	Matrix type	Mean Sum intra SOLO	Mean Sum intra JOINT	STD Sum intra SOLO	STD Sum intra JOINT	Mean Sum inter SOLO	Mean Sum inter JOINT	STD Sum inter SOLO	STD Sum inter JOINT	Mean Density intra 1 SOLO	Mean Density intra JOINT	STD Density intra SOLO	STD Density intra JOINT
1.	Cross-attention on Layer 0	623	603	123	120	510	530	132	130	0.553	0.535	0.036	0.029
2.	Cross-attention on Layer 1	447	461	41	50	262	248	94	88	0.641	0.660	0.084	0.082
3.	Average of cross-attentions	775	758	114	125	594	611	123	109	0.568	0.555	0.030	0.026
4.	Element-wise product between cross-attentions	323	326	44	34	122	120	38	36	0.727	0.734	0.075	0.063
5.	Self-attention on Layer 0	1103	1096	202	210	1038	1045	208	198	0.516	0.512	0.013	0.009
6.	Self -attention on Layer 1	905	872	114	120	762	795	133	105	0.545	0.523	0.037	0.015
7.	Average of self-attentions	1137	1109	138	154	993	1021	170	140	0.535	0.521	0.026	0.010
8.	Element-wise product between self-attentions	720	688	91	105	580	613	125	89	0.557	0.529	0.045	0.017
9.	Average of all the attention on every layer	1085	1060	128	119	871	897	123	124	0.555	0.542	0.024	0.018
10. eve	Element-wise product between all the attention on ry layer	273	270	49	34	90	93	39	34	0.755	0.751	0.092	0.061
11.	Element-wise product between the averages of cross self-attention	694	667	138	139	477	505	132	124	0.596	0.571	0.040	0.031

Matrix type	Mean Sum intra SOLO	Mean Sum intra JOINT	STD Sum intra SOLO	STD Sum intra JOINT	Mean Sum inter SOLO	Mean Sum inter JOINT	STD Sum inter SOLO	STD Sum inter JOINT	Mean Density intra SOLO	Mean Density intra JOINT	,	STD Density intra JOINT
1. Cross-attention on Layer 0	623	603	123	120	510	530	132	130	0.553	0.535	0.036	0.029
2. Cross-attention on Layer 1	447	461	41	50	262	248	94	88	0.641	0.660	0.084	0.082
3. Average of cross-attentions	775	758	114	125	594	611	123	109	0.568	0.555	0.030	0.026
4. Element-wise product between cross-attentions	323	326	44	34	122	120	38	36	0.727	0.734	0.075	0.063
5. Self-attention on Layer 0	1103	1096	202	210	1038	1045	208	198	0.516	0.512	0.013	0.009
6. Self -attention on Layer 1	905	872	114	120	762	795	133	105	0.545	0.523	0.037	0.015
7. Average of self-attentions	1137	1109	138	154	993	1021	170	140	0.535	0.521	0.026	0.010
8. Element-wise product between self-attentions	720	688	91	105	580	613	125	89	0.557	0.529	0.045	0.017
Average of all the attention on every layer	1085	1060	128	119	871	897	123	124	0.555	0.542	0.024	0.018
Element-wise product between all the attention on every layer	273	270	49	34	90	93	39	34	0.755	0.751	0.092	0.061
 Element-wise product between the averages of cross and self-attention 	694	667	138	139	477	505	132	124	0.596	0.571	0.040	0.031
Matrix type	Mean Density inter SOLO	Mean Density inter JOINT		STD Density inter JOINT	Mean Divisibility SOLO	Mean Divisibility JOINT	STD Divisibility SOLO	STD Divisibility JOINT	Mean Modularity SOLO	Mean Modularity JOINT	STD Modularity SOLO	STD Modularity JOINT
Matrix type 1. Cross-attention on Layer 0	Density inter	Density inter			Divisibility	Divisibility	Divisibility	Divisibility	Modularity	Modularity	Modularity	Modularity
	Density inter SOLO	Density inter JOINT	inter SOLO	inter JOINT	Divisibility SOLO	Divisibility JOINT	Divisibility SOLO	Divisibility JOINT	Modularity SOLO	Modularity JOINT	Modularity SOLO	Modularity JOINT
