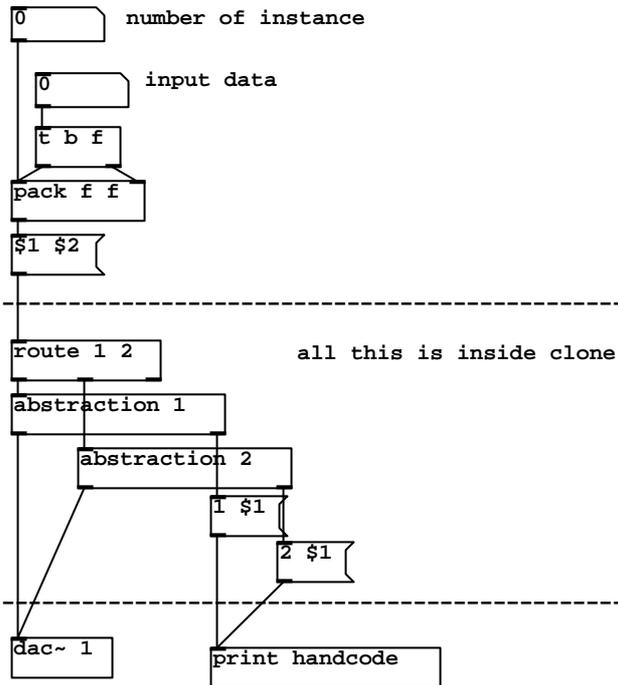
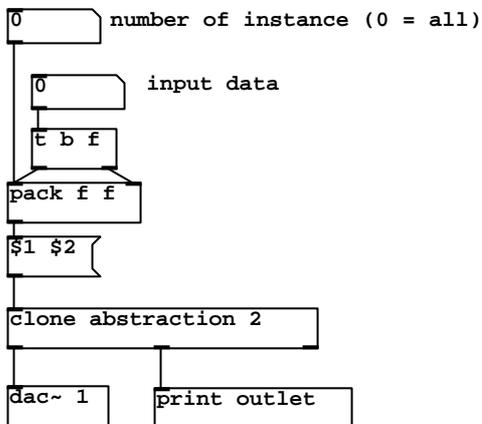


clone - 'abstraction cloning' external

the hand-coded way:



using clone:



functionality:

Creating clone with [clone <name of abstraction> <number of instances>] loads the specified number of instances of the abstraction. Each instance can get it's instance number using \$1. Additional arguments get passed on to the abstractions as creation arguments that can be accessed using \$2, \$3 and so on. The inlets and outlets showing up represent the inlets and outlets of the abstraction.

But there are some things to bear in mind: the order is always signal before control and older before newer. Thus the order of inlets and outlets showing up at the clone object will most likely be different from the order in your abstraction!

inlets:

Any *control* data that is send to clone gets routed to *one of the instances* of the abstraction or to all, depending on the form of data. A single float value would go to all instances and thus appear at the corresponding inlets of all instances. To route the float to a specific instance prepped it with the number of that instance (e.g. use message [*<instancenumber> <float>*]). Same applies for symbol, list and so on.

Any *signal* that is send to clone will be received by *all instances!* To send only to selected instances use something like [*throw~ <instancenumber>-in*] and a corresponding [*catch~ \$1-in*] in your abstraction.

outlets:

Control data send to an abstraction's outlet gets send out clone's outlet with the number of the sending instance preppended. This was you can easily detect where the data was coming from or use [*route 1 2 3 N*] to split it according to source.

Audio output of all instances gets summed up and is available via clone's signal outlet(s). Keep in mind that your signal should not exceed a range from -1.0 to +1.0 which is very likely when adding a lot of instances! To get independent output for each instance use *throw~ / catch~* as described above.

editing the abstraction:

You can edit the abstraction as you can edit any Pd patch. But there are some things that don't work. Most important, don't add or delete any inlets or outlets to / from an abstraction! This will crash Pd (because Pd would need to delete and reinsert the clone box to reflect your changes). Also, don't load any abstractions using the 'reload' message that have a different number of inlets & outlets! You can - of course - load other files in case the number and combination of inlets and outlets does not differ. And, finally, don't use abstractions in your abstraction. And, please, don't use clone in the abstraction because of the exponential growth of the total number of abstractions...

restrictions:

- maximum of 2 signal outlets/inlets and a maximum of 256 control outlets/inlets allowed
- order of in-/outlets reflects order of creation, not order in terms of position on canvas; signal in-/outlets (if any) come first
- deleting or adding any inlets / outlets from abstraction crashes Pd -> build your abstraction before loading it into clone!!!
- no abstractions in the abstraction allowed
- changing font size in abstraction crashes Pd
- there are probably more things that crash Pd