Supplementary figure legends

Figure S1. Individual triplet DCMs of the attentional effects. Power spectral density of each node and coherence spectra between nodes for the 10 V1a-V1b-V4 triplets of monkey P (**A**) and monkey K (**B**). Each column represents one triplet.

Figure S2. DTF of monkey K. Absolute DTF averaged across the 10 V1a-V1b-V4 DCMs of monkey K.

Figure S3. Effect of specific attentional modulation parameters on the microcircuit dynamics for one example triplet from monkey P. The values of all the other attentional modulation parameters are zero. Each row shows the effects of one specific parameter β (for all parameters found significant in Fig. 3), and each column shows the spectra indicated on top (power, coherence and GC). The value of each β (from V1a and V1b simultaneously) is modified by a multiplier that ranges from 0 to 1.25. The lightest lines (multiplier equals zero) correspond to no attentional modulation and therefore the two conditions coincide. Orange and green lines (multiplier equals one) correspond to the specific β being equal to the value we found for attentional modulation. The darkest lines (multiplier equals 1.25) correspond to the specific β value being increased further than necessary for attentional modulation.

Figure S4. Same as Fig. S3, but in this figure the values of all the other attentional modulation parameters are those that are reported in our study, that is, they reproduce the attentional condition. Note that the attentional modulation parameters are multiplied with a condition effect (see section 2.5), which is 1 for 'Attend V1a' (orange-tinted lines) and -1 for 'Attend V1b' (green-tinted lines). The lightest lines (multiplier equals zero) correspond to attentional modulation in the absence of the specific β parameter. Orange and green lines (multiplier equals one) correspond to all β values being equal to the values we report for attentional modulation. The darkest lines (multiplier equals 1.25) correspond to the specific β value being increased further than necessary for attentional modulation.

Figure S5. Same as Fig. S3, but in this figure the values of all the 5 attentional modulation parameters are modified simultaneously by a multiplier that ranges from 0 to 1.25. The lightest lines (multiplier equals zero) correspond to no attentional modulation and therefore the two conditions coincide. Orange and green lines (multiplier equals one) correspond to all β values being equal to the values we report for attentional modulation. The darkest lines (multiplier equals 1.25) correspond to all β values being increased further than necessary for attentional modulation.

Figure S6. DCM spectra and DTF of monkey K in the no-feedback architecture. (**A,B**) Results for DCM without V4-to-V1 feedback connections, for monkey K. (**A**) Power spectral density and coherence spectra averaged across the 10 V1a-V1b-V4 triplets of monkey K. (**B**) Absolute DTF averaged across the 10 V1a-V1b-V4 DCMs of monkey K.

