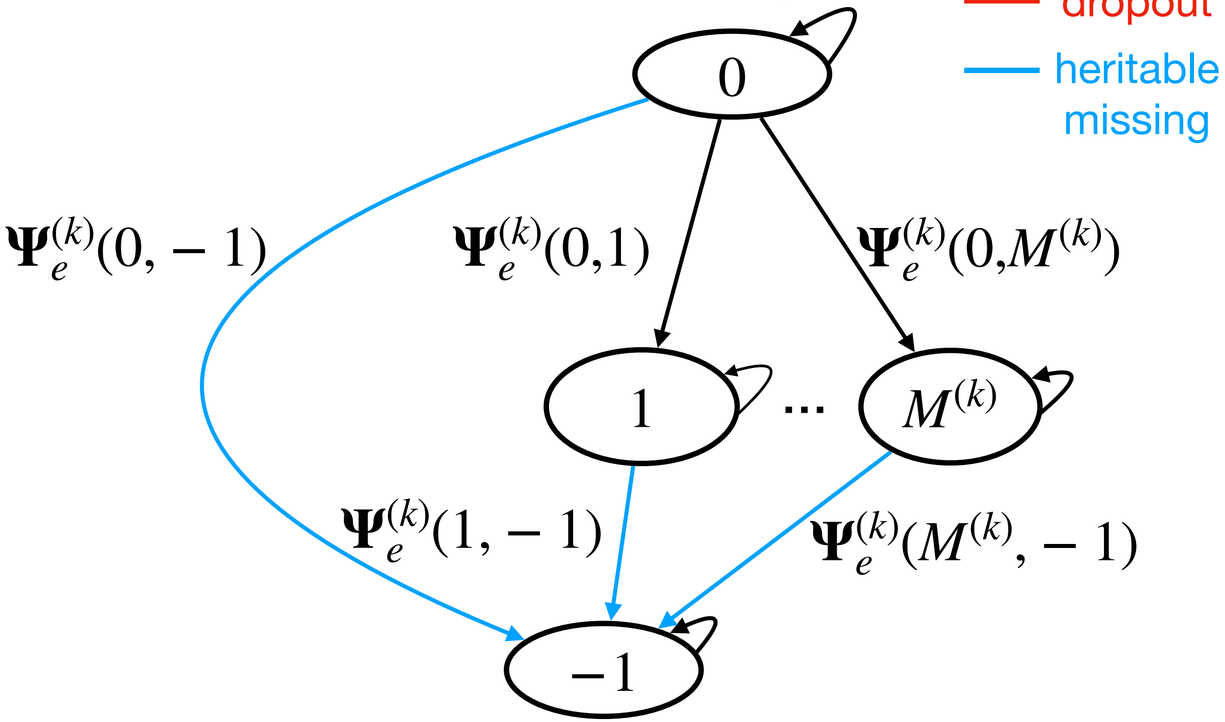
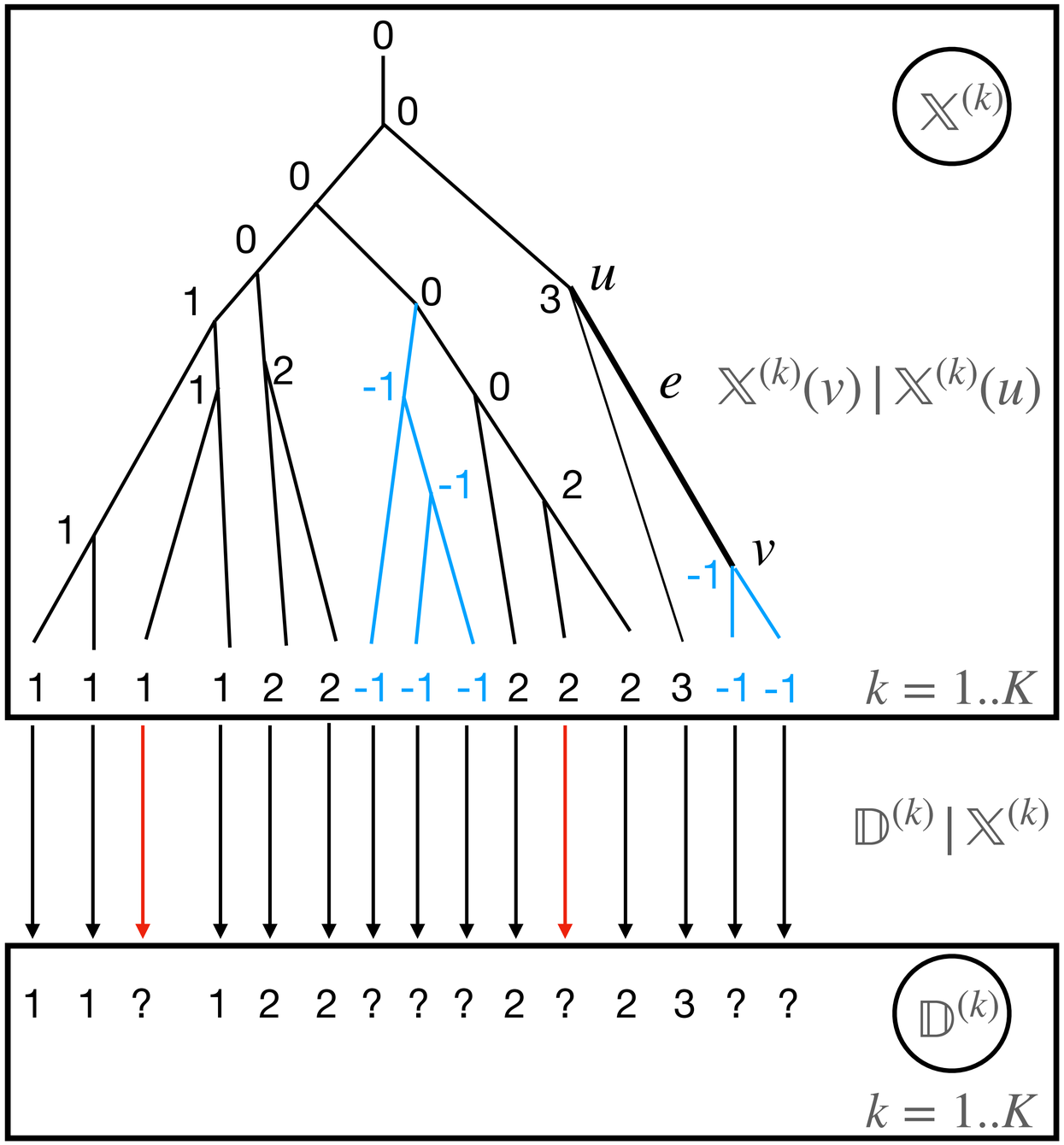
Component 1: the CRISPR/Cas9 process

