Supplemental Material

Paper: *"Where You Lead I Will Follow – Adult-Age Differences in Movement Synchrony"*

The original de-identified research data and statistical code to reproduce the presented analyses are available via the Open Science Framework at https://osf.io/zqn5e/?view_only=5d97951b030640b8aaf2b19fc74174d2

Content

S1. Descriptive Analyses of Interpersonal Motor-Following Indices 3

Table S1a: *Descriptive Statistics of Interpersonal Motor-Following Indices by Partner Age Group* 3

Table S1b: *Descriptive Statistics of Interpersonal Motor-Following Indices Across Actor × Partner Age Combinations* 3

Table S1c: *Descriptive Statistics of Interpersonal Motor-Following Indices by Valence (of the Conversation Topic)*....4

Table S1d: *Descriptive Statistics of Interpersonal Motor-Following Indices Across Actor Age × Valence Combinations*....4

S2. Adult-Age Differences in the Frequency of Interpersonal Motor-Following Intervals 5

Table S2: *Dual-Intercept APIM Estimating Associations Between Age Group and Frequency of Motor-Following Intervals* 5

S3. Follow-Up Analyses: Frequency of Interpersonal Motor-Following Intervals (DV)....6

Table S3a: *Interaction Effects Between Age Group Variables and Conversation Segment*....6

Table S3b: *Associations Between Age Group Composition and Motor-Following Frequency (Controlling for Movement Frequency)*....7

S4. Follow-Up Analyses: Relative Duration of Interpersonal Motor Following (DV) 8

Table S4a: *Interaction Effects of Actor Age × Partner Age (Dyadic Age Composition)*....8

Table S4b: *Interaction Effects Between Age Group Variables and Conversation Segment* 9

Table S4c: *Associations Between Age Group and Relative Duration of Motor Following (Controlling for Movement Frequency)*....10

S5. Main and Interaction Effects of Valence (of the Conversation Topic) 11

Table S5a: *Associations Between Frequency of Motor Following (DV) and Actor Age, Partner Age, and Valence (IV)* 11

Table S5b: *Associations Between Duration of Motor Following (DV) and Actor Age, Partner Age, and Valence (IV)* 12

Table S5c*: Valence as a Moderator of Adult-Age Differences in the Frequency of Motor Following Intervals*.....13

Table S5d*: Valence as a Moderator of Adult-Age Differences in the Duration of Motor Following*.....14

Table S5e*: Valence as a Moderator of the Effects of Age Composition (Actor Age × Partner Age) on the Frequency of Motor Following*.....15

S1. Descriptive Analyses of Interpersonal Motor-Following Indices

Note: Both motor-following indices were winsorized. Frequency is the rate of motor-following intervals per minute (n/min = counts per minute). Duration is the proportion of time individuals engaged in motor following and thus reported in percent.

Table S1a

Descriptive Statistics of Interpersonal Motor-Following Indices by Partner Age Group

	Younger Partner		Older Partner	
	M(SD)	*Range*	*M(SD)*	*Range*
Frequency (in n/min)	9.13 (4.33)	0.00 – 22.5	8.77 (3.31)	1.43 – 20.11
Duration (in %)	23.7 (8.0)	0.0 – 46.8	22.6 (5.8)	7.0 – 43.0

Table S1b

Descriptive Statistics of Interpersonal Motor-Following Indices Across Actor × Partner Age Combinations

	young actor + young partner		young actor + old partner		old actor + old partner		old actor + young partner	
	M(SD)	*Range*	*M(SD)*	*Range*	*M(SD)*	*Range*	*M(SD)*	*Range*
Frequency (in n/min)	10.46 (5.32)	0.00 – 22.50	7.54 (2.45)	1.43 – 19.63	9.96 (3.58)	2.51 – 20.11	7.86 (2.51)	1.77 – 17.84
Duration (in %)	24.2 (9.7)	0.0 – 46.8	23.2 (5.8)	8.3 – 42.3	22.1 (5.8)	7.0 – 43.0	23.3 (6.1)	6.7 – 39.3

Table S1c

Descriptive Statistics of Interpersonal Motor-Following Indices by Valence (of the Conversation Topic)

	negative		positive	
	M(SD)	*Range*	*M(SD)*	*Range*
Frequency (in n/min)	8.61 (3.83)	0.00 – 22.50	9.29 (3.83)	0.00 – 22.50
Duration (in %)	22.5 (7.3)	0.0 – 46.8	23.8 (6.7)	0.0 – 46.8