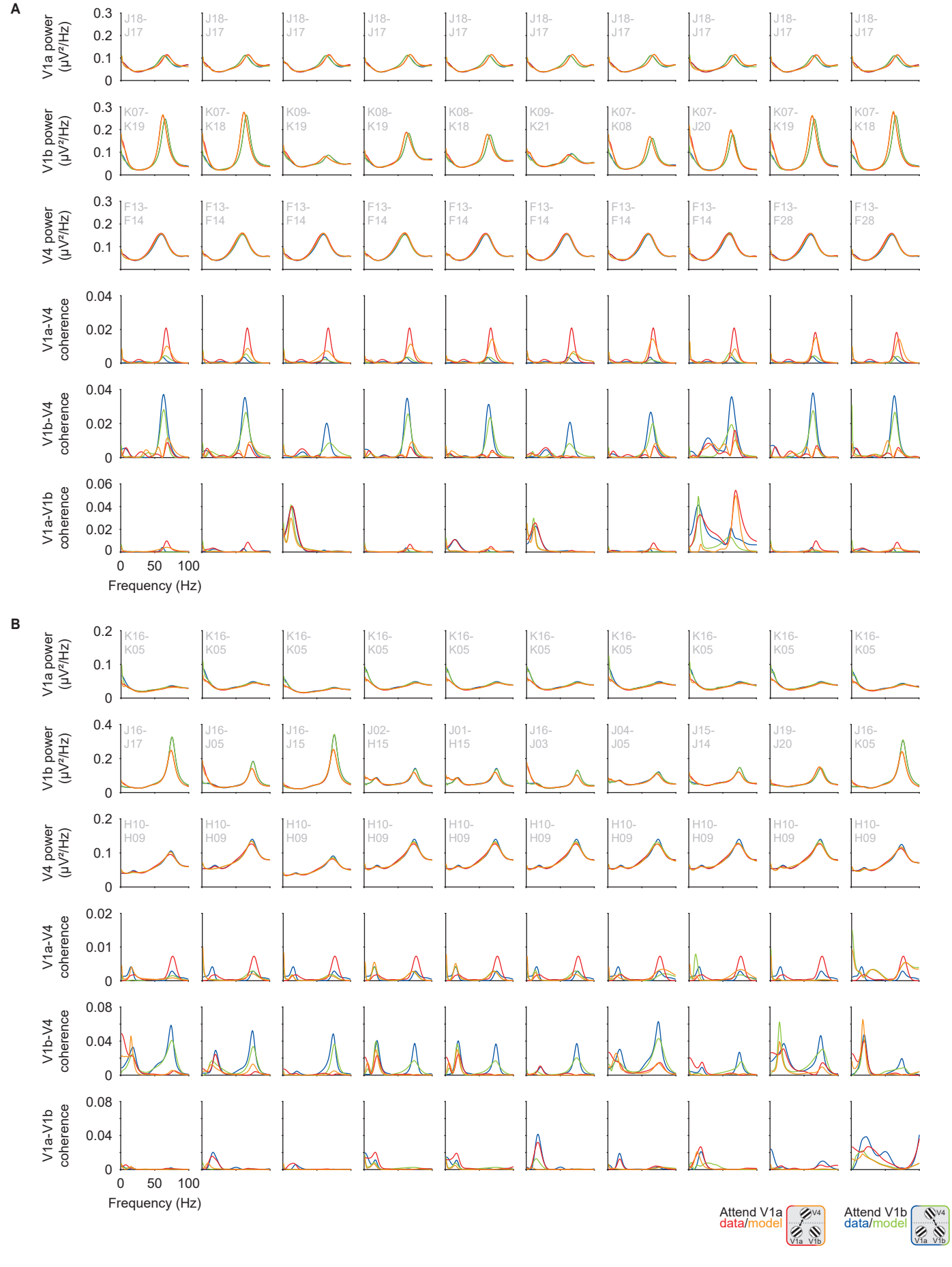

A
V1a power (μV²/Hz)
V1b power (μV²/Hz)
V4 power (μV²/Hz)
V1a-V4 coherence
V1b-V4 coherence
V1a-V1b coherence
J18-J17
K07-K19
K07-K18
K09-K19
K08-K19
K08-K18
K09-K21
K07-K08
K07-J20
F13-F14
F13-F28
0 50 100
Frequency (Hz)
B
K16-K05
J16-J17
J16-J05
J16-J15
J02-H15
J01-H15
J16-J03
J04-J05
J15-J14
J19-J20
H10-H09
Attend V1a
data/model
Attend V1b
data/model
V4
V1a
V1b

Figure S1

Figure S2

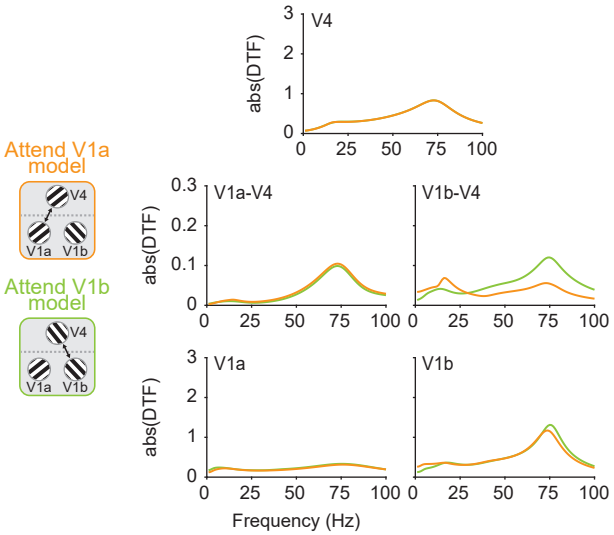

Attend V1a model
V4
V1a
V1b
Attend V1b model
V4
V1a
V1b
V4
abs(DTF)
3
2
1
0
0
25
50
75
100
V1a-V4
V1b-V4
0.3
0.2
0.1
0
V1a
V1b
Frequency (Hz)

