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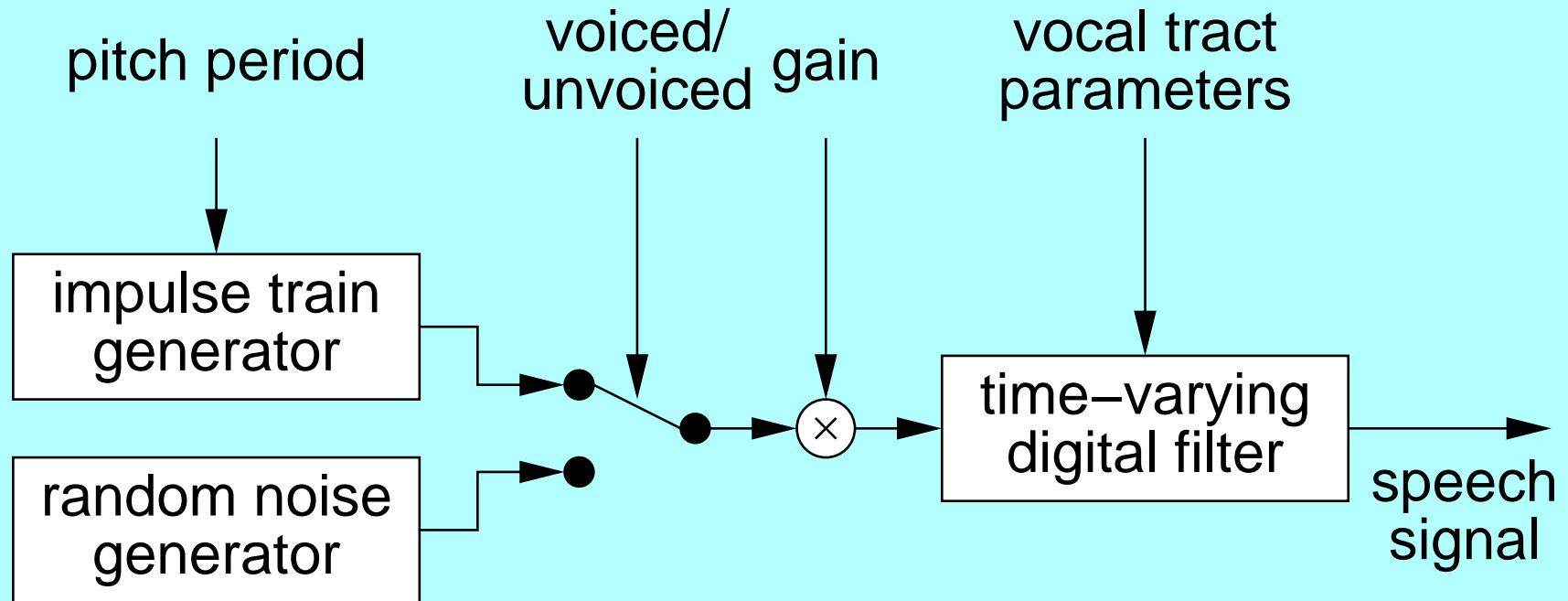
# Perceptual Audio Coders – What to listen for *Speech Codecs and Music*

