Audible Design Cross Reference

Trevor Wishart's *Audible Design* & the CDP Software

~ Links between the sound transformation processes described and the CDP programs with which they were first realised ~

(Page numbers refer to the diagrams in *Audible Design* Appendix 2 – Orpheus the Pantomime 1994 Edition)

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Page	Musical Process	*Sound Loom* Menu (CDP-Group Name)	*Sound Loom* Submenu (CDP-Program Function)	Notes
1	Sequence Generation	TABLE EDITOR	CREATE	Generate (timing) sequences. Use other menus (e.g., MATHS) to modify the results
7	Hi-Pass Filter	FILTER	FIXED; LOHI	Cut below a given frequency
		HILITE	FILTER	Hipass etc. options applied to analysis files
	Lo-Pass Filter	FILTER	FIXED; LOHI	Cut above a given frequency
		HILITE	FILTER	Lopass etc. options applied to analysis files
	Band-Pass Filter	FILTER	FIXED	Cut or boost above/below a given frequency
		HILITE	FILTER	Hipass etc. options applied to analysis files
	Notch Filter	FILTER	FIXED	Boost or cut around a given frequency
		HILITE	FILTER	Notch option applied to analysis files
	Filter Bank	FILTER	USERBANK	Define your own filter banks
		HILITE	GREQ; BAND	
		FILTER	VARIBANK	Define filter banks whose pitches (and Q) change through time
		FILTER	BANK	Various predefined filter banks, with time-variable Q

9	Phasing Filter	FILTER	PHASING	Phase shift a sound
11	Phase Vocoder	**PVOC**		FFT Analysis and Inverse FFT Resynthesis; also see p.2
12	LPC	–	–	Linear Predictive Coding (this is available in *Csound*)
17	Formant preserving spectral manipulations	STRANGE	INNER GLISSANDI	This is **STRANGE GLIS**: glissandi inside (changing) spectral envelope
		PITCH: HARMONY	ALTERNATE HARMONICS	This is **ALTHARMS** – delete alternate harmonics
			OCTAVE SHIFT	This is **OCTMOVE** – 8^{ve} transpose without formant shift
			CHORD (KEEP FORMANTS)	This is **CHORDF** – transpositions within original spectral envelope
		REPITCH	TRANSPOSE (KEEP FORMANTS)	This is **TRANSPOSEF** – original spectral envelope is preserved
		COMBINE	ADD FORMANTS TO PITCH	This is **MAKE** – generate spectrum from pitch & formant data
18	Spectral shifting	PITCH: HARMONY	PITCH SHIFT	This is **TRANSP** – shift [actually a transposition] (part of) the spectrum
			ALTERNATE HARMONICS	This is **ALTHARMS** – clarifies well-defined pitches
			OCTAVE SHIFT	This is **TRANSP** – the octave shift options
19	Spectral Stretching	STRETCH	SPECTRUM	Stretch the frequencies in a spectrum
20	Spectral focusing	FOCUS	FOCUS	These both work differently to the process outlined in *Audible Design*
			EXAGGERATE	
			FOLD-IN	This is FOLD – 8^{ve} transpose spectral components into a specified range
	Clean the spectrum	SPEC	CLEAN	Remove noise from analysis file
21	Partial tracking	–	–	This is available in SNDAN (...if SNDAN is still available)
22	Spectral freezing	FOCUS	FREEZE	Hold spectral data at/for set times
			HOLD	Also see **FOCUS STEP** – hold for regular time intervals (step-frame)
23	Spectral shaking	BLUR	CHORUS	Randomises amplitudes and/or frqs of partials
24	Spectral Arpeggiation	HILITE	ARPEGGIATE	Boost partials with a sweeping wave
25	Spectral tracing	HILITE	TRACERY	Retain *N* loudest channels
26	Spectral blurring	BLUR	BLUR	Time average the spectrum
			SUPPRESS	Different blurring processes
			AVERAGE	Average spectral energy over *N channels*
	Add noise to the	BLUR	SCATTER	Randomly thin out the spectrum

