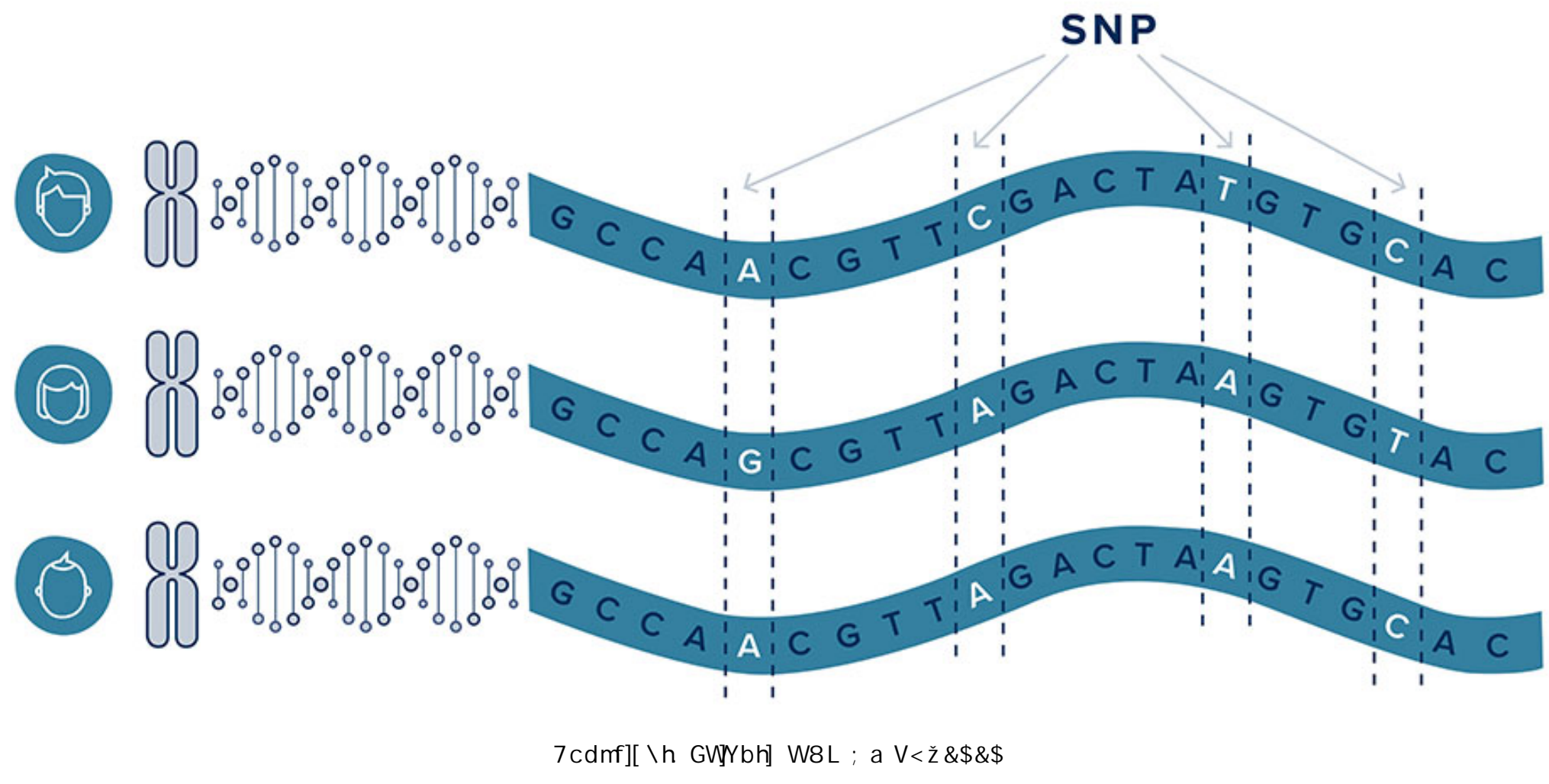


YbchmdY a di hU]cb k]h\ A i `h]!`UVY` F UbXca : cfYghg

9_UhYf]bU 5bhcbyb_c UbX YggY FYUX

@UVcfUhc]fY X]bZcfa Uh]ei Yz VwY Dc`ntfVW b]ei Yz D DUfjg

A]gg]b[j U'i Yg]b G]b[`Y Bi WYch]XY Dc`ma cfd\]ga fGB DŁ XUHU



7cdfn]h G]f]h WBL : a V<2&8&S

- G]b[`Y Bi WYch]XY Dc`ma cfd\]ga]g U [Ybca]Wj Uf]UbhUhU g]b[`Y VUgY dcg]hcb]b hY 8B5"
- GBD XUHU]g i gYX hc ghi Xm\ck hY [Ybca Y]b i YbWg X]gYUgYg UbX hfU]hg"
- 7UhY [cf]WU YbVtX]b[. \$ fKca]bUbHxca]bUbHt% fKca]bUbHta i HUbHt& fa i HUbHta i HUbHt"
- Hrd]WU`m XUHU]g \[\X]a Ybg]cbU`d %\$` - %\$` UbX `ck !gUa d`YX B %\$& - %\$` "