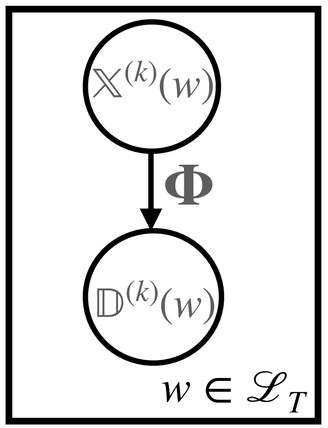
$$P(\mathbb{X}^{(k)}(v) = \beta \,|\, \mathbb{X}^{(k)}(u) = \alpha) = \Psi_e^{(k)}(\alpha, \beta)$$





Component 2: Single-cell sequencing dropout

$$P(\mathbb{D}^{(k)}(w) = \beta \,|\, \mathbb{X}^{(k)}(w) = \alpha) = \Phi(\alpha, \beta)$$



$\Phi \iff$

$\mathbb{X}^{(k)}(w)$	$\mathbb{D}^{(k)}(w)$	$P(\mathbb{D}^{(k)}(w) \,\|\, \mathbb{X}^{(k)}(w))$
-1	?	1.0
α	?	ϕ
α	α	$1-\phi$

$\forall \alpha \in \{0,1,\ldots,M^{(k)}\}$