Context tree weighting

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The **context tree weighting method** (**CTW**) is a lossless compression and prediction algorithm by Willems, Shtarkov & Tjalkens 1995. The CTW algorithm is among the very few such algorithms that offer both theoretical guarantees and good practical performance (see, e.g. Begleiter, El-Yaniv & Yona 2004). The CTW algorithm is an "ensemble method," mixing the predictions of many underlying variable order Markov models, where each such model is constructed using zero-order conditional probability estimators.

References   [edit]

- Willems; Shtarkov; Tjalkens (1995), *The Context-Tree Weighting Method: Basic Properties* **41**, IEEE Transactions on Information Theory
- Begleiter; El-Yaniv; Yona (2004), *On Prediction Using Variable Order Markov Models* (PDF) **22**, Journal of Artificial Intelligence Research: Journal of Artificial Intelligence Research, pp. 385–421

External links   [edit]

- Relevant CTW papers and implementations
- CTW Official Homepage

v · t · e		Data compression methods	[hide]
Lossless	Entropy type	Unary · Arithmetic · Golomb · Huffman (Adaptive · Canonical · Modified) · Range · Shannon · Shannon–Fano · Shannon–Fano–Elias · Tunstall · Universal (Exp-Golomb · Fibonacci · Gamma · Levenshtein)	
	Dictionary type	Byte pair encoding · DEFLATE · Lempel–Ziv (LZ77 / LZ78 (LZ1 / LZ2) · LZJB · LZMA · LZO · LZRW · LZS · LZSS · LZW · LZWL · LZX · LZ4 · Statistical)	
	Other types	BWT · **CTW** · Delta · DMC · MTF · PAQ · PPM · RLE	
Audio	Concepts	Bit rate (average (ABR) · constant (CBR) · variable (VBR)) · Companding · Convolution · Dynamic range · Latency · Nyquist–Shannon theorem · Sampling · Sound quality · Speech coding · Sub-band coding	
	Codec parts	A-law · µ-law · ACELP · ADPCM · CELP · DPCM · Fourier transform · LPC (LAR · LSP) · MDCT · Psychoacoustic model · WLPC	
Image	Concepts	Chroma subsampling · Coding tree unit · Color space · Compression artifact · Image resolution · Macroblock · Pixel · PSNR · Quantization · Standard test image	
	Methods	Chain code · DCT · EZW · Fractal · KLT · LP · RLE · SPIHT · Wavelet	
Video	Concepts	Bit rate (average (ABR) · constant (CBR) · variable (VBR)) · Display resolution · Frame · Frame rate · Frame types · Interlace · Video characteristics · Video quality	
	Codec parts	Lapped transform · DCT · Deblocking filter · Motion compensation	
Theory		Entropy · Kolmogorov complexity · Lossy · Quantization · Rate–distortion · Redundancy · Timeline of information theory	
		Compression formats · Compression software (codecs)	

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