- CfXYf]b[]g]a dcf]h]bXi Y hc]b_U[Y X]gYei]]Vf]i a "
- A]gg]b[j U'i Yg cVWV f Xi Y hc Yi hf]bU`a YVWUb]ga g = k Y ghi Xma]gg]b[Vt a d`YH`mUh fUbXca WUgY"

K \mXUHU]g a]gg]b[3

- 9ffc]g]b gYbgc]fg"
- 9ffc]g]b XUHU dfcW]gg]b["
- 7ca V]b]b[X] Yfybhghi X]Yg]bhc cbY"

K \mhc]a di hY a]gg]b[XUHU3

- A cghc !hY!g\Y ZghU]hgh]WU` UbX a UVW]bY `YUfb]b[a Yh\cXg WUbbch\UbX`Y a]gg]b[j U'i Yg"
- 7cbg]XYf]b[cb`m]bg]h]bW]g k]h\ Vt a d`YH]bZcfa Uh]cb WU]b `YUX hc U `cgg cZ bYVW]ggUfm]bZcfa Uh]cb UbX WU]b m]Y`X U j Yfmdccf cf Yj Yb Ya d]mXUHUgYH"
- A]gg]b[XUHU]hgY`Za] [\hYV cZ]b]hYf]gh"

a di hU]cb a Yh\cXg.

