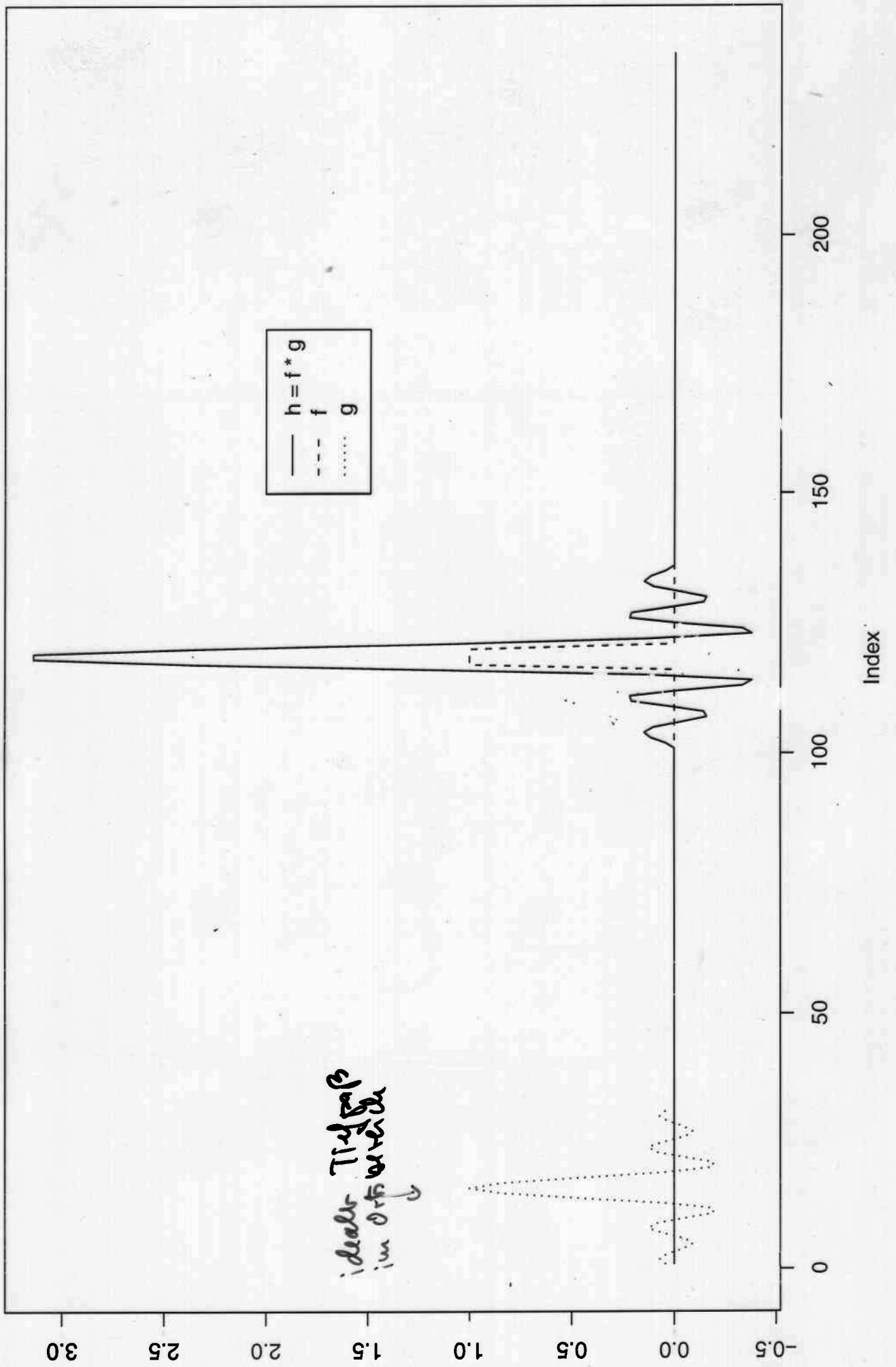


Figure 4.32 (a) Original image; (b)–(f) results of ideal lowpass filtering with the cutoff frequency set at the radii show in Fig. 4.31(b).