Table S1d

Descriptive Statistics of Interpersonal Motor-Following Indices Across Actor Age × Valence Combinations

	young actor + negative		young actor + positive		old actor + negative		old actor + positive	
	M(SD)	*Range*	*M(SD)*	*Range*	*M(SD)*	*Range*	*M(SD)*	*Range*
Frequency (in n/min)	8.54 (4.30)	0.00 – 22.50	9.40 (4.39)	0.00 – 22.50	8.68 (3.32)	1.77 – 20.11	9.18 (3.21)	2.14 – 18.27
Duration (in %)	23.0 (8.3)	0.0 – 46.8	24.4 (7.5)	0.0 – 46.8	22.1 (6.3)	6.7 – 43.0	23.2 (5.6)	8.3 – 36.7

S2. Adult-Age Differences in the Frequency of Interpersonal Motor-Following Intervals (DV)

Table S2

Dual-Intercept APIM Estimating Associations Between Age Group and Frequency of Motor-Following Intervals

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	8.95	0.25		35.29	< .001	8.46	9.45
Age Group (Actor)	-.02	0.20	-.005	-0.10	.921	-0.41	0.37
Age Group (Partner)	-.18	0.20	-.05	-0.92	.360	-0.57	0.21
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	2.44					2.10	2.84
Residual variance	2.96					2.81	3.12

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Frequency of motor-following intervals is the rate of motor-following intervals per minute (n/min = counts per minute). Age group variables were coded as young = −1 and old = 1. All reported coefficients reflect a one-unit (i.e., half-span) change; to obtain the full young vs. old difference, multiply each age group estimate by 2.

S3. Follow-Up Analyses: Frequency of Interpersonal Motor-Following Intervals (DV)

Table S3a

Interaction Effects Between Age Group Variables and Conversation Segment

Fixed Effects	*Estimate*	*SE*	*t*	*p*	95% *CI*	
					LL	*UL*
Intercept	8.50	0.25	34.43	< .001	8.02	8.98
Age group (actor)	0.06	0.23	0.25	.804	-0.38	0.50
Age group (partner)	-0.21	0.23	-0.91	.362	-0.65	-0.23
Segment	0.30	0.07	4.25	< .001	0.16	0.44
Age group (actor) x segment	-0.07	0.09	-0.73	.466	-0.25	0.11
Age group (partner) x segment	-0.00	0.24	0.77	.444	-0.18	0.18
Age Group (Actor) x Age Group (Partner)	1.29	0.25	5.21	< .001	0.80	1.77
Age Group (Actor) x Age Group (Partner) x segment	-0.02	0.07	-0.26	.791	-0.16	0.12
Random Effects	*Estimate*				95% *CI*	
					LL	*UL*
Intercept variance	2.10				1.80	2.46
Residual variance	2.93				2.78	3.09

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Frequency of motor-following intervals is the rate of motor-following intervals per minute (n/min = counts per minute). Age group variables were coded as young = −1 and old = 1. The range of the segment is 0 – 3; 0 represents the first conversation segment

Table S3b

Associations Between Age Group Composition and Motor-Following Frequency (Controlling for Movement Frequency)

Fixed Effects	*Estimate*	*SE*	*t*	*p*	95% *CI*	
					LL	*UL*
Intercept	8.85	0.37	24.18	< .001	8.13	9.56
Age Group (Actor)	-0.04	0.18	-0.20	.838	-0.39	0.31
Age Group (Partner)	-0.21	0.18	-1.17	.242	-0.56	0.14
Age Group (Actor) x Age Group (Partner)	1.25	0.22	5.58	< .001	0.81	1.69
Movement Frequency (Actor)	-0.09	0.73	-0.12	.901	-1.52	1.34
Movement Frequency (Partner)	0.54	0.73	0.74	.459	-0.89	1.97
Random Effects	*Estimate*				95% *CI*	
					LL	*UL*
Intercept variance	2.09				1.78	2.45
Residual variance	2.95				2.81	3.12

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Frequency of motor-following intervals is the rate of motor-following intervals per minute (n/min = counts per minute). Age group variables were coded as young = −1 and old = 1. Movement frequency is the individual's amount of an individual's motor activity (theoretical range: 0 – 1)

S4. Follow-Up Analyses: Relative Duration of Interpersonal Motor Following (DV)

