

Fourier Filtering

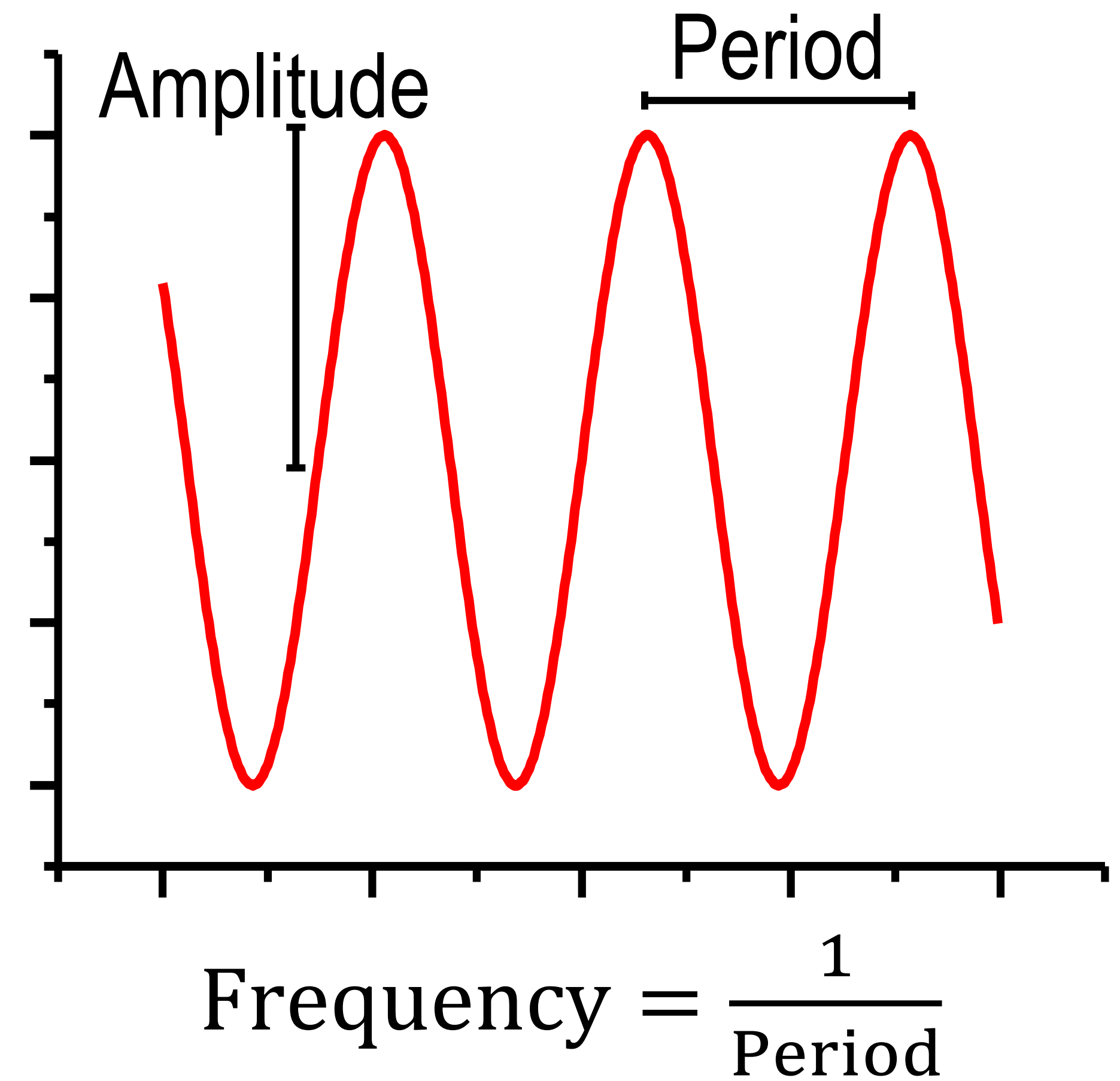
Image Processing & Analysis for Life Scientists

Olivier Burri, Romain Guiet & Arne Seitz

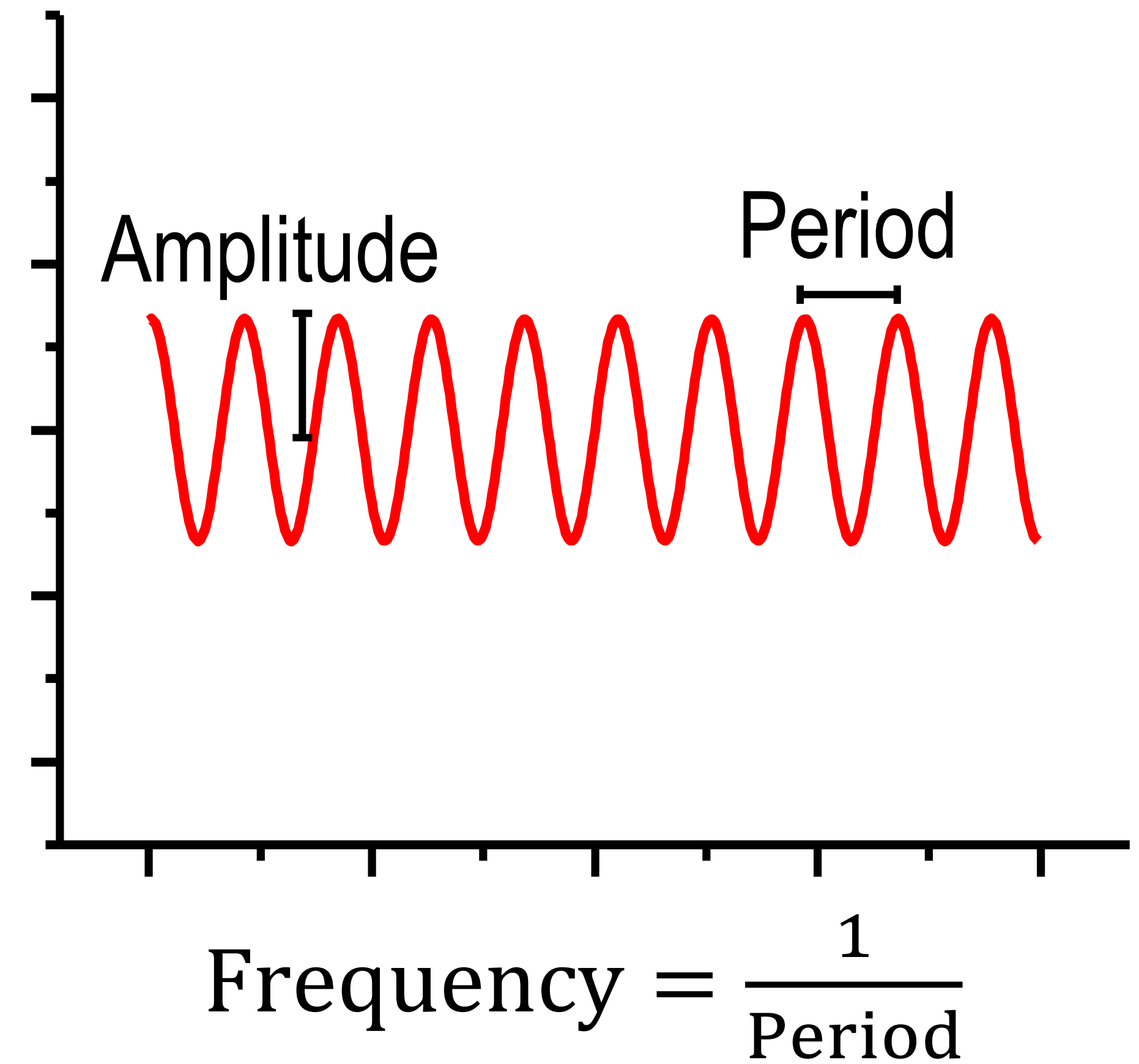
Fourier Filtering

- Fourier Intuition
- Applications
 - Background Removal
 - Removing Stripes
- Fourier in Fiji

