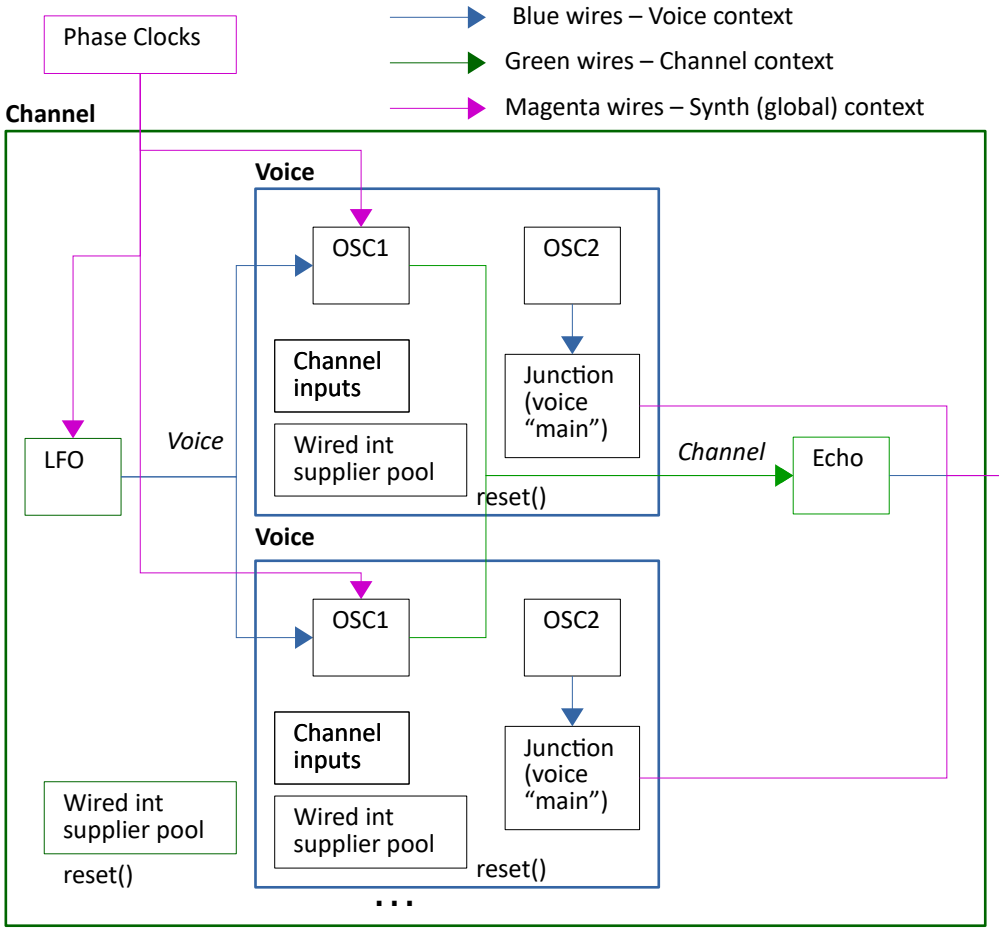
OndeSynth

Ondes – close-up of Voice and Channel Components



Components may exist in both the **Voice** and **Channel** contexts. The Channel context manages all of the voices on a given MIDI channel.

The "wires" are technically drawn backwards (see next slide).

They each have a 'visited' flag that needs to be reset for every sample, by calling

WiredIntSupplierPool.reset()

These pools are kept in both the **Voice** and **Channel** contexts.

The Phase Clocks live in the **Synth** context. The main loop advances these for each sample. When an oscillator goes dormant, it removes its phase clock from the Global collection, and on reactivation must add it in again.

"**Wires**" internally to other Voice Components and to outputs from Channel components to Voice inputs are kept in the Voice.

Wires from Channel to Channel Components, and connections from Voice Components to Channel Components are kept in the Channel.

