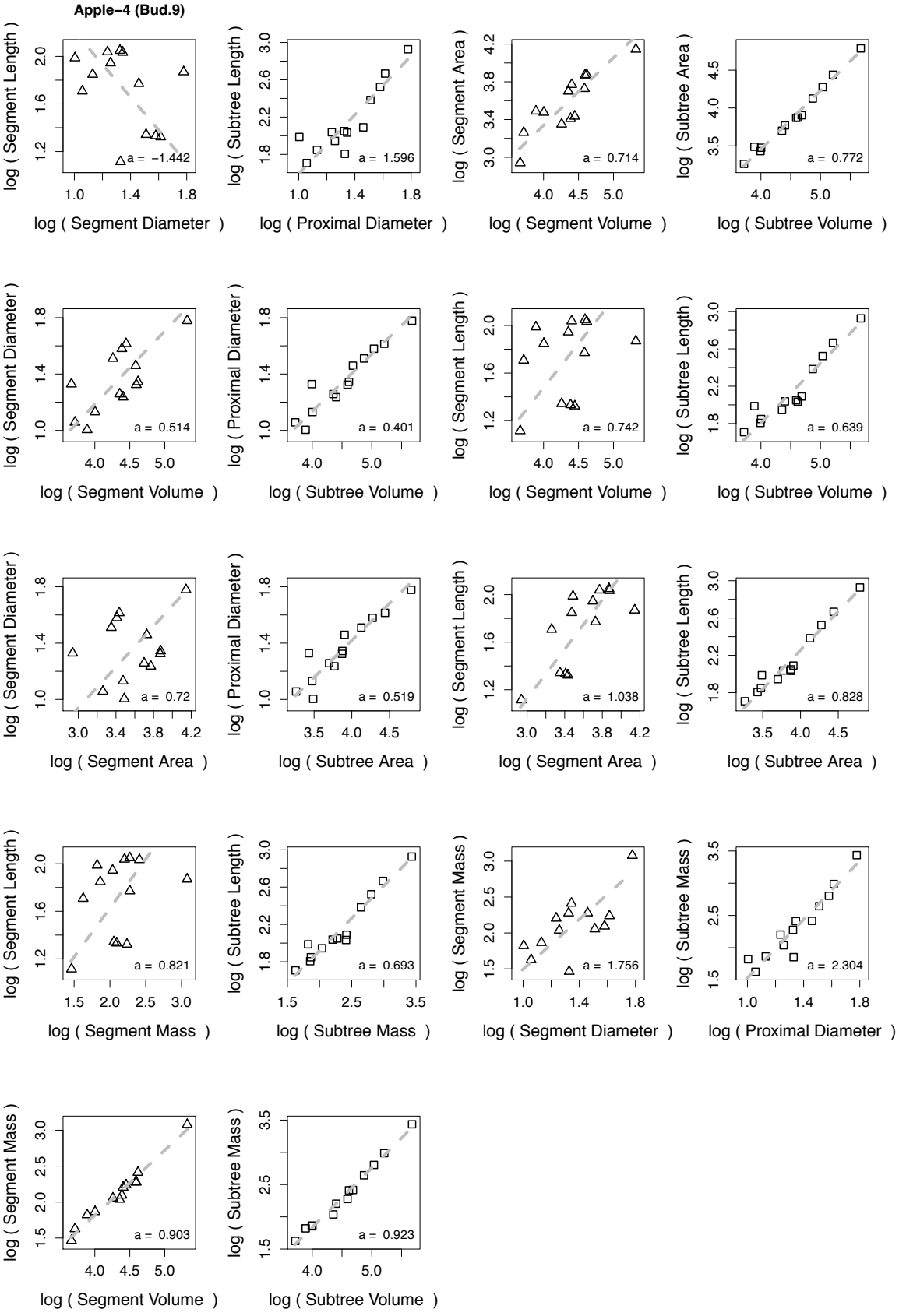
Figure S2-9. Estimates of allometric exponent (*a*) and 95% confidence intervals for five 24-year-old tart cherry (*Prunus cerasus*; *P.* mahaleb) and nineteen 10-year-old 'Golden Delicious' apple (*Malus spp.*; various rootstocks) at an individual and group level for each branch-level classification: segment and subtree. The groups are organized roughly by shaded region. The first group (white space) are the tree-level data, except for the 'all-branch' group for all branches collected in the dataset. The remaining groups are branch-level data broken down by species (tart cherry, apple) and the rootstock abbreviations for apples. Individuals are identified by a hyphen and an individual number. The addition of the '+' indicates the individuals that were sampled in more detail and include twig length and mass data noted by a '+'. R^2 is shown by scaled dot size.

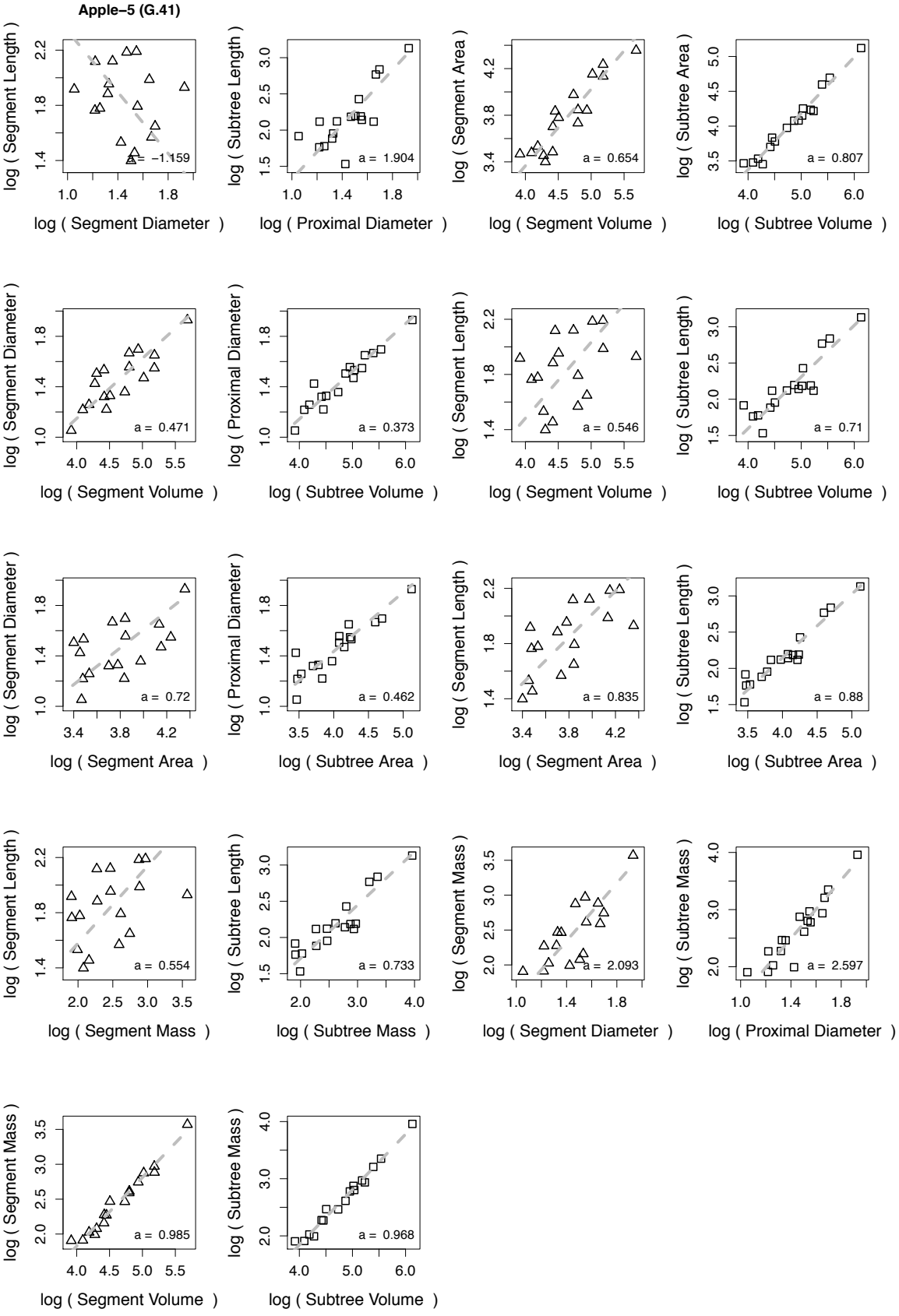
Figure S3. Data visualization for each allometric relationship at an individual level. Each individual in the data set (19 apple; 5 tart cherry) are depicted in order of trunk diameter per page. Each apple is identified by its rootstock noted in parentheses. Data points correspond to branches at each branch-level classification. Segment level estimates are marked by triangles and subtree by squares. Dashed lines mark the estimated exponent (a) displayed on the figure.

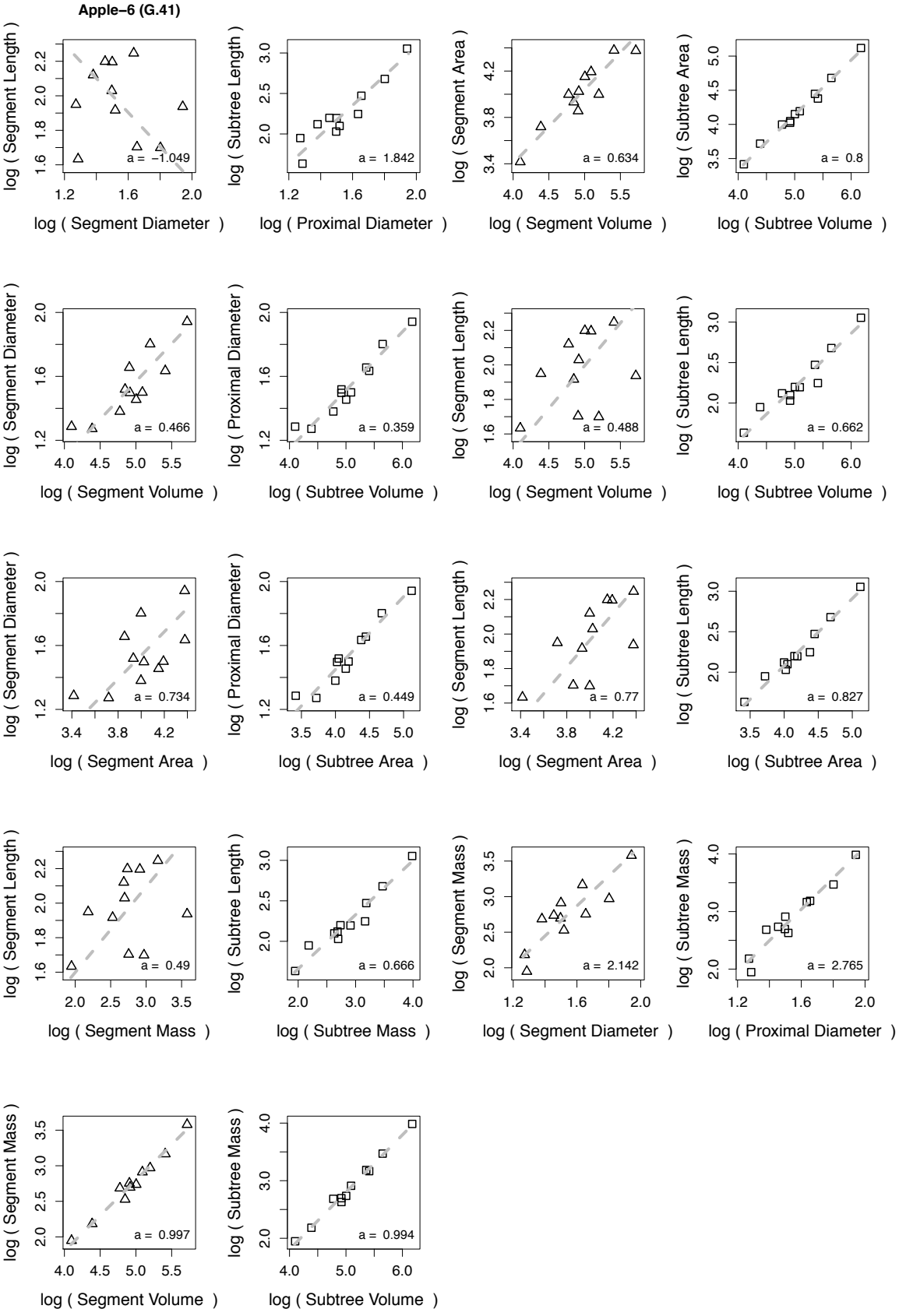

Apple−1 (Bud.9)
log (Segment Length)
log (Segment Diameter)
a = −2.213
log (Subtree Length)
log (Proximal Diameter)
a = 3.014
log (Segment Area)
log (Segment Volume)
a = 0.829
log (Subtree Area)
log (Subtree Volume)
a = 0.896
log (Segment Diameter)
log (Segment Volume)
a = 0.359
log (Proximal Diameter)
log (Subtree Volume)
a = 0.273
log (Segment Length)
log (Segment Volume)
a = 0.794
log (Subtree Length)
log (Subtree Volume)
a = 0.824
log (Segment Diameter)
log (Segment Area)
a = 0.433
log (Proximal Diameter)
log (Subtree Area)
a = 0.305
log (Segment Length)
log (Segment Area)
a = 0.958
log (Subtree Length)
log (Subtree Area)
a = 0.921
log (Segment Length)
log (Segment Mass)
a = 0.821
log (Subtree Length)
log (Subtree Mass)
a = 0.861
log (Segment Mass)
log (Segment Diameter)
a = 2.696
log (Subtree Mass)
log (Proximal Diameter)
a = 3.502
log (Segment Mass)
log (Segment Volume)
a = 0.967
log (Subtree Mass)
log (Subtree Volume)
a = 0.958