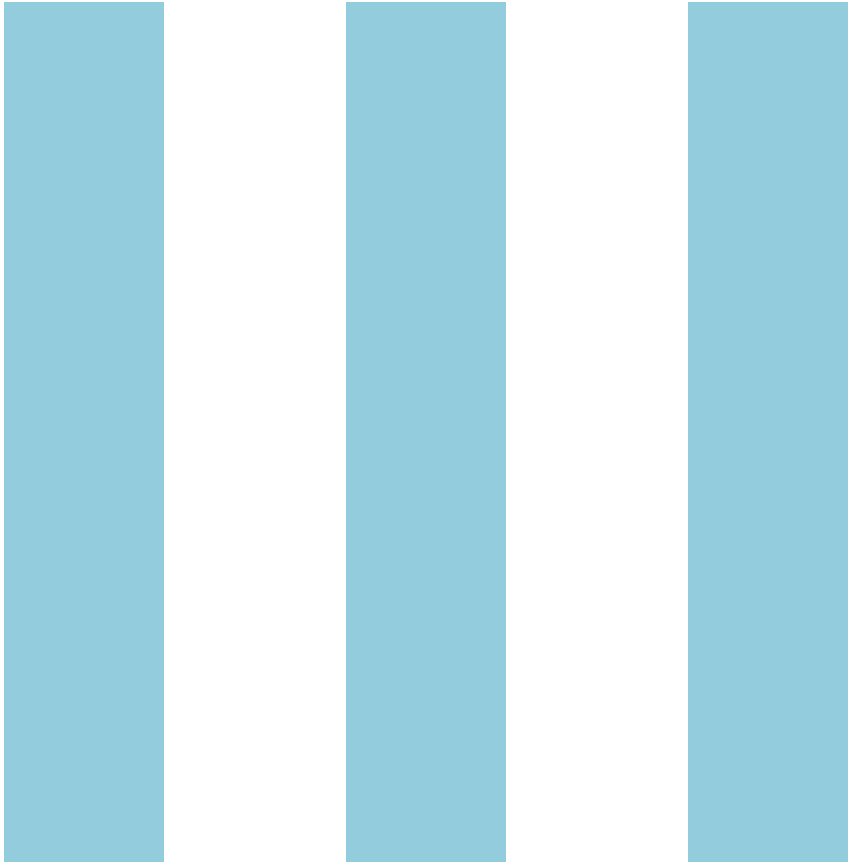
Thinking in Sine Waves



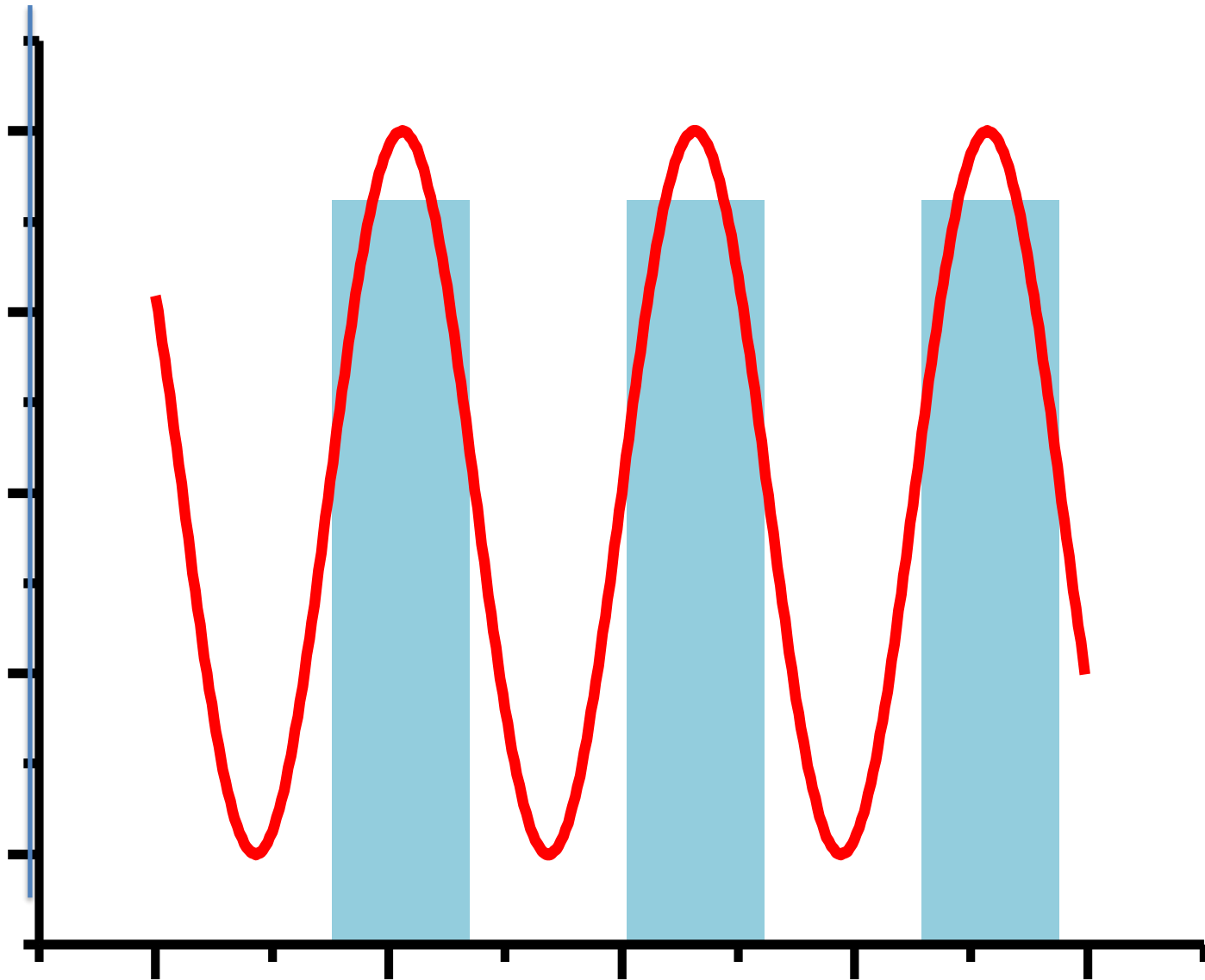
Thinking in Sine Waves



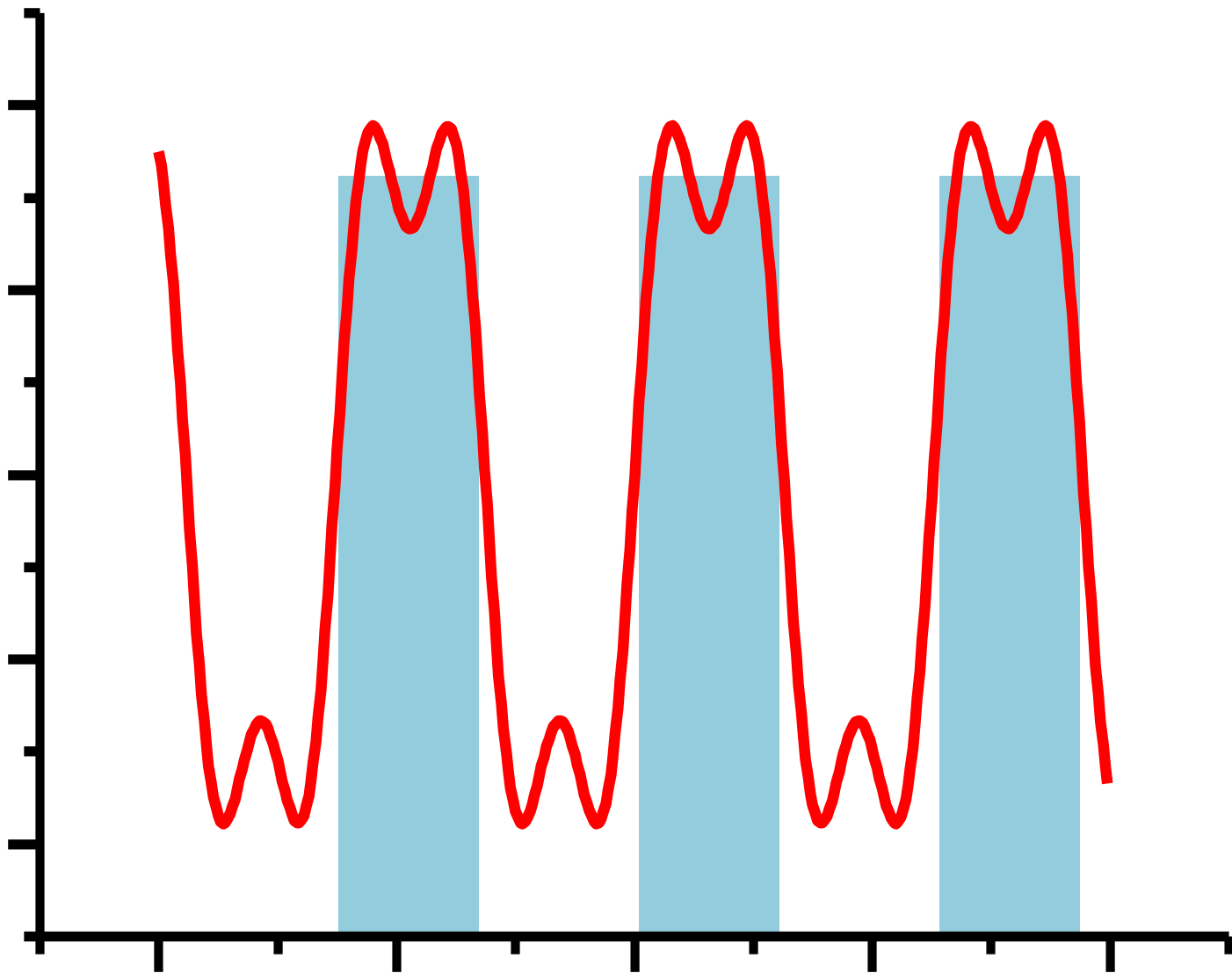
Thinking in Sine Waves



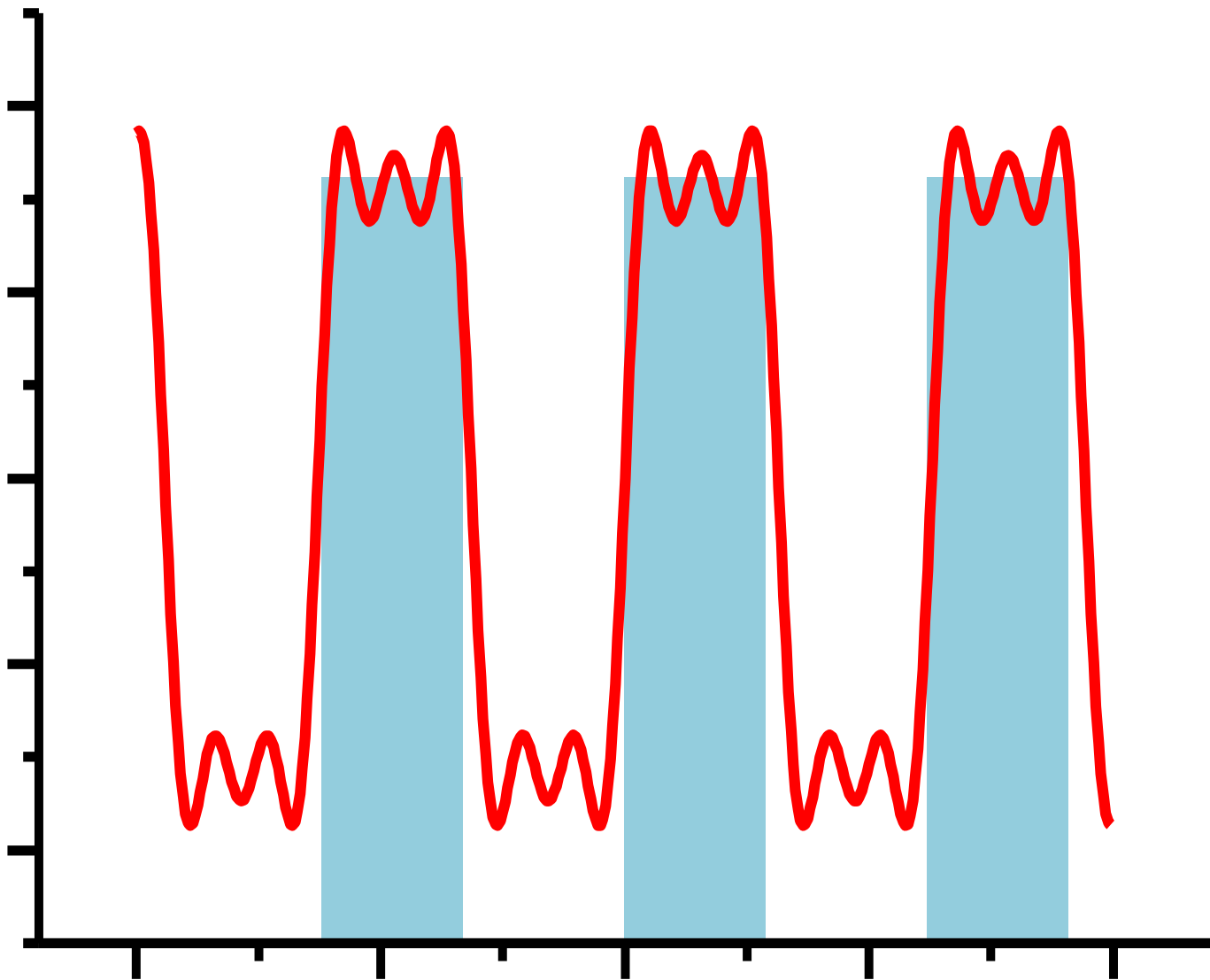
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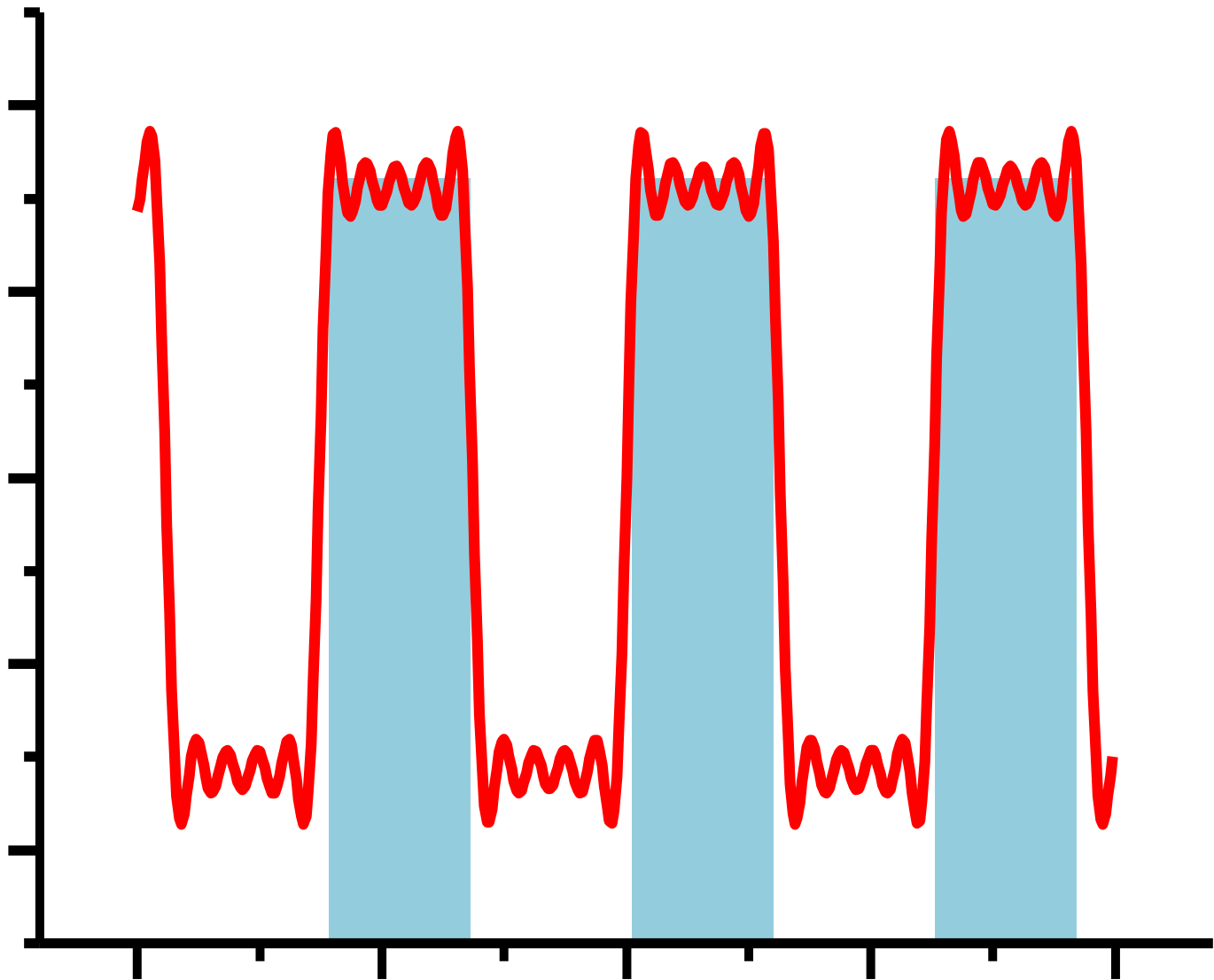
Thinking in Sine Waves



