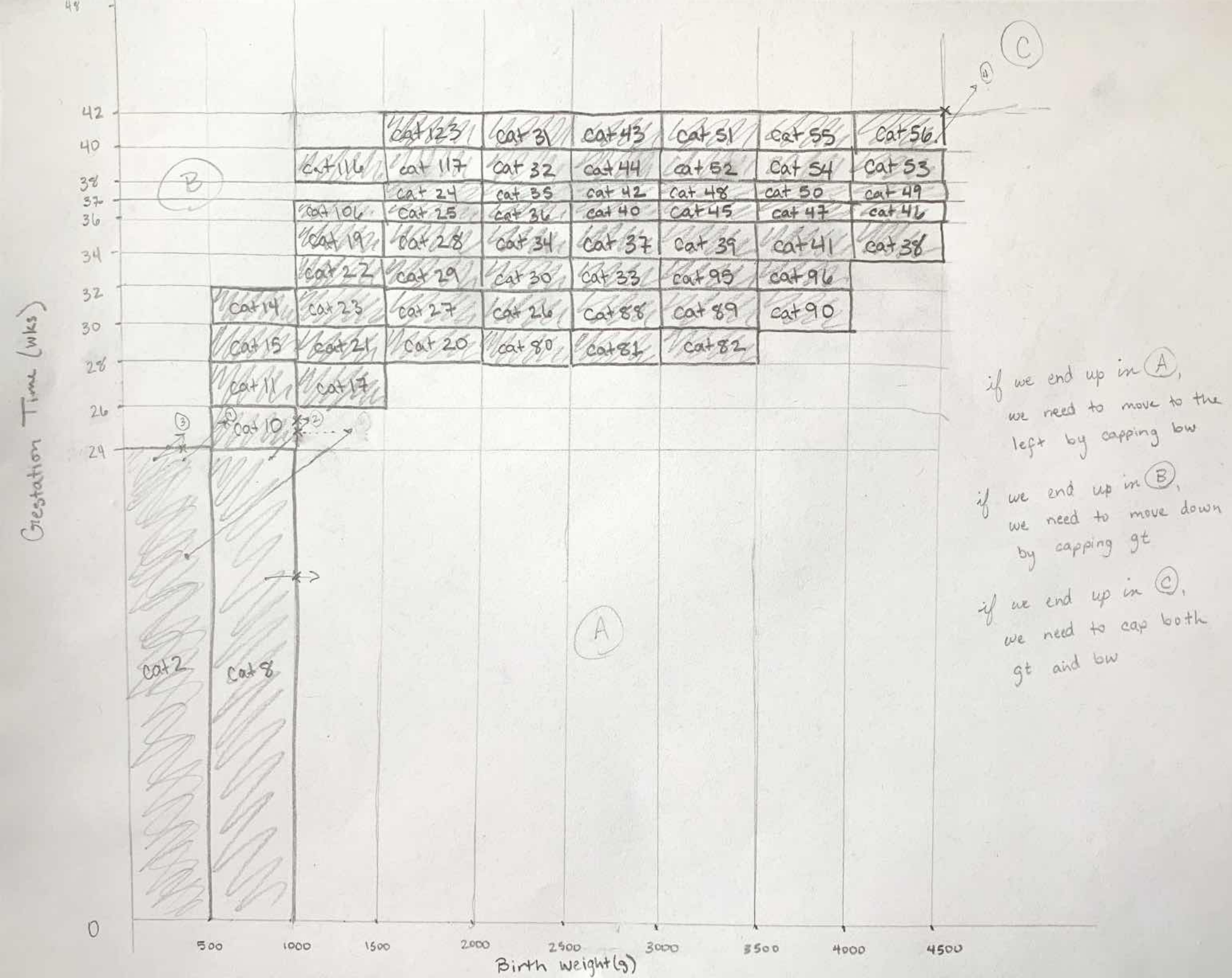
Gestation Time (wks)
Birth weight (g)
48
42
40
38
37
36
34
32
30
28
26
24
0
500
1000
1500
2000
2500
3000
3500
4000
4500
cat 123
cat 31
cat 43
cat 51
cat 55
cat 56
cat 116
cat 117
cat 32
cat 44
cat 52
cat 54
cat 53
cat 24
cat 35
cat 42
cat 48
cat 50
cat 49
cat 106
cat 25
cat 36
cat 40
cat 45
cat 47
cat 46
cat 19
cat 28
cat 34
cat 37
cat 39
cat 41
cat 38
cat 22
cat 29
cat 30
cat 33
cat 95
cat 96
cat 14
cat 23
cat 27
cat 26
cat 88
cat 89
cat 90
cat 15
cat 21
cat 20
cat 80
cat 81
cat 82
cat 11
cat 17
cat 10
cat 2
cat 8
A
B
C
1
2
3
4
if we end up in A, we need to move to the left by capping bw
if we end up in B, we need to move down by capping gt
if we end up in C, we need to cap both gt and bw

exp. pd.DataFrame

bw	gt
⋮	⋮

in lower right of pic, bump to left
in upper left of pic, bump down

for bw_shift, gt_shift ← series indexed to match exp

Options are:

1. bw + bw_shift, gt + gt_shift
2. bw + cap(bw_shift), gt + gt_shift
3. bw + bw_shift, gt + cap(gt_shift)
4. bw + cap(bw_shift), gt + cap(gt_shift)

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(1)

BW	gt range
0-500	0-24
500-1000	0-32
1000-1500	26-40
1500-2000	28-42
2000-2500	28-42
2500-3000	28-42
3000-3500	28-42
3500-4000	30-42
4000-4500	34-42

(2)

GT	BW range
0-24	0-1000
24-26	500-1000
26-28	500-1500
28-30	500-3500
30-32	500-4000
32-34	1000-4000
34-36	1000-4500
36-37	1000-4500
37-38	1000*-4500
38-40	1000-4500
40-42	1500-4500

$bw_s = bw + bw\_shift$, $gt_s = gt + gt\_shift$

1) if $bw_s > MAX\_BW$, $bw_s = MAX\_BW$
   if $gt_s > MAX\_GT$, $gt_s = MAX\_GT$
   } removes (C)

2) look up bw_s in (1) to get gt_range

(A) if $gt_s <$ gt_range.left:
   bw_s = bw_range.left - 0.01

(B) if $gt_s >=$ gt_range.right:
   gt_s = gt_range.right