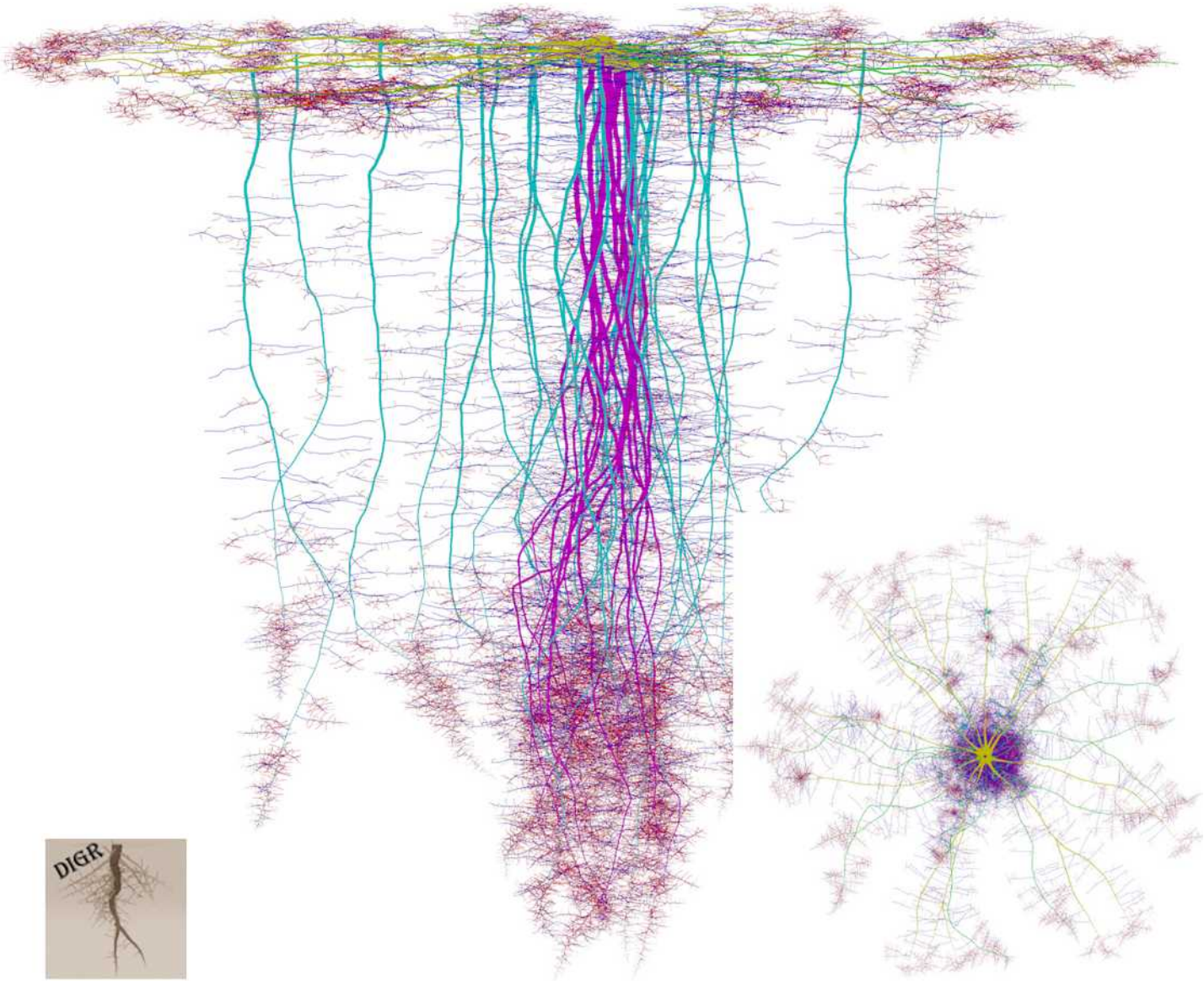
For those who want even more

Eucalyptus root system Parametrisation

How to get this ?



A good way to use DigR

1. AR-CHI-TEC-TU-RAL A-NA-LY-SIS
2. Create all types
3. For each type
   1. Adjust topology of the type
   2. Adjust branching
   3. Adjust geometry

Think about regular save !

Architectural analysis

7 types

0.Colar

1.Late plagiotropics (yellow)

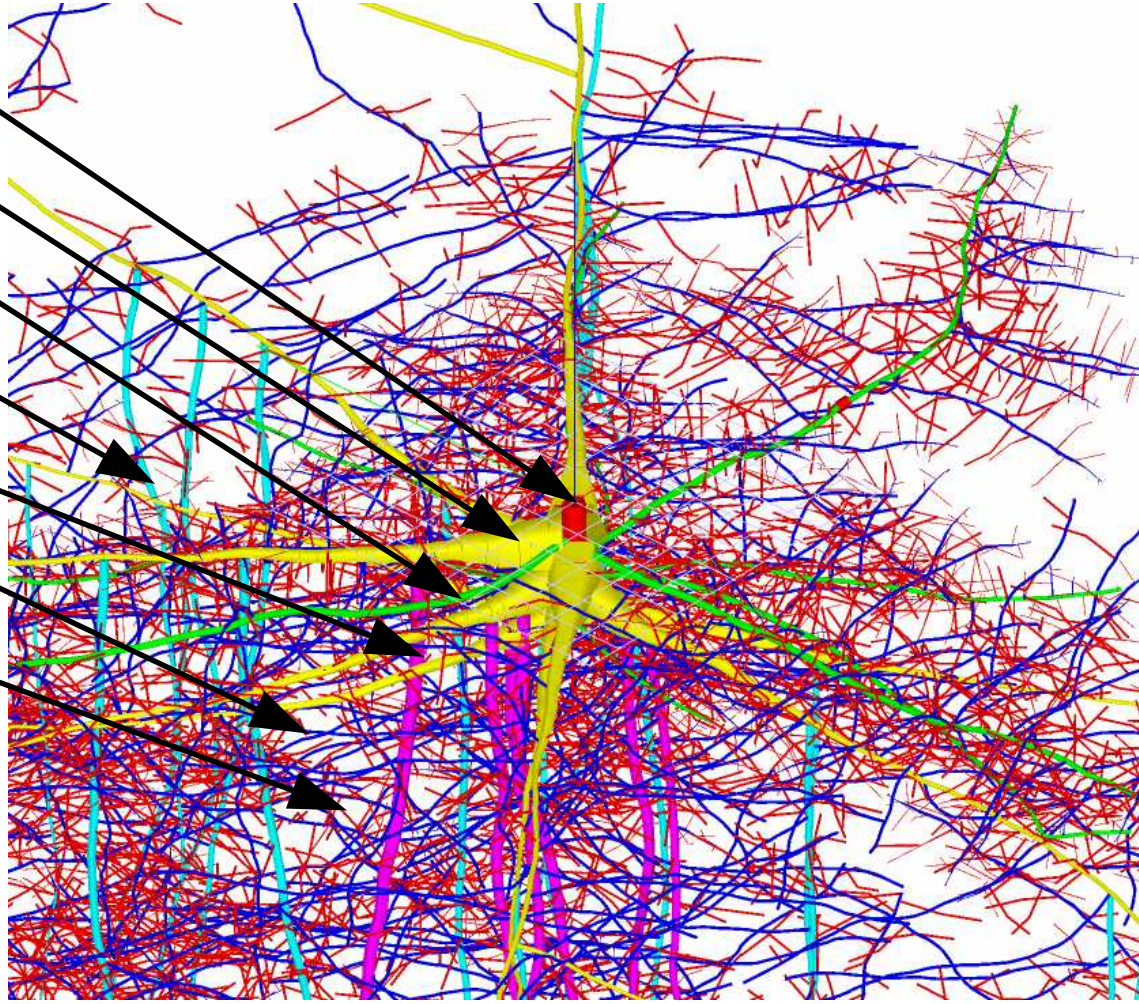
2.Cable like plagiotropics (green)

