

## **Supplementary documentation**

This document contains supplementary documentation for Nilsson, A. (2018). A Q-methodological study of worldviews. *Journal for Person-Oriented Research*, 4(2), 78-94. doi: 10.17505/jpor.2018.08

It contains a full presentation of parts of the study and results that were excluded from the paper, either because they were peripheral to the purpose of the paper or due to space constraints:

1. Measures of demographics, mood, and whether the participants voiced criticism of the study
2. An alternative measure of humanism and normativism
3. A Q-sort of self-views

## Demographics, mood, and criticism of the study

The participants filled out conventional measures of humanism and normativism after completing the Q-sorting. They also responded to questions regarding their thoughts about the study, current mood, and various social and demographic characteristics, and I recorded the time they spent completing the survey. Results on the basis of these variables are reported in Supplementary Table 1 below.

**Demographical questions.** First of all, the participants responded to a number of questions about their gender, age, educational background, family background, cultural background, political orientation, and religious orientation. I constructed dichotomous variables representing whether the participant had studied (vs. had not studied) a natural sciences program in high school ( $n = 28$ ), a social sciences program in high school ( $n = 32$ ), any course within the social sciences in the university or college ( $n = 62$ ), and any course within the natural sciences in the university or college ( $n = 14$ ); had been born and grown up (vs. had not) in Sweden ( $n = 59$ ); articulated (vs. did not articulate) any political orientation ( $n = 35$ ); and identified as a Christian ( $n = 14$ ), as believing in something but no specific religion ( $n = 28$ ), or as being an atheist ( $n = 35$ ). This questionnaire also included questions about the extent to which the participants felt that their parents had been warm and controlling. Warmth was measured with two questions (loving and empathetic,  $\alpha = .64$ ,  $M = 8.59$ ,  $SD = 1.45$ ) and control was measured with three questions (firm, punitive, and laissez faire-reversed,  $\alpha = .60$ ,  $M = 7.08$ ,  $SD = 1.96$ ) that were answered on 5-point Likert scales, ranging from 1 (*disagree completely*) to 5 (*agree completely*).

**Mood.** I listed twenty-four different affects along with an instruction for the participants to indicate how much their present mood was characterized by these affects on a 5-point Likert scale ranging from 1 (*do not feel it at all*) to 5 (*feel it strongly*). Eighteen affects were taken from the PANAS (Watson, Clark, & Tellegen, 1988, *Journal of Personality and Social Psychology*, 54, 1063-1070) scales and six (joy, sadness, contempt, disgust, surprise, and anger) were included because of their role in polarity theory. I calculated scores for positive affect ( $\alpha = .87$ ;  $M = 34.6$ ,  $SD = 7.64$ ) and negative affect ( $\alpha = .87$ ;  $M = 15.9$ ,  $SD = 6.89$ ) on the basis of eleven affects each.

**Evaluation questions.** I recoded the open-ended questions in the study evaluation questionnaire into two dichotomous behavioral measures of whether the participants expressed positive criticism about the study or not and whether they expressed negative criticism about the study or not.

## Supplementary Table 1

*Correlations between worldviews and other measured variables*

	Q-Worldview 1		Q-Worldview 2		Q-Worldview 3		Q-Worldview 4		Humanism	Normativism
	Loading	Member	Loading	Member	Loading	Member	Loading	Member		
Q-Worldview 2 loading	-.22*	-.40***								
Q-Worldview 3 loading	-.47***	-.34**	-.24*	-.16						
Q-Worldview 4 loading	-.13	-.09	-.20#	-.14	-.01	-.04				
Normativism	-.44***	-.28*	-.17	-.07	.38***	.27*	.27*	.24*		
Humanism	.34**	.26*	-.29*	-.24*	-.31**	-.24*	.24*	.20#	.01	
Time spent on the study	.05	-.01	-.16	-.04	-.10	.02	.42***	.28*	.00	-.28*
Positive affect	.18	.13	-.12	-.17	-.08	.02	-.06	-.02	.32**	.08
Negative affect	-.30**	-.18	.16	.29**	.16	.01	-.01	.02	-.05	.09
Male (vs. female) gender	-.22#	-.14	-.05	.04	.28*	.22#	.17	.06	-.22#	.19#
Age	.22#	.14	.08	-.03	-.11	-.17	-.12	-.09	.01	-.30*
Social sciences high school	.14	.11	-.05	.06	-.10	.02	.08	.04	.26*	.03
Natural sciences high school	-.18	-.20#	.16	.07	.12	-.01	.01	-.05	-.12	.16
Social sciences university	.12	.03	.08	.20#	-.12	-.11	-.18	-.02	-.02	-.08
Natural sciences university	-.36***	-.35**	.00	.01	.22#	.16	.18	.05	-.23*	.20#
Higher education credits	.06	-.04	.06	.05	-.06	-.06	-.12	-.02	-.04	-.06
Swedish background	-.12	-.07	.23*	.23*	.04	.02	-.05	-.27*	-.08	-.04
Articulate political stance	-.04	-.02	.02	.08	.19	.24*	-.21#	-.10	-.08	.00
Atheist	-.31**	-.31**	.09	.09	.32**	.17	-.23*	-.09	-.20#	.19#
Christian	.36***	.37***	-.10	-.17	-.27*	-.17	-.04	-.11	.24*	-.16
Belief in something	.10	.05	-.01	.05	-.16	-.11	.28*	.19#	.01	-.10
Parental warmth	.27*	.18	-.11	-.24*	-.18	-.08	.16	-.14	.23*	-.09
Parental control	-.06	.04	.14	.04	.09	-.08	-.12	-.10	-.24*	.00
Personal significance of study	.26*	.14	-.16	-.20#	-.02	-.03	-.06	-.10	.35**	-.01
Positive criticism	.16	.15	-.30**	-.20#	-.12	.02	.24*	.21#	.22#	-.08
Negative criticism	.02	.05	-.05	.01	-.05	.12	.08	.14	-.02	-.07