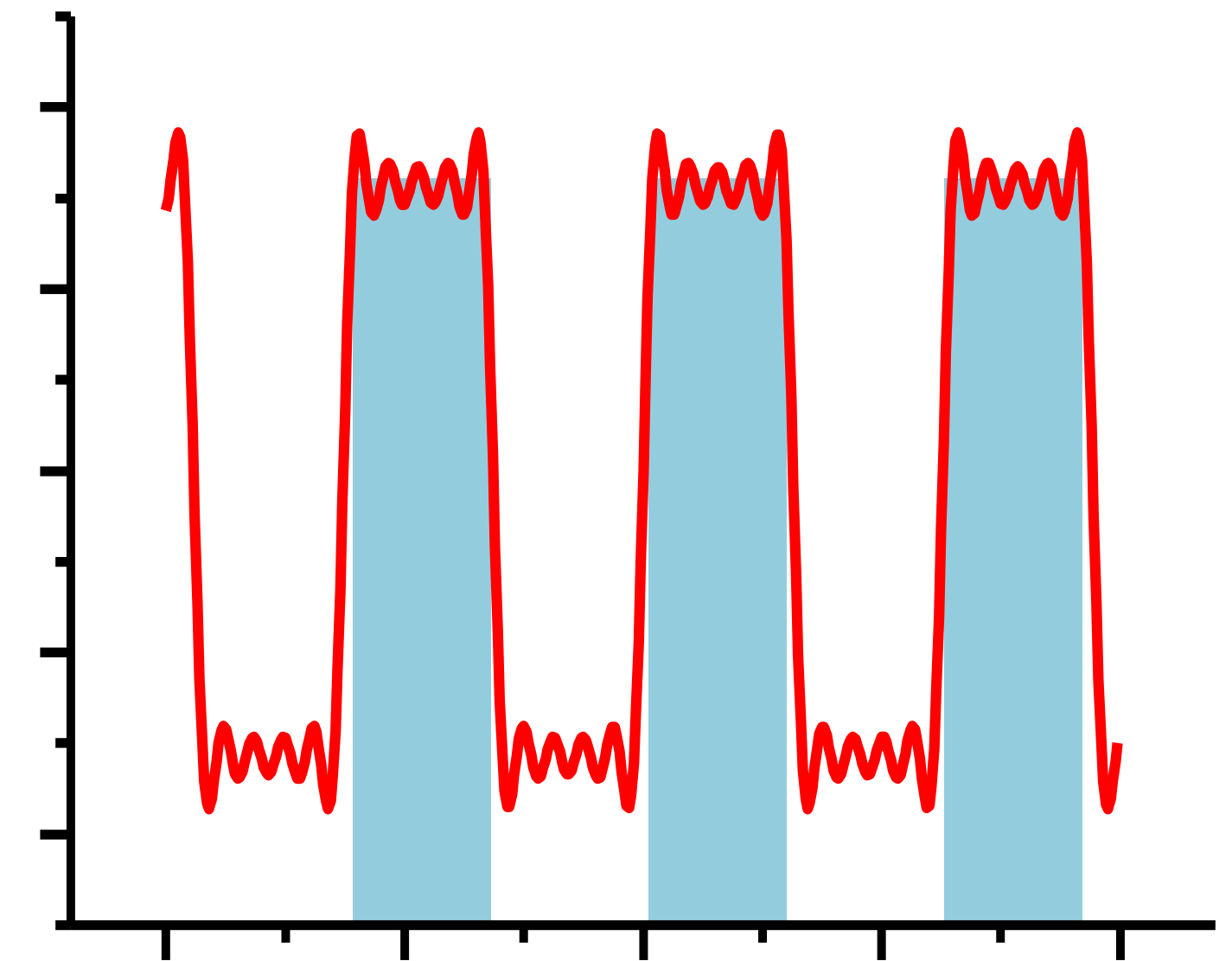
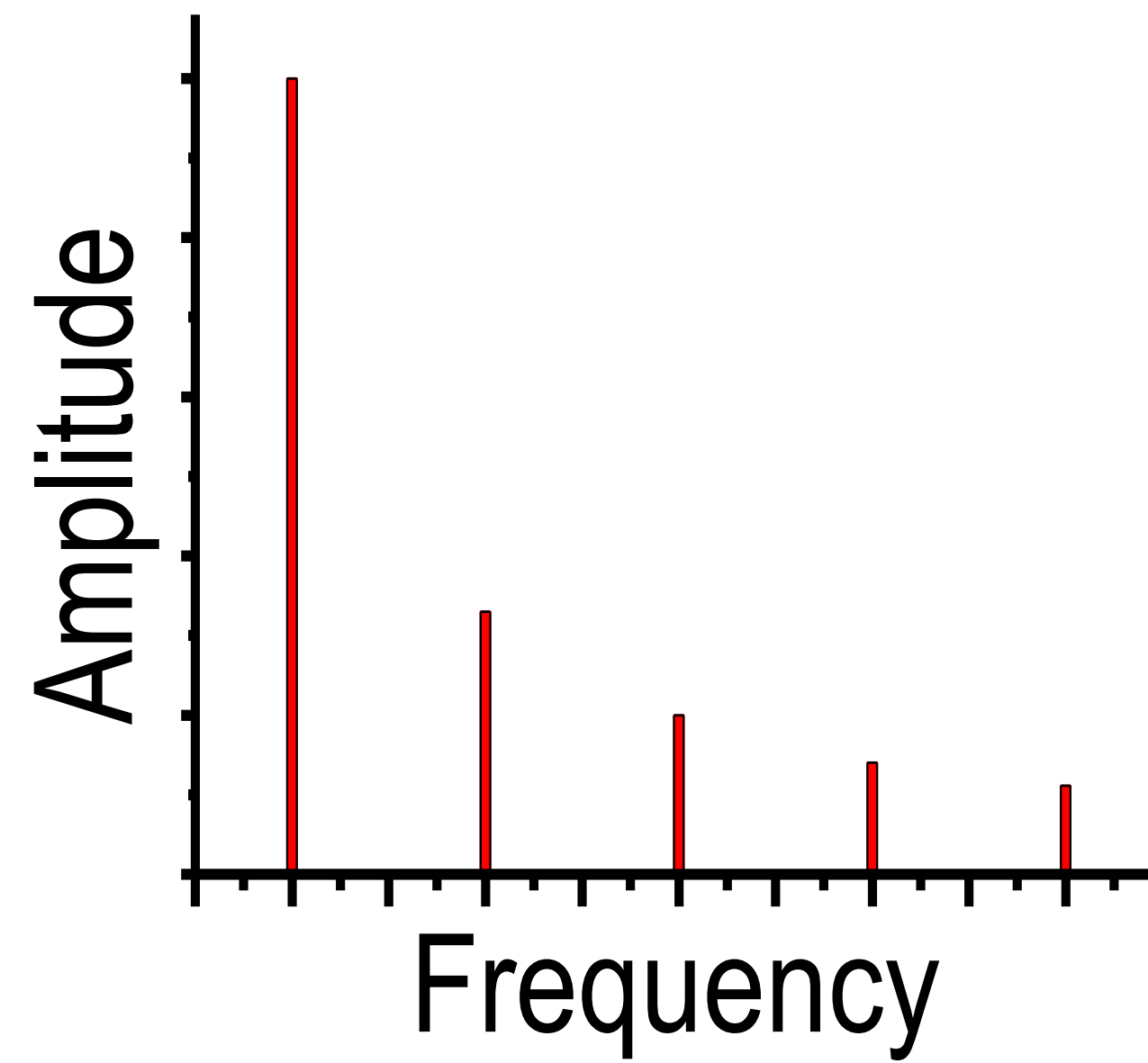
Thinking in Sine Waves



