

Brain Lobe

Defines a brain lobe. (10 in generation 1 creature)

Information stored in this gene includes the number of neurones and their individual dynamics. This is the most complex gene type to set up.

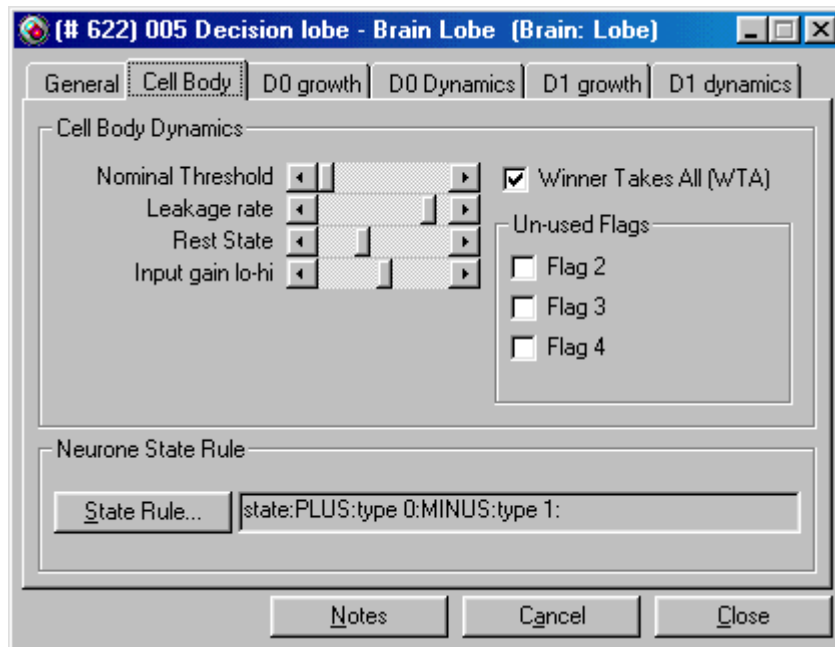
Each neurone has two classes of dendrites, which can have different dynamic and connection properties. There are two pages per dendrite class, one for the growth and one for dendrite dynamics. Two further pages (General and Cell Body) describe properties of the entire lobe, such as the number of neurones, and neurone state rule:

General

The screenshot shows a software window titled "(# 622) 005 Decision lobe - Brain Lobe (Brain: Lobe)". It contains several tabs: "General", "Cell Body", "D0 growth", "D0 Dynamics", "D1 growth", and "D1 dynamics". The "General" tab is active. It features a "Gene Header" section with a dropdown menu set to "Embryo", checkboxes for "Dup" and "Mut." (both checked), a "Degree" field set to "128", a "Cut" checkbox (unchecked), and radio buttons for "B" (selected), "M", and "F". There is also a "Do not express (carry)" checkbox (unchecked). To the right is a "Lobe ID" field containing "Lobe #6". Below this is a "Lobe Position and Size" section with input fields for "X" (62), "Y" (15), "Width" (1), and "Height" (16). A text label "16 neurone(s)" is positioned below the height field. To the right of these fields is a large empty box labeled "Decision o/ps (16)". At the bottom of the dialog is a "Data copied to Perception Lobe?" section with radio buttons for "No" (selected), "Yes", and "Mutually exclusive". At the very bottom are three buttons: "Notes", "Cancel", and "Close".

Defines general properties for this brain lobe, and has the common mutation controls. The positioning and dimensions of the brain lobe can be specified here. A lobe number is automatically calculated and shown top right.