3.Distal secondary taproot (cyan)

4.Proximal secondary taproot (violet)

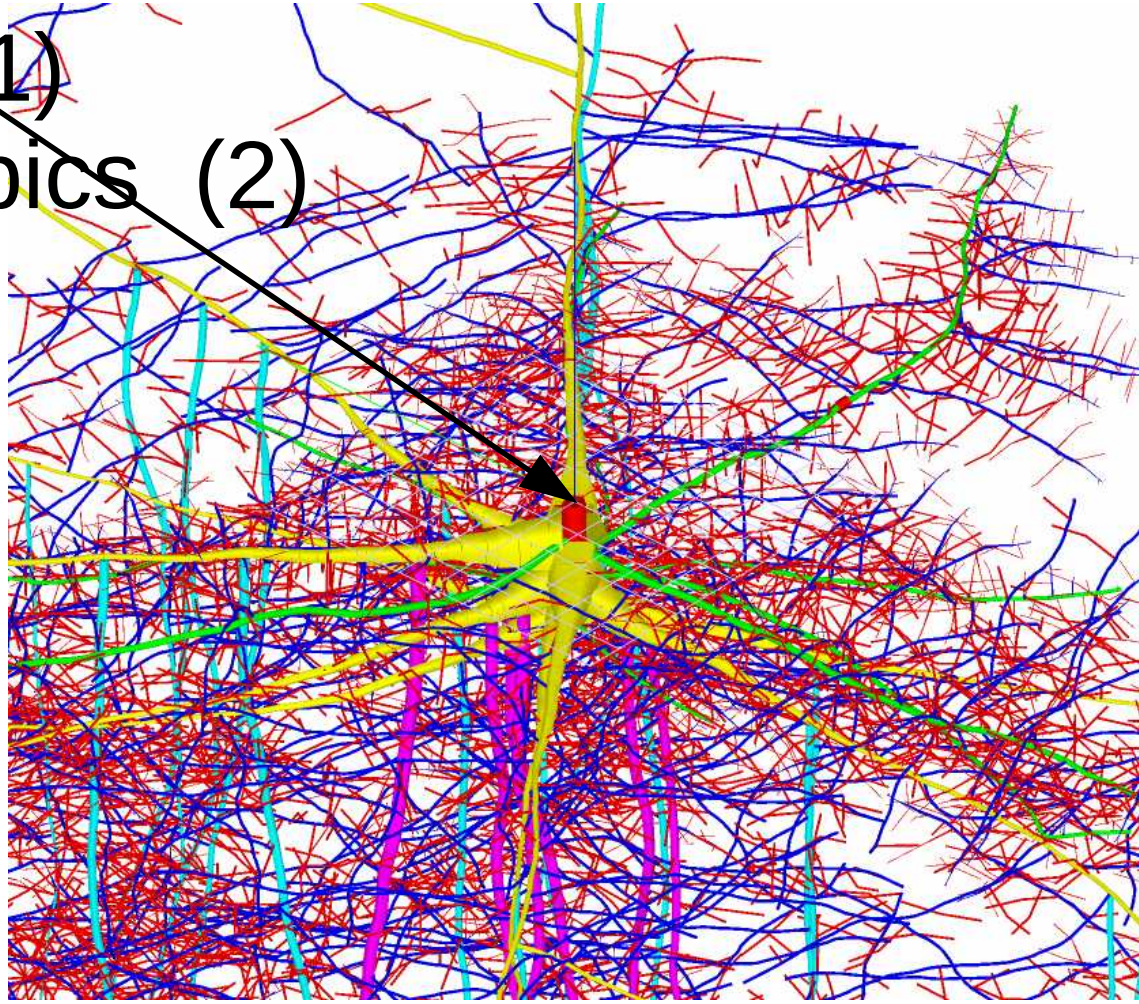
5.Fine longs (blue)

6.Fine shorts (red)



Architectural unit

colar bears :
- late plagiotropics (1)
- cable like plagiotropics (2)



0.Colar

1.Late plagiotropics (yellow)

2.Cable like plagiotropics (green)

3.Distal secondary taproot (cyan)

4.Proximal secondary taproot (violet)

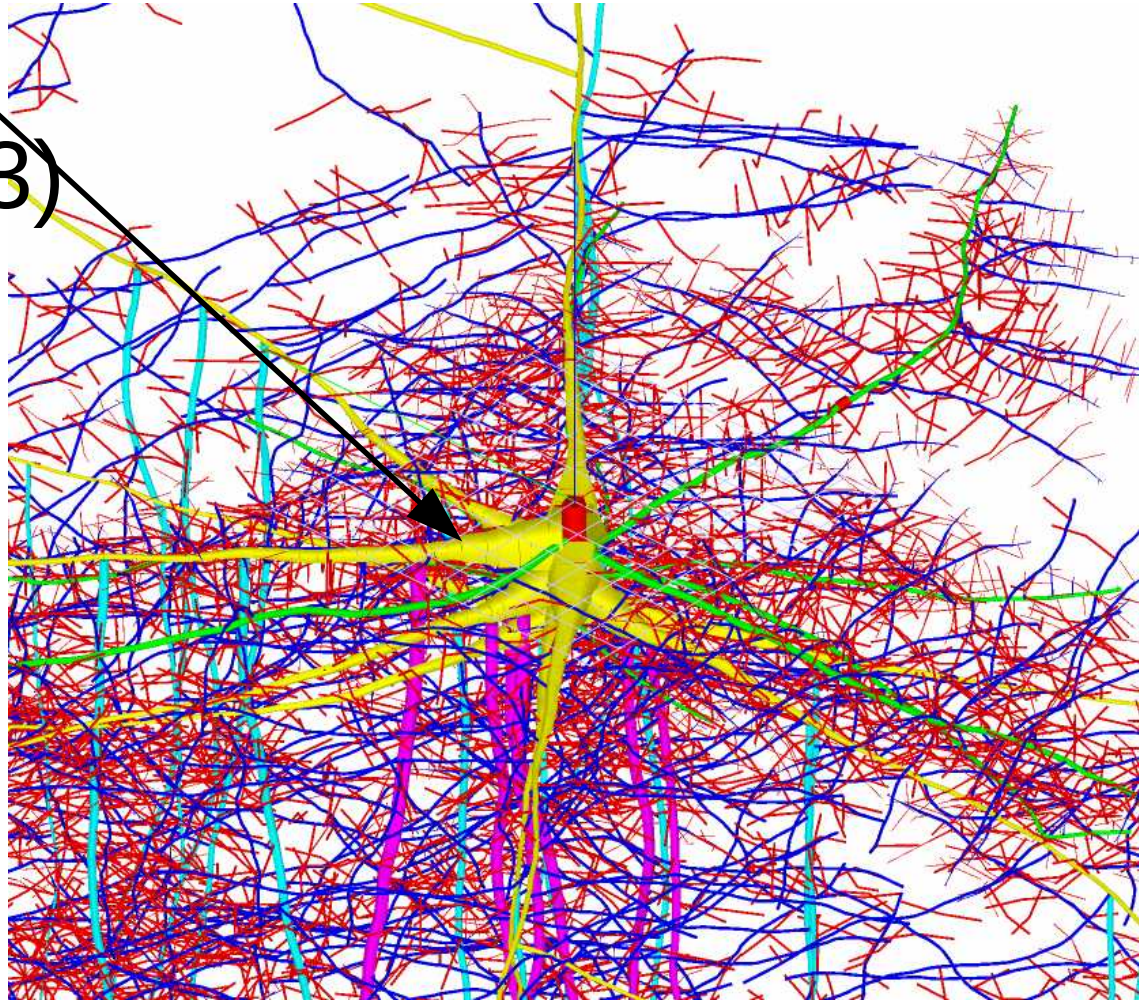
5.Fine longs (blue)

