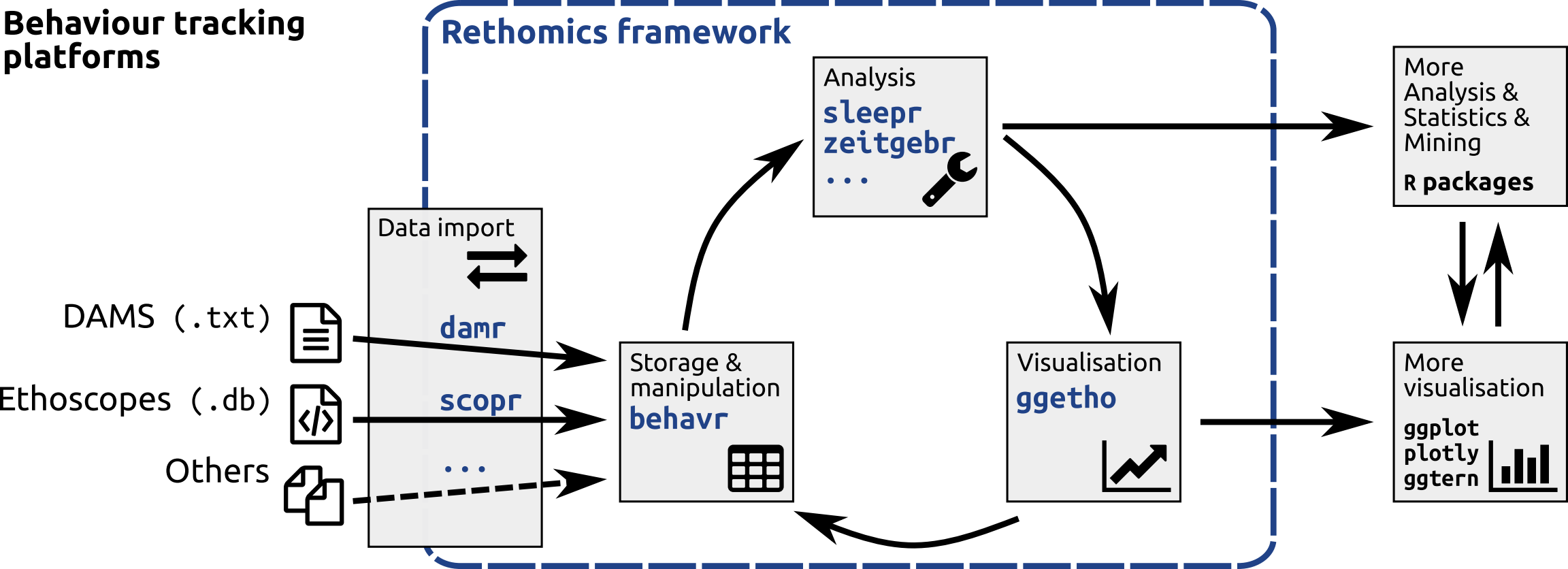


Behaviour tracking platforms

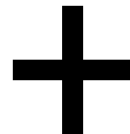


Metadata

id	machine_name	date	...	condition	sex	...	p
xxx...xx x	machine_001	2016-09-01	...	A	M	...	p_1
xxx...xx y	machine_001	2016-09-01	...	B	M	...	p_2
xxx...xx z	machine_002	2016-09-03	...	A	F	...	p_3
⋮	⋮	⋮	⋱	⋮	⋮	⋱	⋮
n	machine _n	date _n	...	condition _n	sex _n	...	p_n

