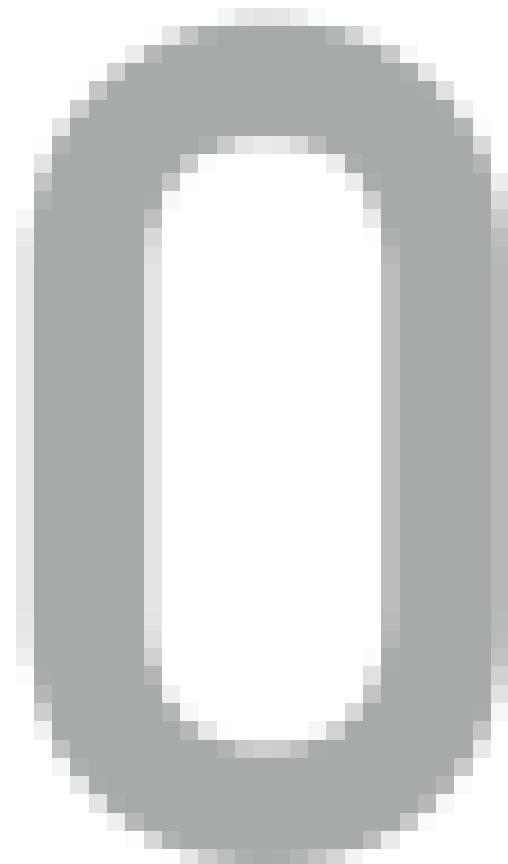
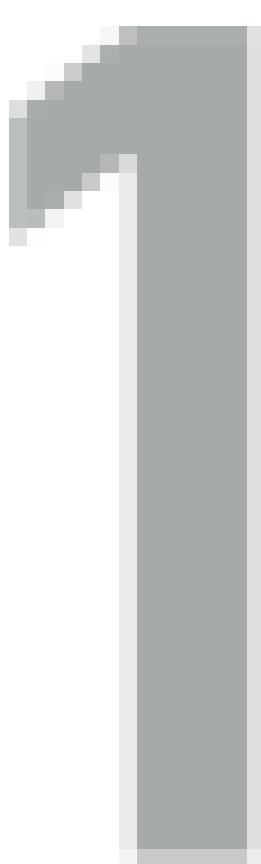


► **Mixture:** Given kernels K_1 and K_2 and $\alpha : \mathbb{X} \rightarrow [0, 1]$

$$[\alpha K_1 + (1 - \alpha)K_2](x, dx') = \alpha(x)K_1(x, dx') + (1 - \alpha(x))K_2(x, dx')$$

WICHITA FALLS
BUILDING
BUREAU



► Algorithmically corresponds to stochastically choosing algorithm

1. Input X
2. Generate $U \sim \text{Uniform}([0,1])$
3. If $U < \alpha(X)$ return $X' \sim K_1(X, dx')$
4. Else return $X' = K_2(X, dx')$

► In discrete case corresponds to convex combination

$$(\alpha K + (1 - \alpha)K')(x, x') = \alpha_i K(x, x') + (1 - \alpha_i)K'(x, x')$$

→ **kerneleksact** **as** **uiding** **glocken** **constuct** **and** **agorit**

KERNELS AS BUILDING BLOCKS

10

- ▶ Kernels act as building blocks to construct algorithms:
- ▶ **Mixture:** Given kernels K_1 and K_2 and $\alpha : \mathbb{X} \rightarrow [0,1]$

$$[\alpha K_1 + (1 - \alpha)K_2](x, dx') = \alpha(x)K_1(x, dx') + (1 - \alpha(x))K_2(x, dx')$$

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INVARIANCE