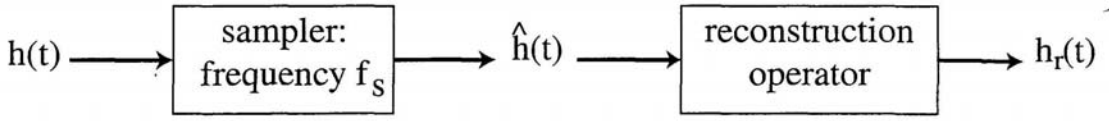
NISHIMURA JAN. 2000

Sample and Interpolate to Recover the Signal

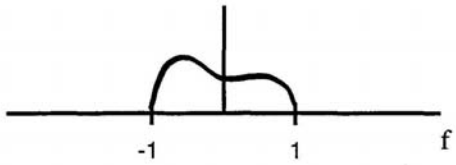


For the following cases:

State the *lowest* sampling frequency f_s necessary to recover h(t) from $\hat{h}(t)$ (If possible)

Specify the required reconstruction operator.

1) h(t) = g(t), with Fourier transform G(f)



2) $h(t) = \dot{g}(t)$

3) $h(t) = g^3(t)$

4) $h(t) = g(t) \exp(-i2\pi t)$

5) $h(t) = g(t) \cos(6\pi t)$

+ assorted questions throughout; e.g.,

2) how to reconstruct g(t)?

5) with your answer for fs, is h(t) recoverable if sampler delayed by some ε?