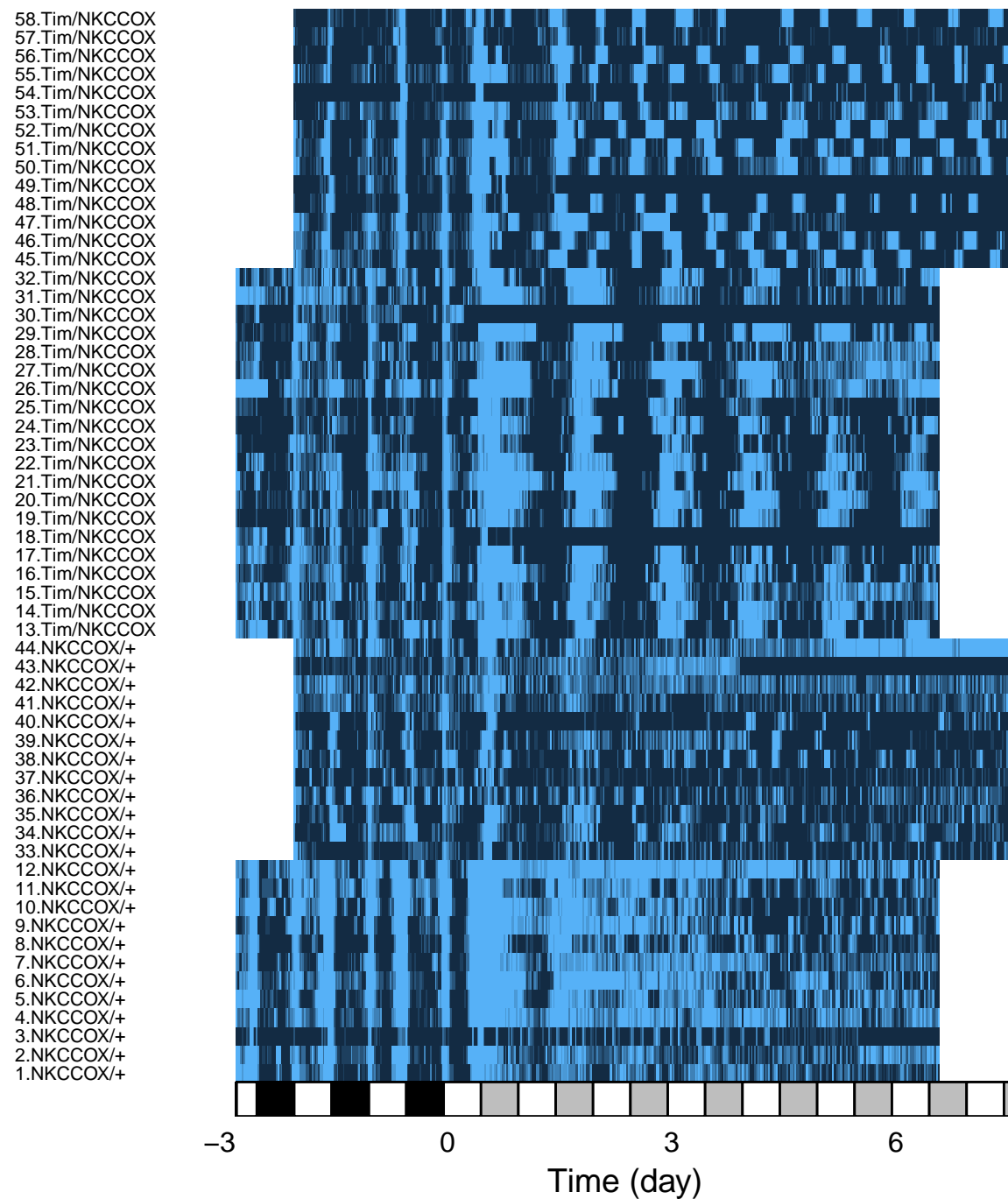