idealer Tiefpaß
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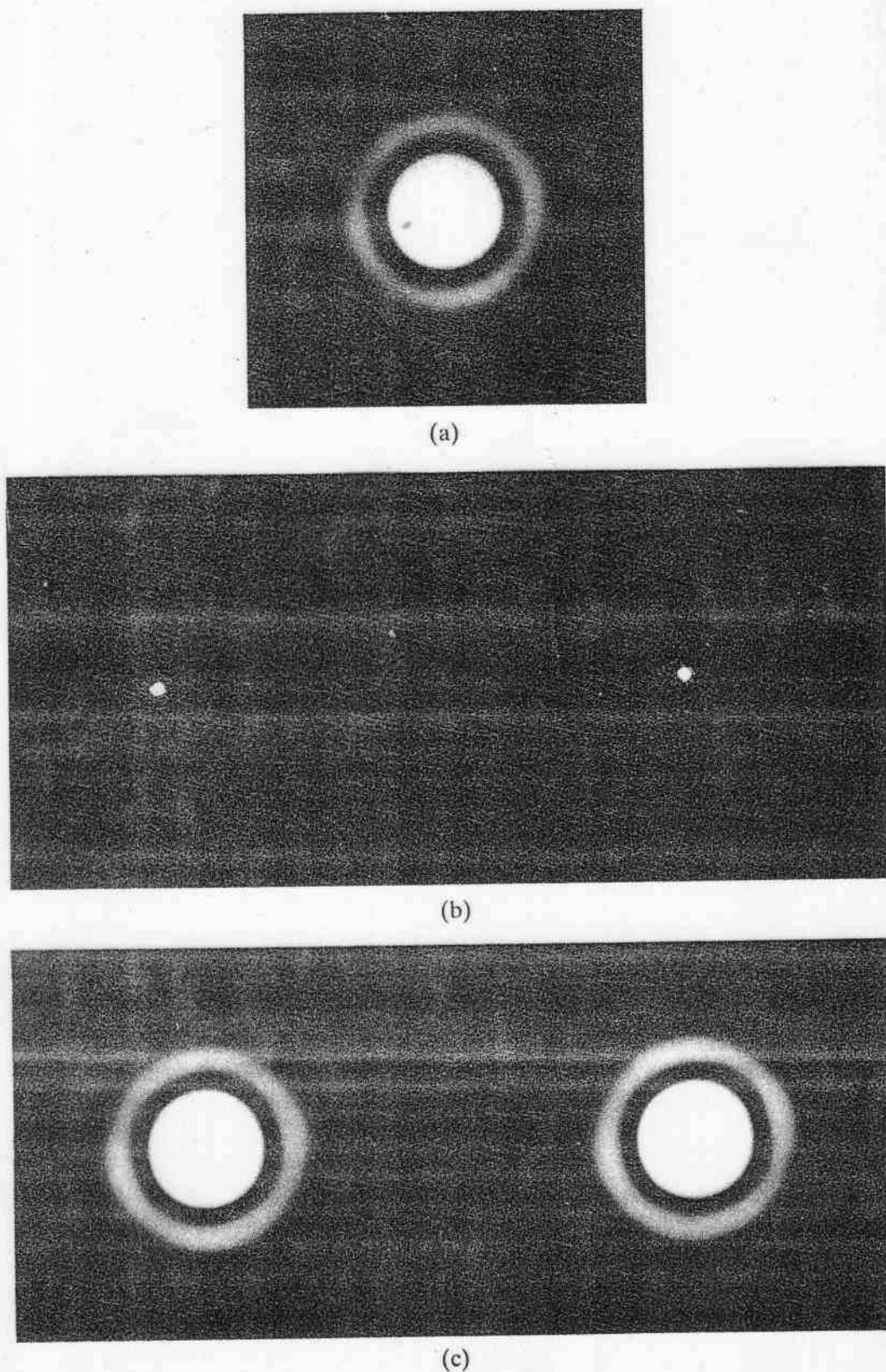