Cross-attention on Layer 0	Density inter SOLO 0.447	Density inter JOINT 0.465	inter SOLO	inter JOINT	Divisibility SOLO 0.691	Divisibility JOINT 0.683	Divisibility SOLO 0.018	Divisibility JOINT 0.014	Modularity SOLO 0.076	Modularity JOINT 0.066	Modularity SOLO 0.068	Modularity JOINT 0.065
Cross-attention on Layer 0 Cross-attention on Layer 1	Density inter SOLO 0.447 0.359	Density inter JOINT 0.465 0.340	0.036 0.084	0.029 0.082	Divisibility SOLO 0.691 0.739	Divisibility JOINT 0.683 0.749	Divisibility SOLO 0.018 0.048	Divisibility JOINT 0.014 0.047	Modularity SOLO 0.076 0.142	Modularity JOINT 0.066 0.183	Modularity SOLO 0.068 0.110	Modularity JOINT 0.065 0.107
Cross-attention on Layer 0 Cross-attention on Layer 1 Average of cross-attentions	Density inter SOLO 0.447 0.359 0.432	Density inter JOINT 0.465 0.340 0.445	0.036 0.084 0.030	0.029 0.082 0.026	Divisibility SOLO 0.691 0.739 0.699	Divisibility JOINT 0.683 0.749 0.692	Divisibility SOLO 0.018 0.048 0.015	Divisibility JOINT 0.014 0.047 0.012	Modularity SOLO 0.076 0.142 0.093	Modularity JOINT 0.066 0.183 0.088	Modularity SOLO 0.068 0.110 0.052	Modularity JOINT 0.065 0.107 0.052
Cross-attention on Layer 0 Cross-attention on Layer 1 Average of cross-attentions Element-wise product between cross-attentions	Density inter SOLO 0.447 0.359 0.432 0.273	Density inter JOINT 0.465 0.340 0.445 0.266	0.036 0.084 0.030 0.075	0.029 0.082 0.026 0.063	Divisibility SOLO 0.691 0.739 0.699 0.788	Divisibility JOINT 0.683 0.749 0.692 0.792	Divisibility SOLO 0.018 0.048 0.015 0.046	Divisibility JOINT 0.014 0.047 0.012 0.041	Modularity SOLO 0.076 0.142 0.093 0.244	Modularity JOINT 0.066 0.183 0.088 0.256	Modularity SOLO 0.068 0.110 0.052 0.077	Modularity JOINT 0.065 0.107 0.052 0.087
1. Cross-attention on Layer 0 2. Cross-attention on Layer 1 3. Average of cross-attentions 4. Element-wise product between cross-attentions 5. Self-attention on Layer 0	Density inter SOLO 0.447 0.359 0.432 0.273 0.484	Density inter JOINT 0.465 0.340 0.445 0.266 0.488	0.036 0.084 0.030 0.075 0.013	0.029 0.082 0.026 0.063 0.009	Divisibility SOLO 0.691 0.739 0.699 0.788 0.674	Divisibility JOINT 0.683 0.749 0.692 0.792 0.672	0.018 0.048 0.015 0.046 0.006	Divisibility JOINT 0.014 0.047 0.012 0.041 0.004	Modularity SOLO 0.076 0.142 0.093 0.244 0.027	Modularity JOINT 0.066 0.183 0.088 0.256 0.032	Modularity SOLO 0.068 0.110 0.052 0.077 0.033	Modularity JOINT 0.065 0.107 0.052 0.087 0.029
1. Cross-attention on Layer 0 2. Cross-attention on Layer 1 3. Average of cross-attentions 4. Element-wise product between cross-attentions 5. Self-attention on Layer 0 6. Self -attention on Layer 1	Density inter SOLO 0.447 0.359 0.432 0.273 0.484 0.455	Density inter JOINT 0.465 0.340 0.445 0.266 0.488 0.477	0.036 0.084 0.030 0.075 0.013 0.037	0.029 0.082 0.026 0.063 0.009 0.015	Divisibility SOLO 0.691 0.739 0.699 0.788 0.674 0.688	Divisibility JOINT 0.683 0.749 0.692 0.792 0.672 0.677	Divisibility SOLO 0.018 0.048 0.015 0.046 0.006 0.018	Divisibility JOINT 0.014 0.047 0.012 0.041 0.004 0.007	Modularity SOLO 0.076 0.142 0.093 0.244 0.027 0.062	Modularity JOINT 0.066 0.183 0.088 0.256 0.032 0.030	Modularity SOLO 0.068 0.110 0.052 0.077 0.033 0.070	Modularity JOINT 0.065 0.107 0.052 0.087 0.029 0.048