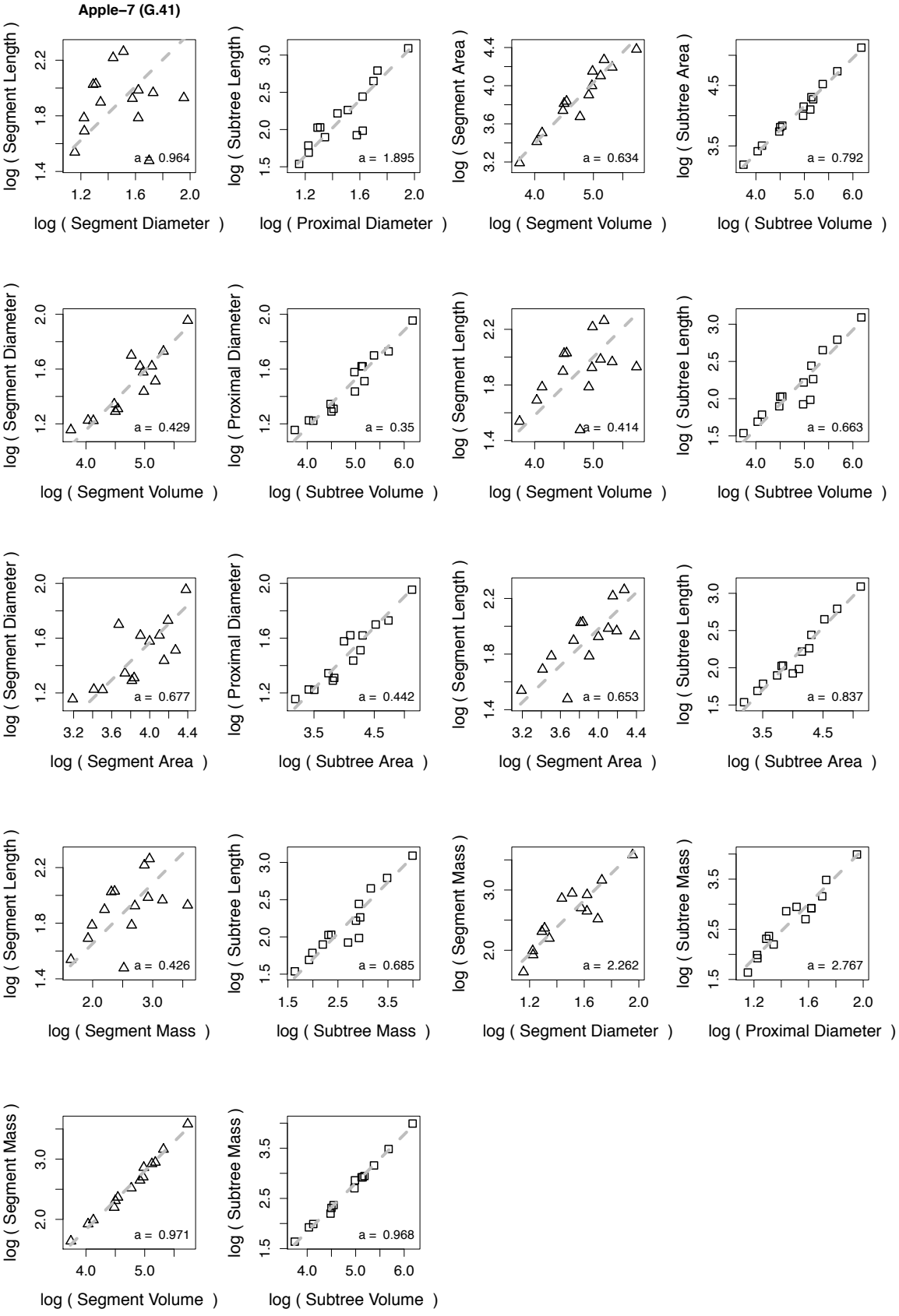

Apple−2 (Bud.9)
log (Segment Length)
log (Segment Diameter)
a = −2.206
log (Subtree Length)
log (Proximal Diameter)
a = 2.147
log (Segment Area)
log (Segment Volume)
a = 0.849
log (Subtree Area)
log (Subtree Volume)
a = 0.815
log (Segment Diameter)
log (Segment Volume)
a = 0.392
log (Proximal Diameter)
log (Subtree Volume)
a = 0.311
log (Segment Length)
log (Segment Volume)
a = 0.865
log (Subtree Length)
log (Subtree Volume)
a = 0.667
log (Segment Diameter)
log (Segment Area)
a = 0.462
log (Proximal Diameter)
log (Subtree Area)
a = 0.382
log (Segment Length)
log (Segment Area)
a = 1.019
log (Subtree Length)
log (Subtree Area)
a = 0.819
log (Segment Length)
log (Segment Mass)
a = 1.115
log (Subtree Length)
log (Subtree Mass)
a = 0.888
log (Segment Mass)
log (Segment Diameter)
a = 1.078
log (Subtree Mass)
log (Proximal Diameter)
a = 2.417
log (Segment Mass)
log (Segment Volume)
a = 0.775
log (Subtree Mass)
log (Subtree Volume)
a = 0.751

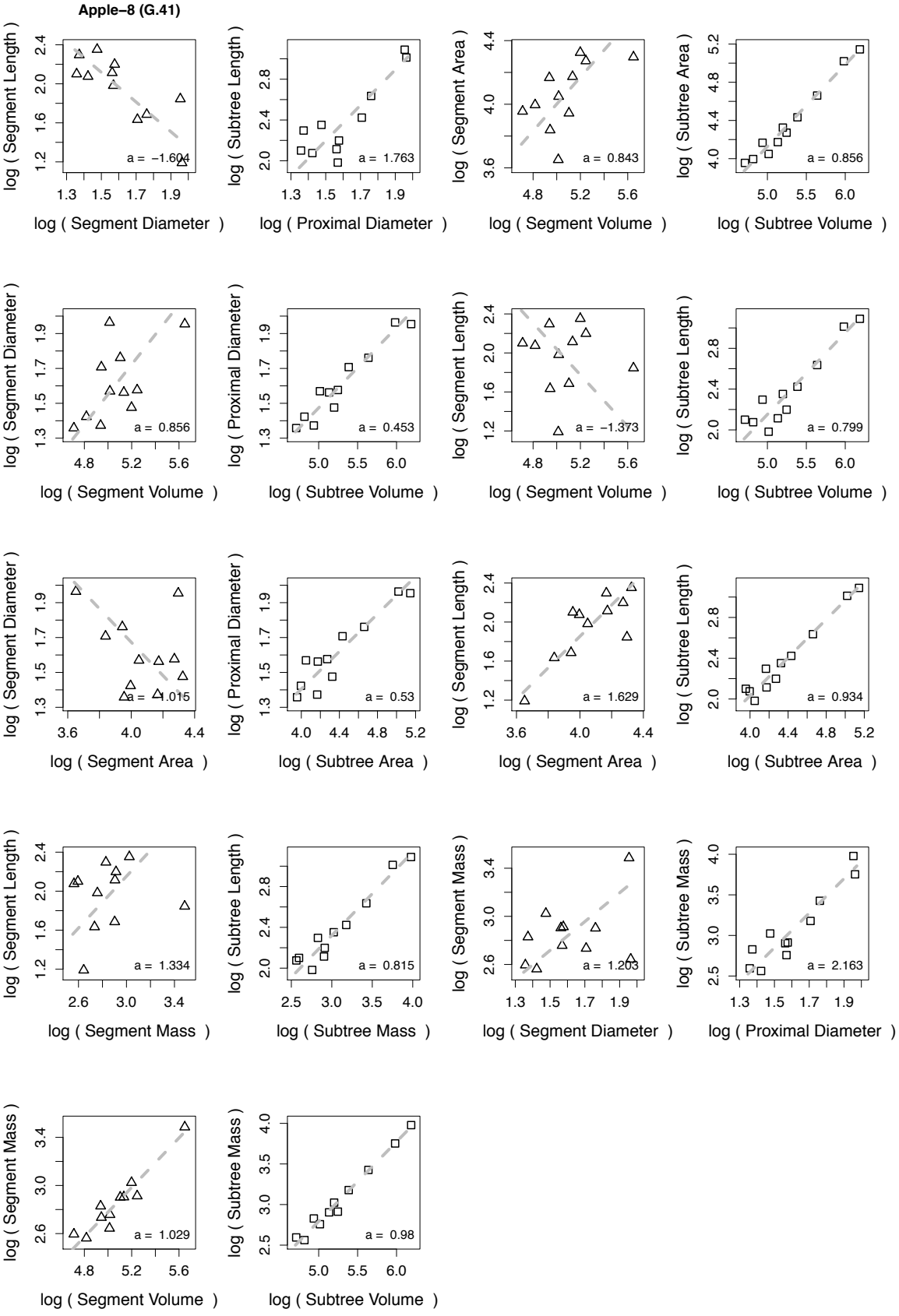

Apple−3 (Bud.9)
log (Segment Length)
log (Segment Diameter)
a = −1.081
log (Subtree Length)
log (Proximal Diameter)
a = 1.9
log (Segment Area)
log (Segment Volume)
a = 0.616
log (Subtree Area)
log (Subtree Volume)
a = 0.818
log (Segment Diameter)
log (Segment Volume)
a = 0.538
log (Proximal Diameter)
log (Subtree Volume)
a = 0.363
log (Segment Length)
log (Segment Volume)
a = 0.581
log (Subtree Length)
log (Subtree Volume)
a = 0.689
log (Segment Diameter)
log (Segment Area)
a = 0.872
log (Proximal Diameter)
log (Subtree Area)
a = 0.444
log (Segment Length)
log (Segment Area)
a = 0.943
log (Subtree Length)
log (Subtree Area)
a = 0.843
log (Segment Length)
log (Segment Mass)
a = 0.533
log (Subtree Length)
log (Subtree Mass)
a = 0.666
log (Segment Mass)
log (Segment Diameter)
a = 2.029
log (Subtree Mass)
log (Proximal Diameter)
a = 2.854
log (Segment Mass)
log (Segment Volume)
a = 1.09
log (Subtree Mass)
log (Subtree Volume)
a = 1.035

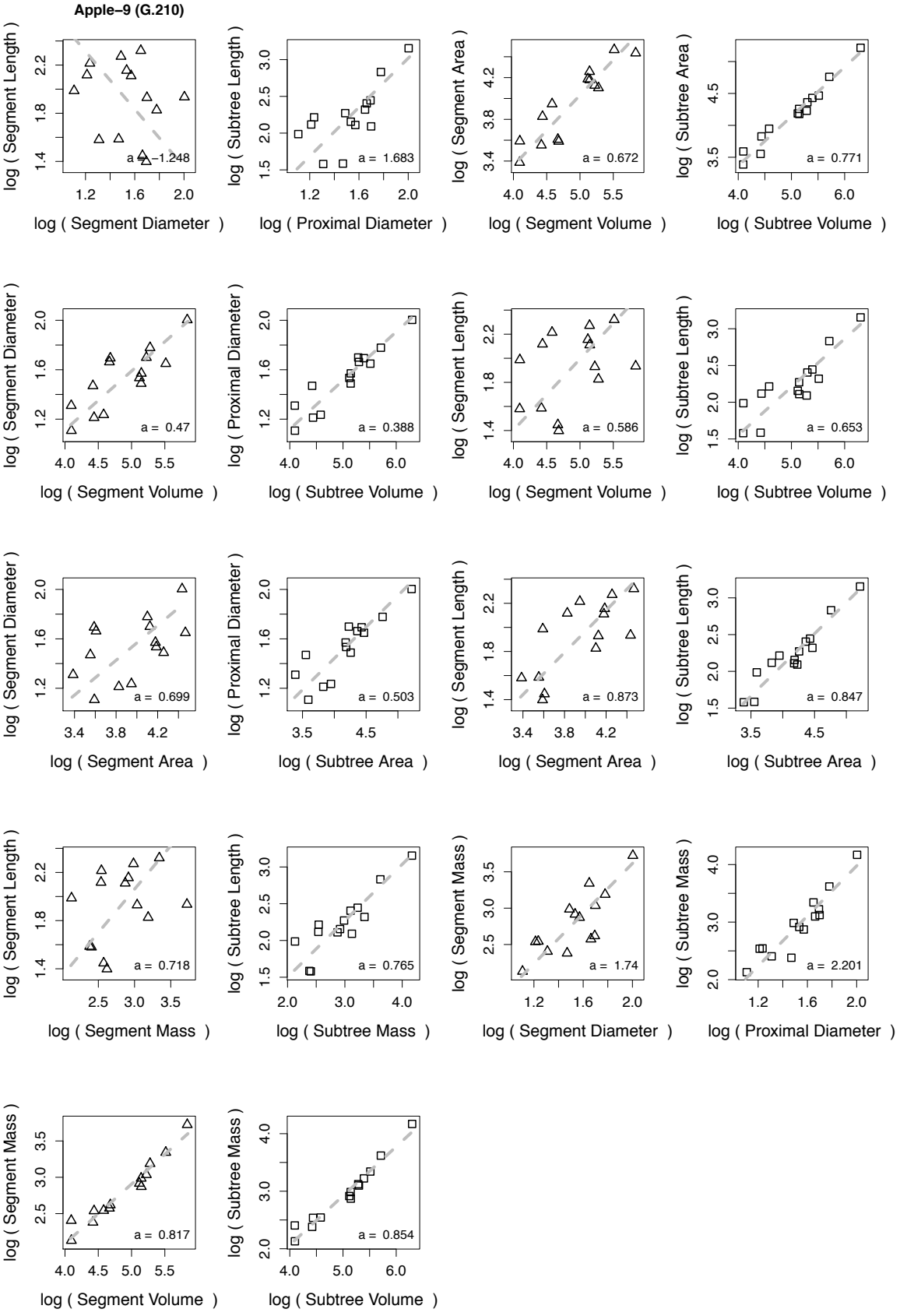

Apple−4 (Bud.9)
log (Segment Length)
log (Segment Diameter)
a = −1.442
log (Subtree Length)
log (Proximal Diameter)
a = 1.596
log (Segment Area)
log (Segment Volume)
a = 0.714
log (Subtree Area)
log (Subtree Volume)
a = 0.772
log (Segment Diameter)
log (Segment Volume)
a = 0.514
log (Proximal Diameter)
log (Subtree Volume)
a = 0.401
log (Segment Length)
log (Segment Volume)
a = 0.742
log (Subtree Length)
log (Subtree Volume)
a = 0.639
log (Segment Diameter)
log (Segment Area)
a = 0.72
log (Proximal Diameter)
log (Subtree Area)
a = 0.519
log (Segment Length)
log (Segment Area)
a = 1.038
log (Subtree Length)
log (Subtree Area)
a = 0.828
log (Segment Length)
log (Segment Mass)
a = 0.821
log (Subtree Length)
log (Subtree Mass)
a = 0.693
log (Segment Mass)
log (Segment Diameter)
a = 1.756
log (Subtree Mass)
log (Proximal Diameter)
a = 2.304
log (Segment Mass)
log (Segment Volume)
a = 0.903
log (Subtree Mass)
log (Subtree Volume)
a = 0.923