Thinking in Sine Waves

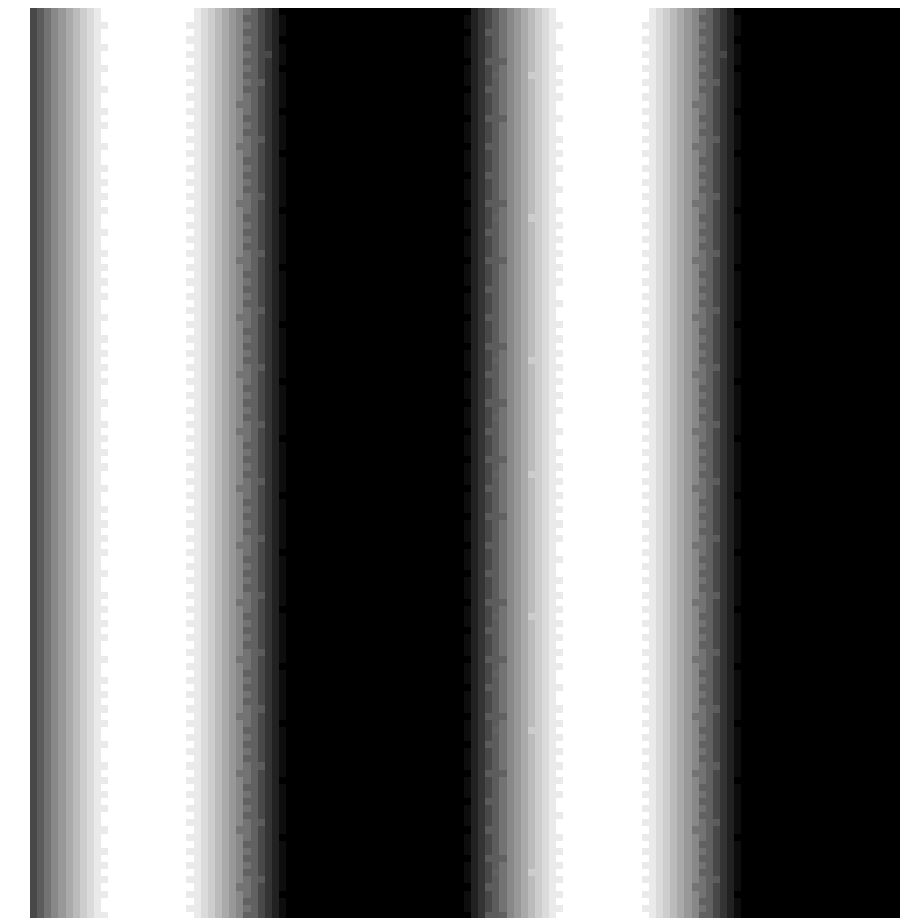


Thinking in Sine Waves

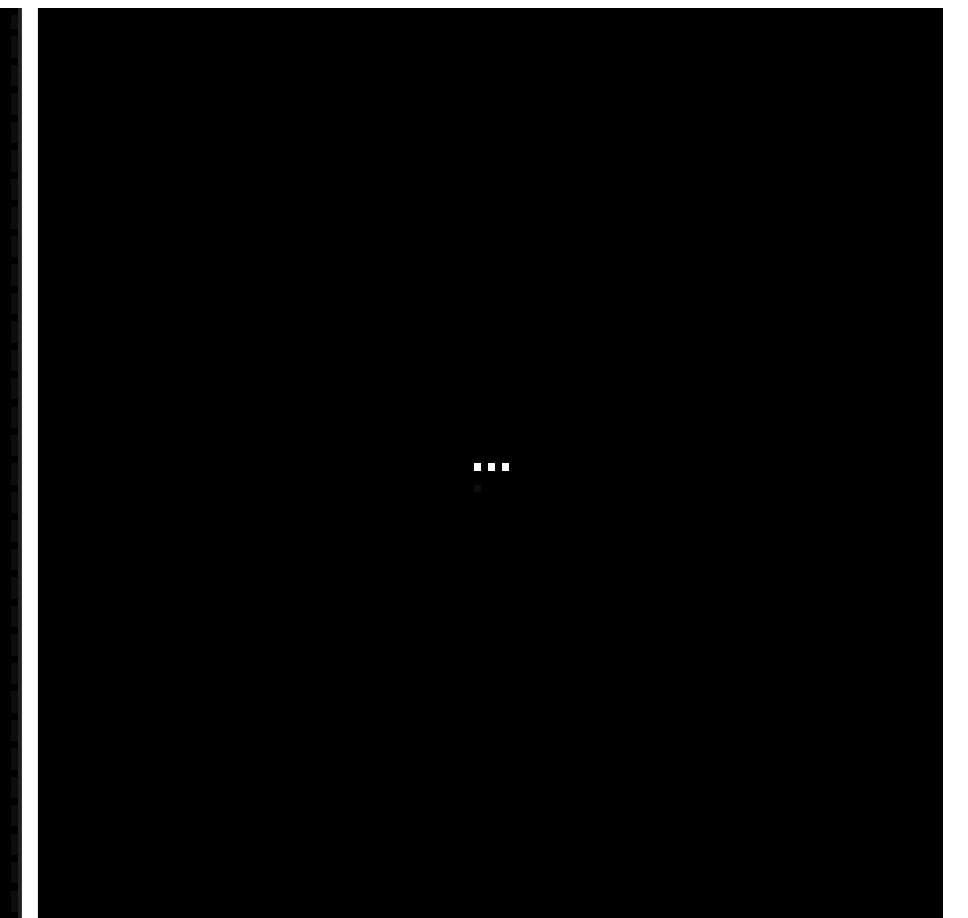


Going 2D

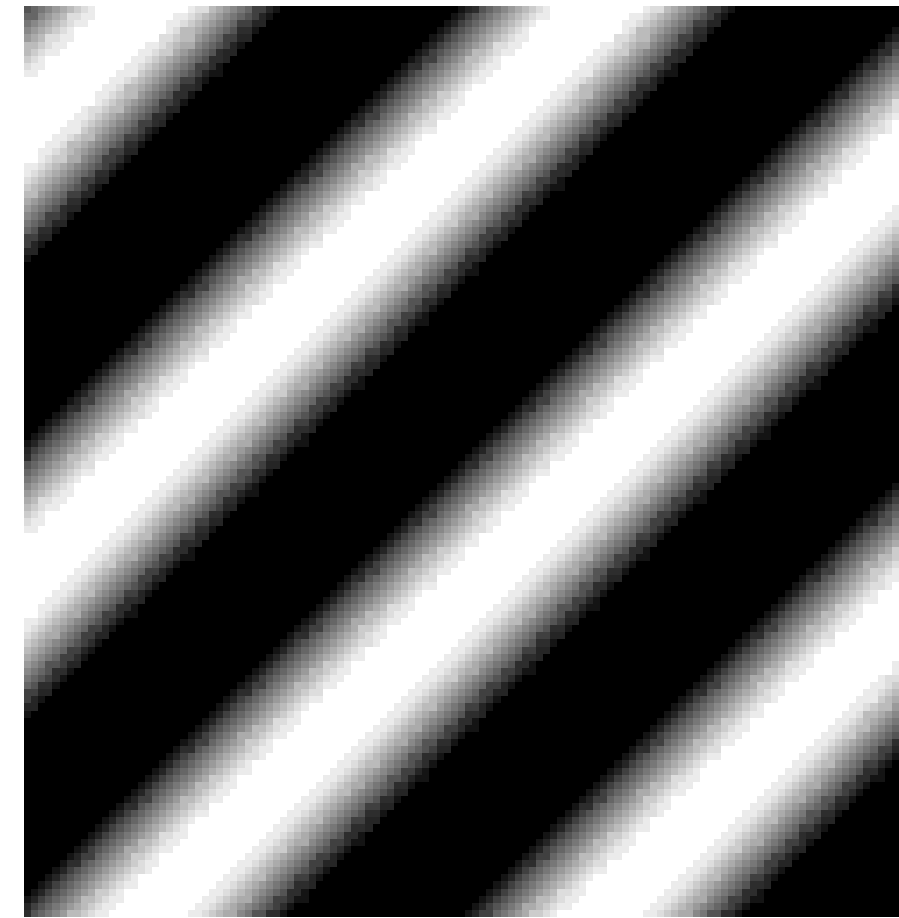