Figure S3

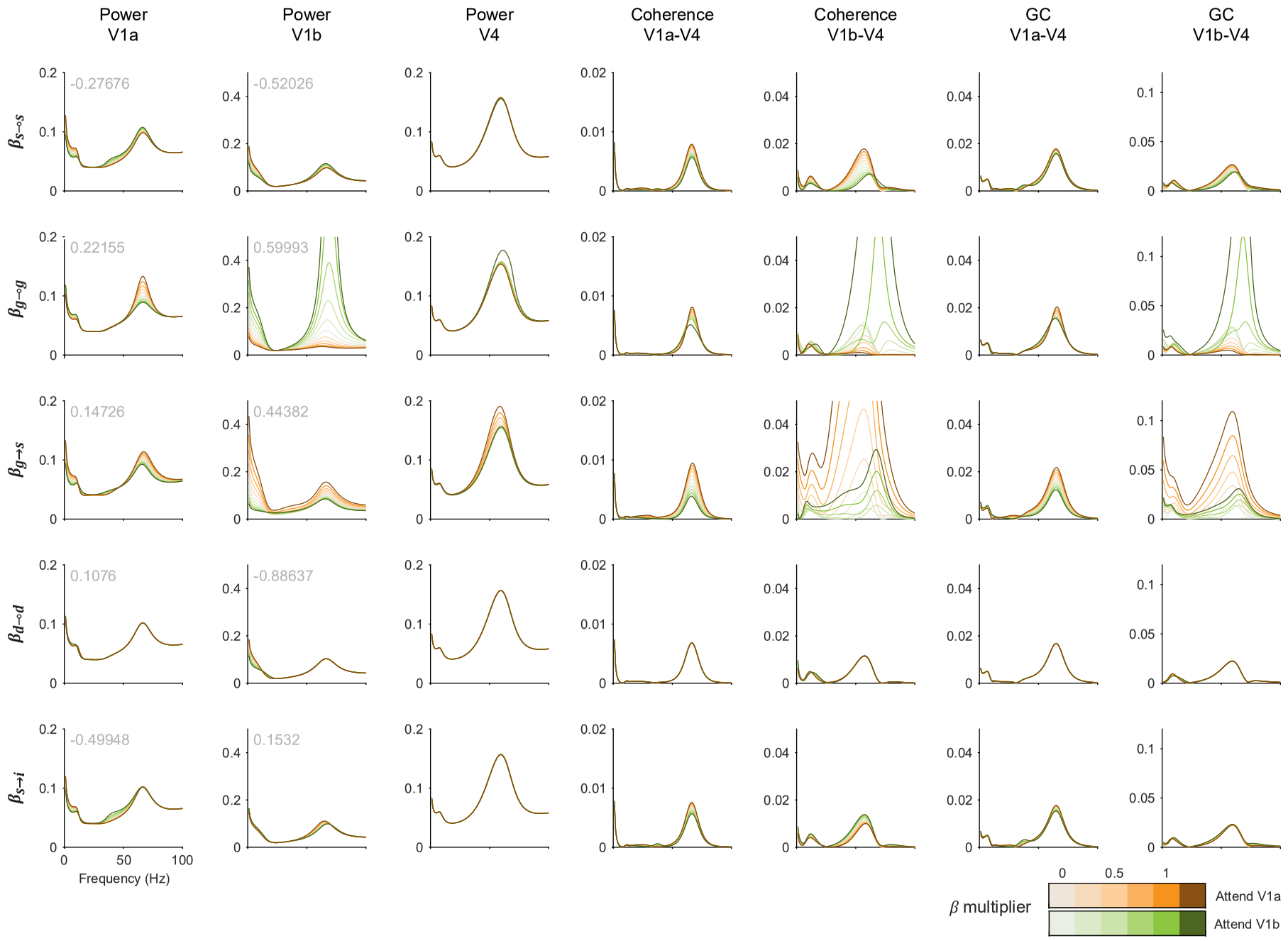

Power V1a
Power V1b
Power V4
Coherence V1a-V4
Coherence V1b-V4
GC V1a-V4
GC V1b-V4
$\beta_{s\to s}$
$\beta_{g\to g}$
$\beta_{g\to s}$
$\beta_{d\to d}$
$\beta_{s\to i}$
-0.27676
-0.52026
0.22155
0.59993
0.14726
0.44382
0.1076
-0.88637
-0.49948
0.1532
Frequency (Hz)
β multiplier
Attend V1a
Attend V1b