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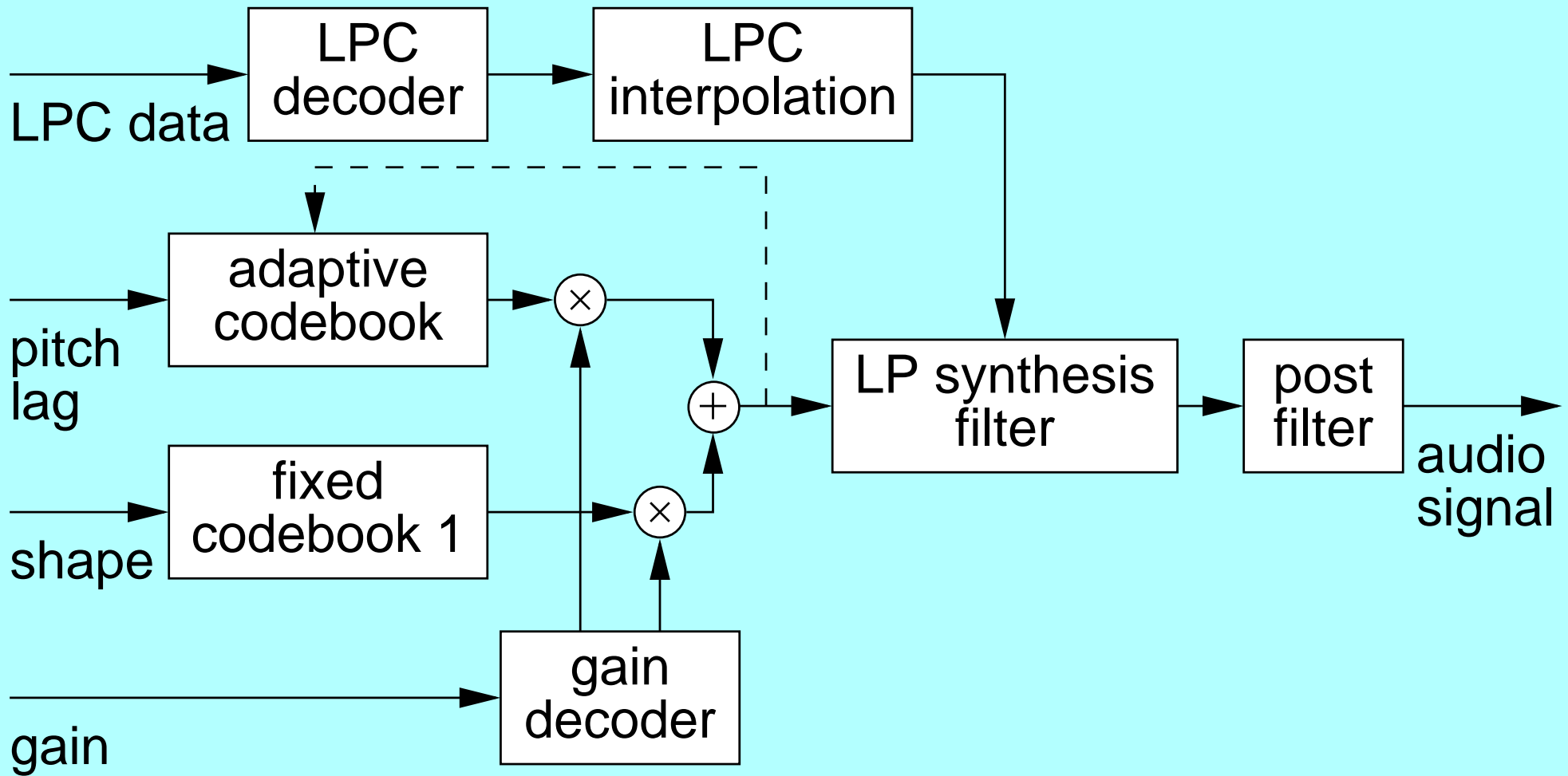
AES 109th Convention, Los Angeles, September 22-25, 2000

