

This supplement to

Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*.

contains versions of Appendices 1, 2, and 3 with PROCESS code and output from version 2 rather than version 3. Version 3 was publicly released in December 2017. The indices of partial, conditional, and moderated moderation mediation are available as of version 2.16, released in July of 2016. The syntax structure in PROCESS version 3 is different in some important ways compared to version 2, so the PROCESS commands in the appendices in the manuscript will not work in version 2.16.

Appendix 1

PROCESS version 2.16 code and output:

```
SPSS: process vars=binladen stereo mcivil sex age ideo/y=mcivil/x=binladen/
      m=stereo/w=age/z=sex/model=9/percent=1/boot=10000.
```

```
SAS: %process (data=binladen,vars=binladen stereo mcivil sex age ideo,
             y=mcivil,x=binladen,m=stereo,w=age,z=sex,model=9,percent=1,boot=10000);
```

***** PROCESS Procedure for SPSS Release 2.16 *****

Model = 9
Y = mcivil
X = binladen
M = stereo
W = age
Z = sex

Statistical Controls:
CONTROL= ideo

Sample size
661

Outcome: stereo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3666	.1344	.6457	16.9231	6.0000	654.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.6990	.1565	10.8555	.0000	1.3917	2.0063
binladen	.6489	.2202	2.9470	.0033	.2165	1.0813
age	.0857	.0246	3.4916	.0005	.0375	.1340
int_1	-.0902	.0391	-2.3049	.0215	-.1671	-.0134
sex	.0980	.0823	1.1901	.2344	-.0637	.2596
int_2	-.1453	.1288	-1.1282	.2597	-.3981	.1076
ideo	.1300	.0143	9.1212	.0000	.1020	.1580

Product terms key:

int_1 binladen X age
int_2 binladen X sex

Outcome: mcivil

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5303	.2812	.7699	85.6765	3.0000	657.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.6201	.1324	4.6842	.0000	.3602	.8801
stereo	.4954	.0423	11.7166	.0000	.4124	.5785
binladen	-.0109	.0698	-.1564	.8758	-.1480	.1261
ideo	.1043	.0165	6.3286	.0000	.0720	.1367

***** DIRECT AND INDIRECT EFFECTS *****

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.0109	.0698	-.1564	.8758	-.1480	.1261

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator

	age	sex	Effect	Boot SE	BootLLCI	BootULCI
stereo	3.1905	.0000	.1789	.0585	.0677	.2971
stereo	3.1905	1.0000	.1069	.0509	.0105	.2094
stereo	4.8460	.0000	.1049	.0459	.0165	.1963
stereo	4.8460	1.0000	.0329	.0438	-.0534	.1199
stereo	6.5015	.0000	.0309	.0557	-.0785	.1414
stereo	6.5015	1.0000	-.0411	.0597	-.1608	.0757

Values for quantitative moderators are the mean and plus/minus one SD from mean.
 Values for dichotomous moderators are the two values of the moderator.

***** INDEX OF PARTIAL MODERATED MEDIATION *****

Moderator:

age

Mediator

	Index	SE (Boot)	BootLLCI	BootULCI
stereo	-.0447	.0206	-.0861	-.0056

Moderator:

sex

Mediator

	Index	SE (Boot)	BootLLCI	BootULCI
stereo	-.0720	.0630	-.2005	.0496

When the moderator is dichotomous, this is a test of equality of the conditional indirect effects in the two groups.

Appendix 2

PROCESS version 2.16 code and output

SPSS: process vars=binladen stereo mcivil sex age ideo/y=mcivil/x=binladen/
 m=stereo/w=age/z=sex/model=11/percent=1/boot=10000.

SAS: %process (data=binladen,vars=binladen stereo mcivil sex age ideo,
 y=mcivil,x=binladen,m=stereo,w=age,z=sex,model=11,percent=1,boot=10000);

***** PROCESS Procedure for SPSS Release 2.16 *****

Model = 11
 Y = mcivil
 X = binladen
 M = stereo
 W = age
 Z = sex

Statistical Controls:
 CONTROL= ideo

Sample size
 661

 Outcome: stereo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3789	.1436	.6408	13.6635	8.0000	652.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.6459	.1974	8.3375	.0000	1.2583	2.0336
binladen	1.1369	.2999	3.7905	.0002	.5480	1.7259
age	.0987	.0344	2.8686	.0043	.0311	.1663
int_1	-.1859	.0559	-3.3232	.0009	-.2957	-.0760
sex	.2238	.2514	.8905	.3735	-.2697	.7174
int_2	-1.0395	.4013	-2.5902	.0098	-1.8275	-.2515
int_3	-.0259	.0489	-.5298	.5964	-.1220	.0701
int_4	.1838	.0782	2.3508	.0190	.0303	.3374
ideo	.1276	.0142	8.9663	.0000	.0996	.1555

Product terms key:

int_1	binladen	X	age		
int_2	binladen	X	sex		
int_3	age	X	sex		
int_4	binladen	X	age	X	sex

Outcome: mcivil

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5303	.2812	.7699	85.6765	3.0000	657.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.6201	.1324	4.6842	.0000	.3602	.8801
stereo	.4954	.0423	11.7166	.0000	.4124	.5785
binladen	-.0109	.0698	-.1564	.8758	-.1480	.1261
ideo	.1043	.0165	6.3286	.0000	.0720	.1367