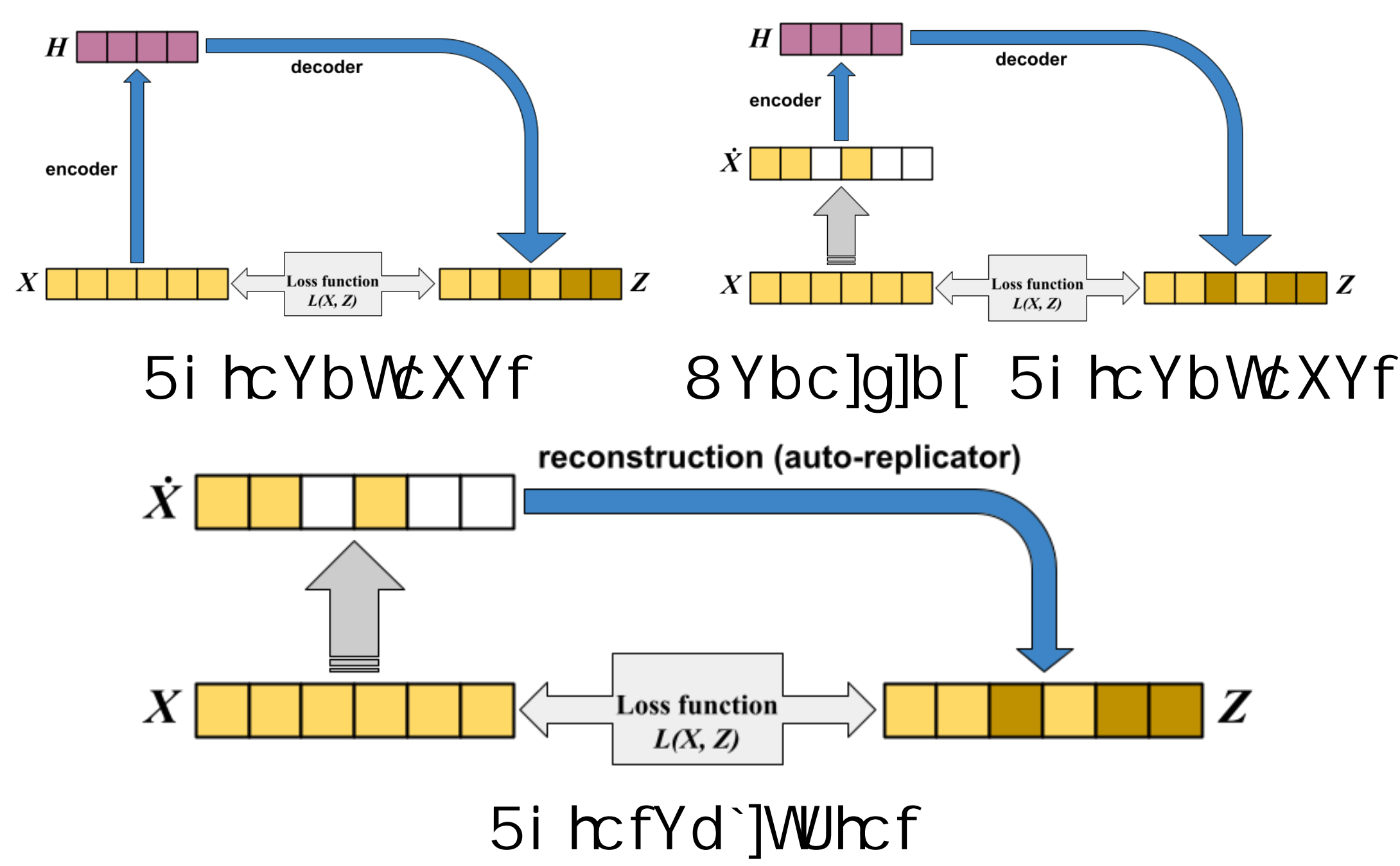
- FYZfYbWV!VUgYX. i gY fYZfYbWV dUbY`g cZ \[\ ei U`]mUbX gYei YbW]b[Vt Yf]b[f]h]h]cZ hY!Uf]hZcf \i a Ub XUHUt"
- FYZfYbWV!ZYY. i gY cb`mXUHU]hgY`Zfk \Yb fYZfYbWV dUbY`g UfY bchUj U]UV`Yz cZ hY h]g hY WUgY Zcf bcb\i a Ub XUHUt"