Input



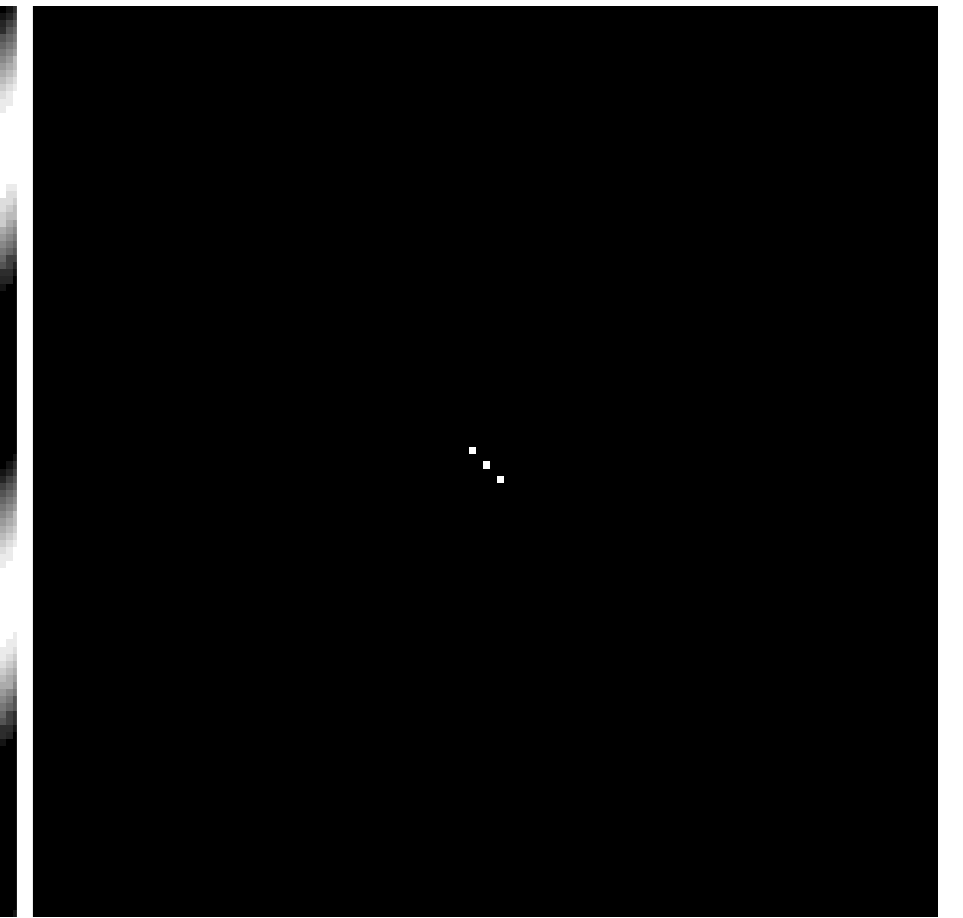
Fourier



Input

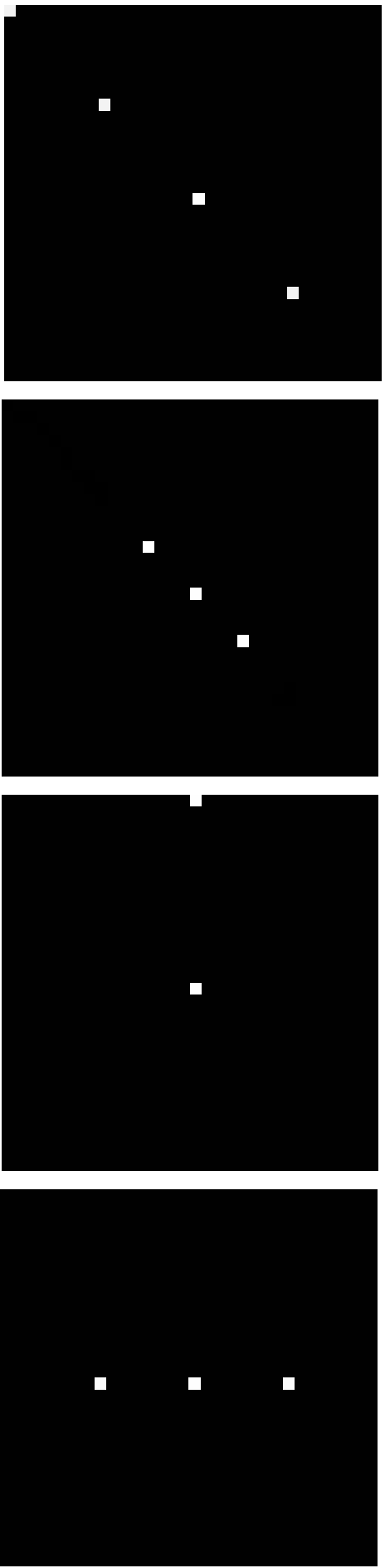
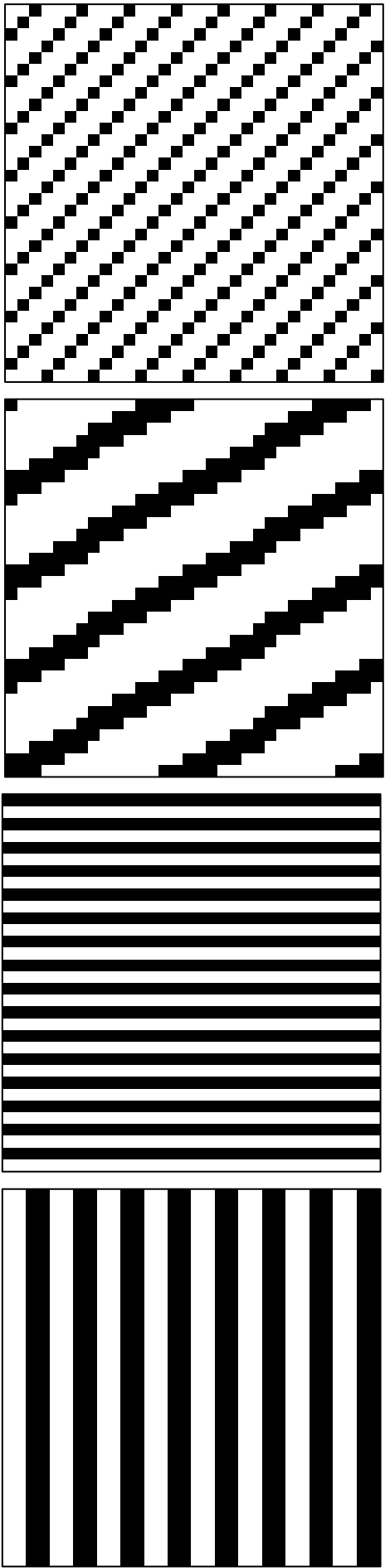
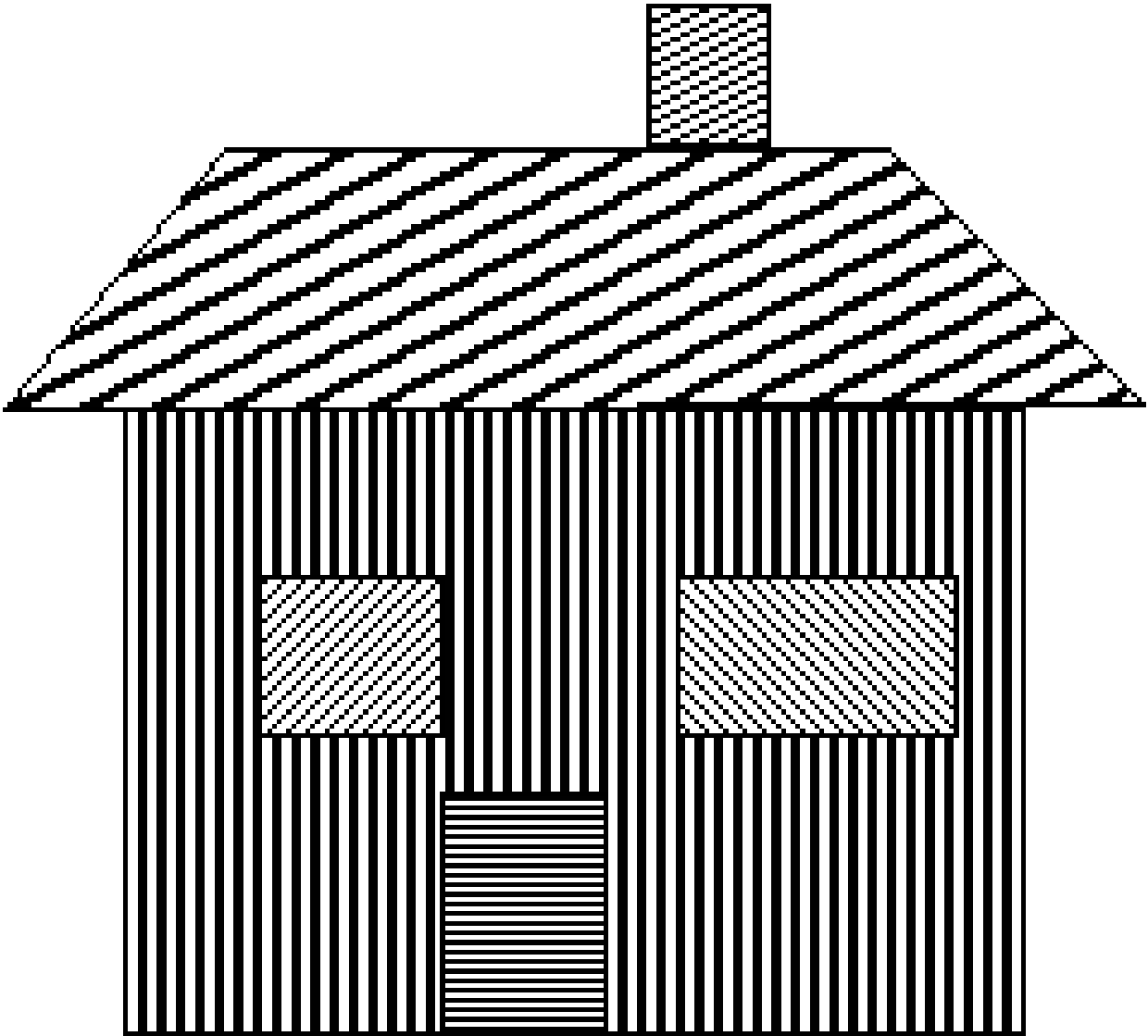