***** DIRECT AND INDIRECT EFFECTS *****

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.0109	.0698	-.1564	.8758	-.1480	.1261

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator

	age	sex	Effect	Boot SE	BootLLCI	BootULCI
stereo	3.1905	.0000	.2695	.0730	.1349	.4193
stereo	3.1905	1.0000	.0451	.0542	-.0626	.1505
stereo	4.8460	.0000	.1170	.0461	.0292	.2104
stereo	4.8460	1.0000	.0434	.0440	-.0431	.1317
stereo	6.5015	.0000	-.0354	.0650	-.1660	.0905
stereo	6.5015	1.0000	.0417	.0693	-.0924	.1805

Values for quantitative moderators are the mean and plus/minus one SD from mean. Values for dichotomous moderators are the two values of the moderator.

***** MODERATED AND CONDITIONAL MODERATED MEDIATION *****

INDEX OF MODERATED MODERATED MEDIATION:

Mediator

	Index	SE(Boot)	BootLLCI	BootULCI
stereo	.0911	.0407	.0136	.1742

INDEX OF CONDITIONAL MODERATED MEDIATION:

Moderator:

age

Mediator

	sex	Index	SE(Boot)	BootLLCI	BootULCI
stereo	.0000	-.0921	.0311	-.1559	-.0339
stereo	1.0000	-.0010	.0266	-.0528	.0520

Moderator:
sex

Mediator	age	Index	SE (Boot)	BootLLCI	BootULCI
stereo	3.1905	-.2244	.0895	-.4059	-.0593
stereo	4.8460	-.0736	.0629	-.2015	.0480
stereo	6.5015	.0772	.0948	-.1079	.2667

Appendix 3

PROCESS version 2.16 code and output

SPSS: process vars=binladen stereo mcivil sex age ideo/y=mcivil/x=binladen/
m=stereo/w=age/v=sex/model=21/percent=1/boot=10000.

SAS: %process (data=binladen,vars=binladen stereo mcivil sex age ideo,
y=mcivil,x=binladen,m=stereo,w=age,v=sex,model=21,percent=1,boot=10000);

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Release 2.16 *****

Model = 21
Y = mcivil
X = binladen
M = stereo
W = age
V = sex

Statistical Controls:
CONTROL= ideo

Sample size
661

Outcome: stereo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3636	.1322	.6453	24.9871	4.0000	656.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.7706	.1444	12.2660	.0000	1.4872	2.0541
binladen	.5413	.1979	2.7347	.0064	.1526	.9299
age	.0815	.0243	3.3544	.0008	.0338	.1292
int_1	-.0836	.0387	-2.1630	.0309	-.1596	-.0077
ideo	.1300	.0142	9.1249	.0000	.1020	.1580

Product terms key:

int_1 binladen X age

Outcome: mcivil

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.5317	.2827	.7706	51.6313	5.0000	655.0000	.0000

Model	coeff	se	t	p	LLCI	ULCI
constant	.5179	.1803	2.8728	.0042	.1639	.8720
stereo	.5378	.0586	9.1803	.0000	.4228	.6529
binladen	-.0130	.0699	-.1868	.8519	-.1502	.1241
sex	.2049	.2420	.8468	.3974	-.2703	.6801
int_2	-.0828	.0795	-1.0410	.2983	-.2390	.0734
ideo	.1041	.0165	6.3089	.0000	.0717	.1365

Product terms key:

int_2 stereo X sex

***** DIRECT AND INDIRECT EFFECTS *****

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.0130	.0699	-.1868	.8519	-.1502	.1241

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator

	age	sex	Effect	Boot SE	BootLLCI	BootULCI
stereo	3.1905	.0000	.1476	.0497	.0545	.2498
stereo	3.1905	1.0000	.1249	.0420	.0464	.2113
stereo	4.8460	.0000	.0731	.0346	.0070	.1423
stereo	4.8460	1.0000	.0619	.0301	.0059	.1233
stereo	6.5015	.0000	-.0013	.0521	-.1056	.0985
stereo	6.5015	1.0000	-.0011	.0443	-.0887	.0866

Values for quantitative moderators are the mean and plus/minus one SD from mean.

Values for dichotomous moderators are the two values of the moderator.

***** MODERATED AND CONDITIONAL MODERATED MEDIATION *****

INDEX OF MODERATED MODERATED MEDIATION:

Mediator

	Index	SE(Boot)	BootLLCI	BootULCI
stereo	.0069	.0083	-.0055	.0269

INDEX OF CONDITIONAL MODERATED MEDIATION:

Moderator:

age

Mediator

	sex	Index	SE(Boot)	BootLLCI	BootULCI
stereo	.0000	-.0450	.0226	-.0912	-.0030
stereo	1.0000	-.0381	.0187	-.0758	-.0026

Moderator:
sex

Mediator	age	Index	SE(Boot)	BootLLCI	BootULCI
stereo	3.1905	-.0227	.0242	-.0772	.0198
stereo	4.8460	-.0113	.0128	-.0405	.0109
stereo	6.5015	.0002	.0109	-.0209	.0259

When the moderator is dichotomous, this is a test of equality of the conditional indirect effects in the two groups.