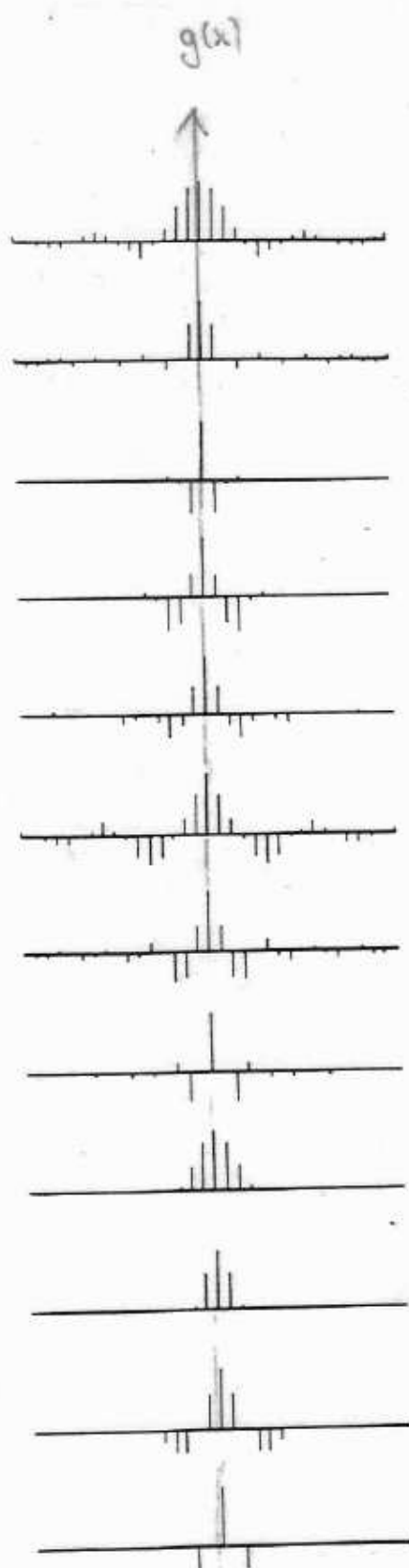
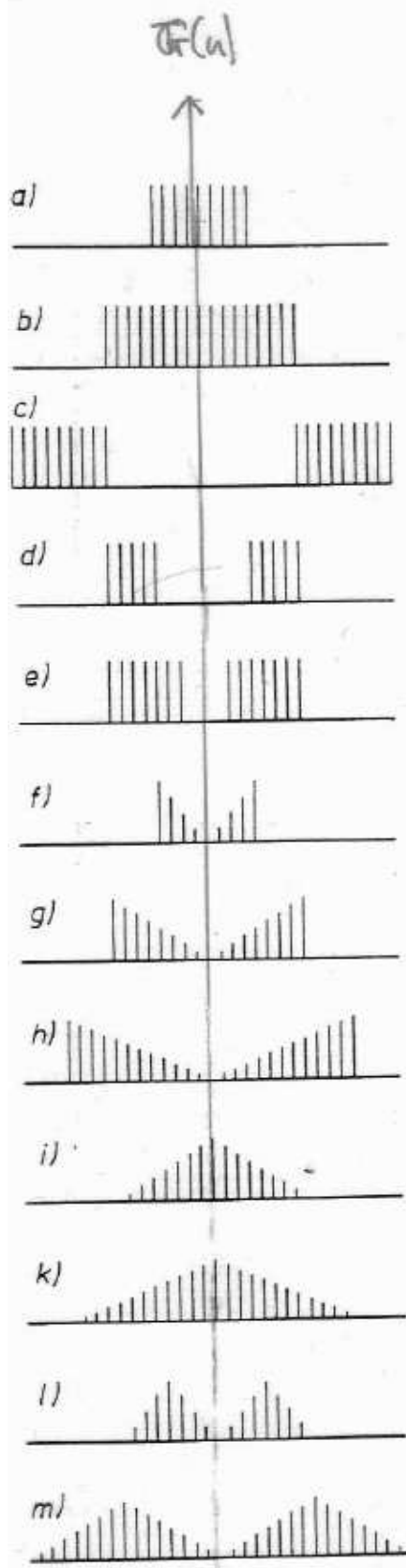
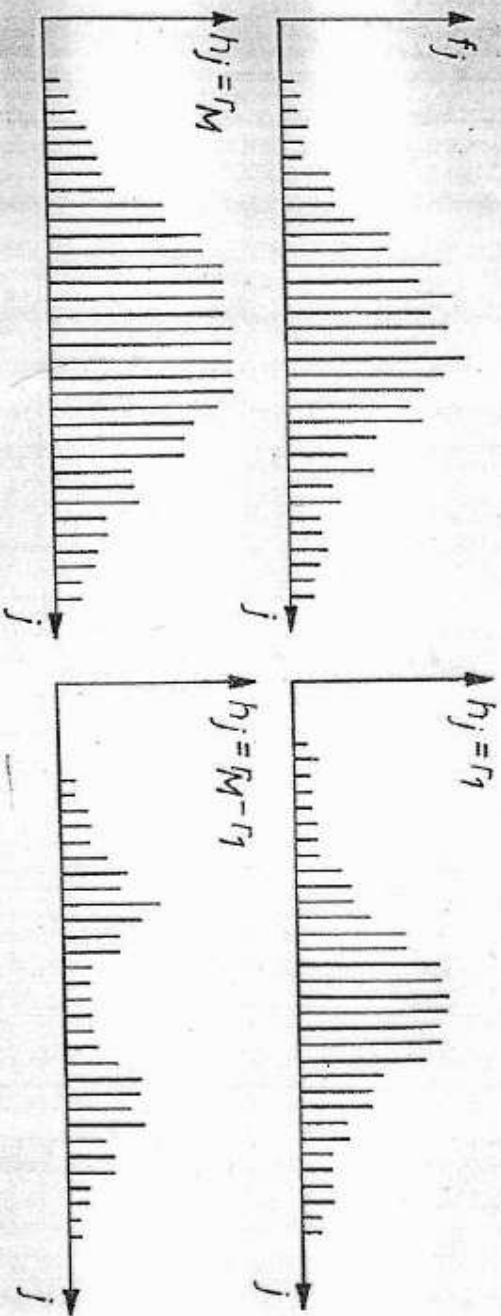


