Rhythmic Grid

Micro-block formula

Given:

C_w	– canvas width, px	
$R_{w:h}$	– aspect ratio (width:height)	
b	– baseline height, px	
c	– number of columns	
g	– gutter width, px	

Find:

(w_μ, h_μ)	– width and height of a micro-block	
G_w	– grid width, $G_w \le C_w$	

Rhythmic blocks:

$$\{(w_\mu, h_\mu) \mid h_\mu \equiv 0 \pmod{b} \ \wedge \ G_w + g \equiv 0 \pmod{w_\mu + g}\}$$

The smallest and the largest micro-block fitting the rhythm:

$$h_{\mu_{min}} = \mathrm{lcm}(b, R_h)$$

$$w_{\mu_{min}} = h_{\mu_{min}} \cdot R_{w:h}$$

$$w_{\mu_{max}} = \left\lfloor \left\lfloor \frac{C_w + g}{c} - g \right\rfloor / w_{\mu_{min}} \right\rfloor \cdot w_{\mu_{min}}$$

$$h_{\mu_{max}} = w_{\mu_{max}} \cdot R_{h:w}$$

$$G_w = (w_{\mu_{max}} + g) \cdot c - g$$