Figure S4

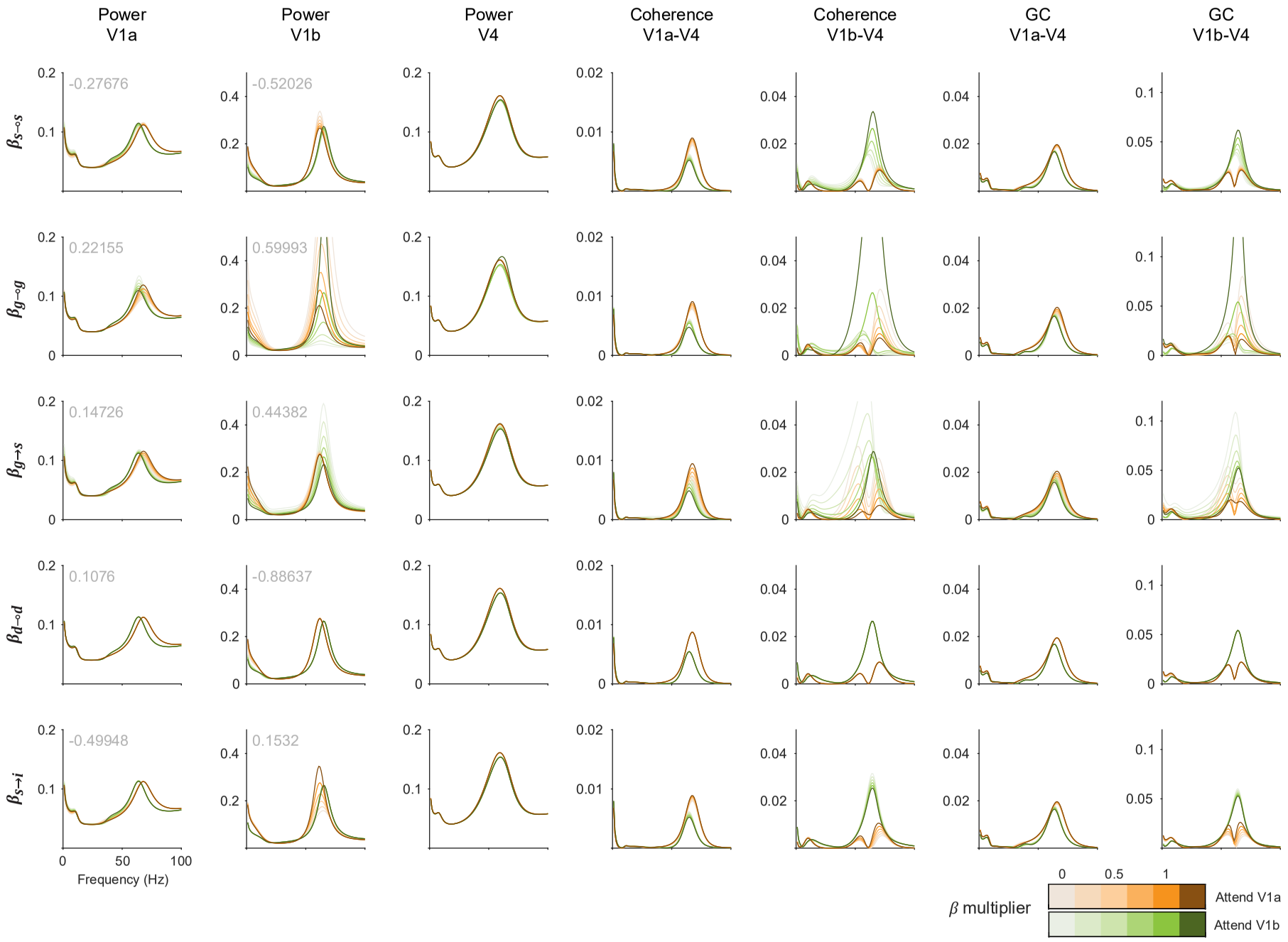

Power V1a
Power V1b
Power V4
Coherence V1a-V4
Coherence V1b-V4
GC V1a-V4
GC V1b-V4
$\beta_{s\to s}$
$\beta_{g\to g}$
$\beta_{g\to s}$
$\beta_{d\to d}$
$\beta_{s\to i}$
-0.27676
-0.52026
0.22155
0.59993
0.14726
0.44382
0.1076
-0.88637
-0.49948
0.1532
Frequency (Hz)
β multiplier
Attend V1a
Attend V1b

