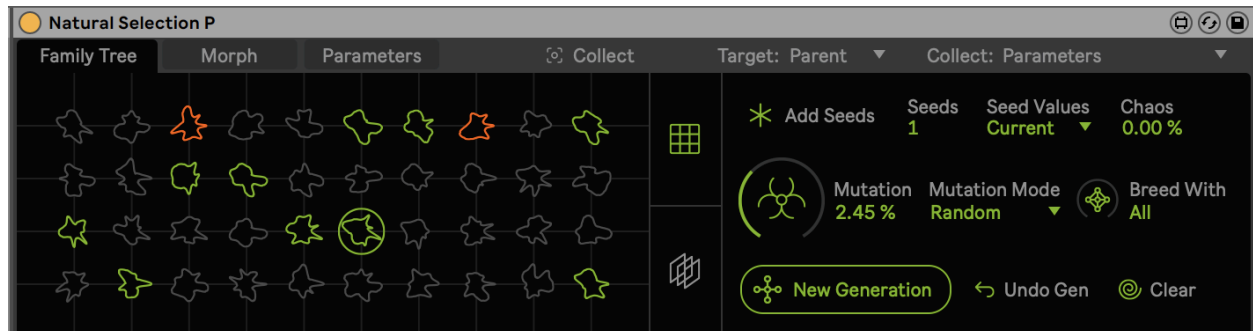


Natural Selection P User Manual

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To install:

Unzip the folder and drop the folder called “Natural Selection P” in this exact location in order for presets to load correctly: *ableton/user library/presets/audio effects/max audio effect*
For best results or if you are having issues, make sure you are using the latest version of max/msp. You do not need to have a license if you are using Live suite. Download the newest version here: <https://cycling74.com/downloads> and once downloaded go to the ableton Preferences > Library and set the newly downloaded version of max to the one ableton should use. (Also you can try to see if it works fine with your bundled version first).

Synopsis

Natural Selection P is one of two devices (the other being Natural Selection S) that applies an evolutionary system on sound design. It treats the parameter values of presets of devices as DNA values which are mixed together and mutated over generations to create new sounds. You play the role of the environment, selecting preferable sounds to continue to pass their DNA to the next generations. And over the generations the sound will evolve closer to your preferences. This device applies this process to external devices, so it is somewhat of a utility device. So to rephrase: this device can mix and mutate presets of external devices or racks of devices (such as an Auto Filter, or a drumrack, or plugin, etc) to discover new sounds and combinations.

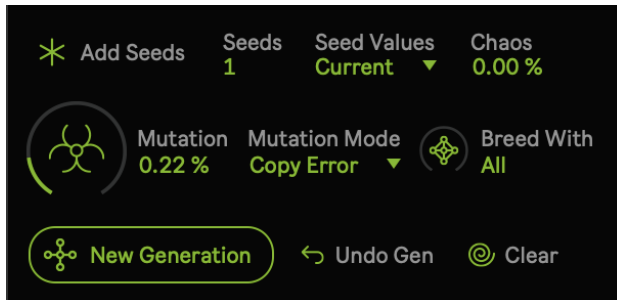
Sections



At the top of the device there are tabs and functions. The tabs on the left are the three sections of device parameters. *Family Tree* tab deals with creating and evolving presets. *Morph* tab allows you to blend between up to 8 different presets. *Parameters* tab allows you to filter out and scale parameters of the device you are targeting. The *Collect* button triggers the process of collecting the parameters from a target audio device or rack for use in the *Family Tree* section. *Target* sets the target device, options are “Before” (device/rack to the left of the Natural Selection device), “After” (device/rack to the left of the Natural Selection device), “Parent” (all

the devices in the rack that the Natural Selection device also resides in. So you must place it in a rack for this option). And to the far right is the *Collection Mode* which has three options: “Parameters” (all parameters of the target are collected), “Macros” (only the macros of a rack are collected, the Target must be a rack device), “Parameters & Macros” (all parameters and macro values are collected for use). Once again, these values that are collected are used to create and evolve presets with the external device.