The *latter* must be removed when he voice goes inactive, and re-added when it activates again. The **pause()** and **resume()** functions are in charge of that.

The Voice tracks these in a list of **ChannelInputs**, which pair from the Voice Component's output to a Channel Component.

Ondes – close-up of Connections

The arrow is technically backwards on the previous slide. When the "output" of LFO is connected to the "input" of OSC, it means that OSC has a Lambda in its List (**inputs**) that will return the current value of the LFO.

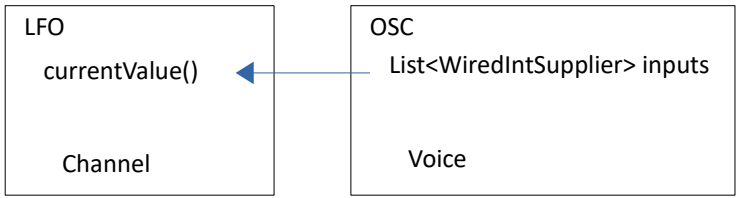
The voice is thus a directed (possibly cyclic) Graph starting with the Main Mix, going backwards from the perspective of common audio circuitry. The Mixer pulls rather than the sound generators pushing.

Because it can be cyclic (for FM) the 'visited' flag on each WiredIntSupplier must be reset for each sample.

LFO output connected with **OSC** input

When the voice is inactive, OSC's output never is polled, so it never calls currentValue()

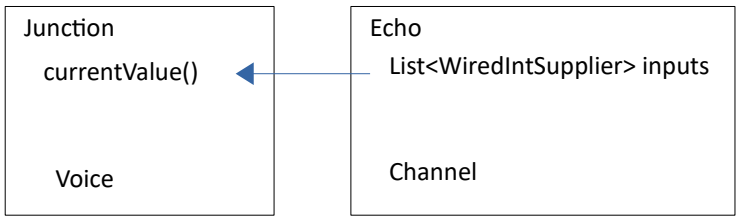
Therefore, these connections (at the Voice level, from a Channel output to a Voice input) can remain when the voice is inactive.



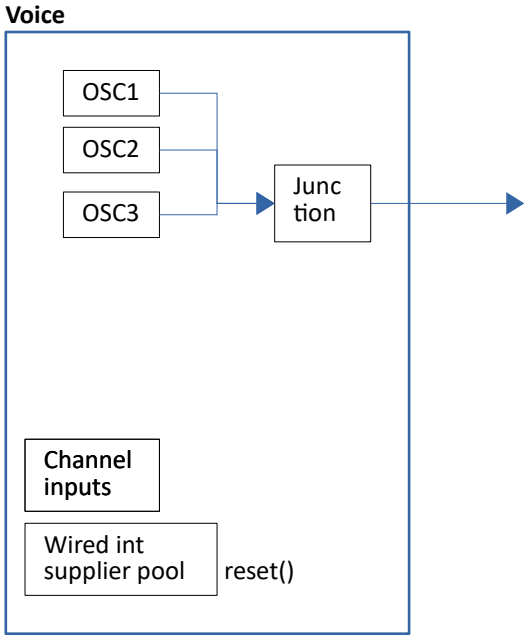
Junction output connected with **Echo** input

This connection activates the voice, so it must be removed to deactivate the voice. The Voice remembers it in **channelnputs**, and must:

- disconnect on **pause()** and
- reconnect on **resume**()



Ondes – Junction output



Each Voice has a single output in the form of a Junction, that all the sub-outputs of the Voice are inputs to. So, other than the channel-level components, the only output to disconnect on **pause()** and reconnect on **resume()** is the Junction.

For OUTPUT to channel-context components, it would probably make more sense for them to connect to the actual "main" rather than back to the junction.

Would it be OK to allow the tag "main" refer to the Junction for Voice-context components and Ondes mainOut for the Channel-context components?

Otherwise, the output of Echo (for example) for any voice would go through the Junction of every voice, and then when each voice released it would diminish the output level for that exact same signal. Not the way to do it!!