Table S4a

Interaction Effects of Actor Age × Partner Age (Dyadic Age Composition)

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	23.19	0.24		95.51	< .001	22.71	23.66
Age Group (Actor)	-0.50	0.26	-.07	-1.89	.060	-1.01	0.02
Age Group (Partner)	-0.55	0.26	-.08	-2.10	.036	-1.07	-0.04
Age Group (Actor) x Age Group (Partner)	-0.03	0.24	-.00	-0.11	.915	-0.51	0.45
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	1.72					1.29	2.31
Residual variance	6.76					6.41	7.13

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Duration is the proportion of time the actor followed during an interaction (theoretical range: 0-100%). Age group variables were coded as young = −1 and old = 1. All reported coefficients reflect a one-unit (i.e., half-span) change; multiplying each age group estimate by 2 provides an account of the full amplitude of the difference between younger and older adults.

Table S4b

Interaction Effects Between Age Group Variables and Conversation Segment

Fixed Effects	*Estimate*	*SE*	*t*	*p*	95% *CI*	
					LL	*UL*
Intercept	22.36	0.33	66.97	< .001	21.71	23.02
Age group (actor)	-0.62	0.41	-1.50	.133	-1.42	0.19
Age group (partner)	-0.64	0.41	-1.55	.121	-1.44	0.17
Part	0.55	0.15	3.60	< .001	0.25	0.85
Age group (actor) x segment	0.08	0.21	0.38	.705	-0.33	0.49
Age group (partner) x segment	0.05	0.21	0.26	.793	-0.35	0.46
Random Effects	*Estimate*				95% *CI*	
					LL	*UL*
Intercept variance	1.76				1.34	2.33
Residual variance	6.72				6.37	7.09

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Duration is the proportion of time the actor followed during an interaction (theoretical range: 0-100%). Age group variables were coded as young = −1 and old = 1. The range of the segment is 0 – 3, 0 represents the first conversation segment.

Table S4c

Associations Between Age Group and Relative Duration of Motor Following (Controlling for Movement Frequency)

Fixed Effects	*Estimate*	*SE*	*t*	*p*	95% *CI*	
					LL	*UL*
Intercept	23.85	0.53	44.60	< .001	22.80	24.90
Age Group (Actor)	-0.49	0.27	-1.84	.066	-1.01	0.03
Age Group (Partner)	-0.59	0.27	-2.22	.027	-1.11	-0.07
Movement Frequency (Actor)	-2.82	1.35	-2.08	.038	-5.47	-0.17
Movement Frequency (Partner)	-0.03	1.35	-0.02	.984	-2.68	2.62
Random Effects	*Estimate*				95% *CI*	
					LL	*UL*
Intercept variance	1.80				1.36	2.39
Residual variance	6.73				6.38	7.10

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Duration is the proportion of time the actor followed during an interaction (theoretical range: 0-100%). Age group variables were coded as young = −1 and old = 1. Movement frequency is the amount of an individual's motor activity (theoretical range: 0 – 1)

S5. Main and Interaction Effects of Valence (of the Conversation Topic)

Table S5a

Associations Between Frequency of Motor Following (DV) and Actor Age, Partner Age, and Valence (IV)

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	8.95	0.25		35.27	< .001	8.46	9.45
Age Group (Actor)	-0.02	0.20	-.01	-0.10	.921	-0.41	0.37
Age Group (Partner)	-0.18	0.20	-.05	-0.92	.360	-0.57	0.21
Valence	0.34	0.08	.09	4.23	< .001	0.18	0.49
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	2.45					2.11	2.85
Residual variance	2.93					2.78	3.09

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Frequency of motor-following intervals is the rate of motor-following intervals per minute (n/min = counts per minute). Age group variables were coded as young = −1 and old = 1. Valence was coded as negative = -1 and positive = 1. All reported coefficients reflect a one-unit (i.e., half-span) change; multiplying each age group estimate by 2 provides an account of the full amplitude of the difference between younger and older adults.

Table S5b

Associations Between Duration of Motor Following (DV) and Actor Age, Partner Age, and Valence (IV)

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	23.18	0.24		95.44	< .001	22.71	23.66
Age Group (Actor)	-0.50	0.26	-.07	-1.89	.056	-1.01	-0.02
Age Group (Partner)	-0.55	0.26	-.08	-2.10	.036	-1.07	-0.04
Valence	0.62	0.17	.09	3.63	< .001	0.28	0.95
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	1.76					1.33	2.33
Residual variance	6.72					6.37	7.10

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Duration is the proportion of time the actor followed during an interaction (theoretical range: 0-100%). Age group variables were coded as young = −1 and old = 1. Valence was coded as negative = -1 and positive = 1. All reported coefficients reflect a one-unit (i.e., half-span) change; multiplying each age group estimate by 2 provides an account of the full amplitude of the difference between younger and older adults.

