

Composition: Electronic Media II

[line] objects

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1. [line]
 - a. Creates a 'ramp' from (current value) to (target value) in (time in ms).
 - b. Right inlet can be used to set (time in ms)
 - c. Left inlet will accept either:
 - i. single number – [line] will jump immediately to this value
 - ii. pair of numbers – [line] will generate a ramp as per 1a.
 - d. Does not 'schedule' ramps. This means that giving [line] a new value before the current ramp is complete will force it to start moving to the new target value from whatever its current value is.
 - e. Can be created with two arguments
 - i. default starting value
 - ii. 'Grain rate.' The higher the grain rate (20ms is default), the more continuous the ramp will be. Higher grain rates are also more CPU intensive.
 - f. Important to note: [line] outputs float numbers. This means that there will be minute gaps between 'steps' in the ramp.
2. [line~]
 - a. The significant difference is that [line~] outputs audio signal and not float numbers. This means that the 'steps' present in [line]'s output are done away with.
 - b. Another difference is that [line~] does not take arguments.
 - c. Inlets both function as per [line]
 - d. Also like line, does not schedule ramps.
3. [vline~]
 - a. Outputs audio signal like [line~]. The significant difference is that [vline~] generates ramps accurate to the sample level.
 - b. Sample level ramps means that extremely short ramps (less than 3ms, generally) can be accomplished accurately. It is also more CPU intensive than [line~].
 - c. [vline~] has an additional inlet. The middle inlet is used to establish a (ramp time). The new right inlet establishes (delay time in ms).
 - d. Left inlet functions as per [line] and [line~], with one exception. Ramps can now be 'scheduled' by sending a set of three numbers instead of only two.
 - e. Order of values – (target value) (ramp time in ms) (delay time in ms)
 - f. Moreover, several ramps can be combined into one message and sent, if the value-sets are separated by commas.
 - g. In this case, (delay time) values should be set thus:
 - i. First values – (target a) (ramp time a)
 - ii. Second “ – (target b) (ramp time b) (delay time = ramp time a)
 - iii. Third “ – (target c) (ramp time c) (delay time = ramp time a + b)
 - iv. Fourth “ – (target d) (ramp time d) (delay time = ramp time a + b + c)
 - v. etc...

- h. Ramps must be scheduled in order of increasing delay. ‘Out of order’ ramps will cancel all future ramps in that message. Similarly, sending a new message will replace ramps scheduled with the previous message.

4. Summary

	[line]	[line~]	[vline~]
Creation arguments	[line (start value) (grain rate)]	none	none
Inlets	L – new target value/ramp time R – ramp time	L – new target value/ramp time R – ramp time	L – new target value/ramp time/delay time M – ramp time R – delay time
Output	float	audio	audio @ sample rate
Scheduling	no	no	yes (see 3g)
Suggested use	objects that do not accept audio signal for input (GUIs, arithmetic objects, data related objects)	simple [*~] control, [reson~] controls, simple envelope generators	extremely fine/accurate adjustments, elaborate envelope generators. Micro-randomness?