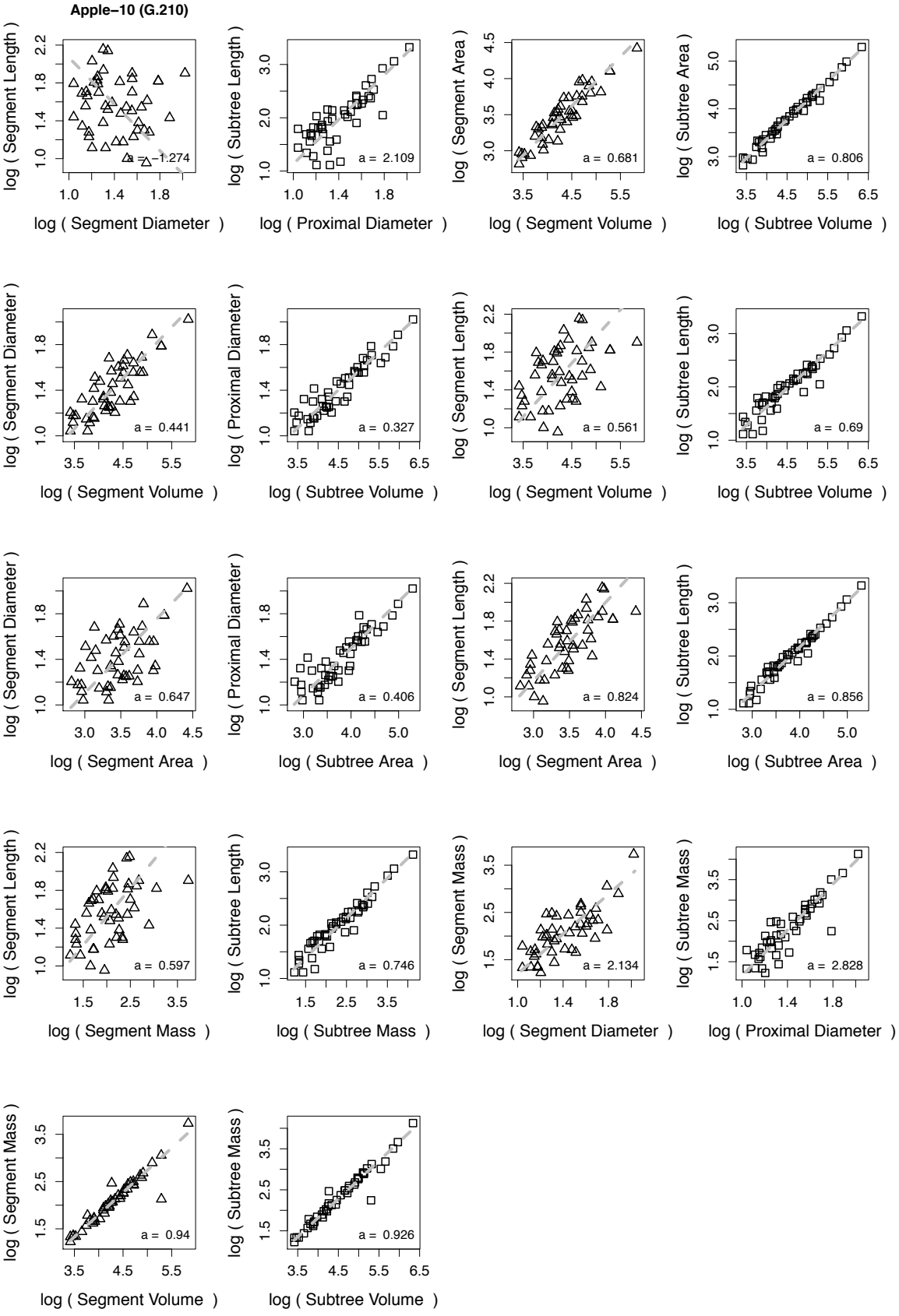

Apple−5 (G.41)
log (Segment Length)
log (Segment Diameter)
a = −1.159
log (Subtree Length)
log (Proximal Diameter)
a = 1.904
log (Segment Area)
log (Segment Volume)
a = 0.654
log (Subtree Area)
log (Subtree Volume)
a = 0.807
log (Segment Diameter)
log (Segment Volume)
a = 0.471
log (Proximal Diameter)
log (Subtree Volume)
a = 0.373
log (Segment Length)
log (Segment Volume)
a = 0.546
log (Subtree Length)
log (Subtree Volume)
a = 0.71
log (Segment Diameter)
log (Segment Area)
a = 0.72
log (Proximal Diameter)
log (Subtree Area)
a = 0.462
log (Segment Length)
log (Segment Area)
a = 0.835
log (Subtree Length)
log (Subtree Area)
a = 0.88
log (Segment Length)
log (Segment Mass)
a = 0.554
log (Subtree Length)
log (Subtree Mass)
a = 0.733
log (Segment Mass)
log (Segment Diameter)
a = 2.093
log (Subtree Mass)
log (Proximal Diameter)
a = 2.597
log (Segment Mass)
log (Segment Volume)
a = 0.985
log (Subtree Mass)
log (Subtree Volume)
a = 0.968

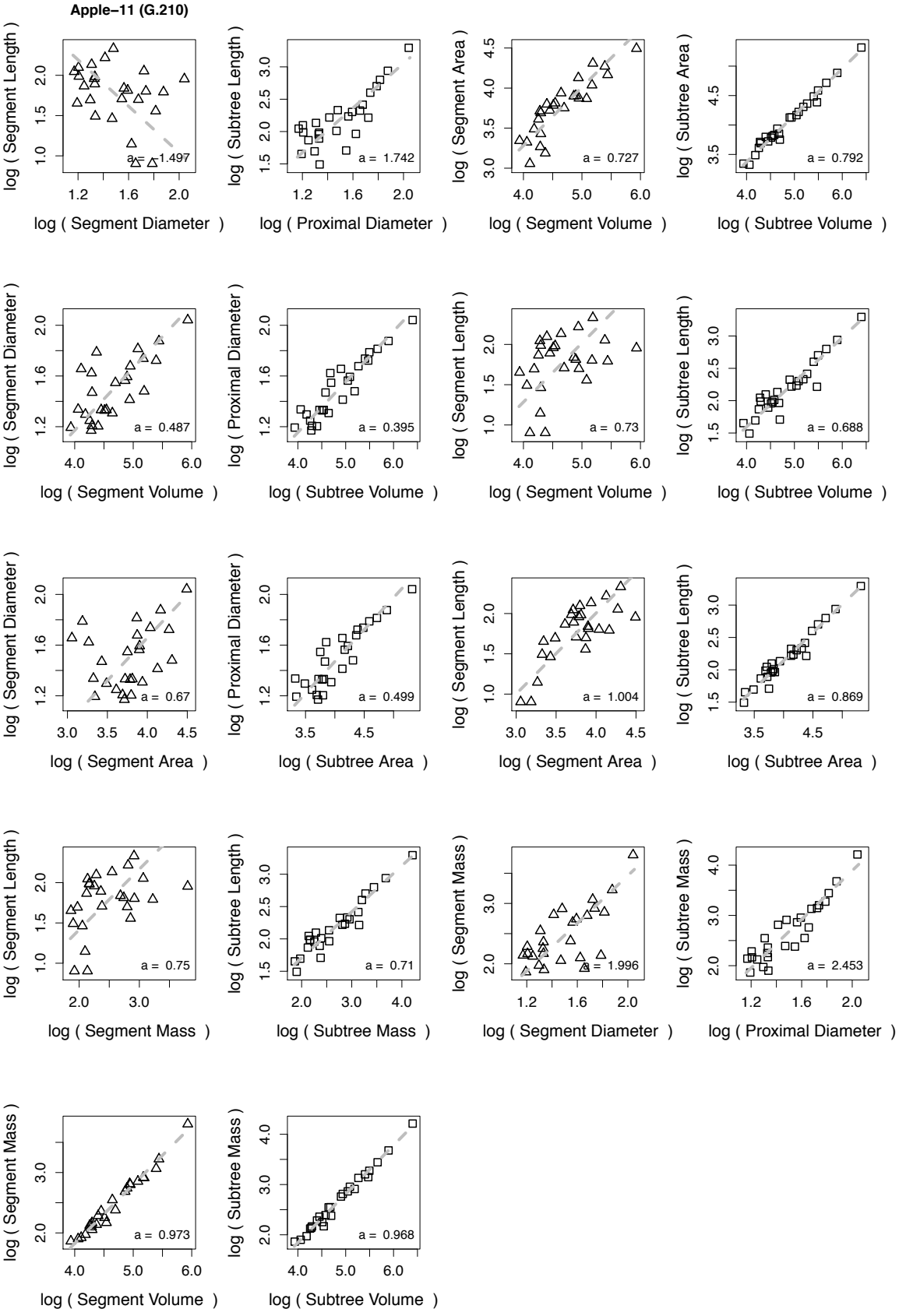

Apple–6 (G.41)
log (Segment Length)
log (Segment Diameter)
a = −1.049
log (Subtree Length)
log (Proximal Diameter)
a = 1.842
log (Segment Area)
log (Segment Volume)
a = 0.634
log (Subtree Area)
log (Subtree Volume)
a = 0.8
log (Segment Diameter)
log (Segment Volume)
a = 0.466
log (Proximal Diameter)
log (Subtree Volume)
a = 0.359
log (Segment Length)
log (Segment Volume)
a = 0.488
log (Subtree Length)
log (Subtree Volume)
a = 0.662
log (Segment Diameter)
log (Segment Area)
a = 0.734
log (Proximal Diameter)
log (Subtree Area)
a = 0.449
log (Segment Length)
log (Segment Area)
a = 0.77
log (Subtree Length)
log (Subtree Area)
a = 0.827
log (Segment Length)
log (Segment Mass)
a = 0.49
log (Subtree Length)
log (Subtree Mass)
a = 0.666
log (Segment Mass)
log (Segment Diameter)
a = 2.142
log (Subtree Mass)
log (Proximal Diameter)
a = 2.765
log (Segment Mass)
log (Segment Volume)
a = 0.997
log (Subtree Mass)
log (Subtree Volume)
a = 0.994

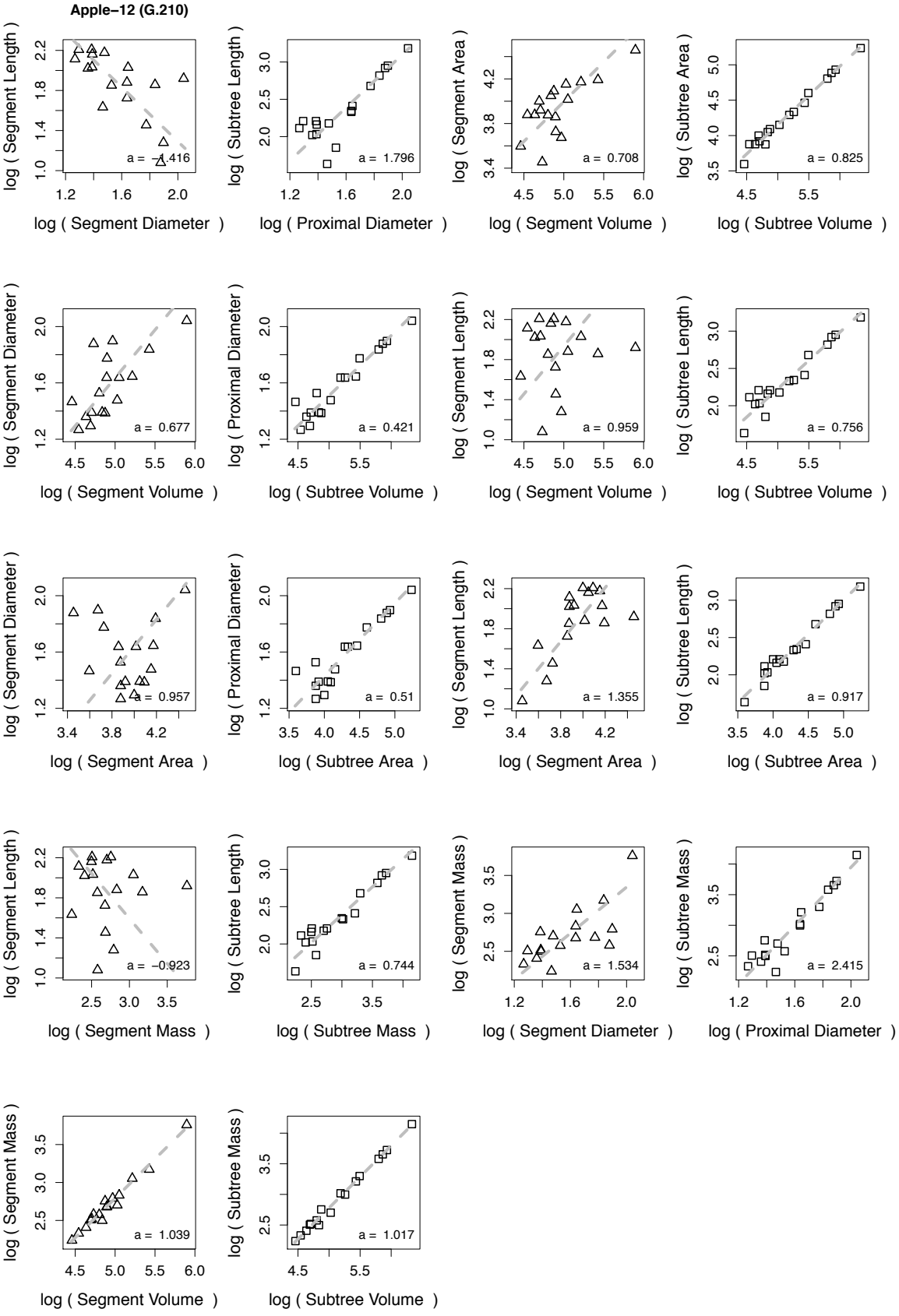

Apple−7 (G.41)
log (Segment Length)
log (Segment Diameter)
a = 0.964
log (Subtree Length)
log (Proximal Diameter)
a = 1.895
log (Segment Area)
log (Segment Volume)
a = 0.634
log (Subtree Area)
log (Subtree Volume)
a = 0.792
log (Segment Diameter)
log (Segment Volume)
a = 0.429
log (Proximal Diameter)
log (Subtree Volume)
a = 0.35
log (Segment Length)
log (Segment Volume)
a = 0.414
log (Subtree Length)
log (Subtree Volume)
a = 0.663
log (Segment Diameter)
log (Segment Area)
a = 0.677
log (Proximal Diameter)
log (Subtree Area)
a = 0.442
log (Segment Length)
log (Segment Area)
a = 0.653
log (Subtree Length)
log (Subtree Area)
a = 0.837
log (Segment Length)
log (Segment Mass)
a = 0.426
log (Subtree Length)
log (Subtree Mass)
a = 0.685
log (Segment Mass)
log (Segment Diameter)
a = 2.262
log (Subtree Mass)
log (Proximal Diameter)
a = 2.767
log (Segment Mass)
log (Segment Volume)
a = 0.971
log (Subtree Mass)
log (Subtree Volume)
a = 0.968