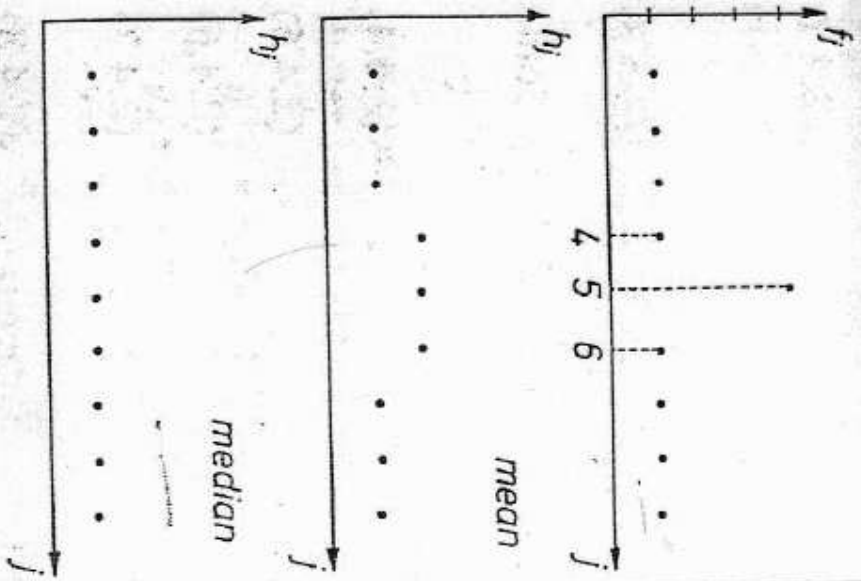
Figure 4.33 Illustration of the blurring process in the spatial domain: (a) blurring function $h(x, y)$ for an ideal lowpass filter; (b) a simple image composed of two bright dots; (c) convolution of $h(x, y)$ and $f(x, y)$.