Figure S5

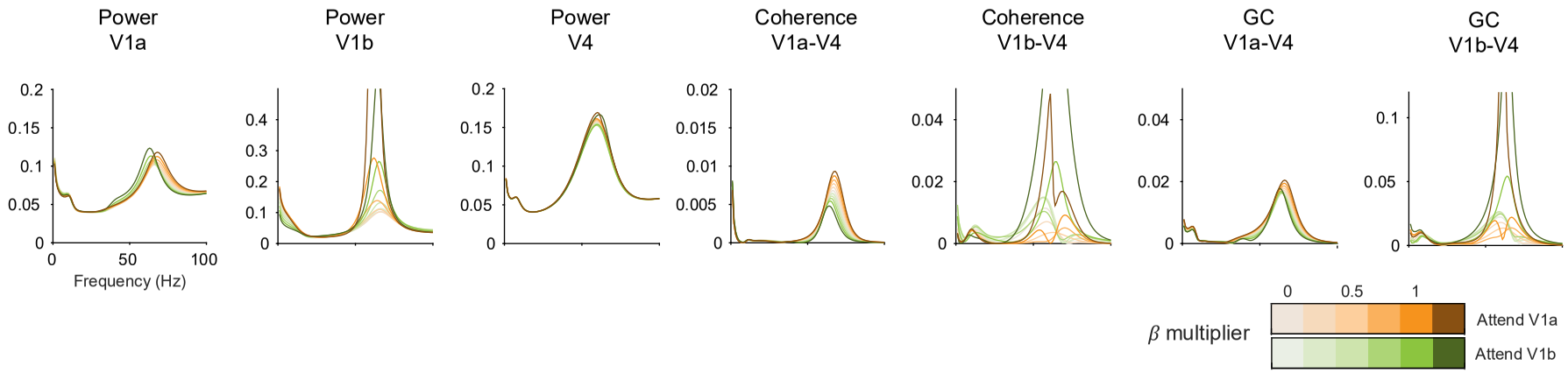
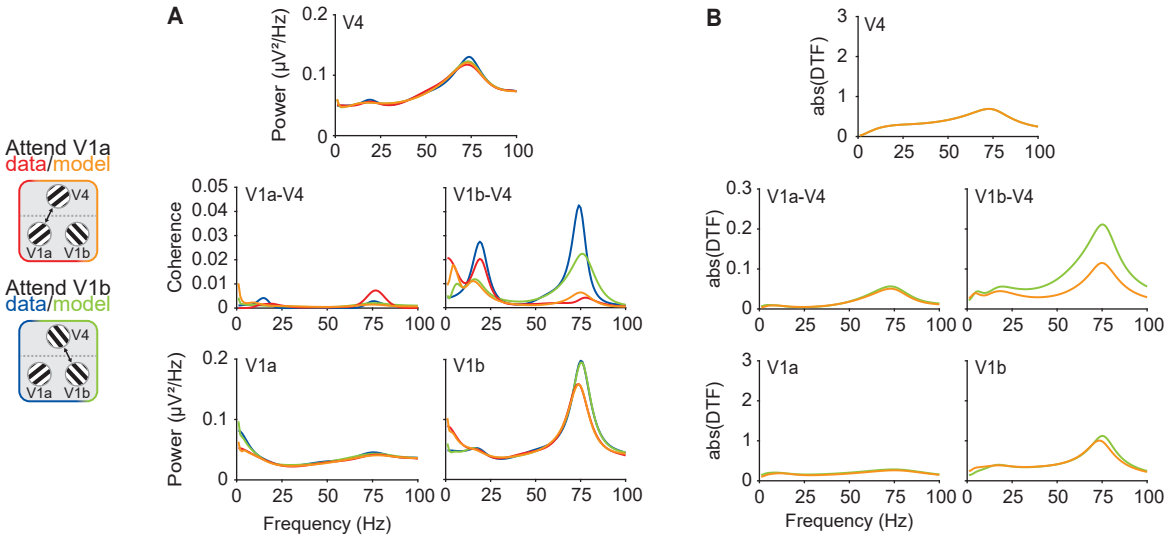

Power
V1a
Power
V1b
Power
V4
Coherence
V1a-V4
Coherence
V1b-V4
GC
V1a-V4
GC
V1b-V4
Frequency (Hz)
β multiplier
Attend V1a
Attend V1b

Figure S6


Attend V1a
data/model
V4
V1a
V1b
Attend V1b
data/model
V4
V1a
V1b
A
Power (μV²/Hz)
V4
Coherence
V1a-V4
V1b-V4
Power (μV²/Hz)
V1a
V1b
Frequency (Hz)
B
abs(DTF)
V4
abs(DTF)
V1a-V4
V1b-V4
abs(DTF)
V1a
V1b
Frequency (Hz)