Family Tree



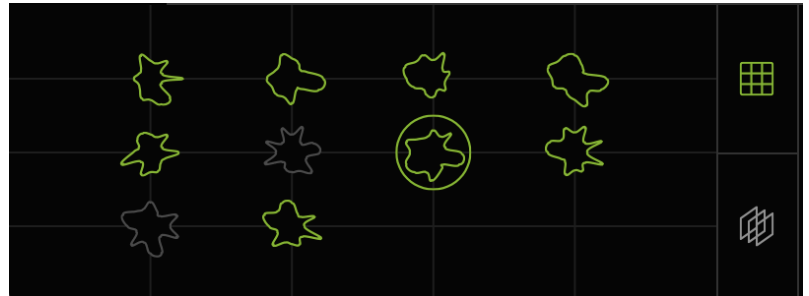
First I'll go over the right side of this section to clarify the functions. As mentioned you evolve presets in this device. And how that happens is by treating presets as children/parents that give birth to more children. What that means is that two presets mix their DNA (parameter values) together at random to create a new child in the New Generation (meaning the

child gets a parameter value from one of their parents which is chosen randomly). BUT at the very start there are no initial child/parents to start mixing from. And so the first generation is composed of “Seeds” instead of children. Essentially they are exactly the same, except that seeds have no parents and so they have different creation options. Let's look at the image in this section. *Add Seeds* adds a new seed(s) to the first generation. If your Family Tree has no seeds/children you have to add seeds before you can do anything. Next to *Add Seeds* you can choose the amount of *Seeds* you want to add (usually you just add one at a time but it depends). *Seed Values* determines where the seed gets its preset (parameter values) from. “Current” means that it gets its values from the currently set values from the Target device. For this option there is a *Chaos* parameter which is just the random spreading from the current values. Choosing the “Current” values option has tremendous power as you could potentially load in different .adv/.adg presets of your target device/rack and for each one add a new seed to the tree to evolve from! So for example if you had an Operator as your target you could load in your favorite pad presets and add seeds for each of them and then evolve them together to get new ones! Ok backtracking... the other *Seed Values* option in “Random” which just sets completely random values. Careful with this one! Could causes explosions, etc (use with a limiter!) But also this could lead to some of the coolest unpredictable seeds to evolve from!

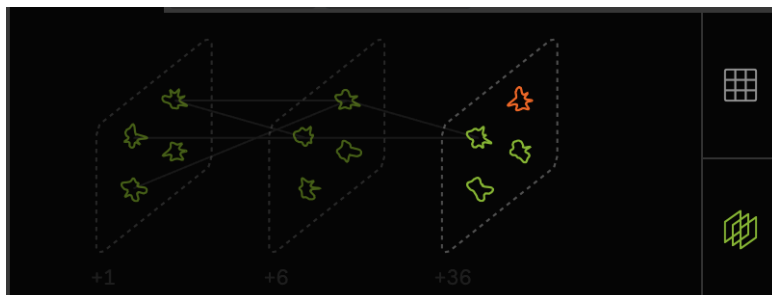
Second row down now. *Mutation* sets the mutation probability. So if it at 5%, then when a new generation is created and parents are mixing their DNA to create a new child 5% of the time a mutation happens on one of those parameter values that are given to the child. *Mutation Mode* determines what type of mutation happens. “Random” just means when a mutation happens the child gets a random value for that parameter. “Copy Error” means that when a mutation happens, the child gets a parameter value of an adjacent parameter of the parameter in question, similar to actual copy error mutations. *Breed With* sets a generational breeding limitation. When set to “All” then when a *New Generation* is created every selected seed/child

from every generation mixes their DNA to create a new generation of child presets. However, if set to "Last X Gen" then instead only the last X generations with participate in mixing their DNA. Bottom row now. *New Generation* triggers the creation of a new generation of presets by mixing all selected child/seed presets together. At least two seeds/children of the latest generation must be selected in order for a New Generation to be created! *Undo Gen* removes the last generation. *Clear* clears all presets/children/generations. When pressed, you are first given an option to double click select any seeds/children you would like to preserve and start a new seed generation with after clearing.

Now I'll talk about the left side of this section. This displays the Family Tree and all the children/seed presets in it. There are two views which are selected by the toggle you see on the right side of this image. The top view (what we see here) is the view of an open generation of children/seeds. The other view (below) is the view of all

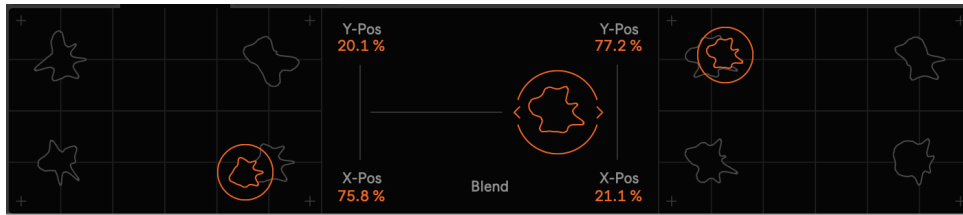


generations in the Family tree. In the open generation view, you can see all the different blob shapes which are the different children/seeds. Their shape comes from their preset parameter values. You can click children to load their preset values into the Target device/rack. Double clicking toggles their selection for passing their DNA in the next generations. Clicking and dragging changes their rating (which is displayed as thickness). This is so you can remember which ones you liked more. Additionally, if a new generation is created with over 40 children (the max number per generation) then higher rated parents give their child a higher likelihood of being created. Clicking in an empty space switched to the full tree view. If you hold shift and hover over a child/seed then two function buttons appear. The top button for a seed causes it to be remade according to the seed settings, but if it is a child then the top button remixes to create a new child preset in its place. The bottom button sets the current values of the target device/rack into the current child seed. This could be useful for a number of scenarios. For example, the volume of your child is too high, you can adjust the volume parameter (or any) in the target device and then resave all those values back into the child/seed with a more preferable sound.