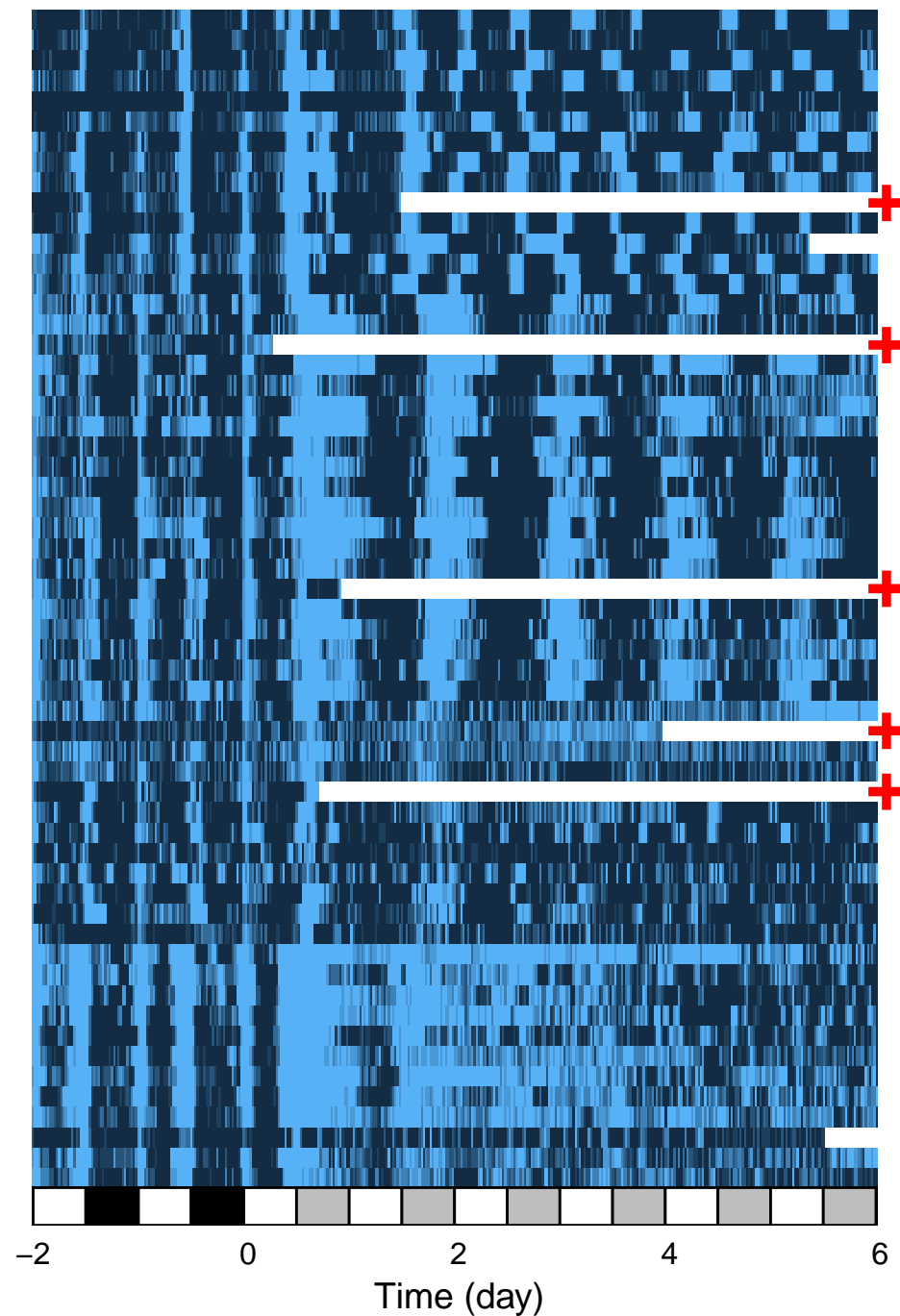
Platform fields
(mandatory)

