With Type-I 5-HT neurons Arc **Punishment** Reward a **Connection type** VTA **VTA** DRN DRN **VTA VTA** DRN DRN **VTA VTA** Glu DA 5-HT **GABA GABA** Glu DA 5-HT **GABA GABA** 5HT→ DA-> 100. 100. 5HT→ 45.26 11.93 2.90 0.56 41.15 16.50 7.03 0.79 **VTA** Glu (-) 00 00 **GABA** DA 5HT→ 100. 100. (-)(-)00 45.70 11.92 2.94 0.56 29.12 3.65 0.74 Glu (+) 00 16.54 5-HT→ 5HT→ 100. 100. 2.90 **VTA** 5HT→ Glu (-) 00 45.26 11.93 0.56 00 28.73 16.54 3.58 0.74 **GABA** DA 5HT→ 100. 100. (+) (-)Glu (+) 00 45.70 11.92 2.94 0.56 00 41.39 16.73 4.13 0.75 DA-> 100. 5HT→ 100. **VTA** 5HT→ Glu (-) 00 44.26 23.12 6.20 0.56 41.01 17.31 10.10 0.79 00 **GABA** DA 5HT→ 100. 100. (+)(-)Glu (+) 00 44.70 23.13 6.25 0.56 28.61 17.30 6.66 0.74 00 5-HT→ 5HT→ 100. 100. **VTA** 5HT→ 44.26 23.12 6.20 0.56 28.21 17.29 6.60 0.74 Glu (-) 00 00 **GABA** DA 5HT→ 100. 100. (+) (+)Glu (+) 44.70 23.13 6.25 0.56 7.18 0.74 00 00 41.13 17.10 5HT→Glu (-) b 100. 100. 00 26.68 13.37 4.32 0.53 16.29 4.61 0.70 00 17.99 5HT→Glu (+) 100. 100. 00 23.94 13.48 3.64 5.23 3.86 6.90 00 16.42 16.42 100. 100. C 3.53 3.71 00 22.87 13.49 0.00 00 15.48 16.45 0.00 100. 100. d 2.34 0.00 2.75 0.00 00 25.43 5.49 00 17.16 5.47 100. 100. е 1.86 00 23.20 0.69 0.00 15.74 0.95 2.21 0.00 00 f 100. 100. 00 2.27 0.45 0.00 0.22 0.52 0.00 0.17 00 1.52 100. 100. g 0.00 0.00 13.31 00 0.00 12.72 00 0.00 0.00 0.00 100. h 100. 2.34 0.00 00 25.43 0.87 00 17.16 1.18 2.75 0.00 i 100. 100. 0.00 00 0.00 0.00 0.00 00 0.00 0.00 0.00 0.00 100. 100. j 0.00 00 0.00 0.00 0.00 00 0.00 0.00 0.00 0.00 k 100. 100. 00 0.00 0.00 0.00 0.00 00 0.00 0.00 0.00 0.00 5HT→DA (-) Ī 100. 100. 00 12.34 0.52 3.89 22.78 3.13 00 15.55 3.86 0.69 5HT→DA (+)

100.

00

15.56

3.90

0.69

3.87

0.52

3.13

12.34

100.

00

22.79