Fourier

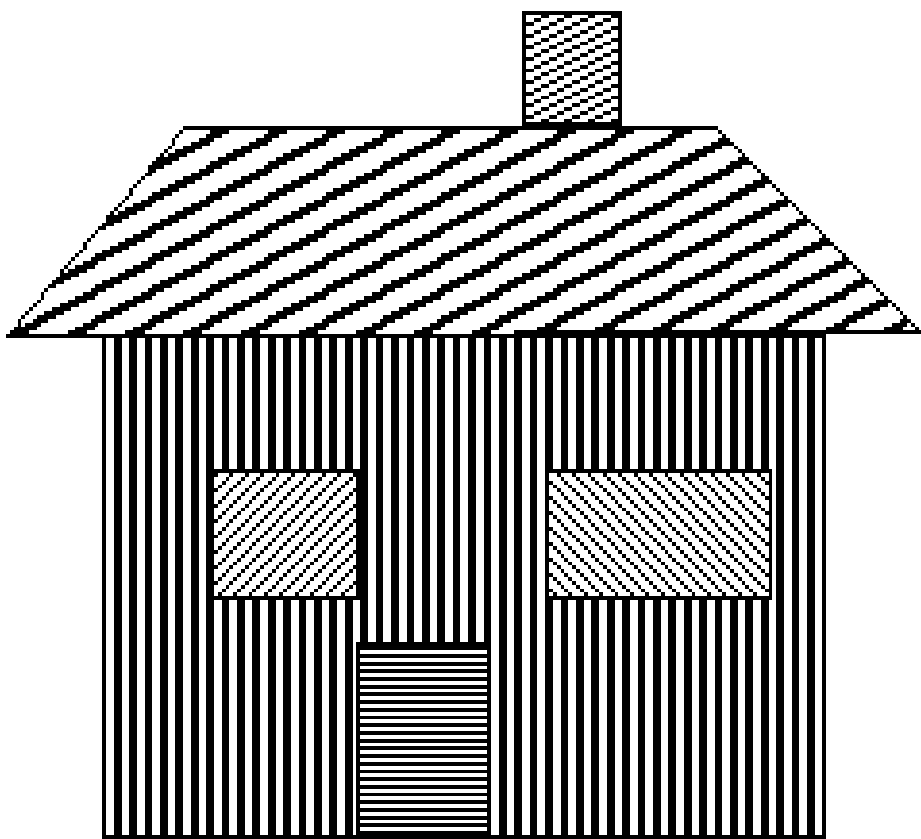
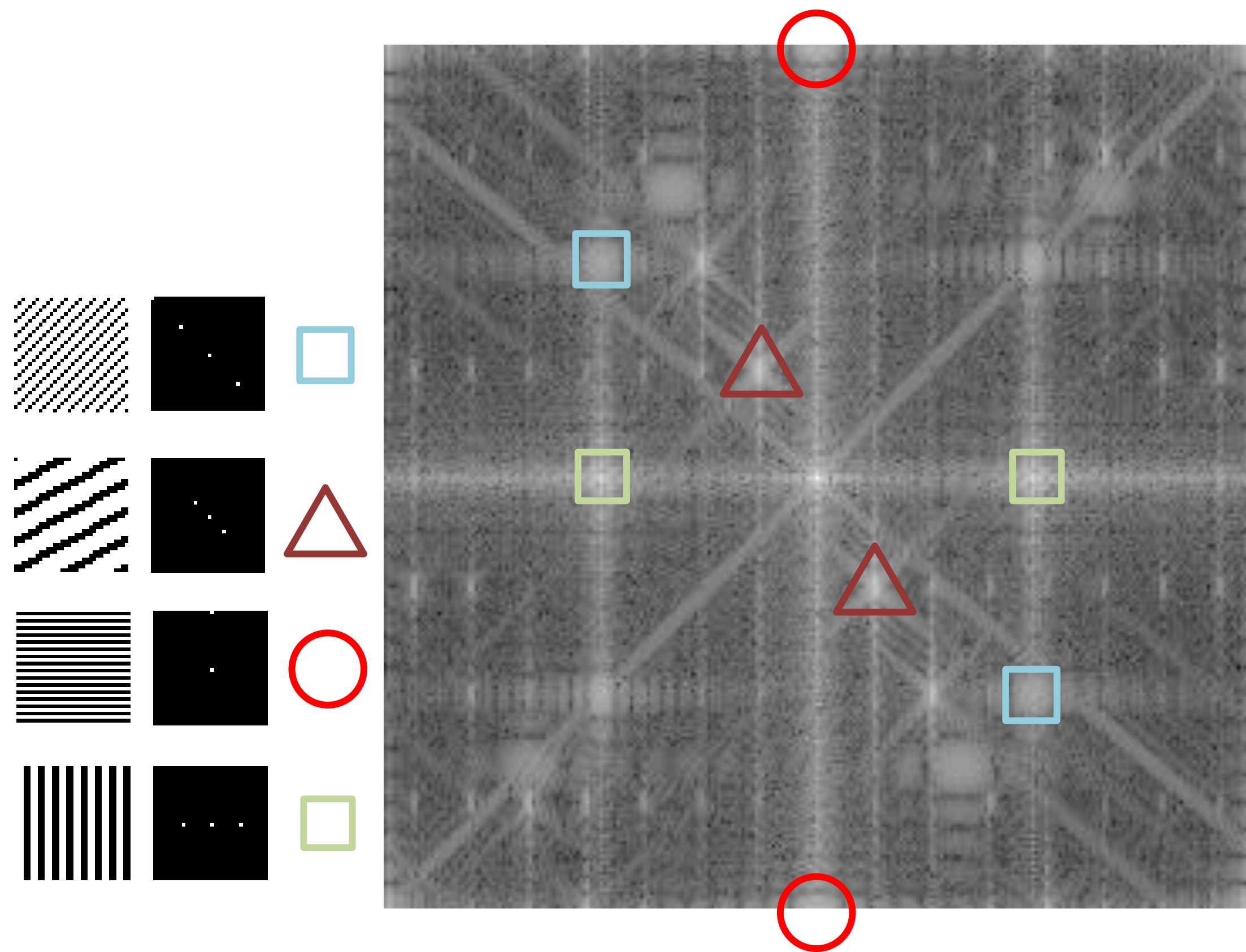