	spectrum		SPREAD	spread peaks in spectrum
			NOISE	add noise to spectrum
27	Spectral Trace & Blur	HILITE	BLUR & TRACE	Both average and reduce to *N* loudest
28	Spectral undulation	STRANGE	WAVER	Harmonic-Inharmonic oscillations
		–	–	Formant
29	Spectral splitting	HILITE	BANDS	Define frequency bands and process individually
31	TIME STRETCH	STRETCH	TIME	Extend duration without changing pitch
		BRASSAGE	BRASSAGE	This is **MODIFY BRASSAGE**, Mode 2 in the time-domain program set
		GRAIN	TIMEWARP	Stretches or compresses duration but does not alter the grains themselves
		SUBMIX	TIMEWARP	Alters the start times in a mix file
		DISTORT	REPEAT; DELETE	Repeat or delete wavecycles This is the DISTORT set
32	Spectral interpolation (Morphing)	MORPH	MORPH	general morph between diffeerent sounds
		MORPH	BRIDGE	for unchanging sounds
			GLIDE	(not a true morph)
34	Vocoding	FORMANTS	VOCODE	Impose formants from one sound onto another
		FORMANTS	EXTRACT; IMPOSE	Keep and use extracted formants
		COMBINE	ADD FORMANTS TO PITCH	This is **COMBINE MAKE** – formants are added to pitch data
34	Spectral masking	COMBINE	WINDOWWISE MAXIMUM	This is **COMBINE MAX** – keep maximum in each corresponding window
		COMBINE	SUM; DIFFERENCE	Sum or difference of two spectra
		COMBINE	MEAN; CROSS CHANNELS	This is **COMBINE MEAN** and **COMBINE CROSS** – more unusual data combinations
35	Spectral interleaving	COMBINE	INTERLEAVE	Alternate *N* windows from each file
36	Tapespeed variation	PITCH: SPEED	PITCH	This is **MODIFY SPEED** – tape transpose
36	Tape acceleration	PITCH: SPEED	PITCH	This is **MODIFY SPEED, Mode 5**
38	Harmoniser	BRASSAGE	BRASSAGE	This is MODIFY BRASSAGE for pitchshift, etc.
40	Cutting	SFEDIT	numerous options	
40	Zero cutting	SFEDIT	CUTOUT AT ZERO CROSSING	Cuts at zero crossing and keeps

40	Splicing	SFEDIT	JOIN	Splice, with variable splice window length
41	Random cutting	EXTEND	SCRAMBLE	Cuts and rejoins segments
41	Shredding	RADICAL	SHRED	This is **MODIFY RADICAL**, Mode 2 – Repeated randomised segment jumbling
42	Looping	EXTEND	LOOP	Step, looplength and searchfield
42	Iteration	EXTEND	ITERATE	Repeat sound with subtle variations
42	Progressive looping	EXTEND	LOOP	Parameter 'Advance between loops' > 0
43	Sound reversing	RADICAL	REVERSE	This is **MODIFY RADICAL**, Mode 1 – Front to back
		GRAIN	REVERSE	Reverse sound without reversing sound granules
		SUBMIX	SHUFFLE	Reverse *order* of sounds only
			TIMEWARP	Reverse order of times, or both sounds and times
43	Zigzagging	EXTEND	ZIGZAG	Reads soundfile backwards and forwards
44	Brassage	BRASSAGE	Numerous options	For all possibilities, use 'Full monty'
45	Multi-source brassage	BRASSAGE	SAUSAGE	(Also see the Release 3 SAUSAGE)
45	Chorusing brassage	BRASSAGE	BRASSAGE	Density > 2, small range of pitchshifts a scatter of around 5 or more, and, optionally, a very small searchrange
45	Spatialisation in brassage	BRASSAGE	BRASSAGE	Use spatial position parameters
46	Mixing	SUBMIX	MIX	MIX a list of soundfiles
		SUBMIX	MERGE; CROSSFADE	Elementary mix of two sounds
46	In-betweening	SUBMIX	INBETWEENING	Generate sounds *aurally inbetween* two input sounds
47	Mix shuffling	SUBMIX	SHUFFLE	Shuffle data in the mix file
47	Mix time-warping	SUBMIX	TIMEWARP	Alterations to start times
47	Mix respatialising	SUBMIX	SPACEWARP	Alter spatial placement in a mixfile
48	Octave Stacking	–	–	Use **MODIFY SPEED** Transpose, followed by **SUBMIX SYNC** or **SYNCATTACK**
48	Onset synchronise	SUBMIX	SYNC ATTACK	Synchronises actual sound attacks
48	Waveset transpose	DISTORT	MULTIPLY; DIVIDE	Multiply and Divide wavecycle 'frequencies'
51	Waveset reversal	DISTORT	REVERSE	Reverse wavecycle(s in groups)
51	Waveset shaking	–	–	
51	Waveset inversion	DISTORT	RESHAPE	Invert half cycles; now called **DISTORT REFORM**
51	Waveset omission	DISTORT	OMIT	Omit A out of every B wavecycles