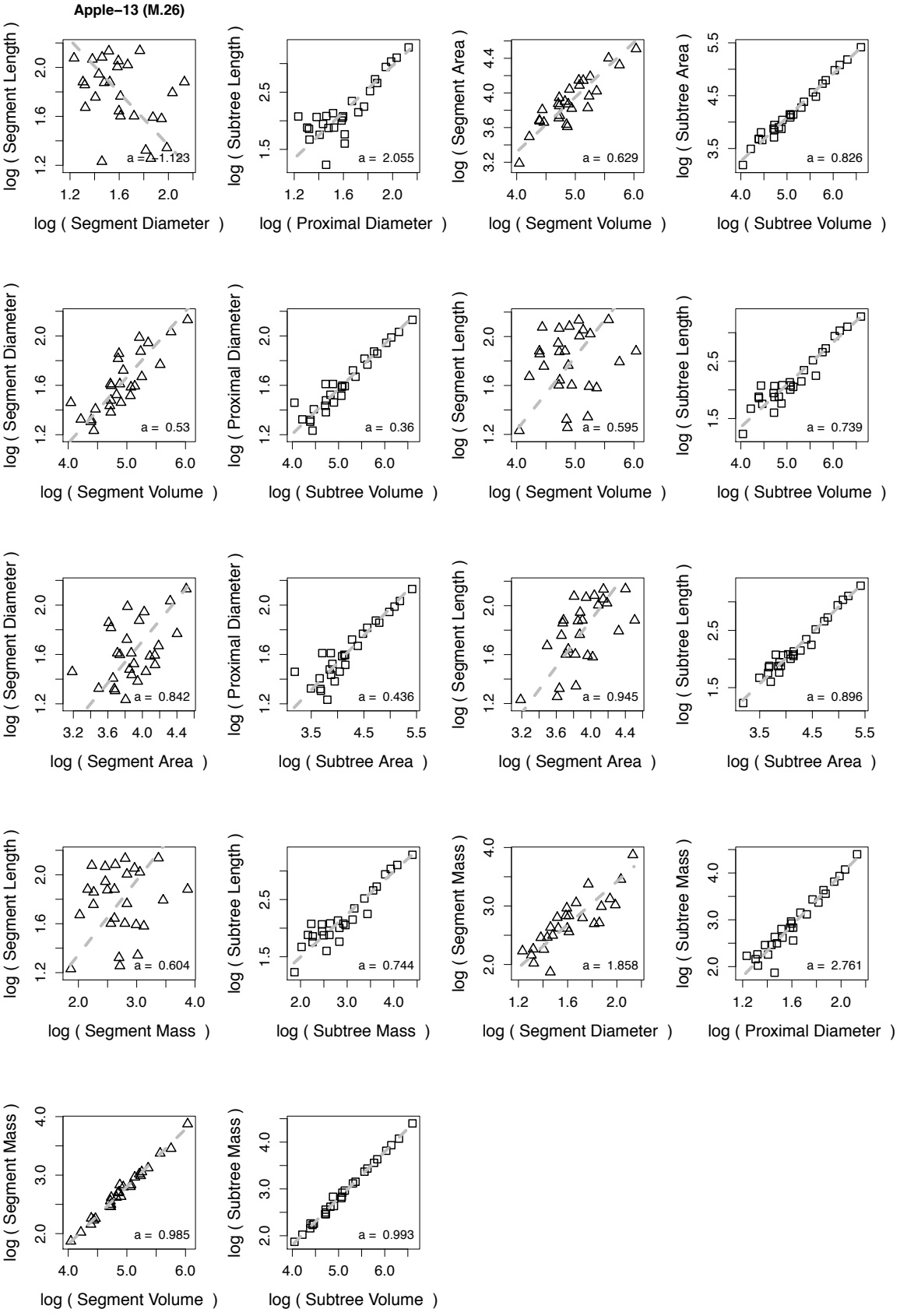

Apple–8 (G.41)
log (Segment Length)
log (Segment Diameter)
a = −1.604
log (Subtree Length)
log (Proximal Diameter)
a = 1.763
log (Segment Area)
log (Segment Volume)
a = 0.843
log (Subtree Area)
log (Subtree Volume)
a = 0.856
log (Segment Diameter)
log (Segment Volume)
a = 0.856
log (Proximal Diameter)
log (Subtree Volume)
a = 0.453
log (Segment Length)
log (Segment Volume)
a = −1.373
log (Subtree Length)
log (Subtree Volume)
a = 0.799
log (Segment Diameter)
log (Segment Area)
a = −1.015
log (Proximal Diameter)
log (Subtree Area)
a = 0.53
log (Segment Length)
log (Segment Area)
a = 1.629
log (Subtree Length)
log (Subtree Area)
a = 0.934
log (Segment Length)
log (Segment Mass)
a = 1.334
log (Subtree Length)
log (Subtree Mass)
a = 0.815
log (Segment Mass)
log (Segment Diameter)
a = 1.203
log (Subtree Mass)
log (Proximal Diameter)
a = 2.163
log (Segment Mass)
log (Segment Volume)
a = 1.029
log (Subtree Mass)
log (Subtree Volume)
a = 0.98

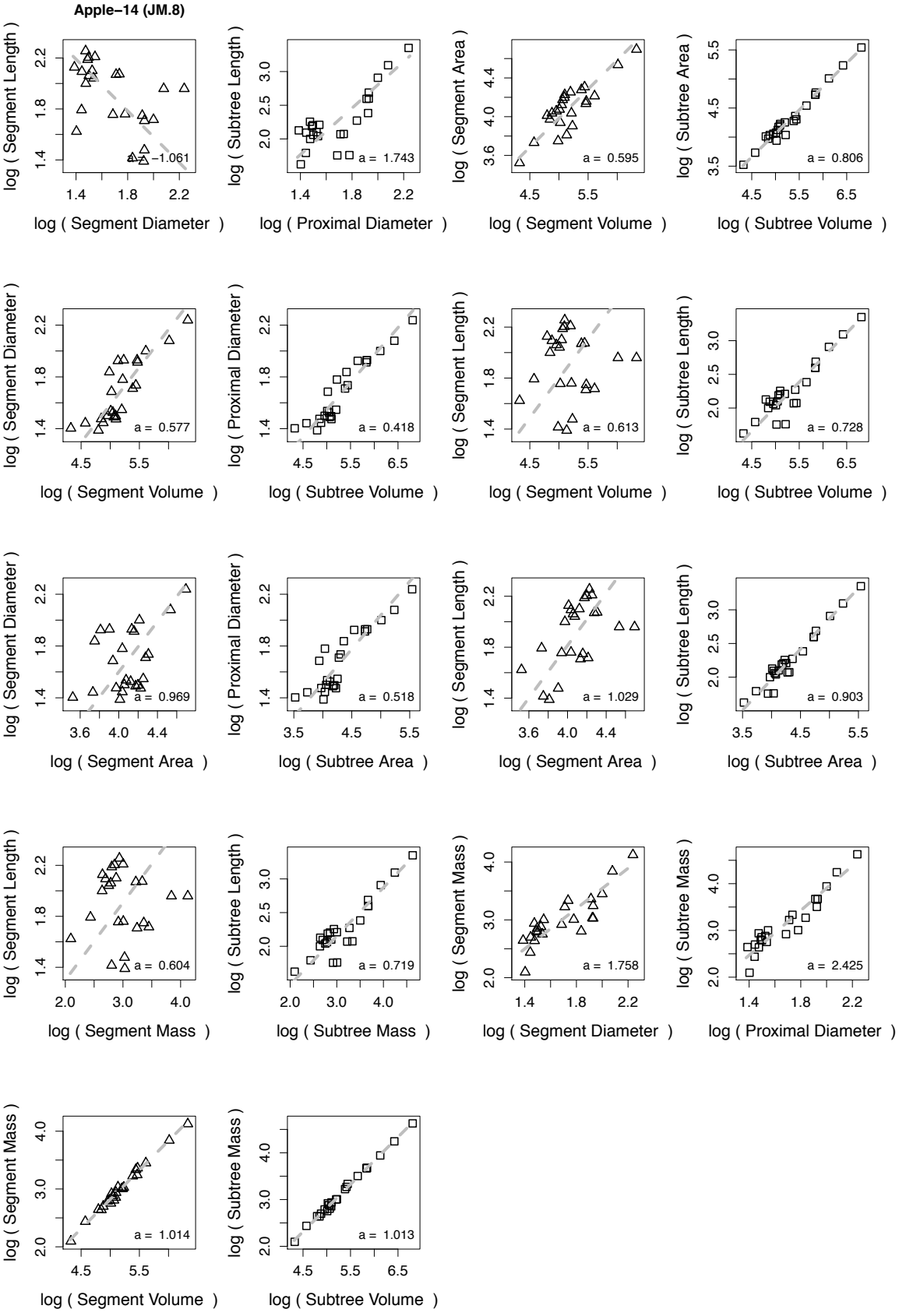

Apple–9 (G.210)
log (Segment Length)
log (Segment Diameter)
a = −1.248
log (Subtree Length)
log (Proximal Diameter)
a = 1.683
log (Segment Area)
log (Segment Volume)
a = 0.672
log (Subtree Area)
log (Subtree Volume)
a = 0.771
log (Segment Diameter)
log (Segment Volume)
a = 0.47
log (Proximal Diameter)
log (Subtree Volume)
a = 0.388
log (Segment Length)
log (Segment Volume)
a = 0.586
log (Subtree Length)
log (Subtree Volume)
a = 0.653
log (Segment Diameter)
log (Segment Area)
a = 0.699
log (Proximal Diameter)
log (Subtree Area)
a = 0.503
log (Segment Length)
log (Segment Area)
a = 0.873
log (Subtree Length)
log (Subtree Area)
a = 0.847
log (Segment Length)
log (Segment Mass)
a = 0.718
log (Subtree Length)
log (Subtree Mass)
a = 0.765
log (Segment Mass)
log (Segment Diameter)
a = 1.74
log (Subtree Mass)
log (Proximal Diameter)
a = 2.201
log (Segment Mass)
log (Segment Volume)
a = 0.817
log (Subtree Mass)
log (Subtree Volume)
a = 0.854

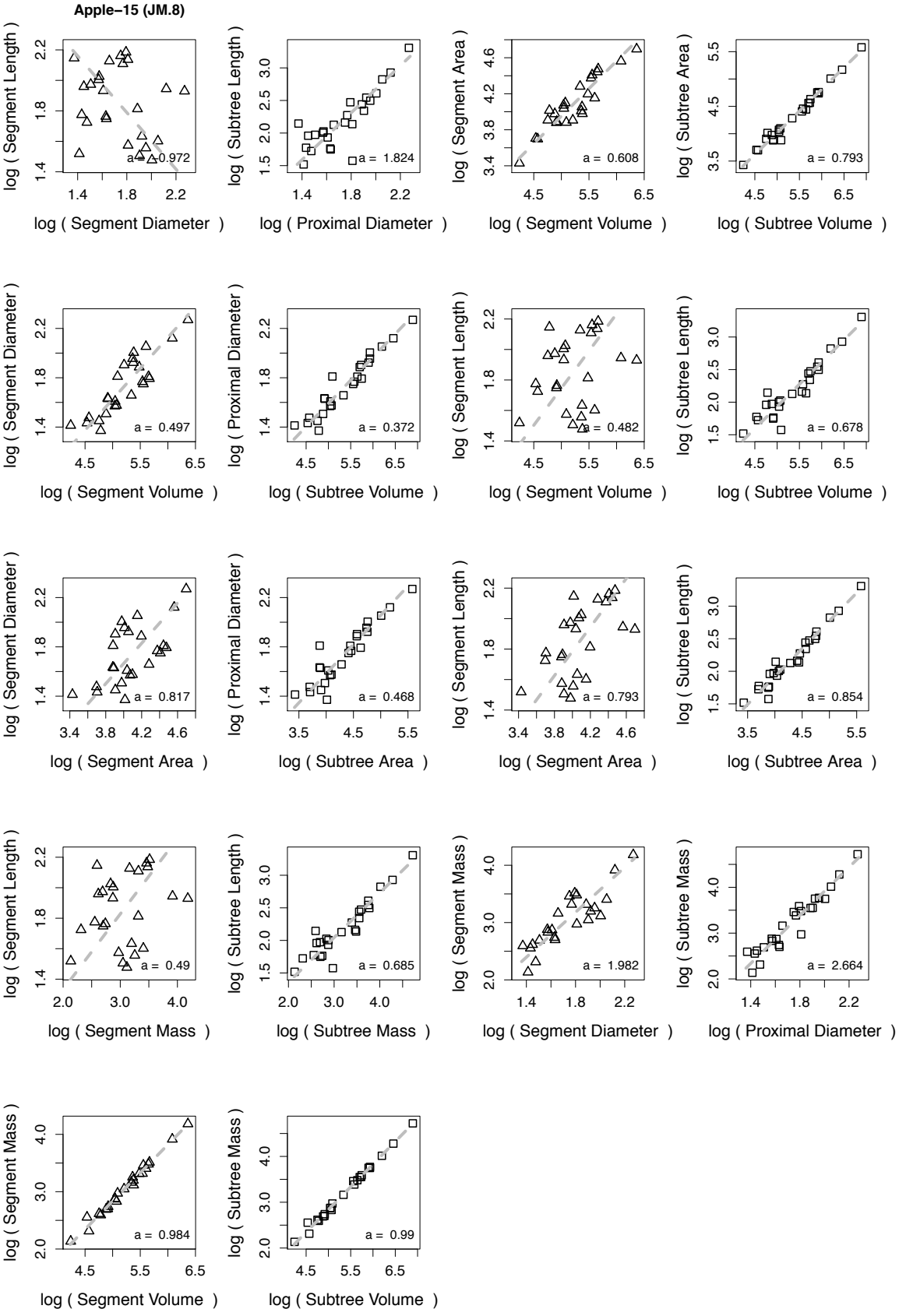

Apple−10 (G.210)
log (Segment Length)
log (Segment Diameter)
a = −1.274
log (Subtree Length)
log (Proximal Diameter)
a = 2.109
log (Segment Area)
log (Segment Volume)
a = 0.681
log (Subtree Area)
log (Subtree Volume)
a = 0.806
log (Segment Diameter)
log (Segment Volume)
a = 0.441
log (Proximal Diameter)
log (Subtree Volume)
a = 0.327
log (Segment Length)
log (Segment Volume)
a = 0.561
log (Subtree Length)
log (Subtree Volume)
a = 0.69
log (Segment Diameter)
log (Segment Area)
a = 0.647
log (Proximal Diameter)
log (Subtree Area)
a = 0.406
log (Segment Length)
log (Segment Area)
a = 0.824
log (Subtree Length)
log (Subtree Area)
a = 0.856
log (Segment Length)
log (Segment Mass)
a = 0.597
log (Subtree Length)
log (Subtree Mass)
a = 0.746
log (Segment Mass)
log (Segment Diameter)
a = 2.134
log (Subtree Mass)
log (Proximal Diameter)
a = 2.828
log (Segment Mass)
log (Segment Volume)
a = 0.94
log (Subtree Mass)
log (Subtree Volume)
a = 0.926