6.Fine shorts (red)

Architectural unit

Late plagiotropics bear :

- Proximal taproots (3)
- Distal taproots (4)
- Fine longs (5)
- Fine shorts (6)



0.Polar

1.Late plagiotropics (yellow)

2.Cable like plagiotropics (green)

3.Distal secondary taproot (cyan)

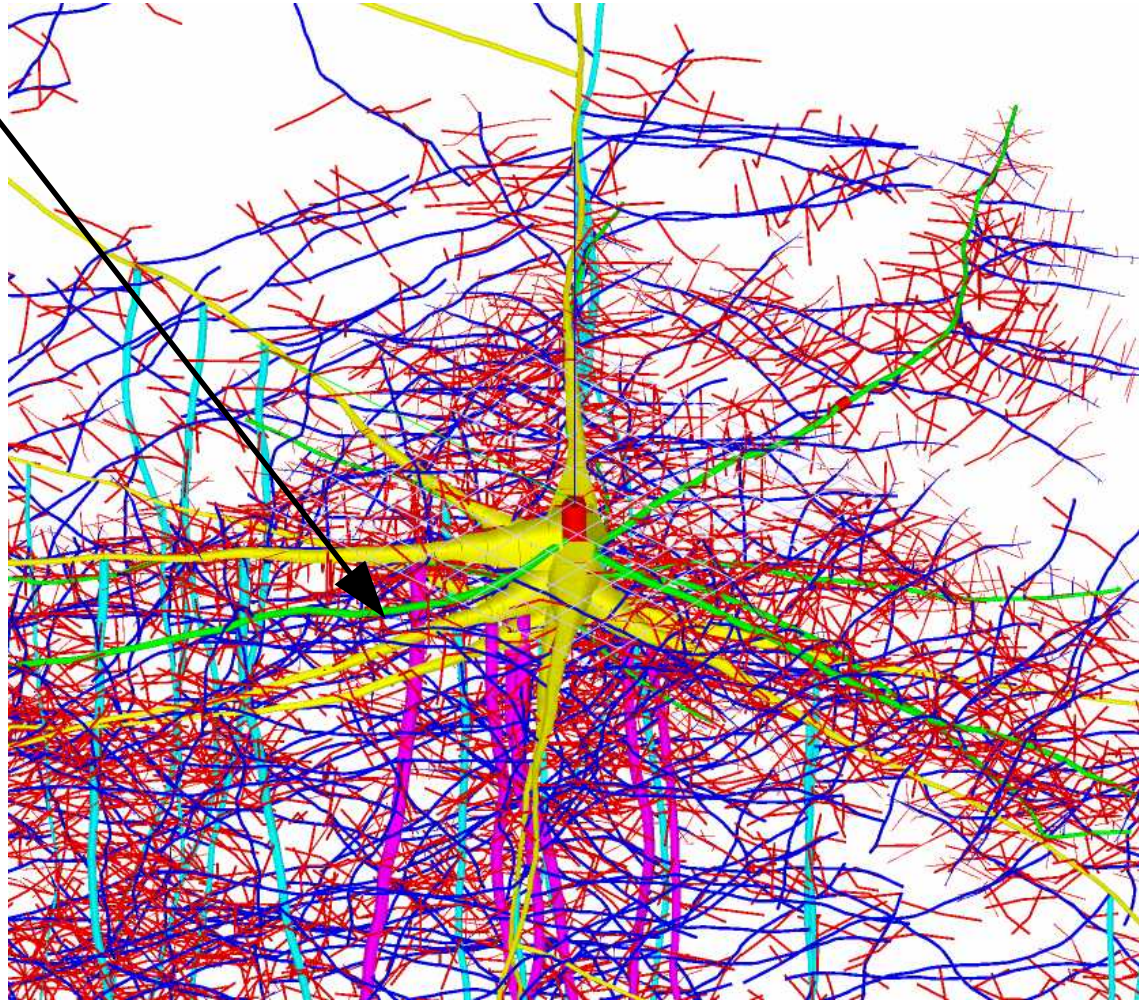
4.Proximal secondary taproot (violet)

5.Fine longs (blue)

6.Fine shorts (red)

Architectural unit

Cable like plagiotropics bear :
- Fines longs (5)
- Fines shorts (6)



0.Colar

1.Late plagiotropics (yellow)

2.Cable like plagiotropics (green)

3.Distal secondary taproot (cyan)

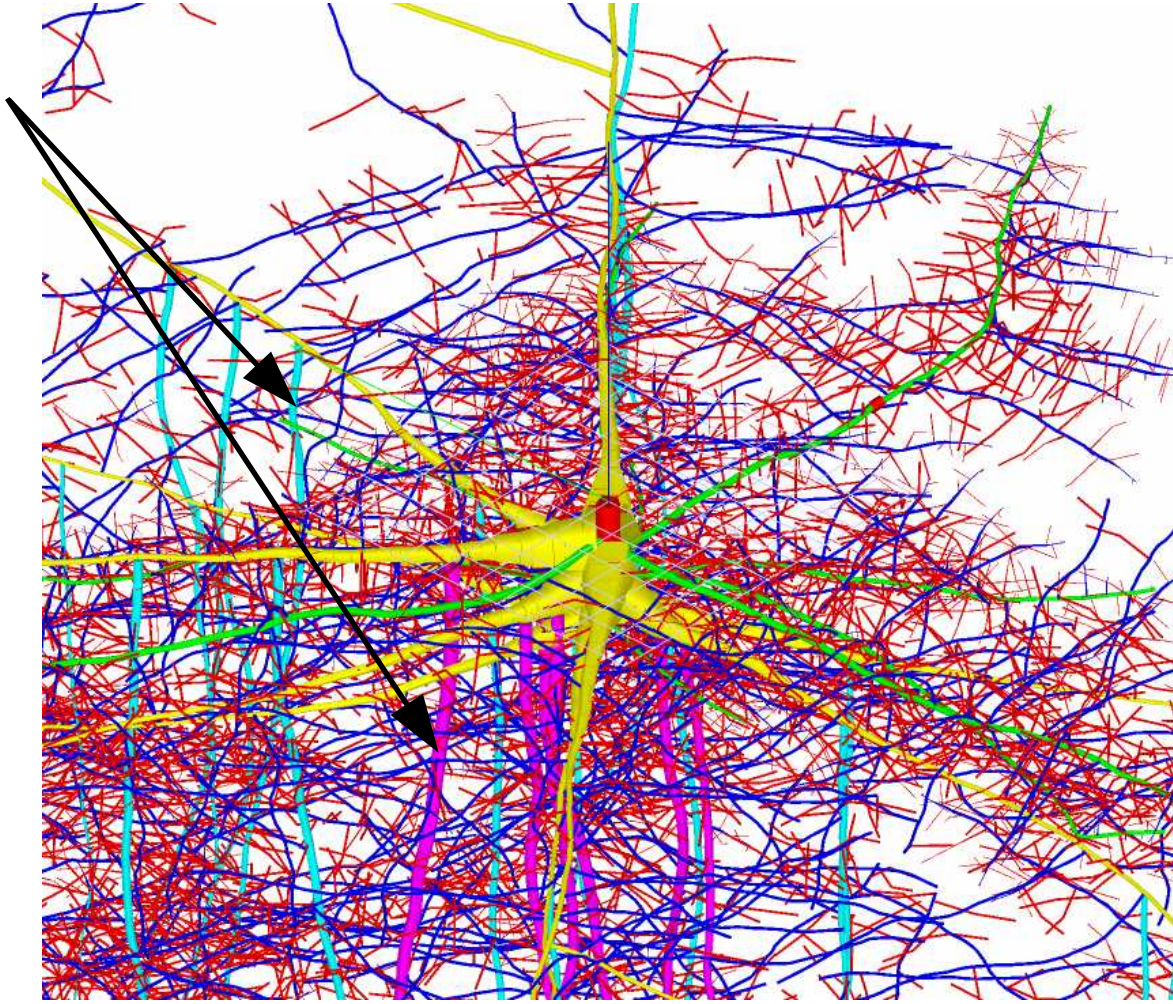
4.Proximal secondary taproot (violet)