# Source Model for Speech Codecs



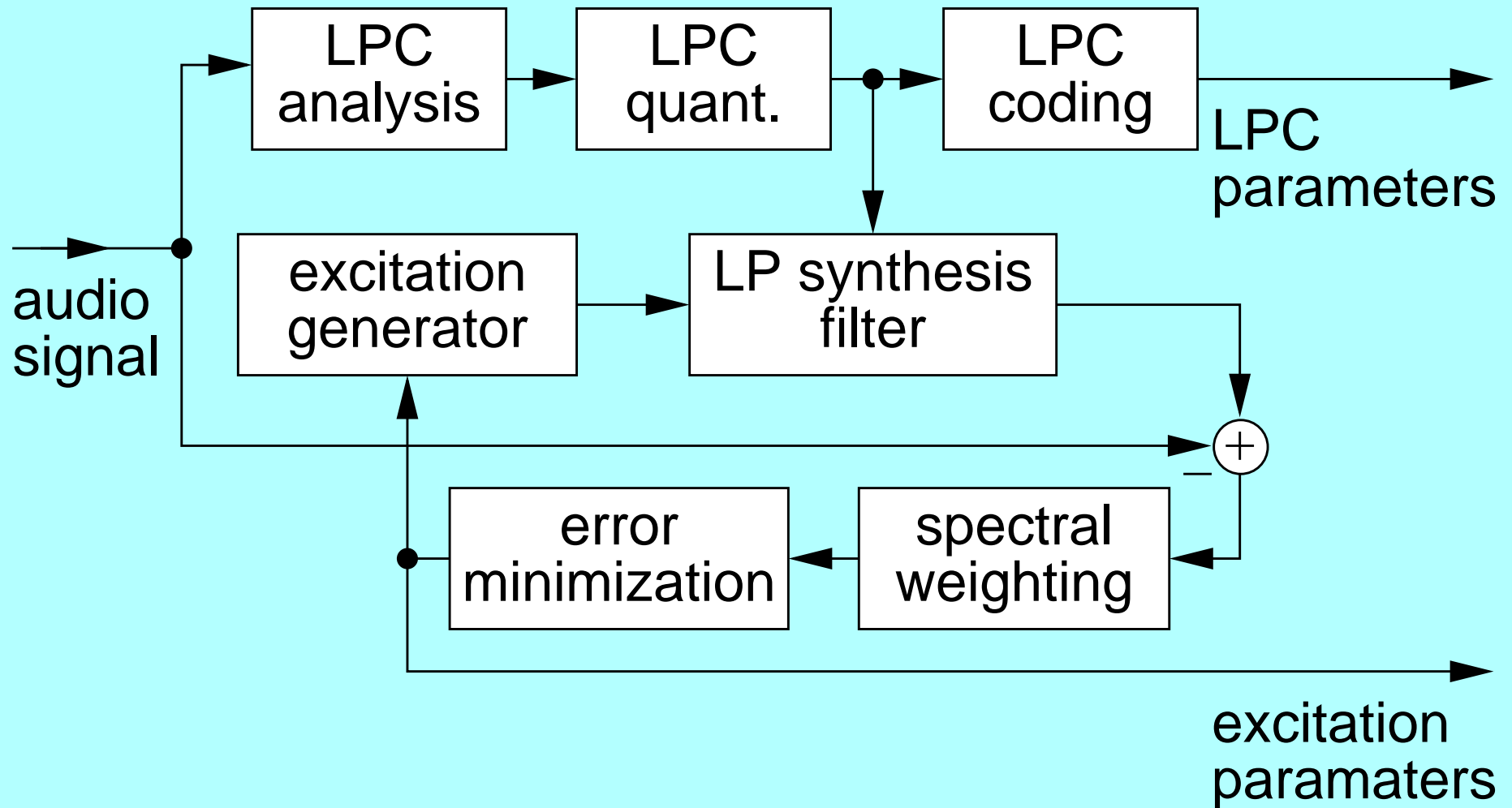
Simplified model of speech generation / synthesis

# Speech Codecs – How do they work?



Basic structure of a CELP decoder

# Speech Codecs – How do they work?



Basic structure of a CELP encoder

# Problems with music

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## Reasons for specific artifacts

- specified source model
  - only one harmonic component
  - coding and interpolation of LPC parameters
- simplified perception model
  - spectral weighting filter controlled by LPC analysis

# Examples – Narrowband

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male speech	original	coded
vocal	original	coded
tonal A	original	coded
tonal B	original	coded
transients	original	coded
radio	original	coded
music A	original	coded
music B	original	coded

sampling frequency: 8 kHz, bit rate: 6 kbit/s

# Examples – Wideband

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male speech	original	coded
vocal	original	coded
tonal A	original	coded
transients	original	coded
radio	original	coded
music A	original	coded
music B	original	coded

sampling frequency: 16 kHz, bit rate: 16 kbit/s