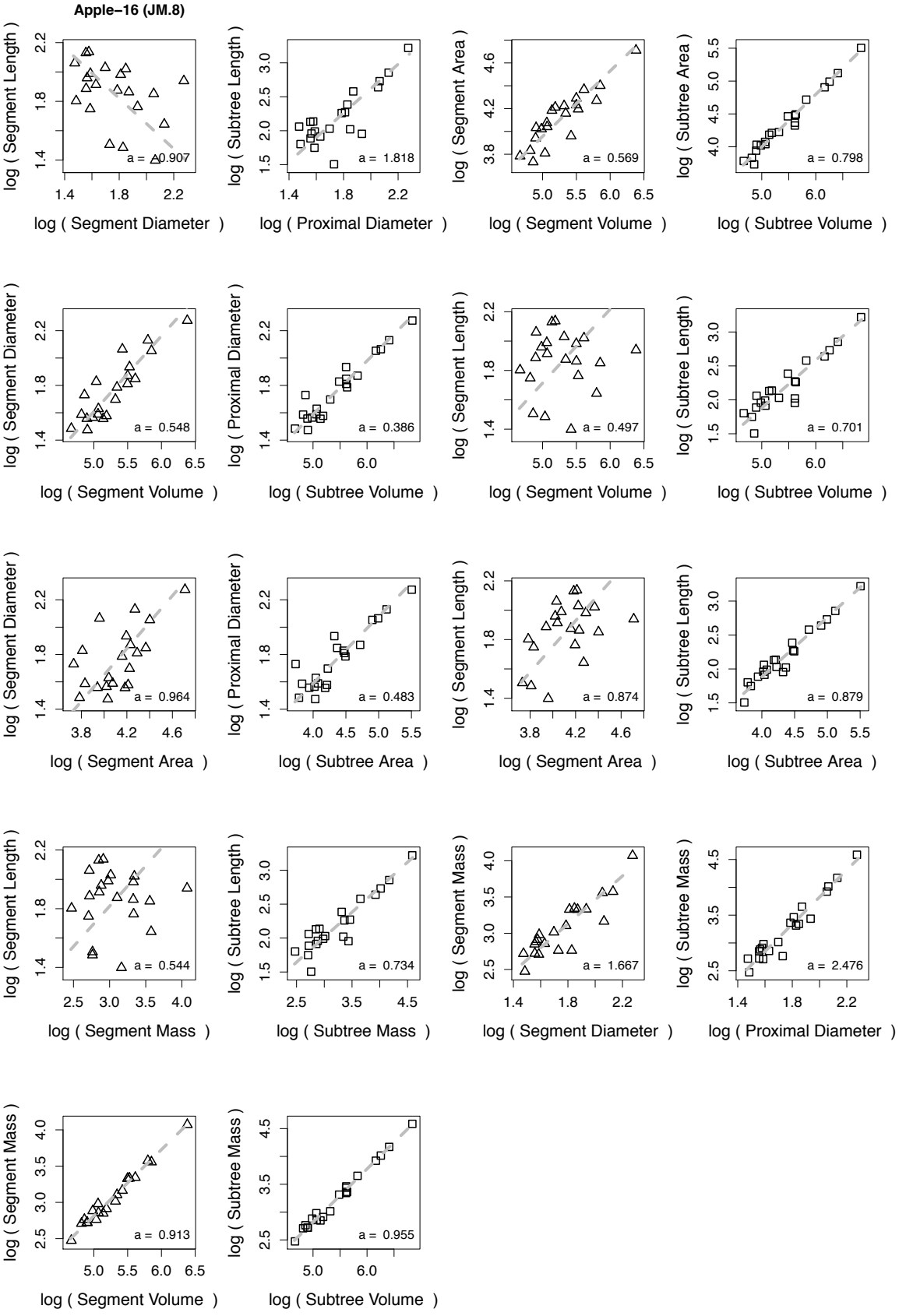

Apple−11 (G.210)
log (Segment Length)
log (Segment Diameter)
a = 1.497
log (Subtree Length)
log (Proximal Diameter)
a = 1.742
log (Segment Area)
log (Segment Volume)
a = 0.727
log (Subtree Area)
log (Subtree Volume)
a = 0.792
log (Segment Diameter)
log (Segment Volume)
a = 0.487
log (Proximal Diameter)
log (Subtree Volume)
a = 0.395
log (Segment Length)
log (Segment Volume)
a = 0.73
log (Subtree Length)
log (Subtree Volume)
a = 0.688
log (Segment Diameter)
log (Segment Area)
a = 0.67
log (Proximal Diameter)
log (Subtree Area)
a = 0.499
log (Segment Length)
log (Segment Area)
a = 1.004
log (Subtree Length)
log (Subtree Area)
a = 0.869
log (Segment Length)
log (Segment Mass)
a = 0.75
log (Subtree Length)
log (Subtree Mass)
a = 0.71
log (Segment Mass)
log (Segment Diameter)
a = 1.996
log (Subtree Mass)
log (Proximal Diameter)
a = 2.453
log (Segment Mass)
log (Segment Volume)
a = 0.973
log (Subtree Mass)
log (Subtree Volume)
a = 0.968

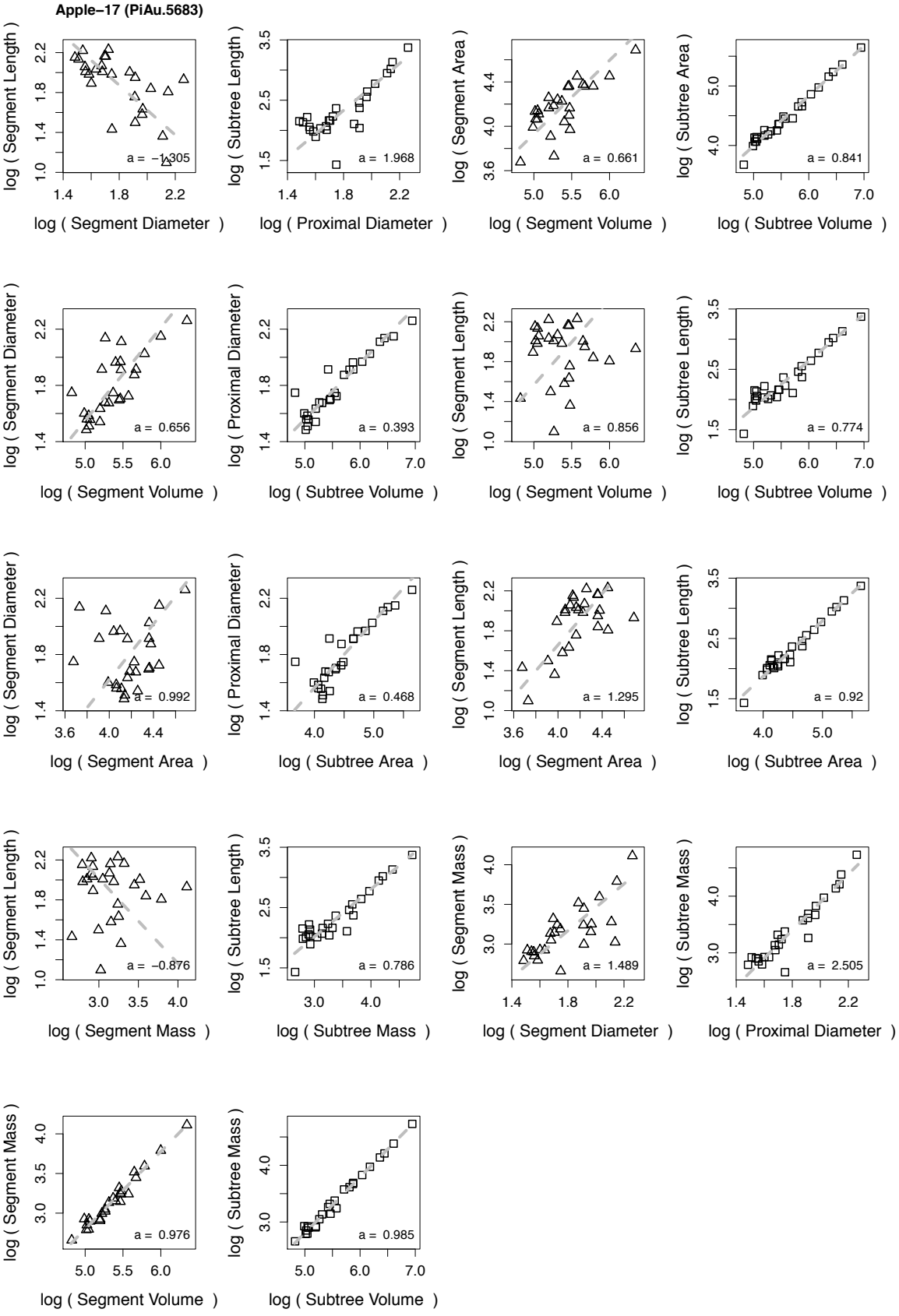

Apple−12 (G.210)
log (Segment Length)
log (Segment Diameter)
a = −1.416
log (Subtree Length)
log (Proximal Diameter)
a = 1.796
log (Segment Area)
log (Segment Volume)
a = 0.708
log (Subtree Area)
log (Subtree Volume)
a = 0.825
log (Segment Diameter)
log (Segment Volume)
a = 0.677
log (Proximal Diameter)
log (Subtree Volume)
a = 0.421
log (Segment Length)
log (Segment Volume)
a = 0.959
log (Subtree Length)
log (Subtree Volume)
a = 0.756
log (Segment Diameter)
log (Segment Area)
a = 0.957
log (Proximal Diameter)
log (Subtree Area)
a = 0.51
log (Segment Length)
log (Segment Area)
a = 1.355
log (Subtree Length)
log (Subtree Area)
a = 0.917
log (Segment Length)
log (Segment Mass)
a = −0.923
log (Subtree Length)
log (Subtree Mass)
a = 0.744
log (Segment Mass)
log (Segment Diameter)
a = 1.534
log (Subtree Mass)
log (Proximal Diameter)
a = 2.415
log (Segment Mass)
log (Segment Volume)
a = 1.039
log (Subtree Mass)
log (Subtree Volume)
a = 1.017

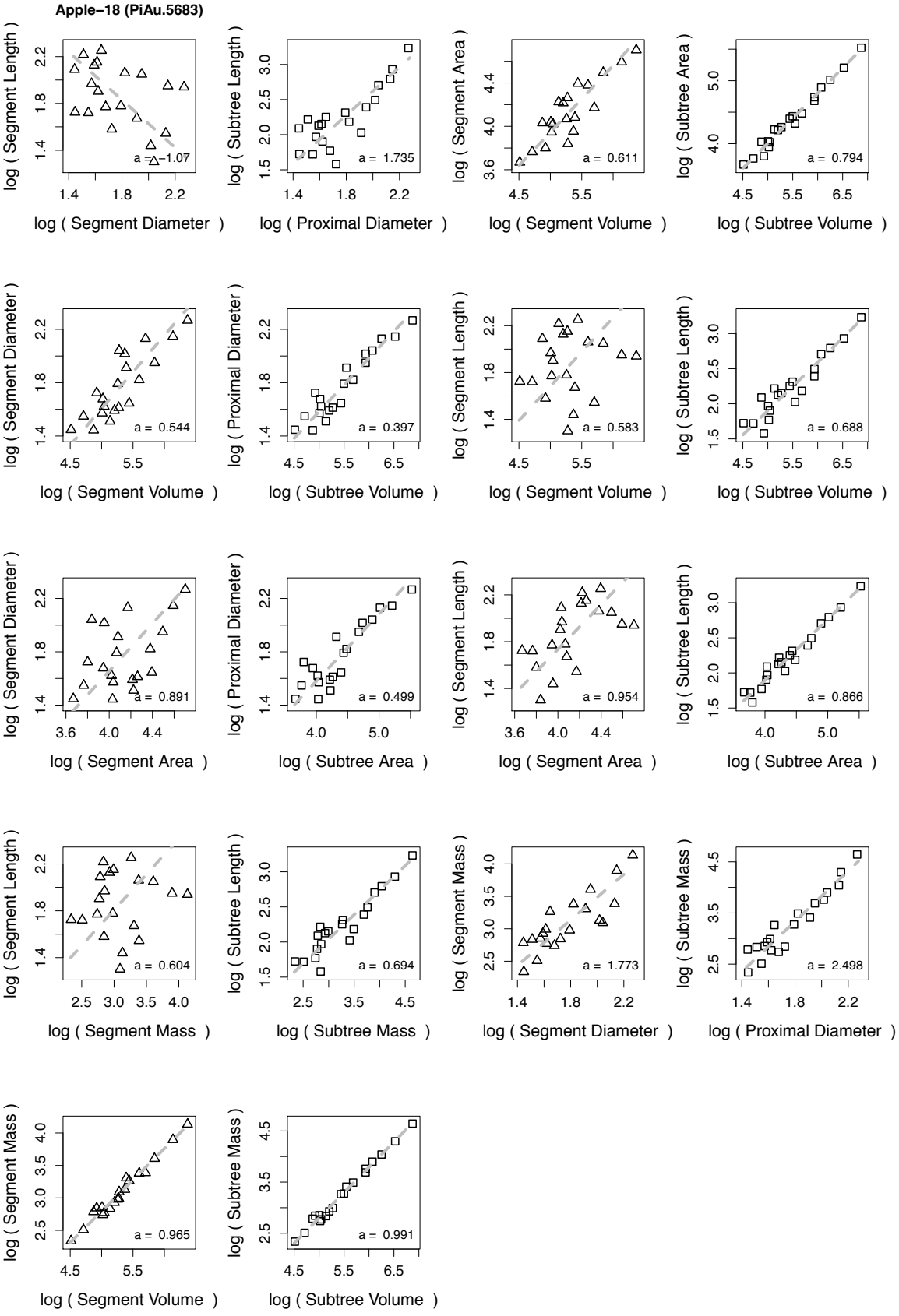

Apple−13 (M.26)
log (Segment Length)
log (Segment Diameter)
a = −1.123
log (Subtree Length)
log (Proximal Diameter)
a = 2.055
log (Segment Area)
log (Segment Volume)
a = 0.629
log (Subtree Area)
log (Subtree Volume)
a = 0.826
log (Segment Diameter)
log (Segment Volume)
a = 0.53
log (Proximal Diameter)
log (Subtree Volume)
a = 0.36
log (Segment Length)
log (Segment Volume)
a = 0.595
log (Subtree Length)
log (Subtree Volume)
a = 0.739
log (Segment Diameter)
log (Segment Area)
a = 0.842
log (Proximal Diameter)
log (Subtree Area)
a = 0.436
log (Segment Length)
log (Segment Area)
a = 0.945
log (Subtree Length)
log (Subtree Area)
a = 0.896
log (Segment Length)
log (Segment Mass)
a = 0.604
log (Subtree Length)
log (Subtree Mass)
a = 0.744
log (Segment Mass)
log (Segment Diameter)
a = 1.858
log (Subtree Mass)
log (Proximal Diameter)
a = 2.761
log (Segment Mass)
log (Segment Volume)
a = 0.985
log (Subtree Mass)
log (Subtree Volume)
a = 0.993