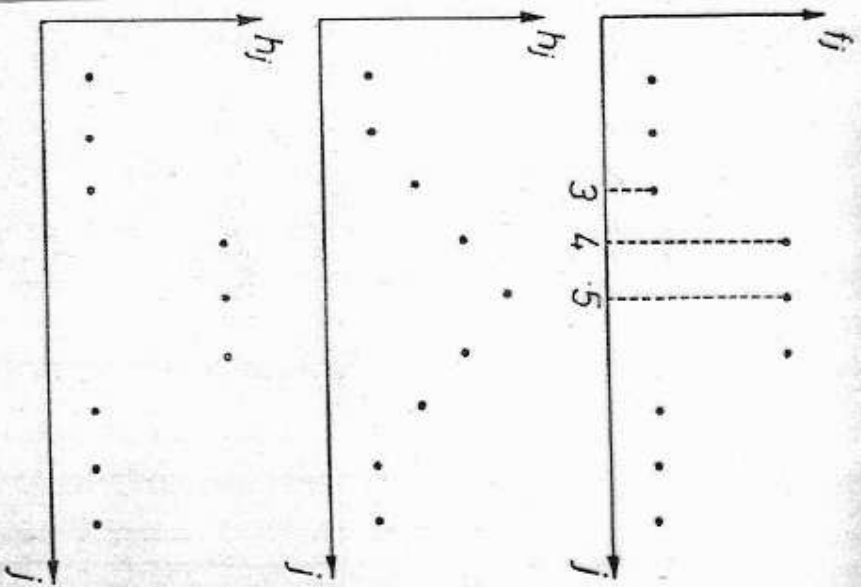


$$S = \sum_{i=1}^n c_i \quad c_1 \neq 1, \quad c_i \neq 2 \}$$

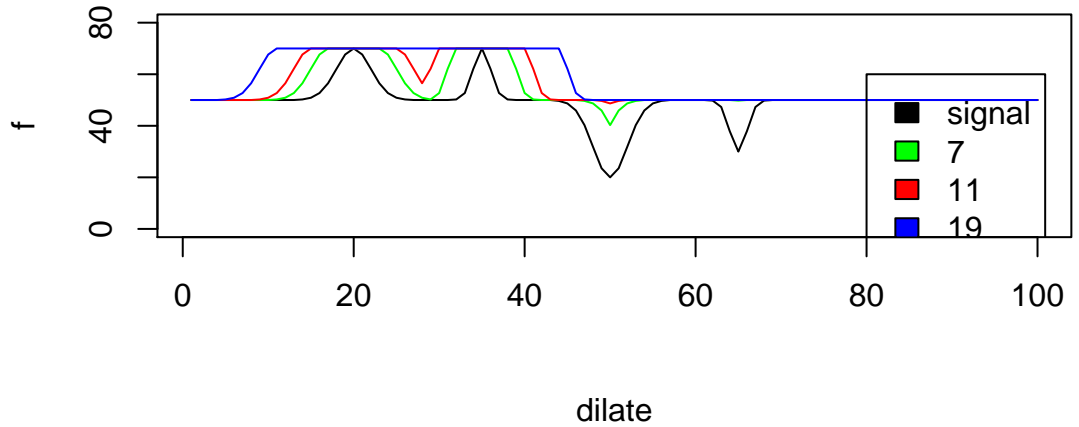
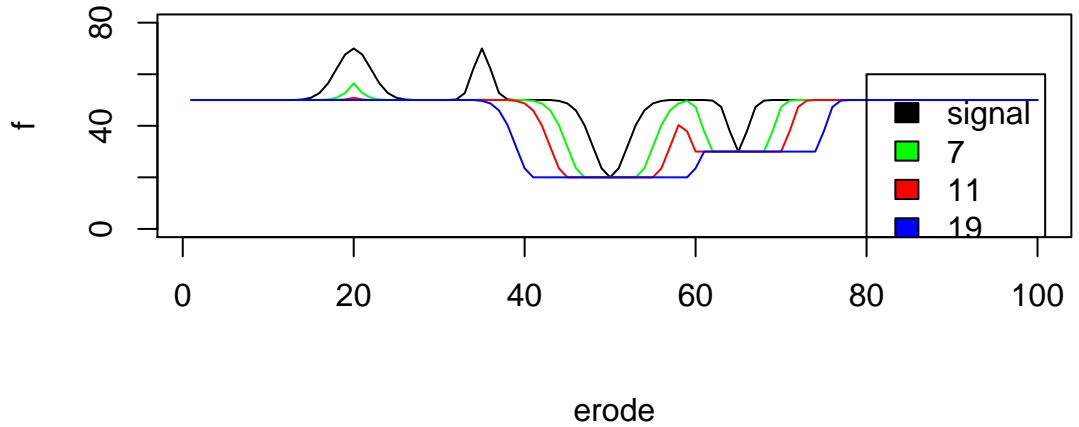
Cluster 1