Cell Body



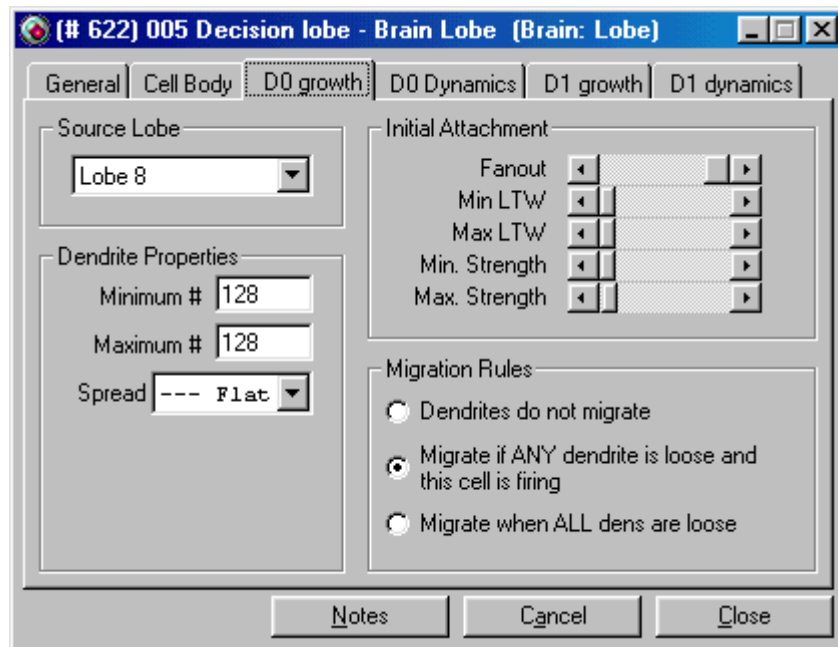
Specifies neurone properties. A neurone will fire if its state rises above the threshold. A special rule called an [SVRule](#) (State Variable Rule) is applied to calculate the new state of every neurone each “tick” (about 4 times a second in Creatures).

Flags 2 to 4 are un-used. WTA stands for “Winner Takes All”. This means that all but the strongest-firing cell in the lobe is suppressed. Used for Decision and Attention lobes to decide which action or object wins the vote.

Dendrites

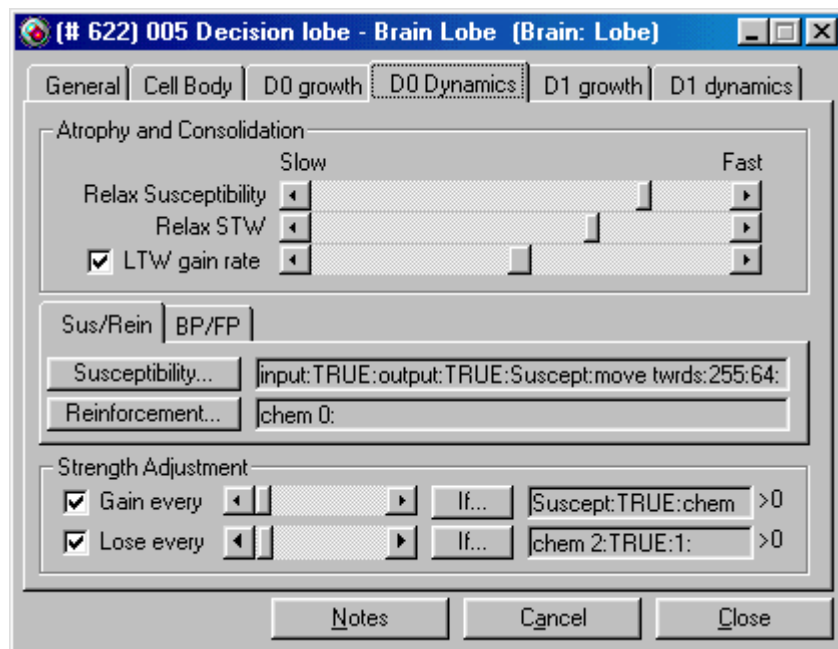
Each of the two classes of dendrite have the following two pages: (D0 is Dendrite Class 0, and D1 is Dendrite Class 1):

Dendrite Growth



- **Source Lobe.** Specifies the source lobe for the dendrite connections for these dendrites.
- **Dendrite Properties.** Specifies the distribution of dendrites, and the minimum and maximum allowed.
- **Initial Attachment.** Specifies properties for how dendrites wire themselves to neurones.
- **Migration Rules.** Specifies the conditions under which dendrites migrate and find new connections.

Dendrite Dynamics



- **Atrophy and Consolidation.** Information covering the atrophy and strengthening properties for dendrite connections.
- **SVRules.** SVRules specifying an optional expression that affects the reinforcement, susceptibility, back propagation and forward propagation of the dendrite.
- **Strength Adjustment.** [SVRules](#) to adjust strength of dendrites.