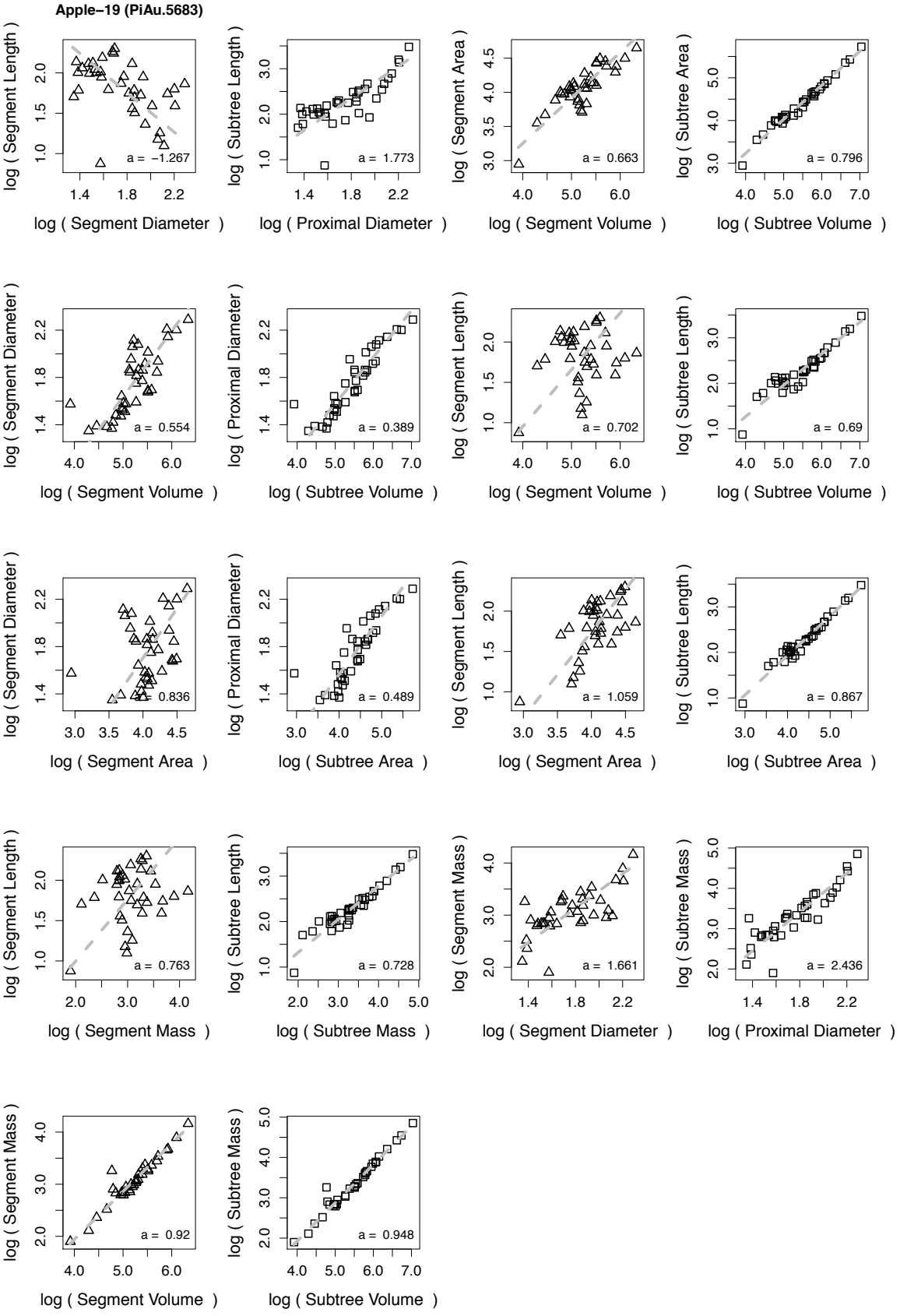

Apple−14 (JM.8)
log (Segment Length)
log (Segment Diameter)
−1.061
log (Subtree Length)
log (Proximal Diameter)
a = 1.743
log (Segment Area)
log (Segment Volume)
a = 0.595
log (Subtree Area)
log (Subtree Volume)
a = 0.806
log (Segment Diameter)
log (Segment Volume)
a = 0.577
log (Proximal Diameter)
log (Subtree Volume)
a = 0.418
log (Segment Length)
log (Segment Volume)
a = 0.613
log (Subtree Length)
log (Subtree Volume)
a = 0.728
log (Segment Diameter)
log (Segment Area)
a = 0.969
log (Proximal Diameter)
log (Subtree Area)
a = 0.518
log (Segment Length)
log (Segment Area)
a = 1.029
log (Subtree Length)
log (Subtree Area)
a = 0.903
log (Segment Length)
log (Segment Mass)
a = 0.604
log (Subtree Length)
log (Subtree Mass)
a = 0.719
log (Segment Mass)
log (Segment Diameter)
a = 1.758
log (Subtree Mass)
log (Proximal Diameter)
a = 2.425
log (Segment Mass)
log (Segment Volume)
a = 1.014
log (Subtree Mass)
log (Subtree Volume)
a = 1.013

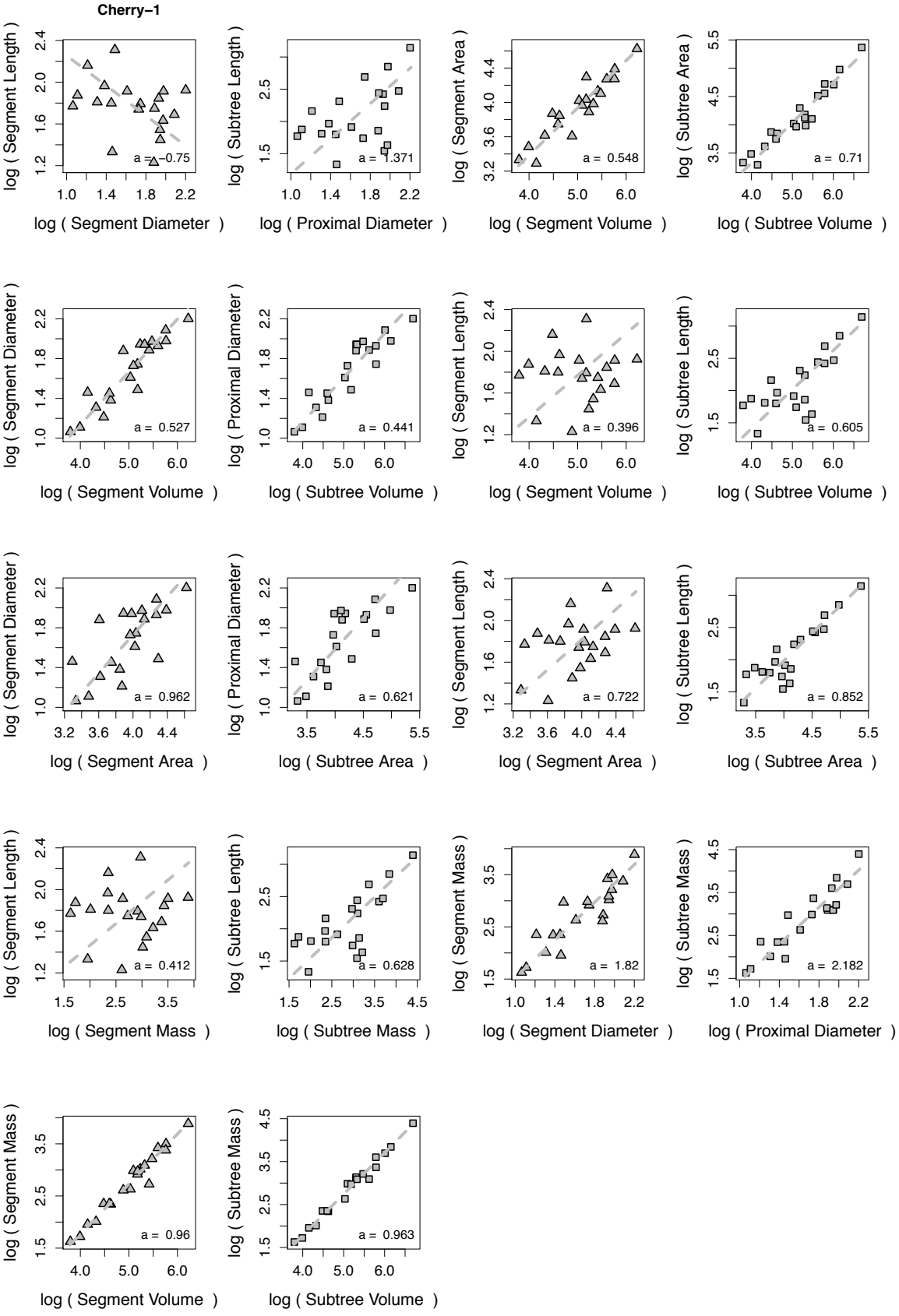

Apple−15 (JM.8)
log (Segment Length)
log (Segment Diameter)
a = 0.972
log (Subtree Length)
log (Proximal Diameter)
a = 1.824
log (Segment Area)
log (Segment Volume)
a = 0.608
log (Subtree Area)
log (Subtree Volume)
a = 0.793
log (Segment Diameter)
log (Segment Volume)
a = 0.497
log (Proximal Diameter)
log (Subtree Volume)
a = 0.372
log (Segment Length)
log (Segment Volume)
a = 0.482
log (Subtree Length)
log (Subtree Volume)
a = 0.678
log (Segment Diameter)
log (Segment Area)
a = 0.817
log (Proximal Diameter)
log (Subtree Area)
a = 0.468
log (Segment Length)
log (Segment Area)
a = 0.793
log (Subtree Length)
log (Subtree Area)
a = 0.854
log (Segment Length)
log (Segment Mass)
a = 0.49
log (Subtree Length)
log (Subtree Mass)
a = 0.685
log (Segment Mass)
log (Segment Diameter)
a = 1.982
log (Subtree Mass)
log (Proximal Diameter)
a = 2.664
log (Segment Mass)
log (Segment Volume)
a = 0.984
log (Subtree Mass)
log (Subtree Volume)
a = 0.99