Experiment fields
(arbitrary & optional)

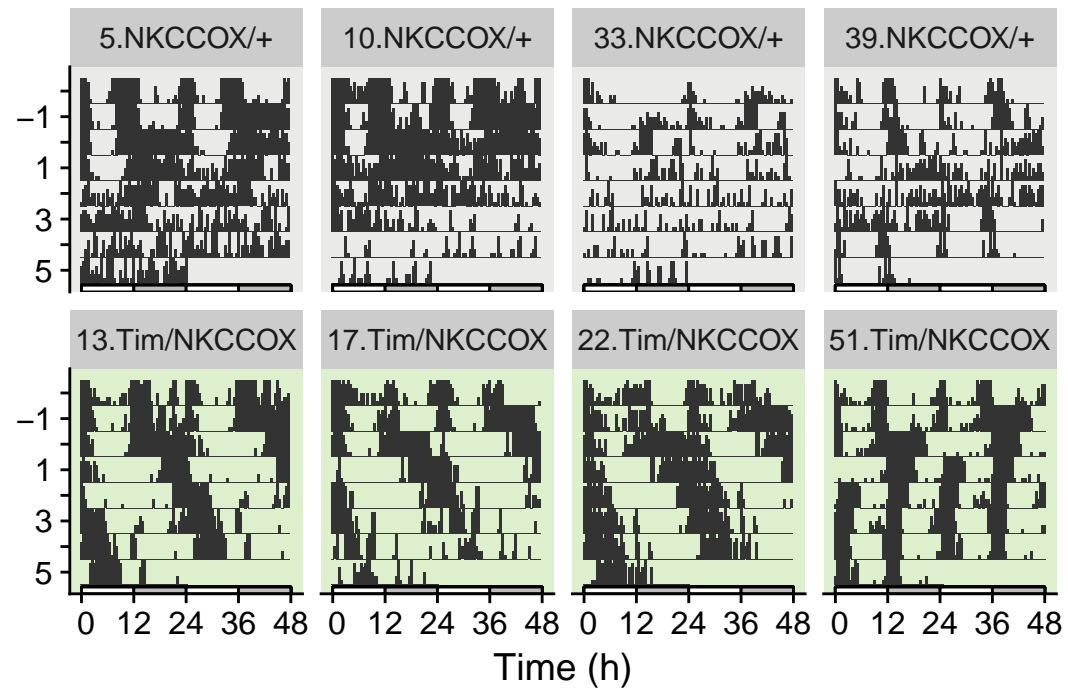
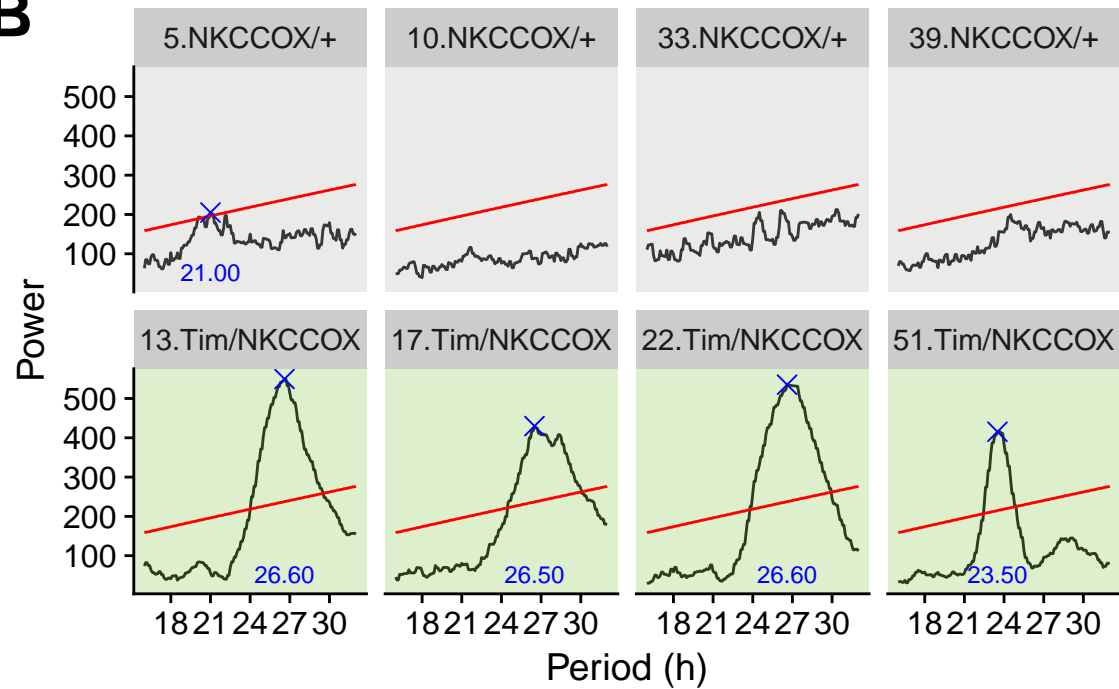