5.Fine longs (blue)

6.Fine shorts (red)

Architectural unit

Secondary taproots bear :
- Fine longs (5)
- Fine shorts (6)



0.Colar

1.Late plagiotropics (yellow)

2.Cable like plagiotropics (green)

3.Distal secondary taproot (cyan)

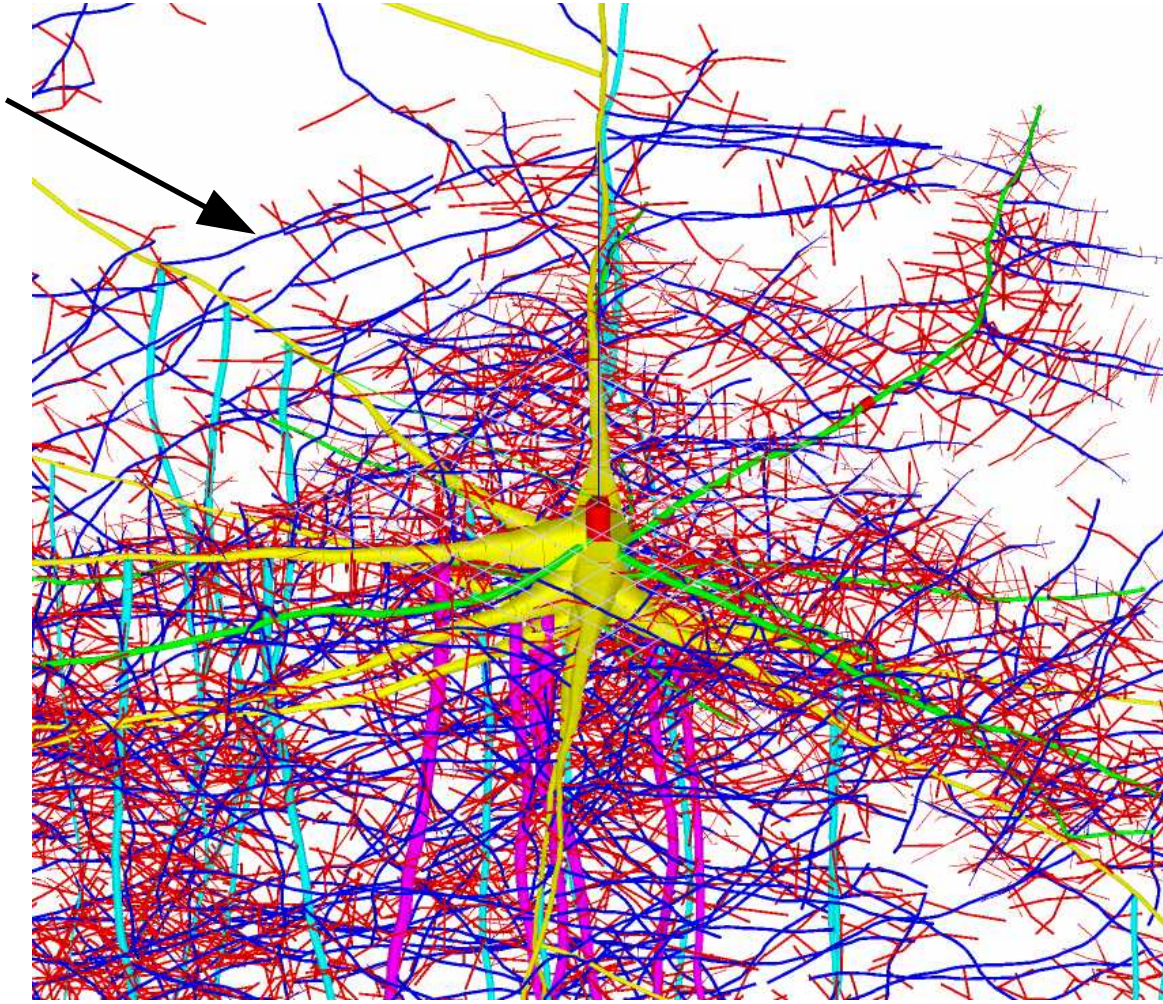
4.Proximal secondary taproot (violet)

5.Fine longs (blue)

6.Fine shorts (red)

Architectural unit

Fine longs bear :
- Fine shorts (6)



0.Colar

1.Late plagiotropics (yellow)

2.Cable like plagiotropics (green)

3.Distal secondary taproot (cyan)

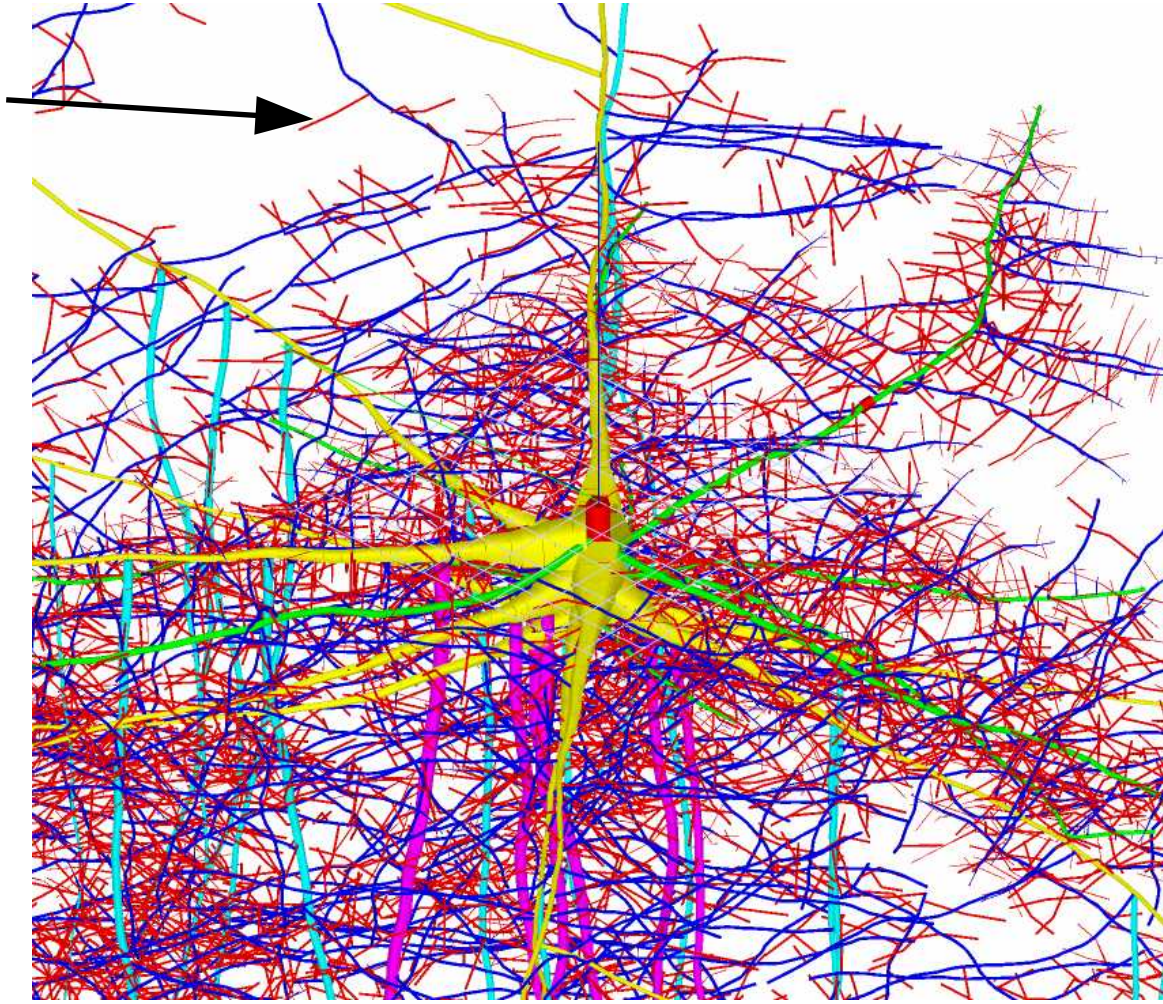
4.Proximal secondary taproot (violet)