Here we see the full tree view. Clicking on a generation opens it into the generation view. Only relevant children appear in this view. Ancestral lines are visualized for the last loaded child in this view.

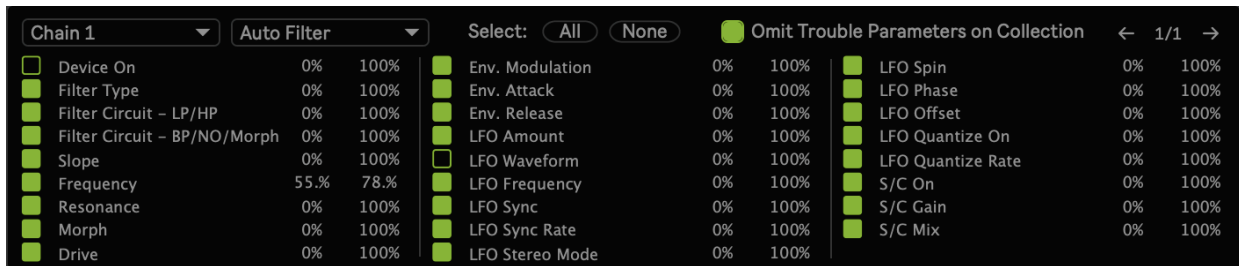
Morph



In this section up to 8 children/seeds can be blended together in order to discover new sounds or do some

crazy modulation. NOTE: that blending presets means updating every parameter value in an external device. Depending on the target this could mean 10 parameters or thousands of parameters updating every moment the blend changes. So keep in mind this may be a very CPU heavy process depending on your target devices! In this section there are two XY quadrants where for presets can be blended, and a center slider that blends between those groups of presets. Each quadrant corner preset is set by clicking the “+” button in each corner. When you press “+” it takes you to the Family Tree where you can select a child/seed to assign to that corner.

Parameters



After collection, all the target device/rack/macro parameters appear here. There are two dropdown menus in the top left for selecting which chain and device to view the parameters for. In the main section below, each parameter is listed. For each parameter there is a toggle box to choose whether to include that parameter in the Family Tree evolution presets or not. They also have a minimum and maximum range scaling box. Back to the top, there are two functions for Selecting All or deselecting (None) of the parameters for use in the device. Next to that, there is a toggle *Omit Trouble Parameters on Collection* which means if enabled when you collect a Target’s parameters it will attempt to automatically not include parameters that likely shouldn’t be part of the Family tree (such as “Device On”). And to the top right there are buttons for traversing the pages of parameters.

IMPORTANT LIMITATIONS AND CAVEATS TO KEEP IN MIND

This device works with external devices parameters. Therefore, it can only work with parameters that are Automatable and Visible. What this means is that the only parameters it (and any device for that matter) can access and set are ones that you can MIDI map and automate and

map to macros. So parameters like Wavetable's waveform selection, or any newer devices modulation matrix, or Operators' custom partial multisliders, etc etc cannot be accessed by this device and therefore can not be included in the child/seed preset creation, mixing and recollection. Additionally and similarly there are big limitations with plugins. The only plugin parameters it can access are the ones that are set visible through the "Configure" process. Ableton only allows up to 127 parameter values in a plugin to be exposed, so Natural Selection P can only collect up to 127 values from presets to use, and of course complex parameters in a plugin that can't be exposed to Live can't be used.

So this means that if you want to use Natural Selection P to mix entire presets then you won't be able to do that for cases mentioned above. Now that doesn't mean you can't use it at all on those devices, but maybe not in ways of evolving entire presets. For example, maybe you can't change Wavetable's modulation matrix at or or selected wavetable waveform. But you could still evolve and mutate a patch that includes other parameters of it, or the macros of a rack it is in, etc.

So if you do want to evolve complete entire presets of external devices, you will have to use more basic ones such as Operator, all the OG effects, etc, or plugins that don't have over 127 parameter values. This is also the reason I made the other device, Natural Selection S, which applies the same evolution process to an internal synth/rhythm generator/FX engine.

I hope you enjoy this device! Please email me if you have bugs or other issues:

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More: <http://dillonbastan.com>