Data

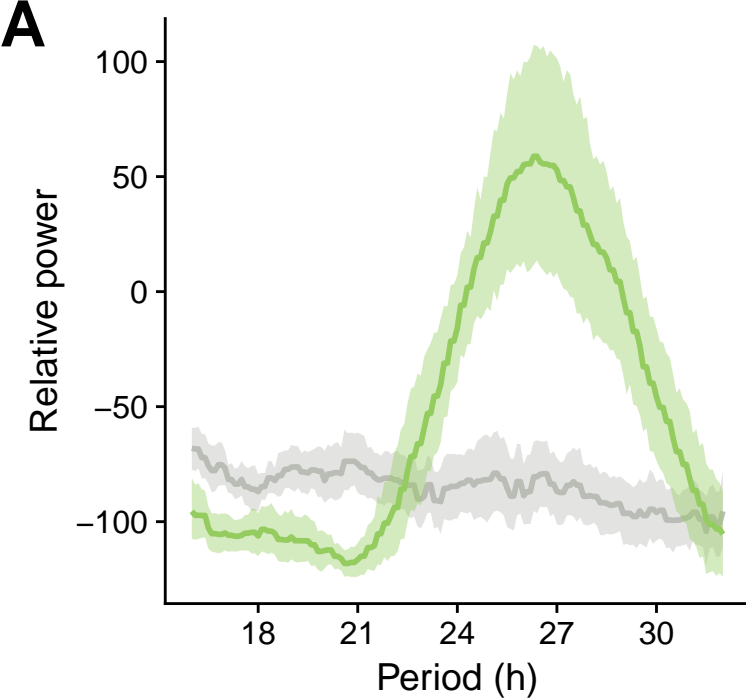
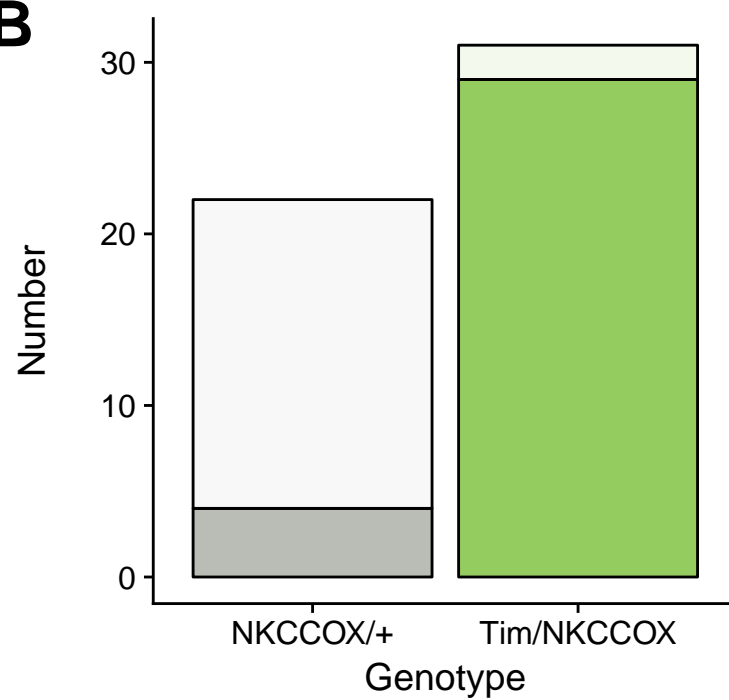
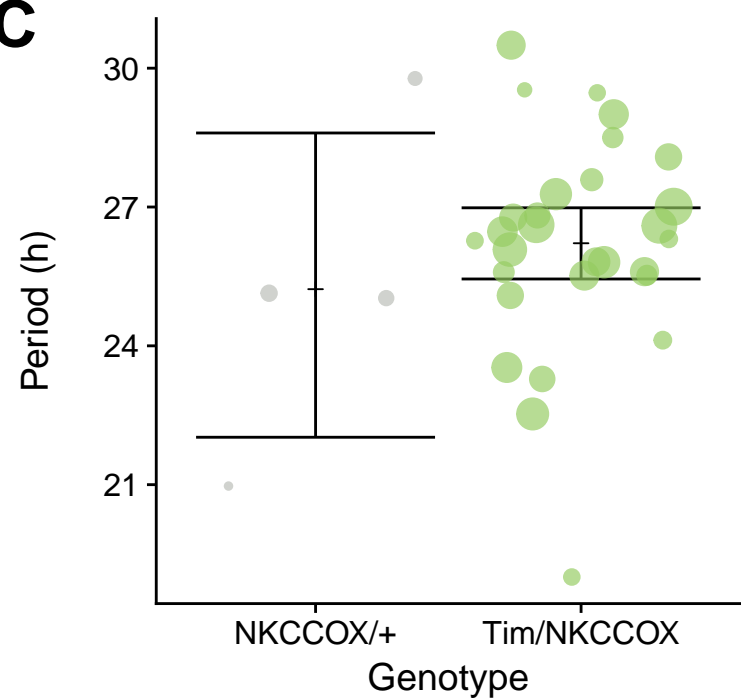
id	t	activity	...	q
xxx...xx x	1	1	⋱	$q_{1,1}$
xxx...xx x	2	0	⋱	$q_{1,2}$
xxx...xx x	3	0	⋱	$q_{1,3}$
xxx...xx x	⋮	⋮	⋱	⋮
xxx...xx y	⋮	⋮	⋱	⋮
xxx...xx z	1	0	⋱	$q_{3,1}$
xxx...xx z	2	2	⋱	$q_{3,2}$
xxx...xx z	3	0	⋱	$q_{3,3}$
xxx...xx z	⋮	⋮	⋱	⋮
⋮	⋮	⋮	⋱	⋮
n	⋮	⋮	⋱	q_{n,k_n}