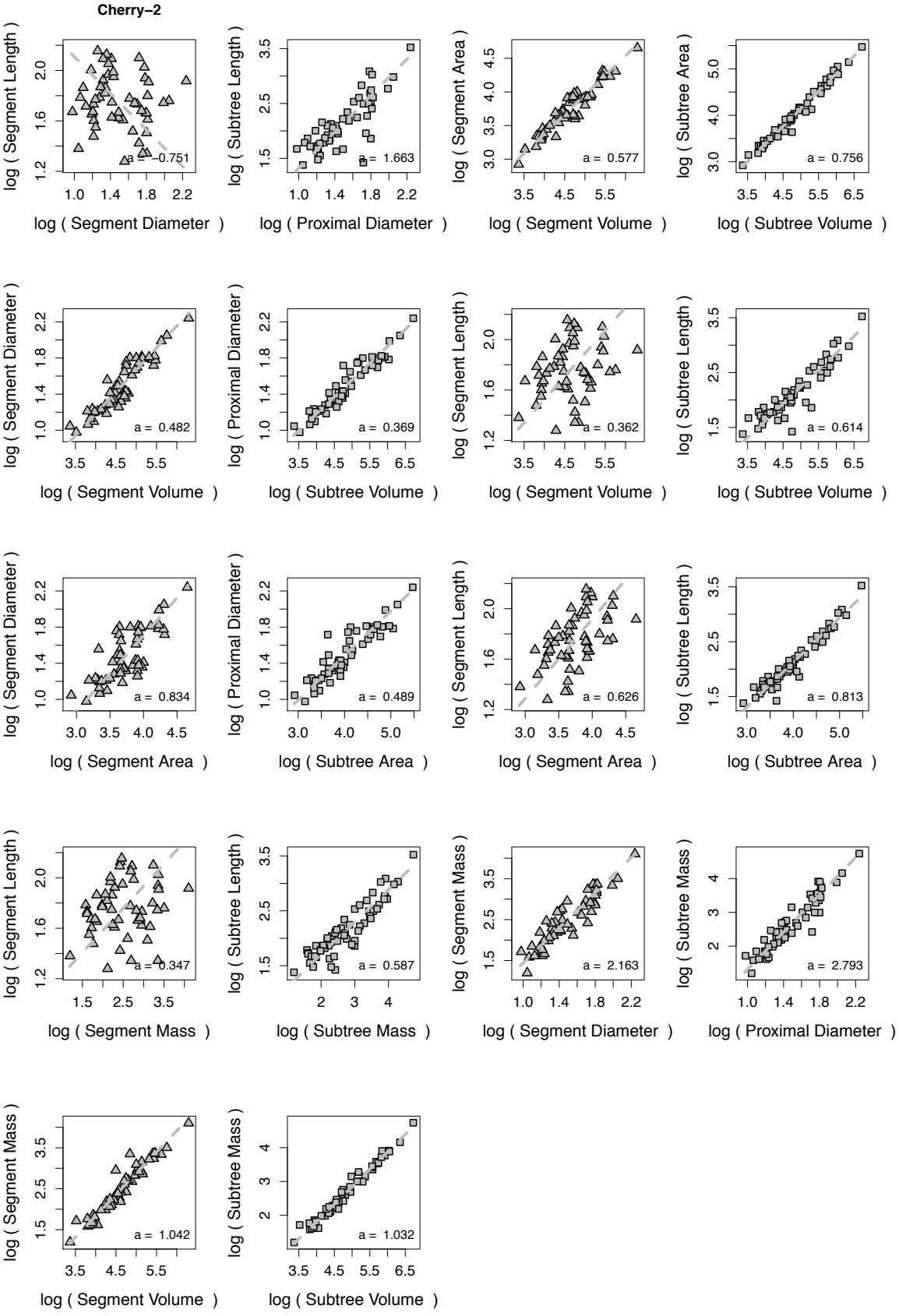

Apple−16 (JM.8)
log (Segment Length)
log (Segment Diameter)
a = −0.907
log (Subtree Length)
log (Proximal Diameter)
a = 1.818
log (Segment Area)
log (Segment Volume)
a = 0.569
log (Subtree Area)
log (Subtree Volume)
a = 0.798
log (Segment Diameter)
log (Segment Volume)
a = 0.548
log (Proximal Diameter)
log (Subtree Volume)
a = 0.386
log (Segment Length)
log (Segment Volume)
a = 0.497
log (Subtree Length)
log (Subtree Volume)
a = 0.701
log (Segment Diameter)
log (Segment Area)
a = 0.964
log (Proximal Diameter)
log (Subtree Area)
a = 0.483
log (Segment Length)
log (Segment Area)
a = 0.874
log (Subtree Length)
log (Subtree Area)
a = 0.879
log (Segment Length)
log (Segment Mass)
a = 0.544
log (Subtree Length)
log (Subtree Mass)
a = 0.734
log (Segment Mass)
log (Segment Diameter)
a = 1.667
log (Subtree Mass)
log (Proximal Diameter)
a = 2.476
log (Segment Mass)
log (Segment Volume)
a = 0.913
log (Subtree Mass)
log (Subtree Volume)
a = 0.955

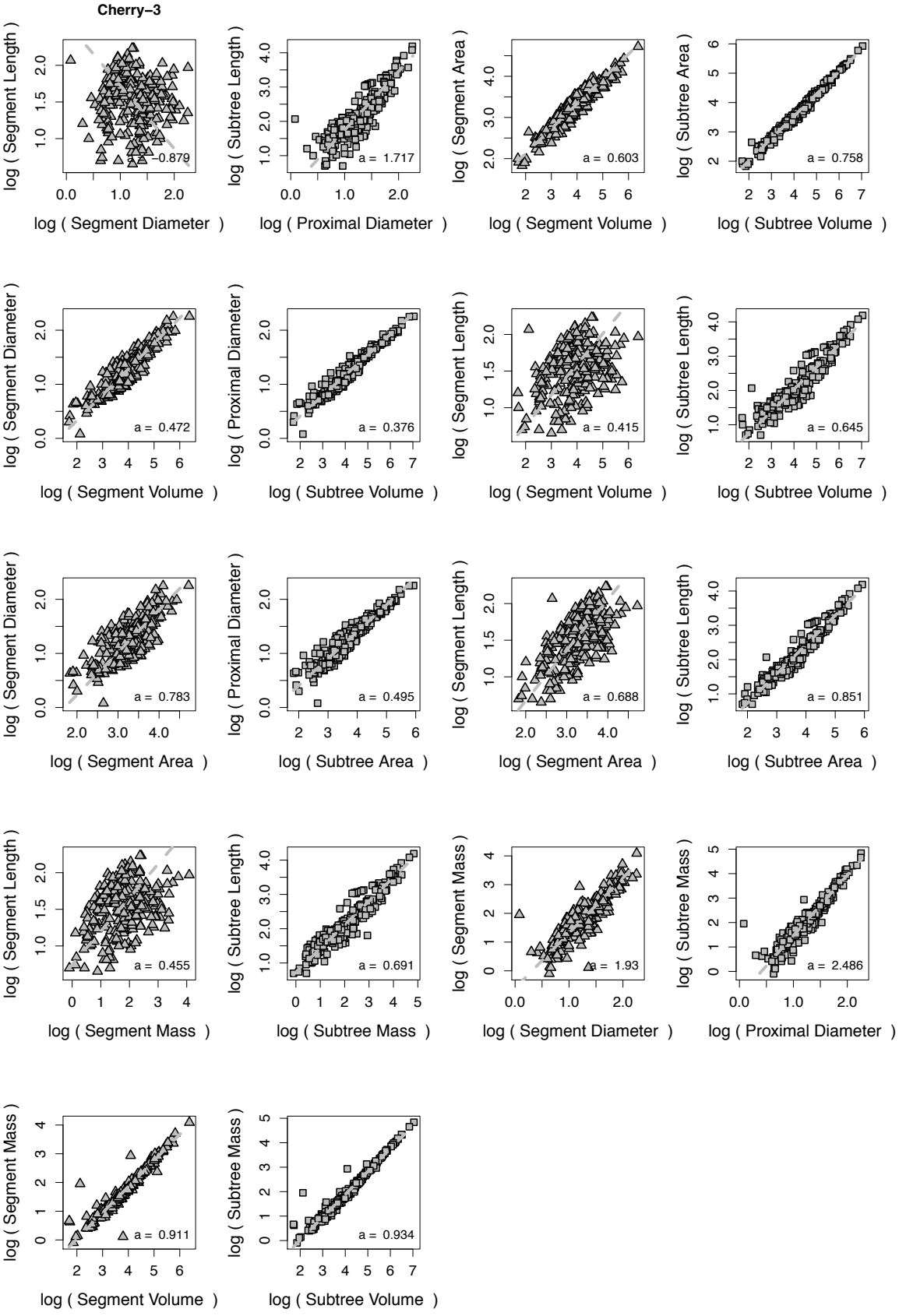

Apple−17 (PiAu.5683)
log (Segment Length)
log (Segment Diameter)
a = −1.305
log (Subtree Length)
log (Proximal Diameter)
a = 1.968
log (Segment Area)
log (Segment Volume)
a = 0.661
log (Subtree Area)
log (Subtree Volume)
a = 0.841
log (Segment Diameter)
log (Segment Volume)
a = 0.656
log (Proximal Diameter)
log (Subtree Volume)
a = 0.393
log (Segment Length)
log (Segment Volume)
a = 0.856
log (Subtree Length)
log (Subtree Volume)
a = 0.774
log (Segment Diameter)
log (Segment Area)
a = 0.992
log (Proximal Diameter)
log (Subtree Area)
a = 0.468
log (Segment Length)
log (Segment Area)
a = 1.295
log (Subtree Length)
log (Subtree Area)
a = 0.92
log (Segment Length)
log (Segment Mass)
a = −0.876
log (Subtree Length)
log (Subtree Mass)
a = 0.786
log (Segment Mass)
log (Segment Diameter)
a = 1.489
log (Subtree Mass)
log (Proximal Diameter)
a = 2.505
log (Segment Mass)
log (Segment Volume)
a = 0.976
log (Subtree Mass)
log (Subtree Volume)
a = 0.985

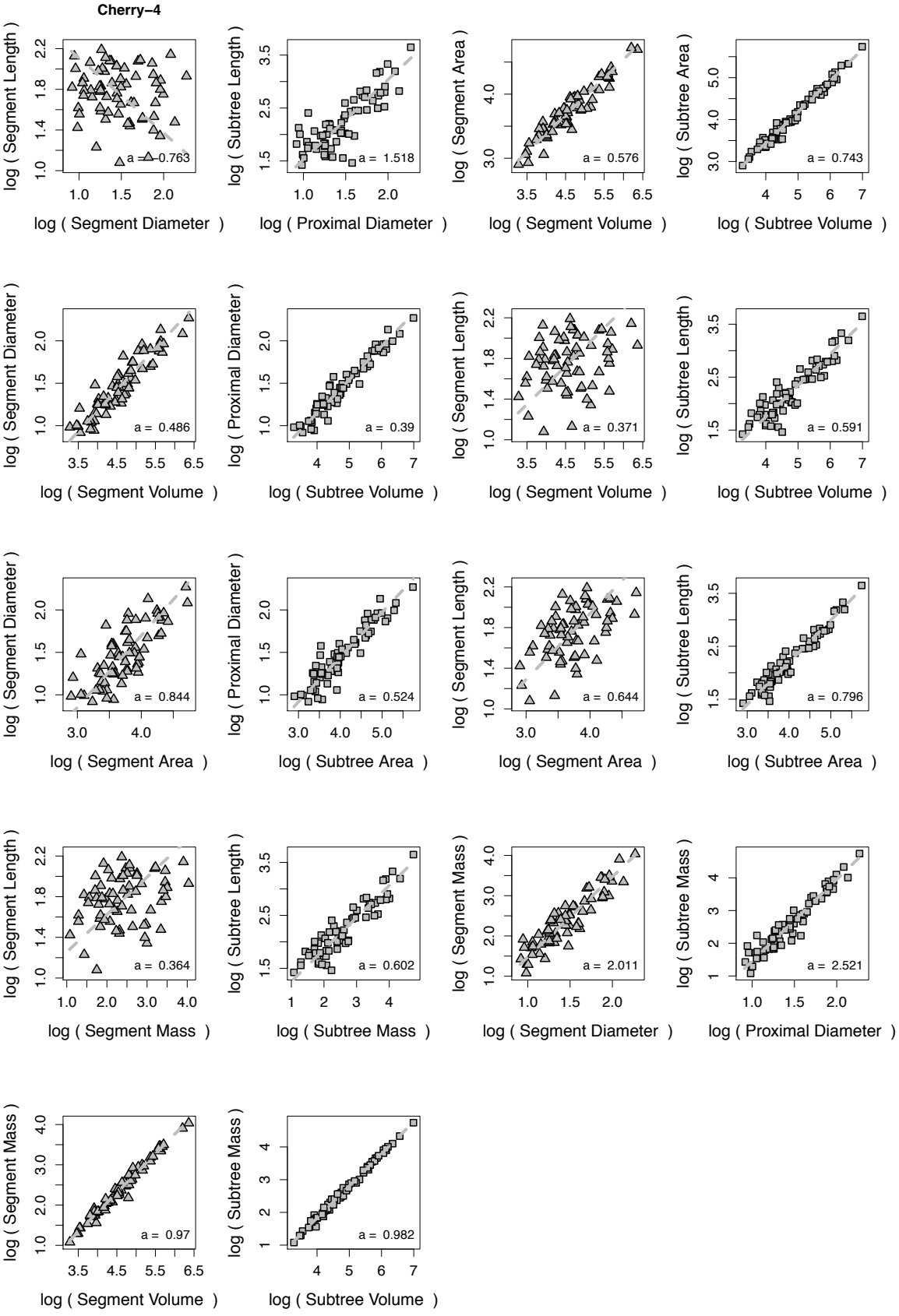

Apple−18 (PiAu.5683)
log (Segment Length)
log (Segment Diameter)
a = −1.07
log (Subtree Length)
log (Proximal Diameter)
a = 1.735
log (Segment Area)
log (Segment Volume)
a = 0.611
log (Subtree Area)
log (Subtree Volume)
a = 0.794
log (Segment Diameter)
log (Segment Volume)
a = 0.544
log (Proximal Diameter)
log (Subtree Volume)
a = 0.397
log (Segment Length)
log (Segment Volume)
a = 0.583
log (Subtree Length)
log (Subtree Volume)
a = 0.688
log (Segment Diameter)
log (Segment Area)
a = 0.891
log (Proximal Diameter)
log (Subtree Area)
a = 0.499
log (Segment Length)
log (Segment Area)
a = 0.954
log (Subtree Length)
log (Subtree Area)
a = 0.866
log (Segment Length)
log (Segment Mass)
a = 0.604
log (Subtree Length)
log (Subtree Mass)
a = 0.694
log (Segment Mass)
log (Segment Diameter)
a = 1.773
log (Subtree Mass)
log (Proximal Diameter)
a = 2.498
log (Segment Mass)
log (Segment Volume)
a = 0.965
log (Subtree Mass)
log (Subtree Volume)
a = 0.991


Apple−19 (PiAu.5683)
log (Segment Length)
a = −1.267
log (Segment Diameter)
log (Subtree Length)
a = 1.773
log (Proximal Diameter)
log (Segment Area)
a = 0.663
log (Segment Volume)
log (Subtree Area)
a = 0.796
log (Subtree Volume)
log (Segment Diameter)
a = 0.554
log (Segment Volume)
log (Proximal Diameter)
a = 0.389
log (Subtree Volume)
log (Segment Length)
a = 0.702
log (Segment Volume)
log (Subtree Length)
a = 0.69
log (Subtree Volume)
log (Segment Diameter)
a = 0.836
log (Segment Area)
log (Proximal Diameter)
a = 0.489
log (Subtree Area)
log (Segment Length)
a = 1.059
log (Segment Area)
log (Subtree Length)
a = 0.867
log (Subtree Area)
log (Segment Length)
a = 0.763
log (Segment Mass)
log (Subtree Length)
a = 0.728
log (Subtree Mass)
log (Segment Mass)
a = 1.661
log (Segment Diameter)
log (Subtree Mass)
a = 2.436
log (Proximal Diameter)
log (Segment Mass)
a = 0.92
log (Segment Volume)
log (Subtree Mass)
a = 0.948
log (Subtree Volume)