FYZfYbWV!ZYY a Yh\cXg

@]a]hU]cbg

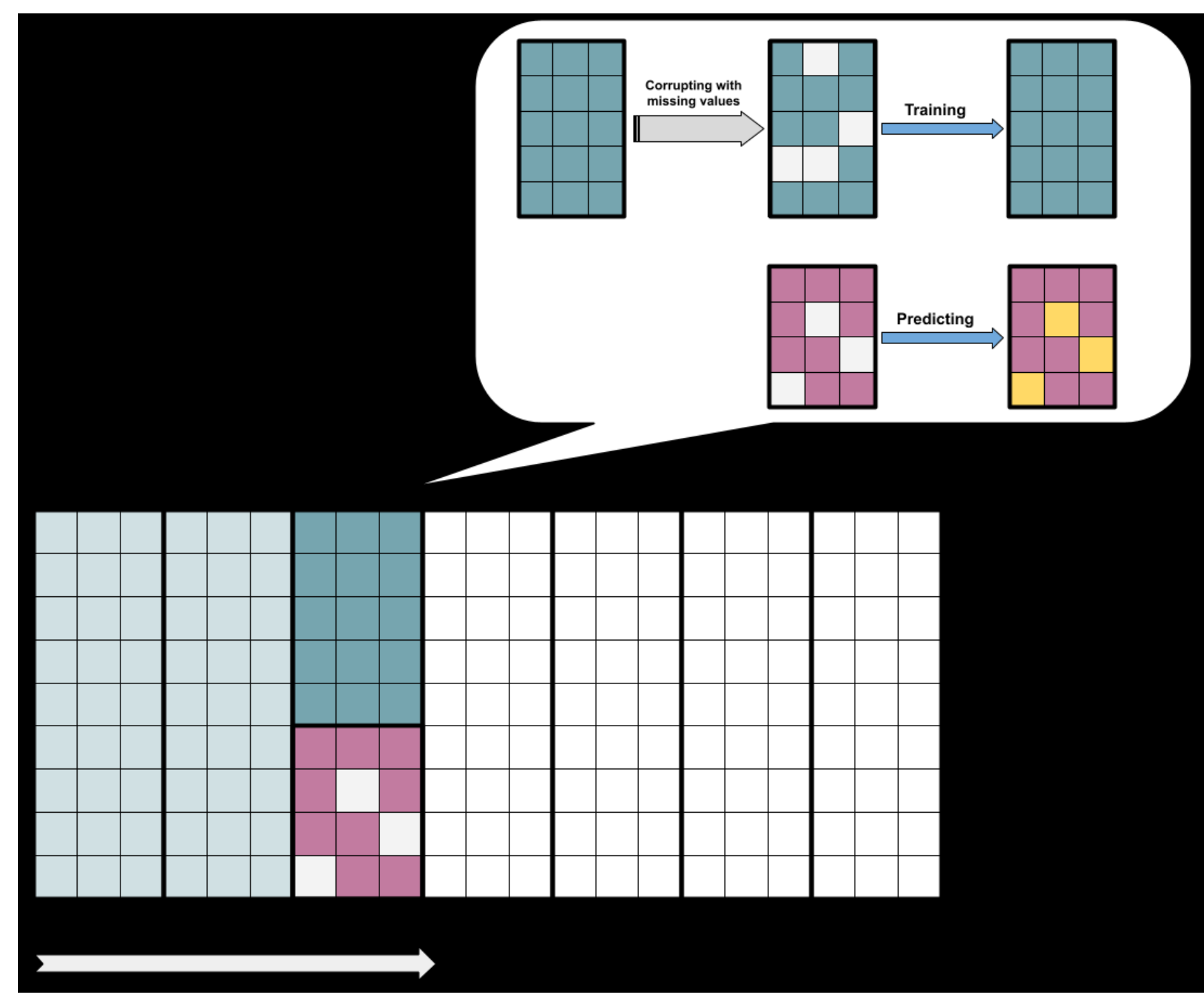
- A cXY #a YUb #a YX]Ub = Dccf dYfZcfa UbWZ]Xcb hi gY ch`Yf ZYUH fyg"
- _ BYUfYghBY][\Vcf]g f]BBt = h`k cf_gZ Vi hWU]b k Y Xc VYHf3
- G]b[i `Uf JU`i Y 8YVt a dcg]h]cb fGJ 8t = h`k cf_gZ Vi hWU]b k Y Xc VYHf3
- A]gg: cfYgh = Htc g`ck Zcf \[\X]a Ybg]cbU` XUHU"
- 8Ybc]g]b[5i hcYbWtXYfg fG785t = FYei]fY Vt a d`YH XUHU Zcf hfU]b]b["