5.Fine longs (blue)

6.Fine shorts (red)

Architectural unit

Fine shorts bear :
- nothing



0.Colar

1.Late plagiotropics (yellow)

2.Cable like plagiotropics (green)

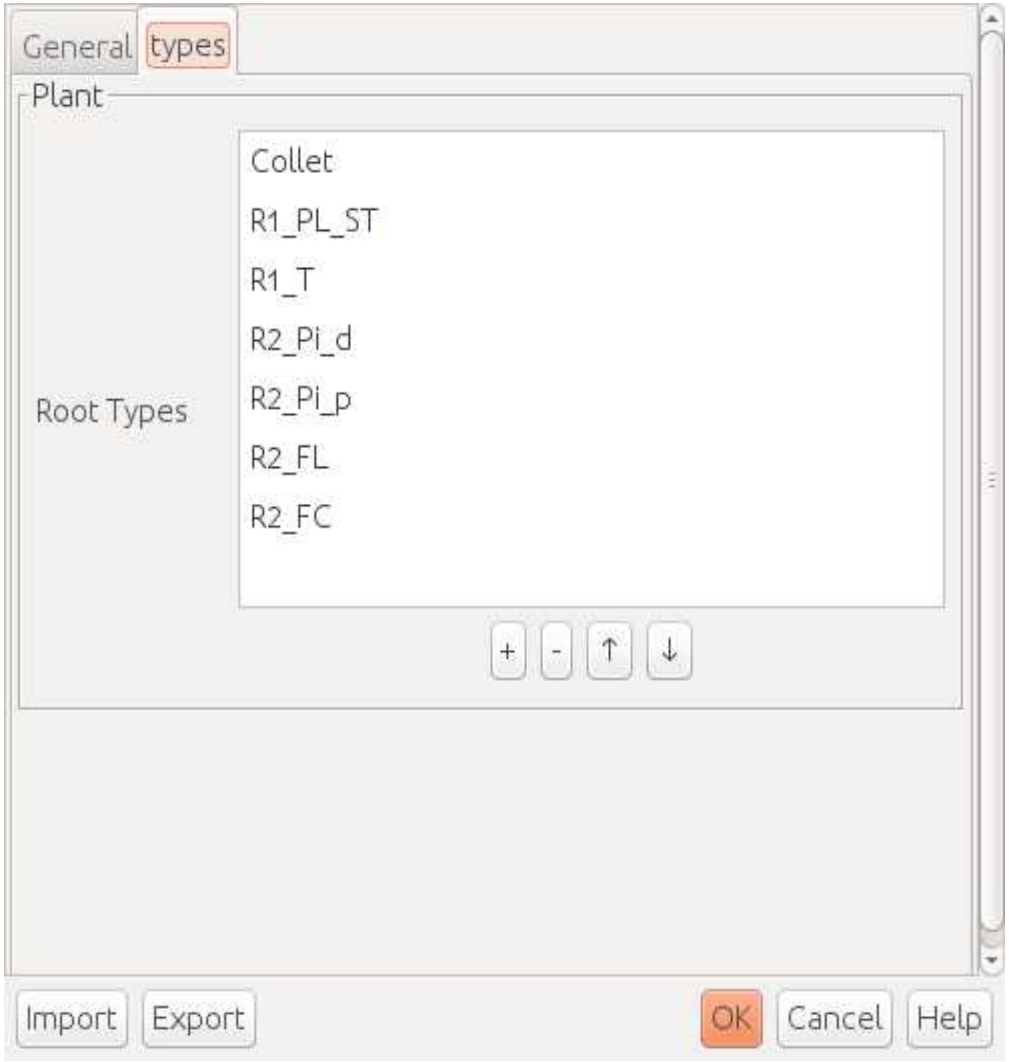
3.Distal secondary taproot (cyan)

4.Proximal secondary taproot (violet)

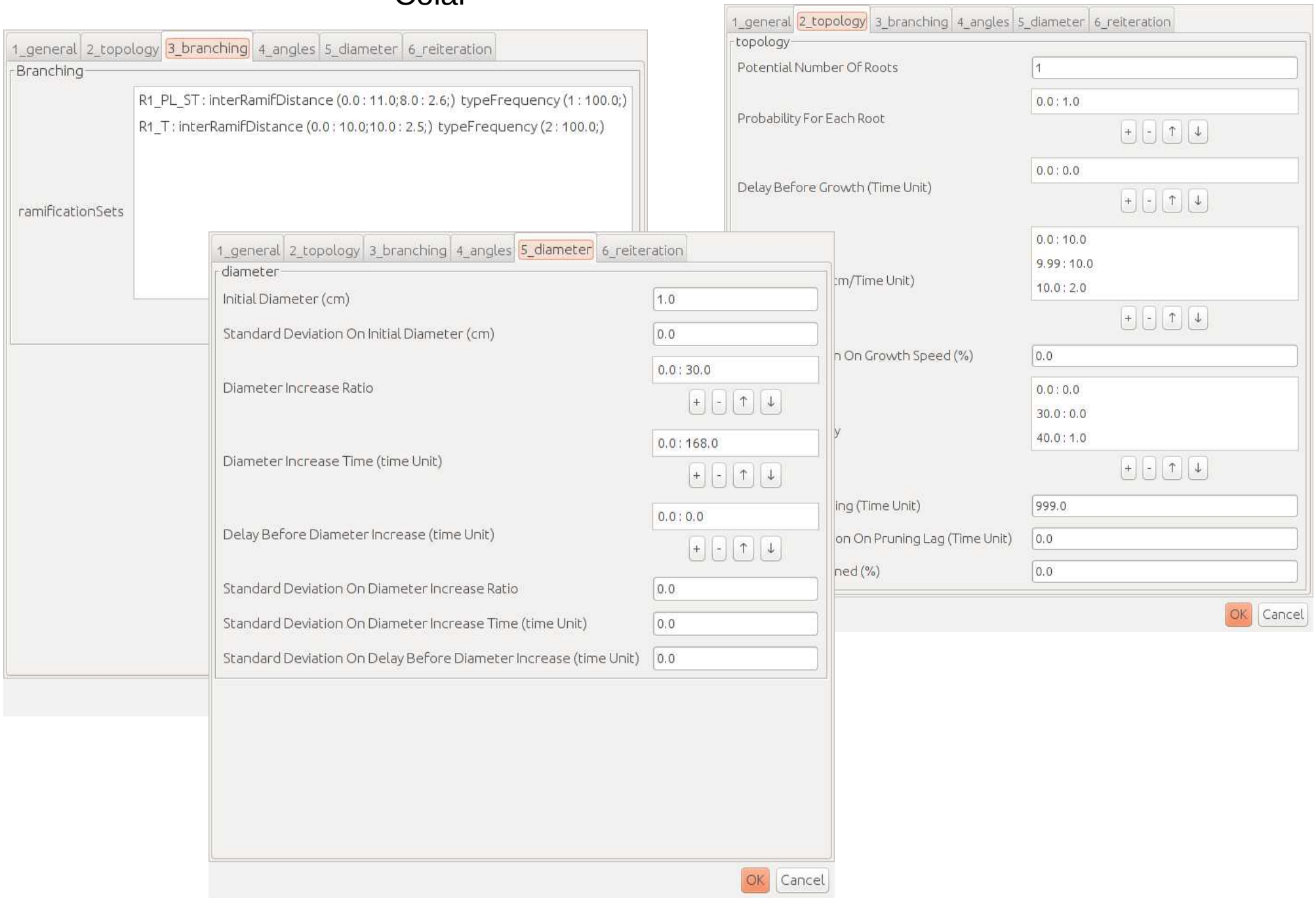
5.Fine longs (blue)