Cherry−1
log (Segment Length)
log (Segment Diameter)
a = −0.75
log (Subtree Length)
log (Proximal Diameter)
a = 1.371
log (Segment Area)
log (Segment Volume)
a = 0.548
log (Subtree Area)
log (Subtree Volume)
a = 0.71
log (Segment Diameter)
log (Segment Volume)
a = 0.527
log (Proximal Diameter)
log (Subtree Volume)
a = 0.441
log (Segment Length)
log (Segment Volume)
a = 0.396
log (Subtree Length)
log (Subtree Volume)
a = 0.605
log (Segment Diameter)
log (Segment Area)
a = 0.962
log (Proximal Diameter)
log (Subtree Area)
a = 0.621
log (Segment Length)
log (Segment Area)
a = 0.722
log (Subtree Length)
log (Subtree Area)
a = 0.852
log (Segment Length)
log (Segment Mass)
a = 0.412
log (Subtree Length)
log (Subtree Mass)
a = 0.628
log (Segment Mass)
log (Segment Diameter)
a = 1.82
log (Subtree Mass)
log (Proximal Diameter)
a = 2.182
log (Segment Mass)
log (Segment Volume)
a = 0.96
log (Subtree Mass)
log (Subtree Volume)
a = 0.963


Cherry−2
log (Segment Length)
log (Segment Diameter)
a = −0.751
log (Subtree Length)
log (Proximal Diameter)
a = 1.663
log (Segment Area)
log (Segment Volume)
a = 0.577
log (Subtree Area)
log (Subtree Volume)
a = 0.756
log (Segment Diameter)
log (Segment Volume)
a = 0.482
log (Proximal Diameter)
log (Subtree Volume)
a = 0.369
log (Segment Length)
log (Segment Volume)
a = 0.362
log (Subtree Length)
log (Subtree Volume)
a = 0.614
log (Segment Diameter)
log (Segment Area)
a = 0.834
log (Proximal Diameter)
log (Subtree Area)
a = 0.489
log (Segment Length)
log (Segment Area)
a = 0.626
log (Subtree Length)
log (Subtree Area)
a = 0.813
log (Segment Length)
log (Segment Mass)
a = 0.347
log (Subtree Length)
log (Subtree Mass)
a = 0.587
log (Segment Mass)
log (Segment Diameter)
a = 2.163
log (Subtree Mass)
log (Proximal Diameter)
a = 2.793
log (Segment Mass)
log (Segment Volume)
a = 1.042
log (Subtree Mass)
log (Subtree Volume)
a = 1.032


Cherry−3
log (Segment Length)
log (Segment Diameter)
−0.879
log (Subtree Length)
log (Proximal Diameter)
a = 1.717
log (Segment Area)
log (Segment Volume)
a = 0.603
log (Subtree Area)
log (Subtree Volume)
a = 0.758
log (Segment Diameter)
log (Segment Volume)
a = 0.472
log (Proximal Diameter)
log (Subtree Volume)
a = 0.376
log (Segment Length)
log (Segment Volume)
a = 0.415
log (Subtree Length)
log (Subtree Volume)
a = 0.645
log (Segment Diameter)
log (Segment Area)
a = 0.783
log (Proximal Diameter)
log (Subtree Area)
a = 0.495
log (Segment Length)
log (Segment Area)
a = 0.688
log (Subtree Length)
log (Subtree Area)
a = 0.851
log (Segment Length)
log (Segment Mass)
a = 0.455
log (Subtree Length)
log (Subtree Mass)
a = 0.691
log (Segment Mass)
log (Segment Diameter)
a = 1.93
log (Subtree Mass)
log (Proximal Diameter)
a = 2.486
log (Segment Mass)
log (Segment Volume)
a = 0.911
log (Subtree Mass)
log (Subtree Volume)
a = 0.934


Cherry−4
log (Segment Length)
log (Segment Diameter)
a = 0.763
log (Subtree Length)
log (Proximal Diameter)
a = 1.518
log (Segment Area)
log (Segment Volume)
a = 0.576
log (Subtree Area)
log (Subtree Volume)
a = 0.743
log (Segment Diameter)
log (Segment Volume)
a = 0.486
log (Proximal Diameter)
log (Subtree Volume)
a = 0.39
log (Segment Length)
log (Segment Volume)
a = 0.371
log (Subtree Length)
log (Subtree Volume)
a = 0.591
log (Segment Diameter)
log (Segment Area)
a = 0.844
log (Proximal Diameter)
log (Subtree Area)
a = 0.524
log (Segment Length)
log (Segment Area)
a = 0.644
log (Subtree Length)
log (Subtree Area)
a = 0.796
log (Segment Length)
log (Segment Mass)
a = 0.364
log (Subtree Length)
log (Subtree Mass)
a = 0.602
log (Segment Mass)
log (Segment Diameter)
a = 2.011
log (Subtree Mass)
log (Proximal Diameter)
a = 2.521
log (Segment Mass)
log (Segment Volume)
a = 0.97
log (Subtree Mass)
log (Subtree Volume)
a = 0.982

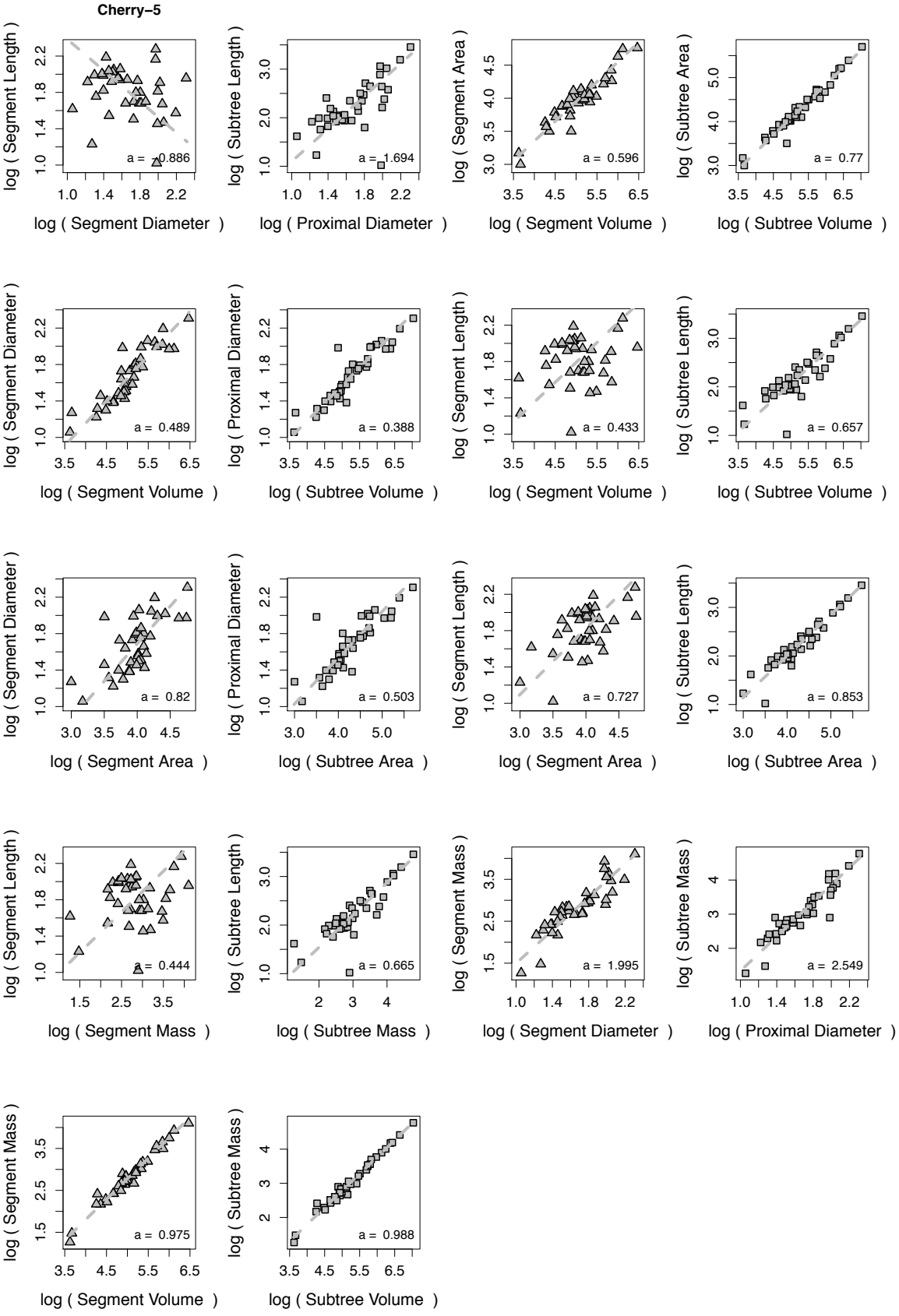
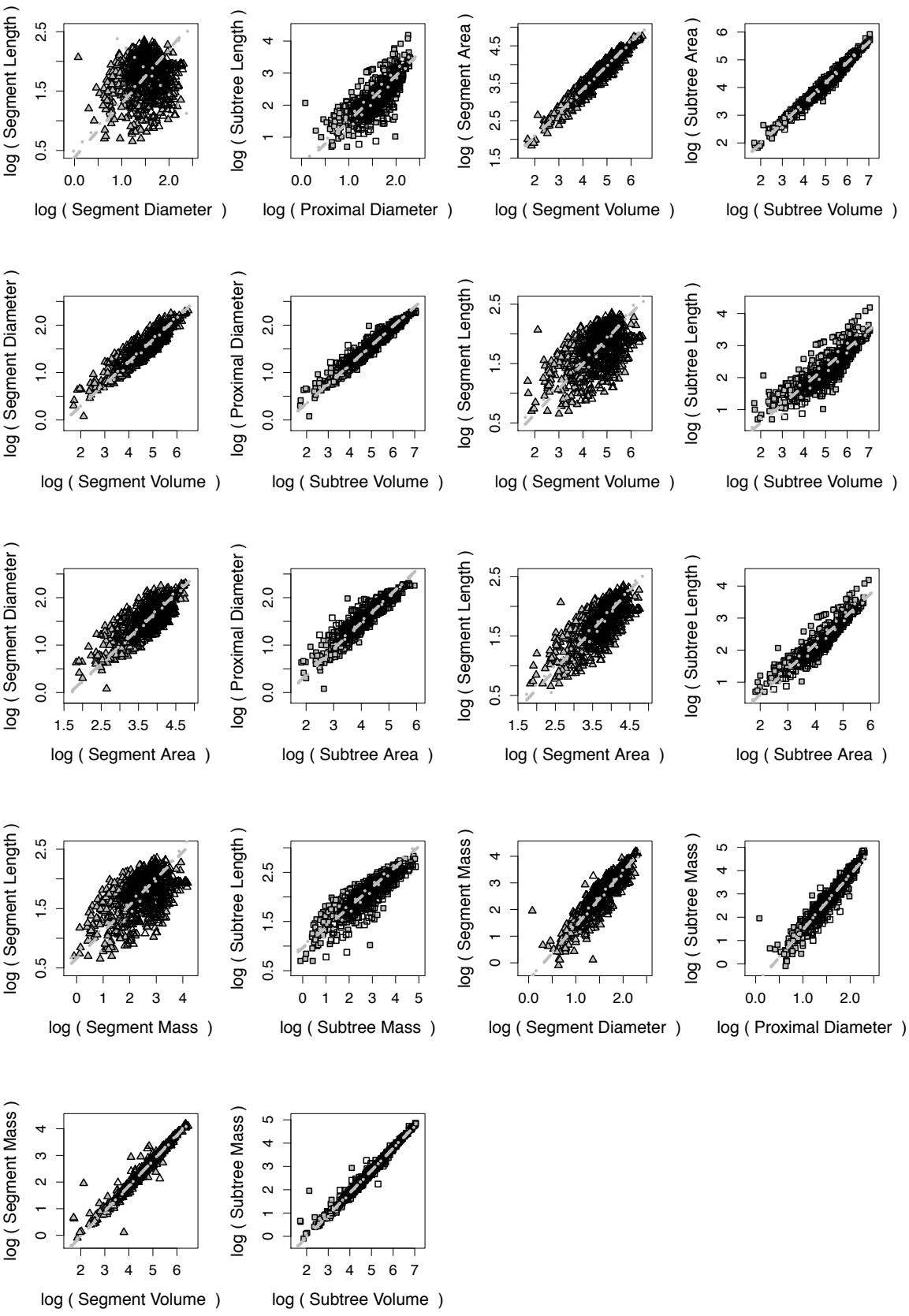

Cherry−5
log (Segment Length)
log (Segment Diameter)
a = 0.886
log (Subtree Length)
log (Proximal Diameter)
a = 1.694
log (Segment Area)
log (Segment Volume)
a = 0.596
log (Subtree Area)
log (Subtree Volume)
a = 0.77
log (Segment Diameter)
log (Segment Volume)
a = 0.489
log (Proximal Diameter)
log (Subtree Volume)
a = 0.388
log (Segment Length)
log (Segment Volume)
a = 0.433
log (Subtree Length)
log (Subtree Volume)
a = 0.657
log (Segment Diameter)
log (Segment Area)
a = 0.82
log (Proximal Diameter)
log (Subtree Area)
a = 0.503
log (Segment Length)
log (Segment Area)
a = 0.727
log (Subtree Length)
log (Subtree Area)
a = 0.853
log (Segment Length)
log (Segment Mass)
a = 0.444
log (Subtree Length)
log (Subtree Mass)
a = 0.665
log (Segment Mass)
log (Segment Diameter)
a = 1.995
log (Subtree Mass)
log (Proximal Diameter)
a = 2.549
log (Segment Mass)
log (Segment Volume)
a = 0.975
log (Subtree Mass)
log (Subtree Volume)
a = 0.988

Figure S4. Data visualization for each allometric relationship at a species level. Data points correspond to branches at each branch-level classification. Segment level estimates are marked by triangles and subtree by squares with tart cherry shaded and apple open symbol. Dashed lines mark the estimated exponent (*a*) of the group. Dotted lines mark the estimated *a* of the species.


log (Segment Length)
log (Segment Diameter)
log (Subtree Length)
log (Proximal Diameter)
log (Segment Area)
log (Segment Volume)
log (Subtree Area)
log (Subtree Volume)
log (Segment Diameter)
log (Segment Volume)
log (Proximal Diameter)
log (Subtree Volume)
log (Segment Length)
log (Segment Volume)
log (Subtree Length)
log (Subtree Volume)
log (Segment Diameter)
log (Segment Area)
log (Proximal Diameter)
log (Subtree Area)
log (Segment Length)
log (Segment Area)
log (Subtree Length)
log (Subtree Area)
log (Segment Length)
log (Segment Mass)
log (Subtree Length)
log (Subtree Mass)
log (Segment Mass)
log (Segment Diameter)
log (Subtree Mass)
log (Proximal Diameter)
log (Segment Mass)
log (Segment Volume)
log (Subtree Mass)
log (Subtree Volume)