A**B**

Moving
0% 50% 100%

A**B**

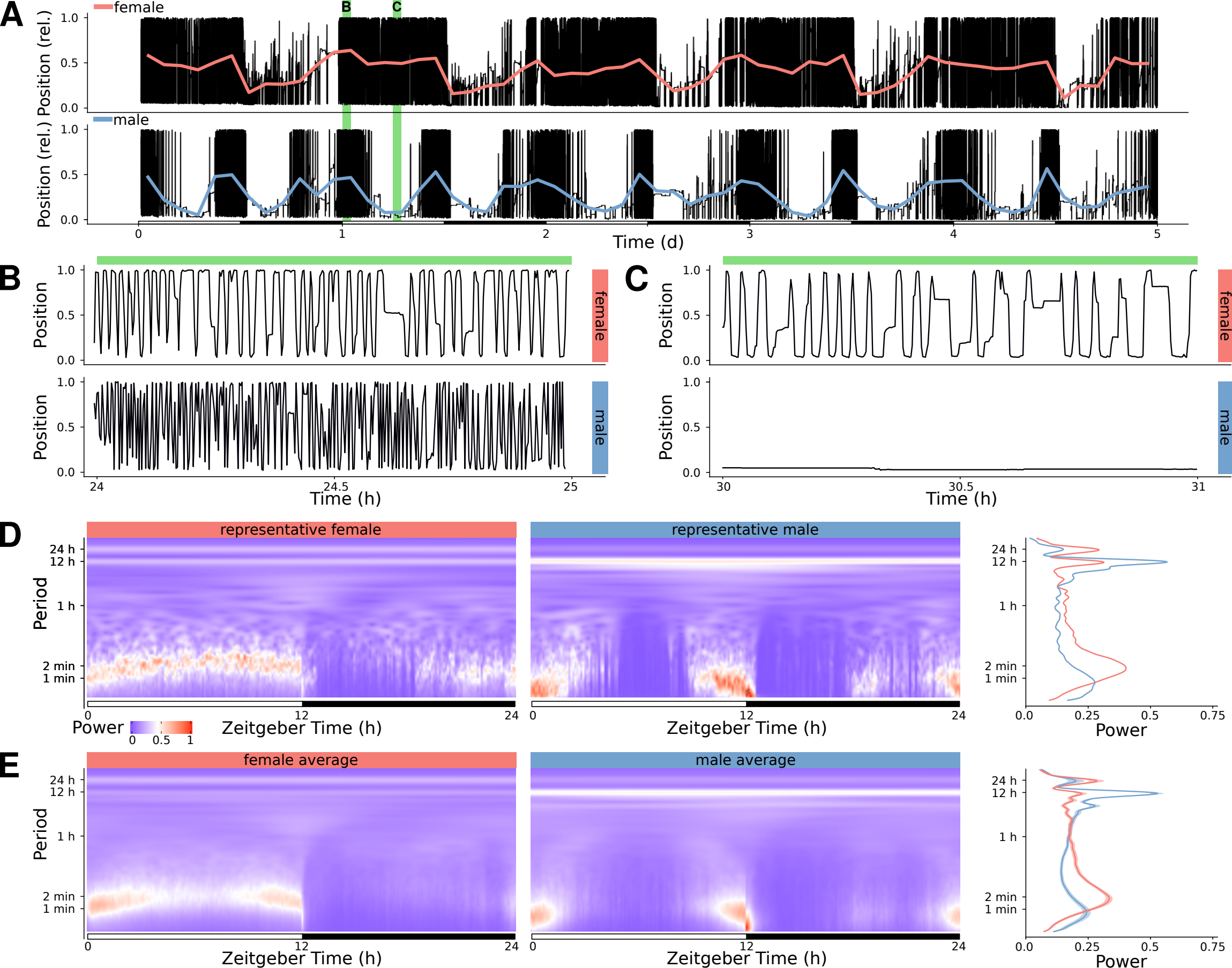
Genotype NKCCOX/+ Tim/NKCCOX

A**B****C**

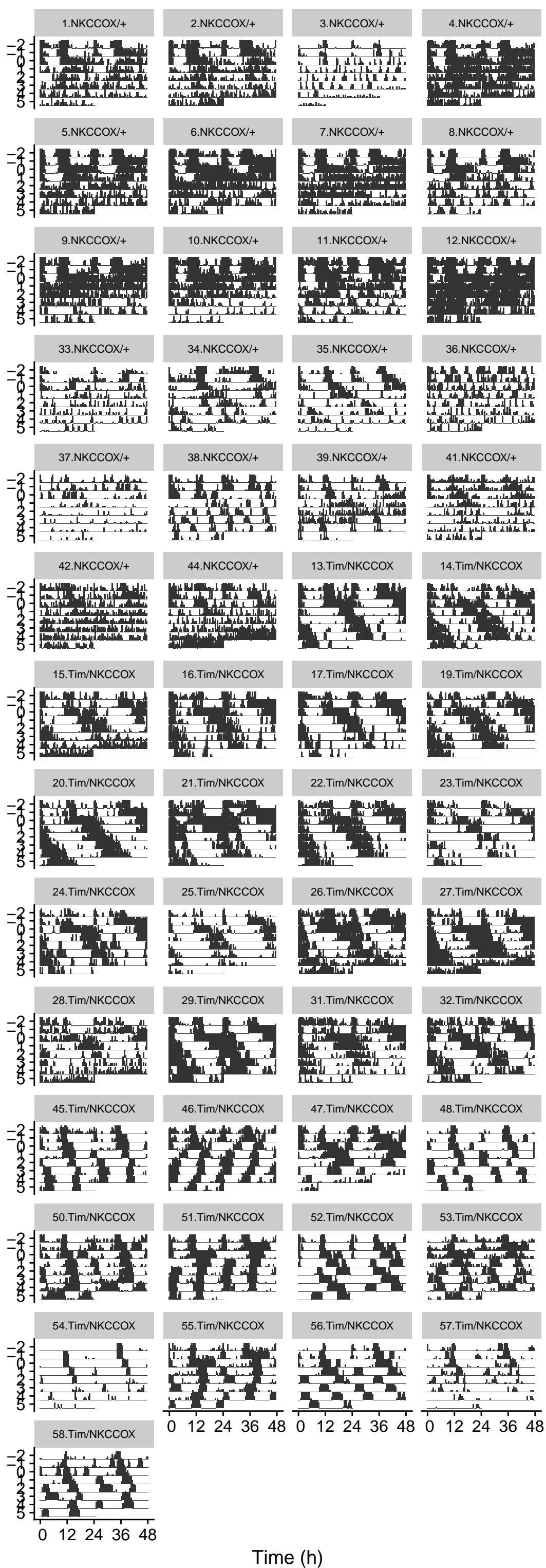
Genotype NKCCOX/+ Tim/NKCCOX

Arhythmic Rhythmic

Peak relative power 100 200 300



Metadata		Data
Select	<div>dt[CRITERIA, meta = TRUE]<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to subet the metadata only for males</div><div>> male_meta <- dt[sex == "M",</div><div>meta = TRUE]</div></div>	<div>dt[CRITERIA]<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to keep only data > 5s</div><div>> late_dt <- dt[t > 5]</div><div>Note: metadata is updated when selection removes all data from one id.</div></div>
Alter, create & delete (meta)variables	<div>dt[, X := value, meta = TRUE]<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to create a metavariable set to "wt"</div><div>> dt[, genotype := "wt", meta = TRUE]</div><div># delete</div><div>> dt[, sex := NULL, meta = TRUE]</div></div>	<div>dt[, Y := value]<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to create t_2 (t - 1)</div><div>> dt[, t_2 := t - 1]</div><div># to delete t</div><div>> dt[, t := NULL]</div><div>Note: update data in place.</div><div>No copy of dt in memory.</div></div>
Expand metavariables as variables	<div>dt[xmv(X)]<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to select data with sex</div><div>> dt <- dt[xmv(sex) == "M"]</div><div># to copy a metavariable as a variable</div><div>> dt[, s := xmv(sex)]</div></div>	<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Aggregate & summary	<div>dt[, OPERATION, by = id]<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to compute mean activity, per individual</div><div>> dt <- dt[,.(</div><div>mean_act = mean(activity)</div><div>), by = id]</div><div># to count reads per id</div><div>> dt[, .N, by = id]</div></div>	<div>OPERATION<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Join data & metadata	<div>rejoin(dt)<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div># to reunite data and metadata</div><div>> full_table <- rejoin(dt)</div><div>Note: used mostly after aggregation or preprocessing</div></div>	<div>REJOIN<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

A**B**