- Radial symmetry around center
- Higher frequencies away from center
- Oriented 90 degrees from input

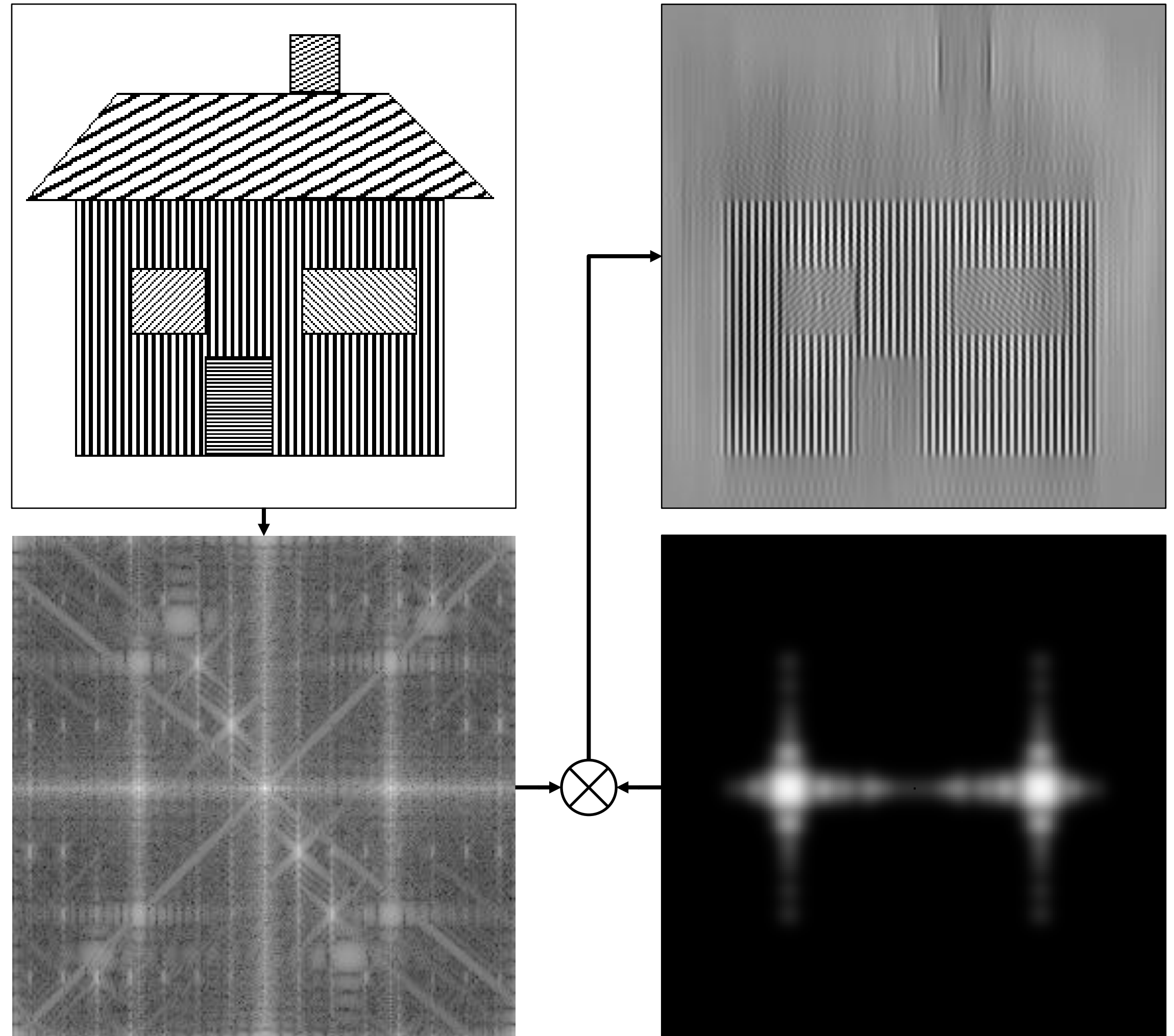
The Fourier House



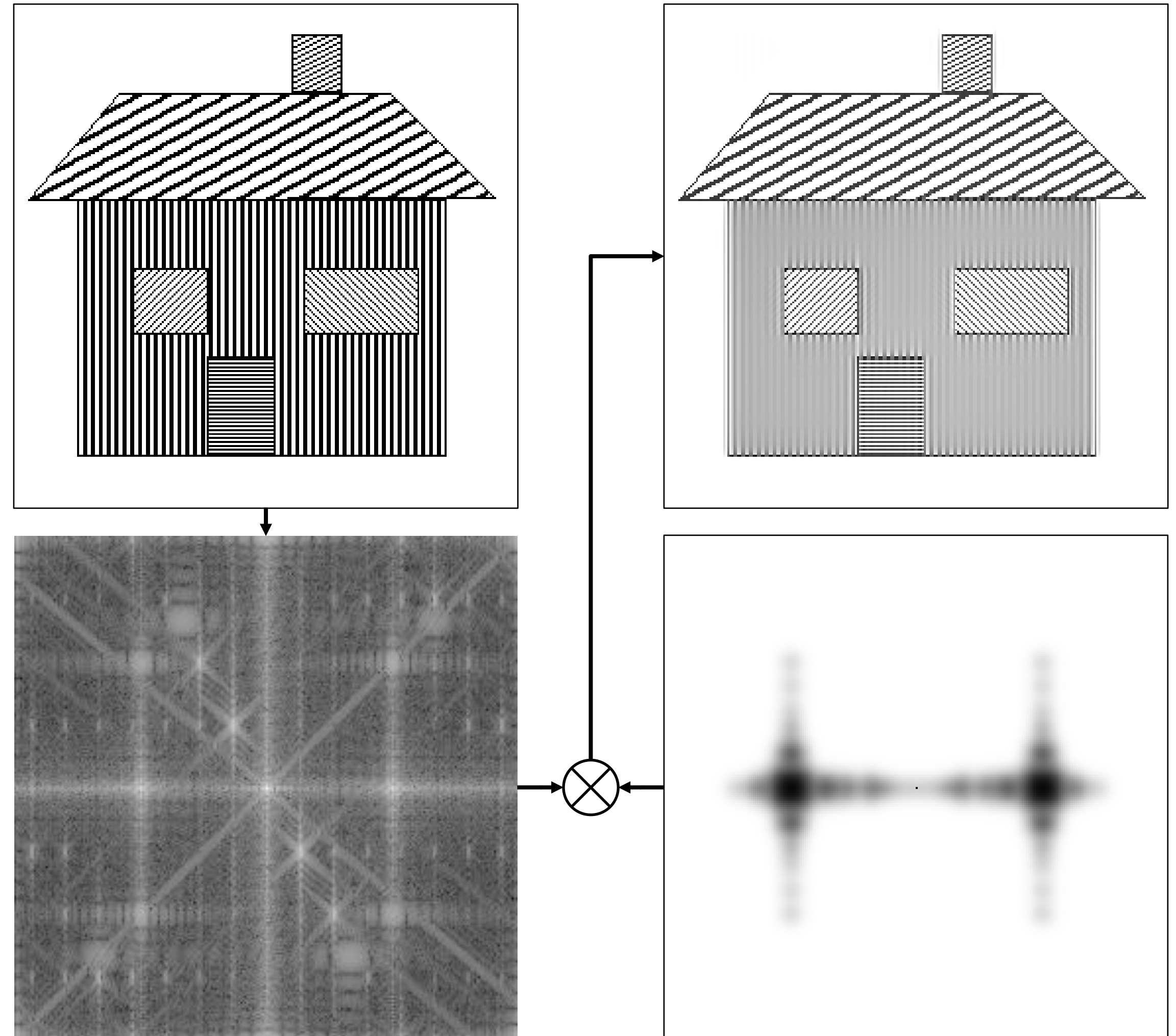
Finding Dominant Frequencies



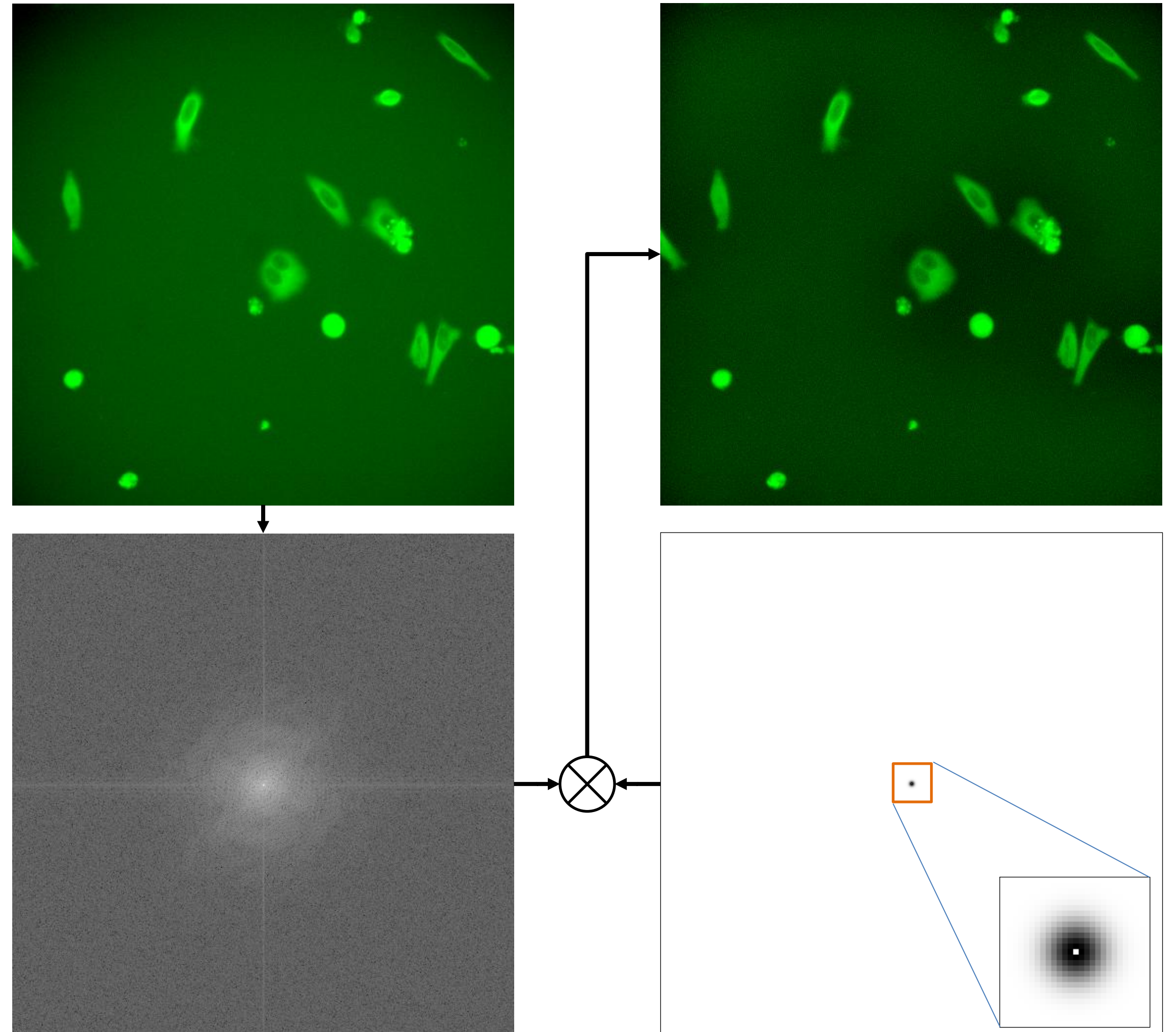