Ci f UddfcUW. 7\U]bg cZ 5i hcYd`]W]h]j Y F UbXca : cfYghg f]7\5F: t



K \mhc i gY a i `h]!`UVY` a Yh\cXg3

- : Yk Yf dUfUa YHf]g h\Ub bYi fU` bYfk cf_g f]ccX Zcf `ck !gUa d`YX XUHUt"
- Bc bYXX Zcf \]XXYb `UmYfg"
- 6i H`m` G]h` bYXX Vt a d`YH XUHU Zcf hfU]b]b[" =



7\U]bg cZ Ui hcYd`]W]h]f

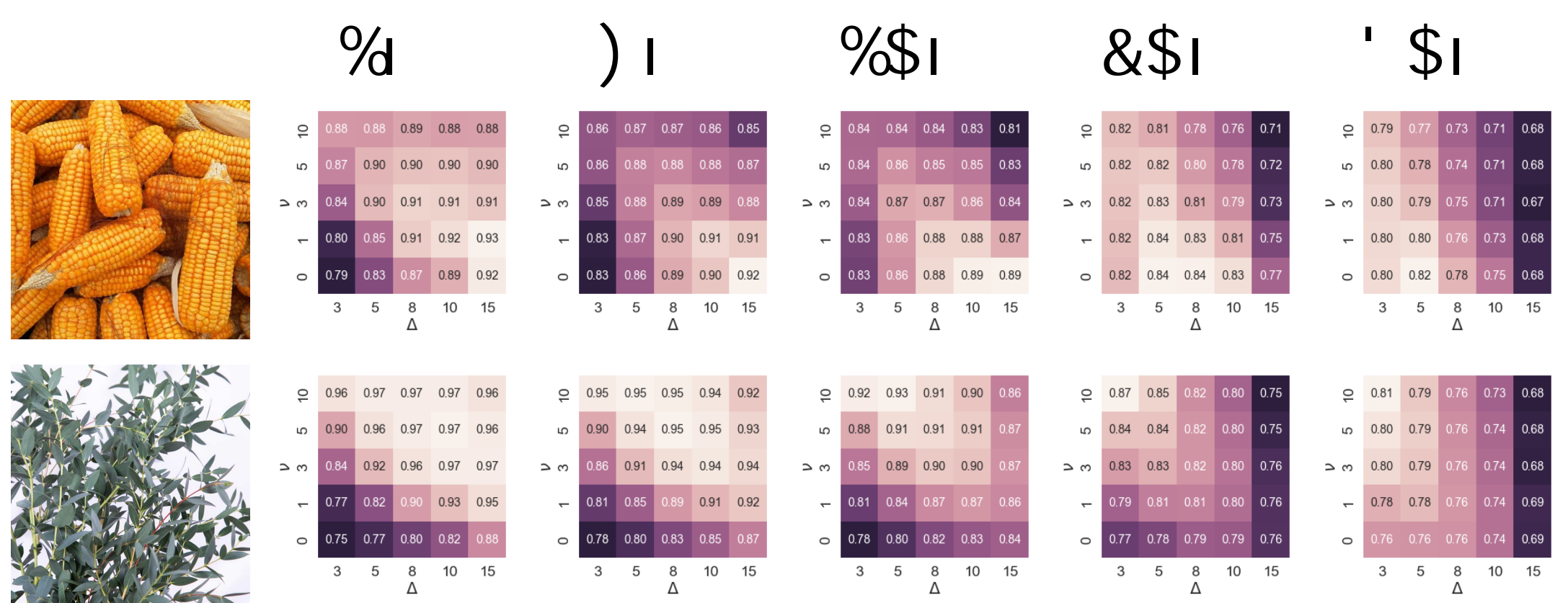
- CbY k]bXck cZ]hY 1 hfU]b]b[dUfhk]h\ Vt a d`YH XUHU Z` hYgh]b[dUfhk]h\ a]gg]b[j U'i Yg"
- 7\U]b cZ k]bXck g. cb YUW ghYdZ ghU]b]b[k]bXck g k]h\ U`fYUXm]a di hYX j U'i Yg U]UX]h]cbU` ZYUH fyg"
- 9bgYa V`Y cZ WU]bg. cbY Zcfk UfX WU]bZ cbY VUW]k UfX WU]bZ gyj YfU` fUbXca WU]b]b["

F Ygi `hg

8UH]gYhg i gYX]b Yi dYf]a YbhgZ dZYUhi fYgZ B gUa d`Yg.