51	Waveset shuffling	DISTORT	SHUFFLE	Rearrange order of wavecycles
52	Waveset omission	DISTORT	OMIT	Omit A out of every B wavecycles
52	Waveset harmonic distortion	DISTORT	HARMONIC	Superimpose 'harmonics' onto wavecycles
52	Waveset substitution	DISTORT	RESHAPE	Now called REFORM – modify with new shape
52	Waveset averaging	DISTORT	AVERAGE	Average waveshape over *N* wavecycles
53	Waveset Enveloping	DISTORT	ENVEL	Impose an envelope shape on wavecycle(s)
54	Waveset transfer	DISTORT	INTERACT	Resize wavecycles in two sounds
54	Waveset interleave	DISTORT	INTERACT	Interleave wavecycles from two sounds
55	Waveset timestretch	DISTORT	REPEAT	Timestretch by repeating wavecycles
55	Waveset timeshrink	DISTORT	DELETE	Time-contract by deleting wavecycles
56	Granular time-stretching	GRAIN	TIMEWARP	Grain themselves are not altered
56	Granular reversal	GRAIN	REVERSE	Order of grains is reversed, but not the grains themselves
57	Granular reordering	GRAIN	REORDER	Alter the order of the grains
--	Other grain alterations	GRAIN	REPITCH	Change the pitch of the grains
		GRAIN	RERHYTHM	Change the rhythm of the grains
		GRAIN	REMOTIF	Change pitch and rhythm of grains
58	Envelope following	ENVEL	EXTRACT	Extract an envelope shape from a soundfile
			IMPOSE; REPLACE	Extracts envelope, then applies to another sound
59	Enveloping	ENVEL	IMPOSE	Impose a (new) envelope on a soundfile
59	Envelope substitution	ENVEL	REPLACE	Replace existing envelope
60	Envelope transforming	ENVEL	LIMIT	Limit – Mode 10 in REPLOT, RESHAPE and WARP
		ENVEL	GATE	Gating – Mode 8 in REPLOT, RESHAPE and WARP
		ENVEL	FLATTEN	Smoothing – Mode 7 in REPLOT, RESHAPE and WARP; parameter > 1 does the opposite
		ENVEL	EXAGGERATE	Smoothing – Mode 3 in REPLOT, RESHAPE and WARP; parameter < 1; > 1 does the opposite
		ENVEL	INVERT	Inversion – Mode 9 in REPLOT, RESHAPE and WARP
		–	–	Compression: 'Limit' is similar to compression; 'Expand' does the opposite of

				compression
		ENVEL	CORRUGATE	Corrugation – Mode 11 in REPLOT, RESHAPE and WARP
		ENVEL	EXPAND	Expanding – Mode 12 in REPLOT, RESHAPE and WARP
		ENVEL	TIMESTRETCH	Mode 6 in REPLOT, RESHAPE and WARP; parameter < 1
62	Triggering	ENVEL	TRIGGER BURSTS	Mode 13 in REPLOT, RESHAPE and WARP
62	Ducking	ENVEL	DUCKED	Mode 13 in REPLOT, RESHAPE and WARP
64	Delay; echo	REVERB: ECHO	REVECHO	This is **MODIFY REVECHO**, Mode 1
64	Comb filtering	REVERB: ECHO	REVECHO	This is **MODIFY REVECHO**, Mode 1, with short delay times
64	Reverberation	REVERB: ECHO	REVECHO	This is **MODIFY REVECHO**, Mode 3 (stadium – special application only)
66	Vibrato	PITCH: SPEED	PITCH	This is MODIFY SPEED, Mode 6; formants are not preserved
66	Tremolo	ENVEL	TREMOLO	Add tremolo to a sound
68	Create a texture	TEXTURE	SIMPLE	(time varying) randomised textures on single notes, harmonic fields or sets;
68	A texture of groups	TEXTURE	OF GROUPS	a series of textures; also on harmonic fields or sets
69	A texture of motifs	TEXTURE	OF MOTIFS	The texture is built from specific figures
--	Other types of texture	–	–	Textures may also be decorated (arbitrarily), ornamented (specifically) or based on timed sequences (rhythms)
69	Wedging	TEXTURE	SIMPLE	Min pitch falling and max pitch rising, preferably with specific contours; also see WEDGE
70	Pitch tracking by auto-correlation	–	–	
71	Pitch tracking by partial analysis	REPITCH	EXTRACT PITCH	This is **REPITCH GETPITCH**; uses a simpler procedure, based on a suggestion of Oyvind Hammer of NoTAM, looking for harmonic correlations between the principal peaks in the spectrum
72	Shepard tones	STRANGE	INNER GLISSANDO	This is **STRANGE GLIS**, Mode 1
72	Sound plucking	ENVEL	PLUCK	Create a pluck at the beginning of a sound
73	Granular reconstruction	BRASSAGE	BRASSAGE	Comprehensive granular sound processing

--	Loudness adjustment	LOUDNESS	GAIN; DBGAIN	**MODIFY LOUDNESS**, Modes 1 & 2: Change loudness **by**
			NORMALISE; FORCE LEVEL (to) DBGAIN	**MODIFY LOUDNESS**, Modes 3, 4 & 2: Change loudness **to**
			BALANCE	**MODIFY LOUDNESS**, Mode 5: Equalise level of two sounds (or two channels of one sound)
		SUBMIX	ATTENUATE	Reduce overall level in a mix file
		ENVEL	ATTENUATE	Reduce overall level of an envelope; Mode 4 in REPLOT, RESHAPE and WARP

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HTML version and CDP references clarified by A Endrich.
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