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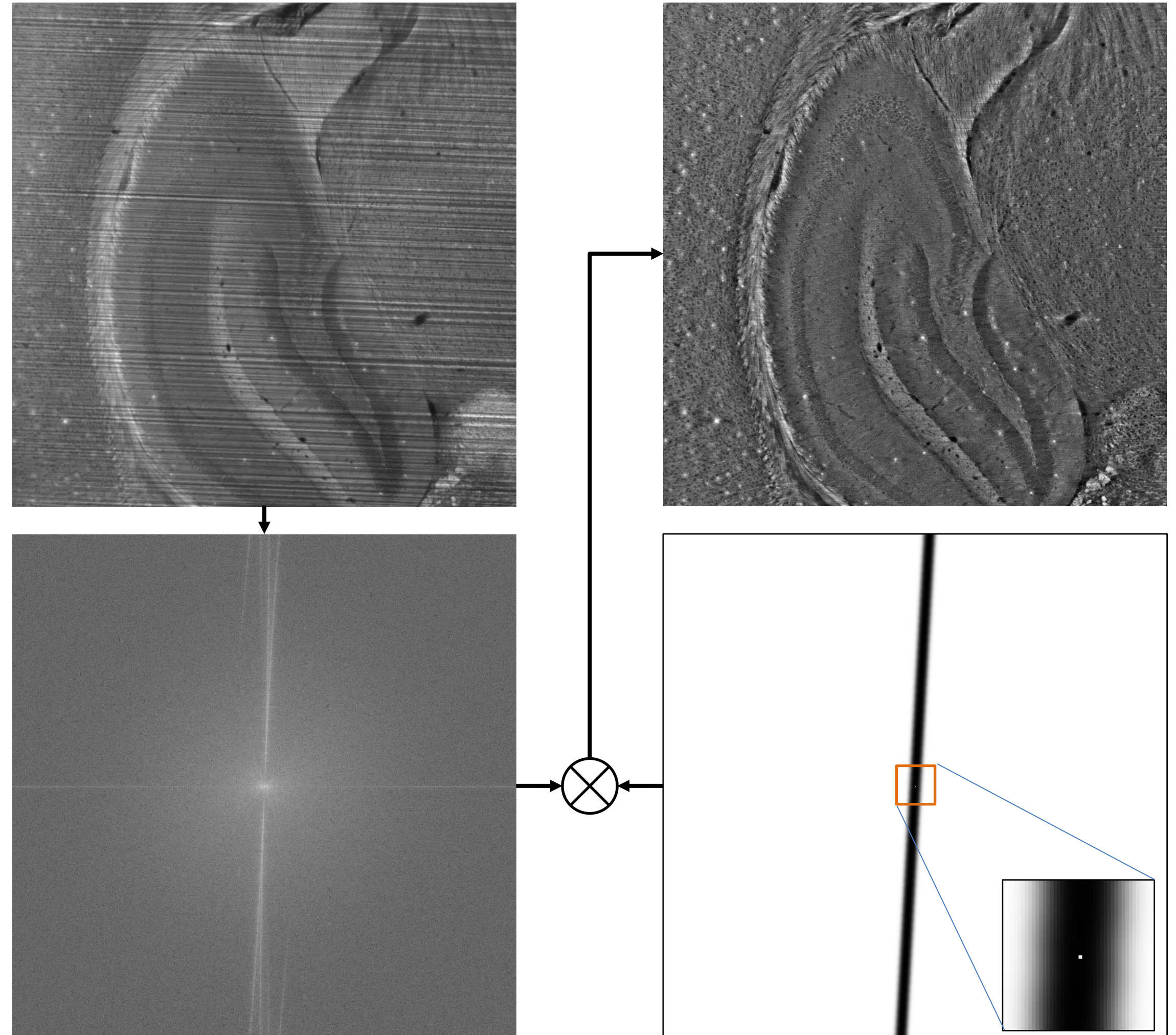
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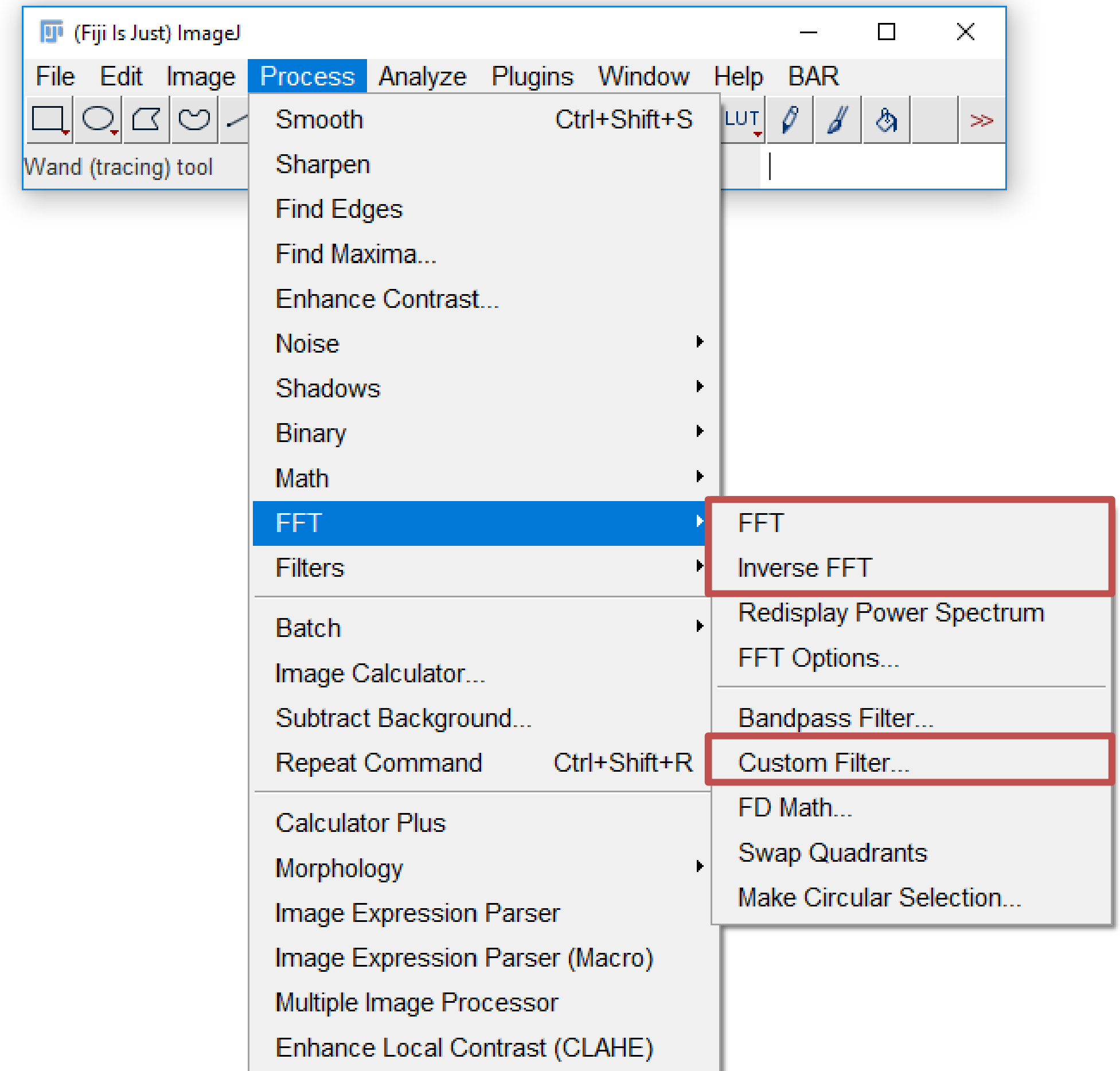
Background Removal



Stripe Removal



Fourier In Fiji



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