1. Cross-attention on Layer 0 2. Cross-attention on Layer 1 3. Average of cross-attentions 4. Element-wise product between cross-attentions 5. Self-attention on Layer 0 6. Self -attention on Layer 1 7. Average of self-attentions	Density inter SOLO 0.447 0.359 0.432 0.273 0.484 0.455 0.465	Density inter JOINT 0.465 0.340 0.445 0.266 0.488 0.477 0.479	0.036 0.084 0.030 0.075 0.013 0.037 0.026	0.029 0.082 0.026 0.063 0.009 0.015 0.010	Divisibility SOLO 0.691 0.739 0.699 0.788 0.674 0.688 0.683	Divisibility JOINT 0.683 0.749 0.692 0.792 0.672 0.677 0.676	Divisibility SOLO 0.018 0.048 0.015 0.046 0.006 0.018 0.012	Divisibility JOINT 0.014 0.047 0.012 0.041 0.004 0.007 0.005	Modularity SOLO 0.076 0.142 0.093 0.244 0.027 0.062 0.050	Modularity JOINT 0.066 0.183 0.088 0.256 0.032 0.030 0.034	Modularity SOLO 0.068 0.110 0.052 0.077 0.033 0.070 0.052	Modularity JOINT 0.065 0.107 0.052 0.087 0.029 0.048 0.033
1. Cross-attention on Layer 0 2. Cross-attention on Layer 1 3. Average of cross-attentions 4. Element-wise product between cross-attentions 5. Self-attention on Layer 0 6. Self -attention on Layer 1 7. Average of self-attentions 8. Element-wise product between self-attentions	Density inter SOLO 0.447 0.359 0.432 0.273 0.484 0.455 0.465 0.443	Density inter JOINT 0.465 0.340 0.445 0.266 0.488 0.477 0.479 0.471	0.036 0.084 0.030 0.075 0.013 0.037 0.026 0.045	0.029 0.082 0.026 0.063 0.009 0.015 0.010 0.017	Divisibility SOLO 0.691 0.739 0.699 0.788 0.674 0.688 0.683 0.694	Divisibility JOINT 0.683 0.749 0.692 0.792 0.672 0.677 0.676 0.680	Divisibility SOLO 0.018 0.048 0.015 0.046 0.006 0.018 0.012 0.022	Divisibility JOINT 0.014 0.047 0.012 0.041 0.004 0.007 0.005 0.008	Modularity SOLO 0.076 0.142 0.093 0.244 0.027 0.062 0.050 0.067	Modularity JOINT 0.066 0.183 0.088 0.256 0.032 0.030 0.034 0.039	Modularity SOLO 0.068 0.110 0.052 0.077 0.033 0.070 0.052 0.080	Modularity JOINT 0.065 0.107 0.052 0.087 0.029 0.048 0.033 0.035

		Sum intr	<u>-</u>		Sum inter-subject				
Matrix type	ME	AN	S	ΓD	ME	AN	STD		
	Solo	Joint	Solo	Joint	Solo	Joint	Solo	Joint	
1. Cross-attention on Layer 0	623	603	123	120	510	530	132	130	
2. Cross-attention on Layer 1	447	461	41	50	262	248	94	88	
3. Average of cross-attentions	775	758	114	125	594	611	123	109	
4. Element-wise product between cross-attentions	323	326	44	34	122	120	38	36	
5. Self-attention on Layer 0	1103	1096	202	210	1038	1045	208	198	
6. Self -attention on Layer 1	905	872	114	120	762	795	133	105	
7. Average of self-attentions	1137	1109	138	154	993	1021	170	140	
8. Element-wise product between self-attentions	720	688	91	105	580	613	125	89	
9. Average of all the attention on every layer	1085	1060	128	119	871	897	123	124	
10. Element-wise product between all the attention on	273	270	49	34	90	93	39	34	
every layer 11. Element-wise product between the averages of cross and self-attention	694	667	138	139	477	505	132	124	
		Density in	tra-subject		Density inter-subject				
Matrix type	ME	AN	S	ΓD	ME	AN	STD		
	Solo	Joint	Solo	Joint	Solo	Joint	Solo	Joint	
1. Cross-attention on Layer 0	0.553	0.535	0.036	0.029	0.447	0.465	0.036	0.029	
2. Cross-attention on Layer 1	0.641	0.660	0.084	0.082	0.359	0.340	0.084	0.082	
3. Average of cross-attentions	0.568	0.555	0.030	0.026	0.432	0.445	0.030	0.026	
4. Element-wise product between cross-attentions	0.727	0.734	0.075	0.063	0.273	0.266	0.075	0.063	