BUa Y	d	B
A U]nY	((Z+&- &(+	
9i WU]ndh g	' ' Z - , - + \$	
7c`cfUXc 6YHhY	' (Z% * % ,	
5fUV]WU 7c YY	(Z* * *) - *	
K \YUh fNi W]k Yf]h] Xnt	- Z+ * * ' , ,	
7c YU 7UbYd\cfU	() Z+(, %&-	

: f]XgYUfWZ Zcf \mdYfdUfUa YHf]g UbX .



@[\hYf Vt`cf #\ [\Yf UWWV fUVh

- . Ug Yi dYVWYXZV][[Yf ZfUW]cb cZa]gg]b[j U'i Yg ga U`Yf g]nY cZk]bXck = WU]b VY Ygh]a UhYX hYcYf]h]WU`mZbc bYXX Zcf gYUfWZ"
- . a UmVY X] YfYbH"

7ca dUf]gcb k]h\ ch`Yf a Yh\cXg.

	0.01	0.05	0.1	0.2	0.3	0.01	0.05	0.1	0.2	0.3	0.01	0.05	0.1	0.2	0.3
	Maize					Eucalyptus					Coffea Canephora				
ChARP	0.952	0.935	0.916	0.882	0.845	0.970	0.950	0.926	0.866	0.810	0.799	0.781	0.761	0.731	0.717
kNN (5/10/10)	0.803	0.802	0.801	0.798	0.794	0.851	0.849	0.847	0.843	0.839	0.737	0.739	0.737	0.734	0.731
mode	0.727	0.727	0.726	0.727	0.726	0.725	0.732	0.731	0.730	0.729	0.691	0.693	0.692	0.692	0.691
SVD (50/500/50)	0.647	0.648	0.645	0.643	0.636	0.788	0.788	0.788	0.785	0.780	0.456	0.453	0.450	0.449	0.450
missForest	0.662	0.650	0.622	0.593	0.580	0.684	0.673	0.626	0.564	0.521	0.377	0.449	0.442	0.395	0.383
	Colorado Beetle					Arabica Coffee					Wheat				
ChARP	0.835	0.824	0.818	0.805	0.792	0.897	0.886	0.878	0.866	0.854	0.821	0.808	0.795	0.777	0.762
kNN (50/10/10)	0.765	0.763	0.765	0.765	0.764	0.867	0.866	0.866	0.865	0.864	0.823	0.819	0.818	0.815	0.811
mode	0.761	0.760	0.762	0.761	0.761	0.807	0.804	0.805	0.805	0.804	0.729	0.727	0.729	0.729	0.727
SVD (50/100/200)	0.740	0.737	0.737	0.735	0.734	0.693	0.694	0.696	0.692	0.690	0.622	0.618	0.609	0.600	0.594
missForest	0.352	0.349	0.361	0.326	0.335	0.497	0.480	0.533	0.541	0.586	0.614	0.736	0.746	0.756	0.755

7cbWi g]cb

7\5F:]g Ub Y YW]j Y a Yh\cX Zcf a]gg]b[j U'i Y]a ! di hU]cb]b GBD XUHU

- @ck h]a Y Vt a d`YI]hm O(d .) = k cf_g Zcf \[\X]a Ybg]cbU` XUHUgYhg"
- Bc bYXX Zcf Vt a d`YH XUHU"