With Type-I 5-HT neurons Arc **Punishment** Reward a **Connection type VTA VTA** DRN DRN VTA **VTA** DRN DRN VTA VTA 5-HT **GABA GABA** Glu 5-HT Glu DA DA **GABA GABA** $DA \rightarrow$ 5HT→ 100. 100. 22.04 VTA Glu (-) 00 66.19 14.26 4.36 0.60 00 55.31 8.72 5HT→ 0.83 **GABA** DA 5HT→ 100. 100. (-)(-)Glu (+) 00 14.25 4.42 0.60 22.08 5.31 0.78 66.66 00 43.10 5-HT→ 100. 100. 5HT→ **VTA** 5HT→ 14.26 4.36 42.69 5.25 0.77 Glu (-) 00 66.19 0.60 00 22.08 **GABA** DA 100. 100. 5HT→ (-)(+)Glu (+) 00 66.66 14.25 4.42 0.60 00 62.58 22.27 6.96 0.80 DA-> 5HT→ 100. 100. VTA 5HT→ Glu (-) 00 64.87 26.08 9.06 0.59 55.12 22.89 13.08 0.83 00 **GABA** DA 100. 5HT→ 100. (+) (-)Glu (+) 65.34 26.09 9.12 0.59 42.38 22.87 9.59 0.77 00 00 5-HT→ 5HT→ 100. 100. **VTA** 00 22.87 0.77 5HT→ Glu (-) 64.87 26.08 9.06 0.59 00 41.97 9.52 **GABA** DA 5HT→ 100. 100. (+) (+)65.34 26.09 9.12 0.59 62.21 11.29 0.80 Glu (+) 00 00 22.67 5HT→Glu (-) 100. 100. b 00 37.30 15.90 6.05 0.55 18.88 6.39 0.72 00 25.13 5HT→Glu (+) 100. 100. 00 34.60 16.00 5.35 5.38 23.59 5.64 7.09 00 19.01 100. 100. C 00 16.02 5.24 0.00 0.00 33.50 00 22.62 19.04 5.49 d 100. 100. 00 7.78 3.36 0.00 7.77 0.00 36.11 00 24.33 3.88 100. 100. е 00 1.07 2.86 0.00 1.43 3.34 0.00 33.90 00 22.92 f 100. 100. 00 0.17 0.45 0.00 00 0.22 0.52 0.00 2.27 1.52 100. 100. g 00 0.00 18.07 0.00 18.87 0.00 0.00 0.00 00 0.00 h 100. 100. 00 36.12 1.25 3.36 0.00 24.33 1.67 3.88 0.00 00 100. 100. 00 0.00 0.00 0.00 0.00 00 0.00 0.00 0.00 0.00 100. 100. 00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 00 0.00 100. k 100. 0.00 0.00 0.00 0.00 0.00 00 0.00 00 0.00 0.00 5HT→DA (-) 100. 100. 00 14.85 4.23 0.54 22.68 6.51 33.41 00 5.09 0.71 5HT→DA (+) 100. 100.

14.85

4.24

0.54

00

22.70

6.52

0.71

5.10

00

33.42