6.Fine shorts (red)

Create every types



Colar


1_general
2_topology
3_branching
4_angles
5_diameter
6_reiteration
Branching
ramificationSets
R1_PL_ST : interRamifDistance (0.0 : 11.0;8.0 : 2.6;) typeFrequency (1 : 100.0;)
R1_T : interRamifDistance (0.0 : 10.0;10.0 : 2.5;) typeFrequency (2 : 100.0;)
diameter
Initial Diameter (cm)
1.0
Standard Deviation On Initial Diameter (cm)
0.0
Diameter Increase Ratio
0.0 : 30.0
Diameter Increase Time (time Unit)
0.0 : 168.0
Delay Before Diameter Increase (time Unit)
0.0 : 0.0
Standard Deviation On Diameter Increase Ratio
0.0
Standard Deviation On Diameter Increase Time (time Unit)
0.0
Standard Deviation On Delay Before Diameter Increase (time Unit)
0.0
OK
Cancel
topology
Potential Number Of Roots
1
Probability For Each Root
0.0 : 1.0
Delay Before Growth (Time Unit)
0.0 : 0.0
0.0 : 10.0
9.99 : 10.0
10.0 : 2.0
0.0
0.0 : 0.0
30.0 : 0.0
40.0 : 1.0
999.0
0.0
0.0

Late plagiotropics

2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

Number Of Roots	1
	0.0 : 1.0
y For Each Root	
	0.0 : 0.0
fore Growth (Time Unit)	
	0.0 : 39.0 39.0 : 39.0 40.0 : 36.0 111.0 : 36.0 112.0 : 42.0 195.0 : 42.0 196.0 : 56.0 476.0 : 56.0
peed (cm/Time Unit)	
Variation On Growth Speed (%)	0.0
	0.0 : 0.0
obability	
re Pruning (Time Unit)	999.0
Deviation On Pruning Lag (Time Unit)	0.0
Not Pruned (%)	0.0

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

Branching

ramificationSets

R2_Pl_d : interRamifDistance (0.0 : 50.0;49.0 : 50.0;50.0 : 30.0;149.0 : 30.0;150.0 : 70.0;500.0 : 999.0;) typeFrequency (3 : 50.0;)
R2_Pi_p : interRamifDistance (0.0 : 15.0;15.0 : 15.0;16.0 : 999.0;) typeFrequency (4 : 50.0;)
R2_FL : interRamifDistance (0.0 : 7.7;) typeFrequency (5 : 100.0;)
R2_FC : interRamifDistance (0.0 : 3.02;) typeFrequency (6 : 100.0;)

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

angles

insertionType	RHIZOTAXY
Insertion Angle (degree)	90.0
Standard Deviation On Inserion Angle (degree)	1.0
Rhizotaxy Spiral Angle (degree)	0.0 : 135.79
Standard Deviation On Rhizotaxy (degree)	1.0
Tortuosity Angle (degree)	2.0
Standard Deviation On Tortuosity Angle (degree)	0.0
Vertical Constraining Cone Opening Angle (degree)	1.0
Horizontal Constraining Cone Opening Angle (degree)	10.0
Constraining Cone Length (cm)	999.0
Direction To Vertical (degree)	0.0 : 90.0
Length To Reach Direction (cm)	0.0 : 10.0

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

diameter

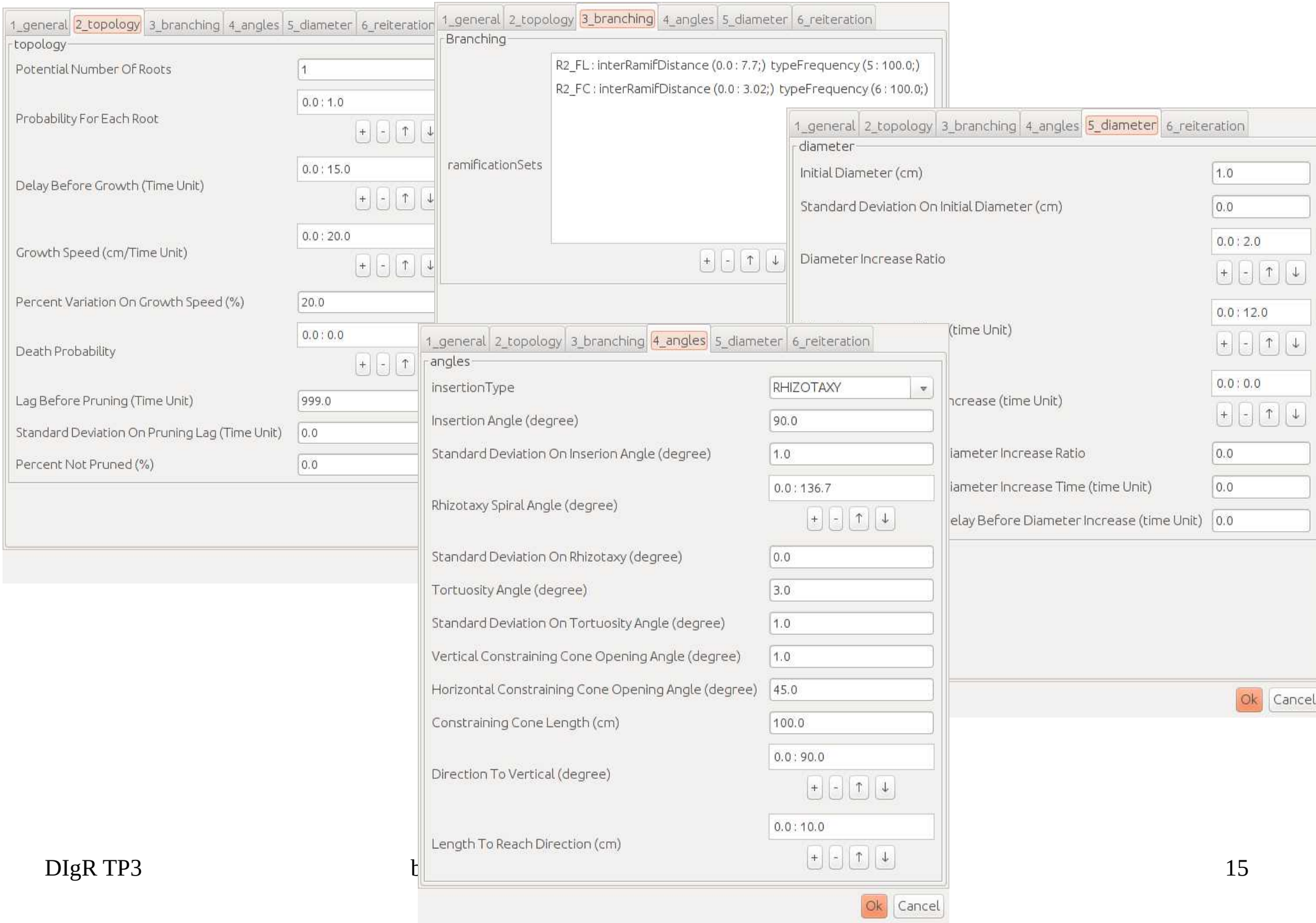
Initial Diameter (cm)	0.1
Standard Deviation On Initial Diameter (cm)	0.0
Diameter Increase Ratio	0.0 : 1000.0 30.0 : 300.0 100.0 : 100.0
Diameter Increase Time (time Unit)	0.0 : 168.0
Delay Before Diameter Increase (time Unit)	0.0 : 0.0
Standard Deviation On Diameter Increase Ratio	0.0
Standard Deviation On Diameter Increase Time (time Unit)	0.0
Standard Deviation On Delay Before Diameter Increase (time Unit)	0.0