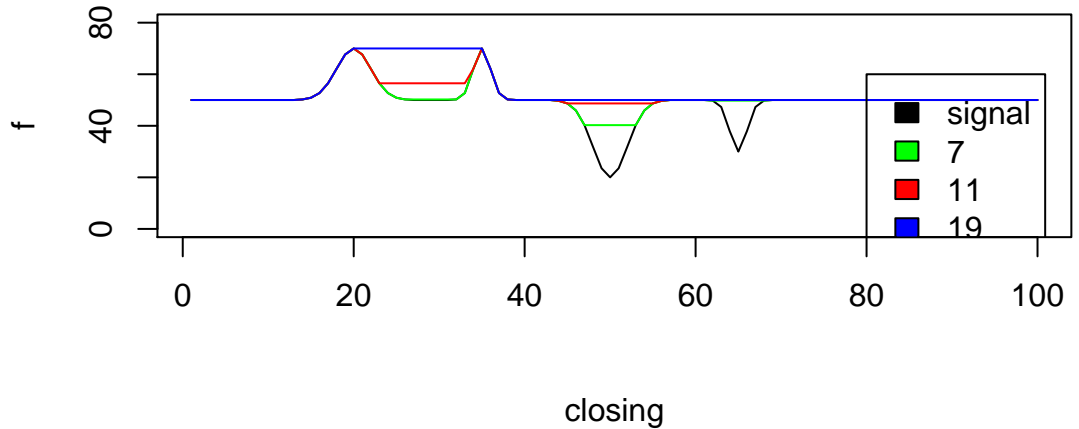
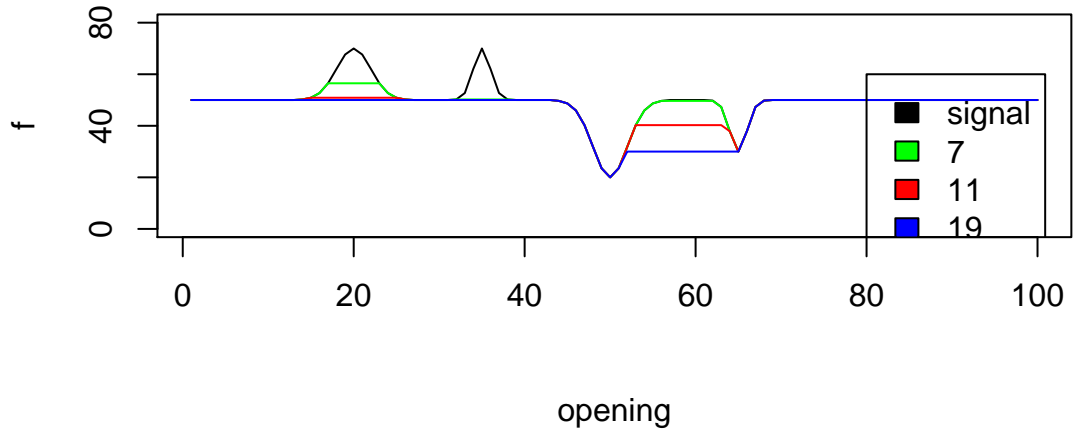


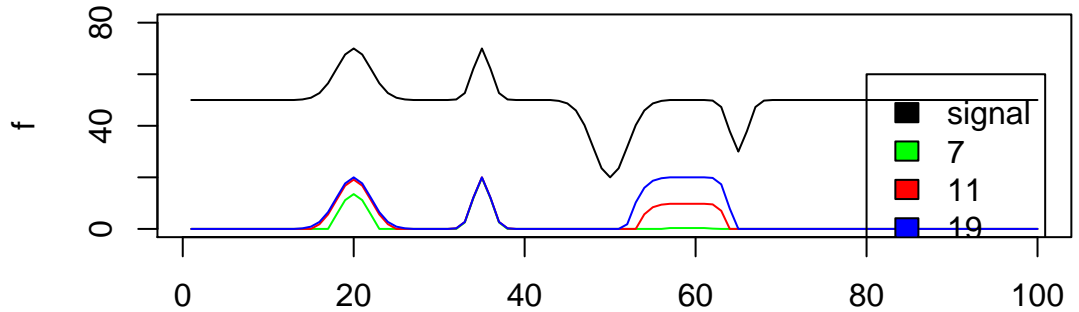
Cluster 2



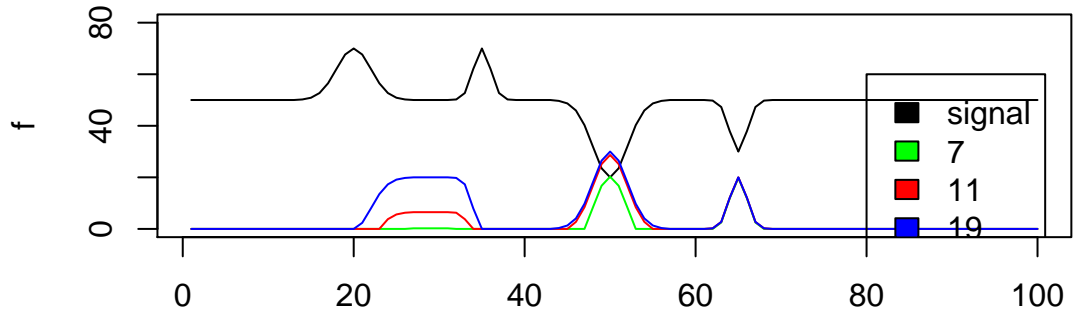
$$S = \{i, i \pm 1, \dots\}$$







top-hat (opening)



top hat (closing)