Table S5c

Valence as a Moderator of Adult-Age Differences in the Frequency of Motor Following Intervals

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	8.95	0.25		35.23	< .001	8.46	9.45
Age Group (Actor)	-0.02	0.20	-.01	-0.10	.921	-0.41	0.37
Age Group (Partner)	-0.18	0.20	-.05	-0.91	.361	-0.57	0.21
Valence	0.34	0.08	.09	4.23	< .001	0.18	0.49
Age Group (Actor) x Valence	-0.09	0.10	-.02	-0.85	.396	-0.29	0.11
Age Group (Partner) x Valence	0.08	0.10	.02	0.81	.418	-0.12	0.28
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	2.45					2.11	2.85
Residual variance	2.93					2.78	3.09

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Frequency of motor-following intervals is the rate of motor-following intervals per minute (n/min = counts per minute). Age group variables were coded as young = −1 and old = 1. Valence was coded as negative = -1 and positive = 1. Valence was coded as negative = -1 and positive = 1. All reported coefficients reflect a one-unit (i.e., half-span) change; multiplying each age group estimate by 2 provides an account of the full amplitude of the difference between younger and older adults.

Table S5d

Valence as a Moderator of Adult-Age Differences in the Duration of Motor Following

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	23.19	0.24		95.32	< .001	22.71	23.66
Age Group (Actor)	-0.50	0.26	-.07	-1.89	.060	-1.01	0.02
Age Group (Partner)	-0.55	0.26	-.08	-2.10	.036	-1.07	-0.04
Valence	0.61	0.17	.09	3.60	< .001	0.28	0.95
Age Group (Actor) x Valence	-0.06	0.23	-.01	-0.25	.804	-0.51	0.40
Age Group (Partner) x Valence	0.31	0.23	.04	1.32	.187	-0.15	0.77
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	1.76					1.34	2.33
Residual variance	6.71					6.36	7.09

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Duration is the proportion of time the actor followed during an interaction (theoretical range: 0-100%). Age group variables were coded as young = −1 and old = 1. Valence was coded as negative = -1 and positive = 1. Valence was coded as negative = -1 and positive = 1. All reported coefficients reflect a one-unit (i.e., half-span) change; multiplying each age group estimate by 2 provides an account of the full amplitude of the difference between younger and older adults.

Table S5e

Valence as a Moderator of the Effects of Age Composition (Actor Age × Partner Age) on the Frequency of Motor Following

Fixed Effects	*Estimate*	*SE*	β	*t*	*p*	95% *CI*	
						LL	*UL*
Intercept	8.95	0.22		40.28	< .001	8.52	9.39
Age Group (Actor)	-0.04	0.18	-.01	-0.25	.806	-0.39	0.31
Age Group (Partner)	-0.21	0.18	-.05	-1.15	.250	-0.56	0.14
Valence	0.34	0.08	.09	4.22	< .001	0.18	0.49
Age Group (Actor) x Age Group (Partner)	1.26	0.22	.33	5.66	< .001	0.82	1.70
Age Group (Actor) x Valence	-0.09	0.10	-.02	-0.84	.401	-0.29	0.11
Age Group (Partner) x Valence	0.08	0.10	.02	0.82	.415	-0.12	0.28
Age Group (Actor) x Age Group (Partner) x Valence	-0.04	0.08	-.01	-0.47	.641	-0.19	0.12
Random Effects	*Estimate*					95% *CI*	
						LL	*UL*
Intercept variance	2.10					1.80	2.46
Residual variance	2.93					2.78	3.09

Note. Within the fixed effects section, estimates are unstandardized regression weights from the APIM. Estimates of the random intercept variance and residual variance are reported in standard deviations. CI = confidence interval; LL = lower limit; UL = upper limit. Frequency of motor-following intervals is the rate of motor-following intervals per minute (n/min = counts per minute). Age group variables were coded as young = −1 and old = 1. Valence was coded as negative = -1 and positive = 1. Valence was coded as negative = -1 and positive = 1.