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

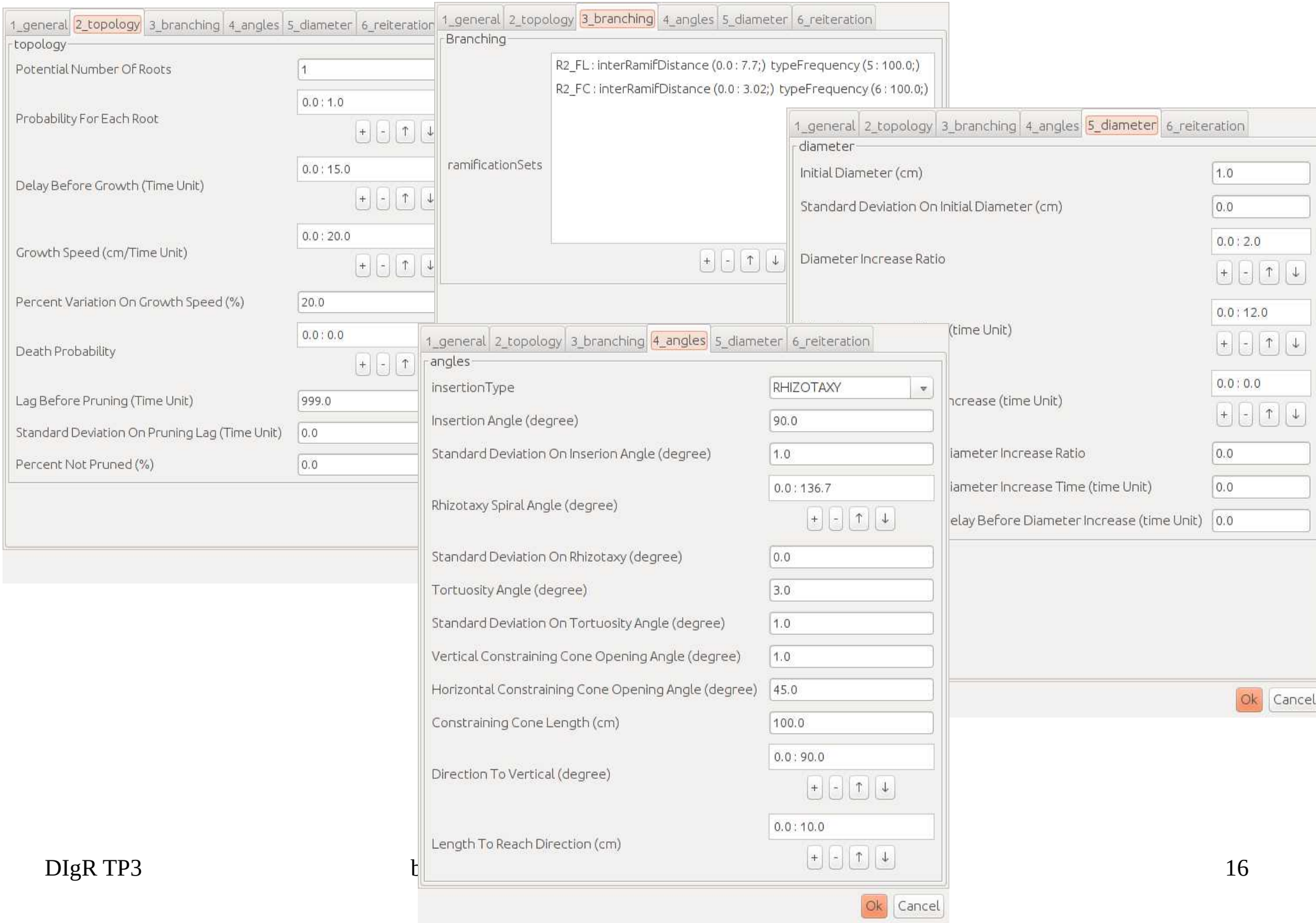
reiteration

MaxReit	1
ReitAngle	30.0
Reitrhizotaxy	137.0
reitDistance	0.0 : 100.0 101.0 : 50.0
reitFrequency	0.0 : 7.0