5. Self-attention on Layer 0	0.516	0.512	0.013	0.009	0.484	0.488	0.013	0.009	
6. Self -attention on Layer 1	0.545	0.523	0.037	0.015	0.455	0.477	0.037	0.015	
7. Average of self-attentions	0.535	0.521	0.026	0.010	0.465	0.479	0.026	0.010	
8. Element-wise product between self-attentions	0.557	0.529	0.045	0.017	0.443	0.471	0.045	0.017	
9. Average of all the attention on every layer	0.555	0.542	0.024	0.018	0.445	0.458	0.024	0.018	
10. Element-wise product between all the attention on	0.755	0.751	0.092	0.061	0.245	0.249	0.092	0.061	
every layer 11. Element-wise product between the averages of cross and self-attention	0.596	0.571	0.040	0.031	0.404	0.429	0.040	0.031	
		Divisi	ibility		Modularity				
Matrix type	ME	AN	S	ГD	MEAN STD				
51	Solo	Joint	Solo	Joint	Solo	Joint	Solo	Joint	
1. Cross-attention on Layer 0	0.691	0.683	0.018	0.014	0.076	0.066	0.068	0.065	
2. Cross-attention on Layer 1	0.739	0.749	0.048	0.047	0.142	0.183	0.110	0.107	
3. Average of cross-attentions	0.699	0.692	0.015	0.012	0.093	0.088	0.052	0.052	
4. Element-wise product between cross-attentions	0.788	0.792	0.046	0.041	0.244	0.256	0.077	0.087	
5. Self-attention on Layer 0	0.674	0.672	0.006	0.004	0.027	0.032	0.033	0.029	
6. Self -attention on Layer 1	0.688	0.677	0.018	0.007	0.062	0.030	0.070	0.048	
7. Average of self-attentions	0.683	0.676	0.012	0.005	0.050	0.034	0.052	0.033	
8. Element-wise product between self-attentions	0.694	0.680	0.022	0.008	0.067	0.039	0.080	0.055	
9. Average of all the attention on every layer	0.692	0.686	0.012	0.008	0.075	0.068	0.047	0.032	
10. Element-wise product between all the attention on every layer	0.807	0.803	0.060	0.040	0.239	0.254	0.099	0.073	
11. Element-wise product between the averages of cross and self-attention	0.713	0.700	0.020	0.015	0.108	0.106	0.059	0.057	

Mean Density inter SOLO	Mean Density inter JOINT	STD Density inter SOLO	STD Density inter JOINT	Mean Divisibility SOLO	Mean Divisibility JOINT	STD Divisibility SOLO	STD Divisibility JOINT	Mean Modularity SOLO	Mean Modularity JOINT	STD Modularity SOLO	STD Modularity JOINT	Matrix type
0.447	0.465	0.036	0.029	0.691	0.683	0.018	0.014	0.076	0.066	0.068	0.065	1. Cross-attention on Layer 0
0.359	0.340	0.084	0.082	0.739	0.749	0.048	0.047	0.142	0.183	0.110	0.107	2. Cross-attention on Layer 1
0.432	0.445	0.030	0.026	0.699	0.692	0.015	0.012	0.093	0.088	0.052	0.052	3. Average of cross-attentions
0.273	0.266	0.075	0.063	0.788	0.792	0.046	0.041	0.244	0.256	0.077	0.087	4. Element-wise product between cross-attentions
0.484	0.488	0.013	0.009	0.674	0.672	0.006	0.004	0.027	0.032	0.033	0.029	5. Self-attention on Layer 0
0.455	0.477	0.037	0.015	0.688	0.677	0.018	0.007	0.062	0.030	0.070	0.048	6. Self -attention on Layer 1
0.465	0.479	0.026	0.010	0.683	0.676	0.012	0.005	0.050	0.034	0.052	0.033	7. Average of self-attentions
0.443	0.471	0.045	0.017	0.694	0.680	0.022	0.008	0.067	0.039	0.080	0.055	8. Element-wise product between self-attentions
0.445	0.458	0.024	0.018	0.692	0.686	0.012	0.008	0.075	0.068	0.047	0.032	9. Average of all the attention on every layer
0.245	0.249	0.092	0.061	0.807	0.803	0.060	0.040	0.239	0.254	0.099	0.073	10. Element-wise product between all the attention on every layer
0.404	0.429	0.040	0.031	0.713	0.700	0.020	0.015	0.108	0.106	0.059	0.057	11. Element-wise product between the averages of cross and self-attention