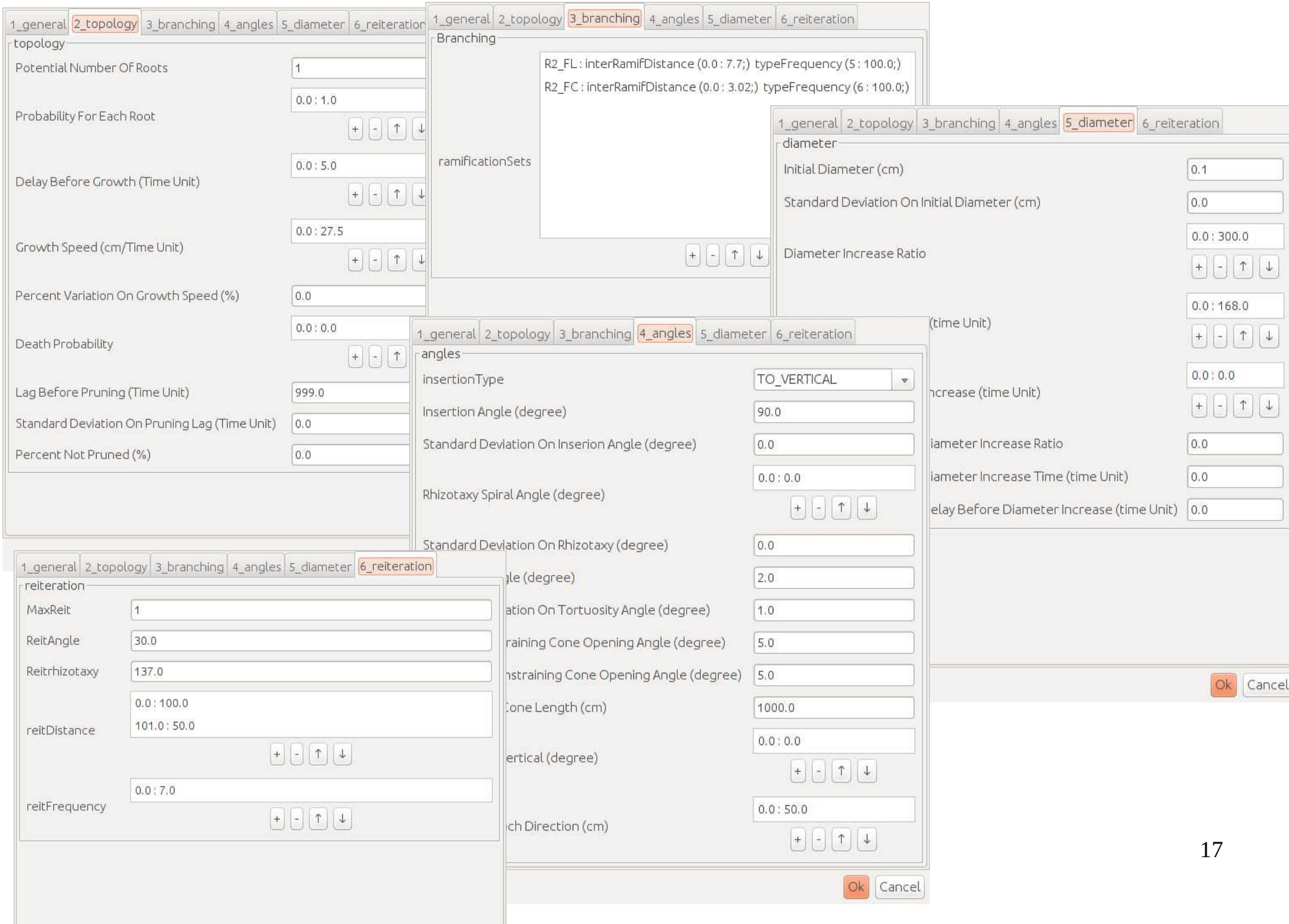
Cable like plagiotropics



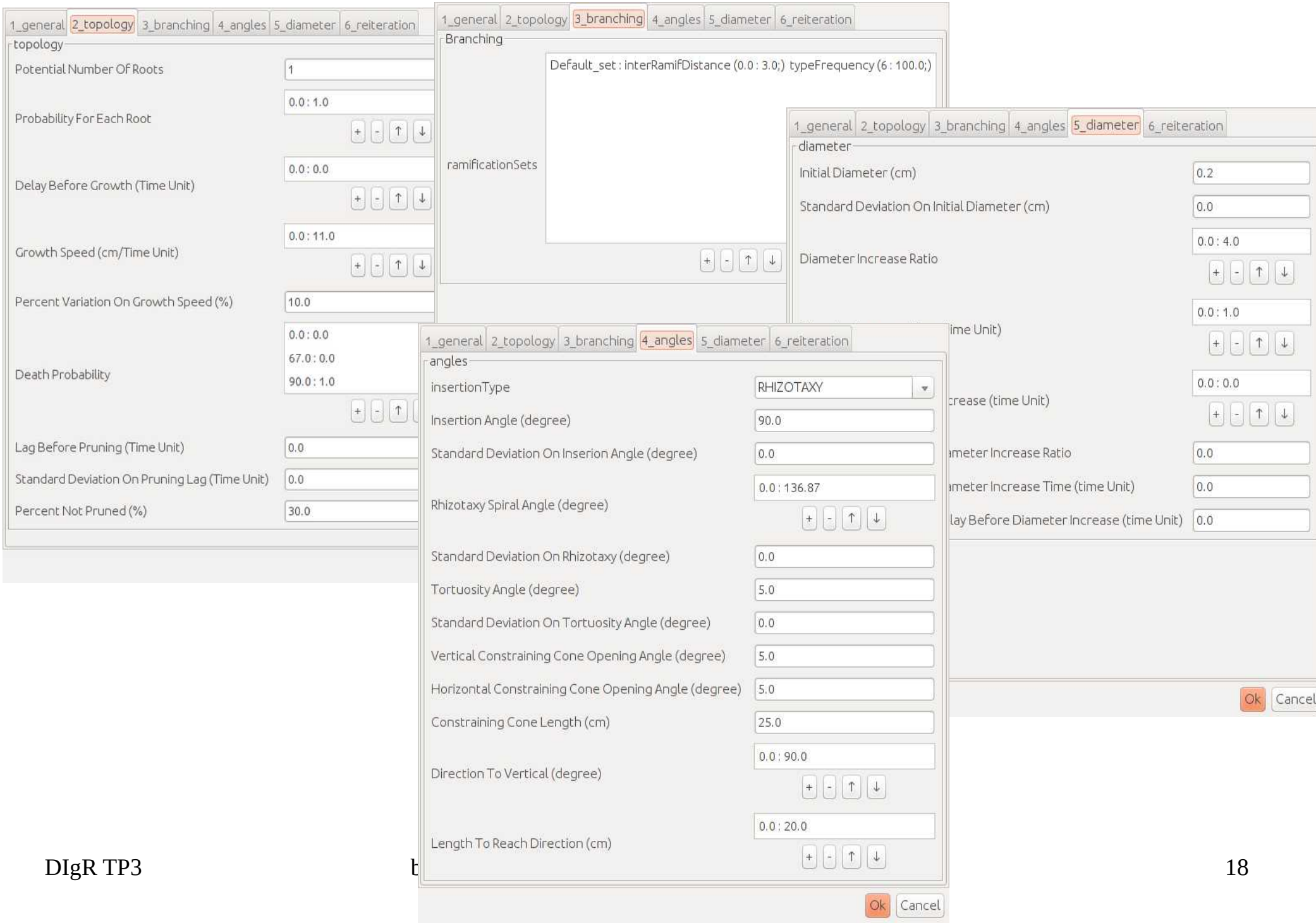
Distal taproots



Proximal taproot



Fine longs


1_general 2_topology 3_branching 4_angles 5_diameter 6_reiteration
topology
Potential Number Of Roots
1
Probability For Each Root
0.0 : 1.0
Delay Before Growth (Time Unit)
0.0 : 0.0
Growth Speed (cm/Time Unit)
0.0 : 11.0
Percent Variation On Growth Speed (%)
10.0
Death Probability
0.0 : 0.0
67.0 : 0.0
90.0 : 1.0
Lag Before Pruning (Time Unit)
0.0
Standard Deviation On Pruning Lag (Time Unit)
0.0
Percent Not Pruned (%)
30.0
1_general 2_topology 3_branching 4_angles 5_diameter 6_reiteration
Branching
ramificationSets
Default_set : interRamifDistance (0.0 : 3.0;) typeFrequency (6 : 100.0;)
1_general 2_topology 3_branching 4_angles 5_diameter 6_reiteration
diameter
Initial Diameter (cm)
0.2
Standard Deviation On Initial Diameter (cm)
0.0
Diameter Increase Ratio
0.0 : 4.0
0.0 : 1.0
0.0 : 0.0
0.0
0.0
0.0
1_general 2_topology 3_branching 4_angles 5_diameter 6_reiteration
angles
insertionType
RHIZOTAXY
Insertion Angle (degree)
90.0
Standard Deviation On Inserion Angle (degree)
0.0
Rhizotaxy Spiral Angle (degree)
0.0 : 136.87
Standard Deviation On Rhizotaxy (degree)
0.0
Tortuosity Angle (degree)
5.0
Standard Deviation On Tortuosity Angle (degree)
0.0
Vertical Constraining Cone Opening Angle (degree)
5.0
Horizontal Constraining Cone Opening Angle (degree)
5.0
Constraining Cone Length (cm)
25.0
Direction To Vertical (degree)
0.0 : 90.0
Length To Reach Direction (cm)
0.0 : 20.0
Ok
Cancel

Fine shorts

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

topology

Potential Number Of Roots	1
Probability For Each Root	0.0 : 1.0
Delay Before Growth (Time Unit)	0.0 : 0.0
Growth Speed (cm/Time Unit)	0.0 : 10.0
Percent Variation On Growth Speed (%)	10.0
Death Probability	0.0 : 0.0 8.0 : 0.0 15.0 : 1.0
Lag Before Pruning (Time Unit)	3.0
Standard Deviation On Pruning Lag (Time Unit)	0.0
Percent Not Pruned (%)	12.0

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

angles

insertionType	RHIZOTAXY
Insertion Angle (degree)	90.0
Standard Deviation On Inserion Angle (degree)	0.0
Rhizotaxy Spiral Angle (degree)	0.0 : 137.0
Standard Deviation On Rhizotaxy (degree)	0.0
Tortuosity Angle (degree)	0.0
Standard Deviation On Tortuosity Angle (degree)	1.0
Vertical Constraining Cone Opening Angle (degree)	5.0
Horizontal Constraining Cone Opening Angle (degree)	5.0
Constraining Cone Length (cm)	100.0
Direction To Vertical (degree)	0.0 : 90.0
Length To Reach Direction (cm)	0.0 : 10.0

Ok | Cancel

1_general | 2_topology | 3_branching | 4_angles | 5_diameter | 6_reiteration

diameter

Initial Diameter (cm)	0.2
Standard Deviation On Initial Diameter (cm)	0.0
Diameter Increase Ratio	0.0 : 3.0
(time Unit)	0.0 : 1.0
ncrease (time Unit)	0.0 : 0.0
iameter Increase Ratio	0.0
iameter Increase Time (time Unit)	0.0
elay Before Diameter Increase (time Unit)	0.0

Ok | Cancel