Note. #  $p \leq .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$ . Loading: Results based on factor loadings (i.e., similarity between participants Q-sorts and each extracted worldview). Member: Results based on a dichotomous split between persons who defined the factor and those who did not.

## Excluded materials 2: An alternative measure of humanism and normativism

The participants also filled out an alternative measure of humanism and normativism (“The Personal Ideologies Questionnaire”, PIQ) that I constructed to investigate whether humanistic and normativistic ideologies could be formulated in a way that would make them more attractive in the cultural setting of the study. In sum, the participants did indeed endorse a normativistic ideology somewhat more when it was phrased in terms of social Darwinistic thinking (“Alternative normativism”) than in a more classic manner (“Classical normativism”). Descriptive statistics and correlations between this measure and other measures of worldview are shown in Supplementary Table 2 below. These results were excluded from the paper because they are not directly relevant to its purpose. The measure is presented on the next page.

### Supplementary Table 2

*Correlations between the alternative measure of humanism and normativism and other measures of worldview*

	M (SD)	Classical humanism	Alternative humanism	Classical normativism	Alternative normativism
Classical humanism	5.59 (1.18)				
Alternative humanism	5.51 (1.24)	.12			
Classical normativism	2.23 (1.17)	-.35**	-.13		
Alternative normativism	3.15 (1.41)	-.09	-.07	.26*	
Humanism	147.0 (11.2)	.43***	.28*	-.29*	-.10
Normativism	98.2 (11.1)	-.21#	-.12	.43***	.37***
Q-Worldview 1 loading	.41 (.26)	.38***	.48***	-.42**	-.41***
Q-Worldview 2 loading	.31 (.21)	-.20#	-.11	.04	.16
Q-Worldview 3 loading	.19 (.20)	.32**	-.15	.39***	.23*
Q-Worldview 4 loading	.03 (.20)	.18	-.32**	-.16	.06

Note. #  $p \leq .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$ . Classical normativism: Ideology nr 1. Classical humanism: Ideology nr 2. Alternative normativism: Ideology nr 3. Alternative humanism: Ideology nr 4.

## The Personal Ideologies Questionnaire (PIQ)

Below are four brief descriptions of different worldviews. Answer on the scale from 1 to 7 how much you agree with the description. 1 means that you don't agree at all and 7 means that you agree completely. Answer them one at a time and try to judge the description you are reading independently of the others. The important thing is the overall impression, not the specific statements that are included in each description. Try to think about how much you really agree with a certain description rather than trying to figure out which one is the most correct.

1. Man is basically primitive, selfish, and evil. People are most of the time untrustworthy and try to take advantage of each other. The hard facts are that some people are worth more than others and deserve a higher status, for example by being more useful to society. Denying this would be hypocrisy. It's important to respect authorities and to express admiration and respect for important persons. Competition is a natural part of society. Our feelings are unstable and unreliable and should be controlled by reason. Through self-control we can protect ourselves from damaging feelings and follow the norms and laws that are necessary for society to work. It's important to strive for social recognition by being polite, orderly, self-disciplined, and efficient in what you do.

1                      2                      3                      4                      5                      6                      7

2. Man is basically good and compassionate. People are most of the time trustworthy and helpful. Even if human beings have flaws and weaknesses, we should accept them and forgive mistakes. All human beings are basically equal in worth and everyone deserves to be respected and loved. You should be open and tolerant to people and accept them as they are. Cooperation is more important than competition. It's important to look inside of yourself to understand and accept the feelings you experience in order to follow your inner nature. It's important to appreciate all the beauty there is in the world, both the beauty in our experiences and the beauty in all the wonderful creations that bear witness of the creativity of man.

1                      2                      3                      4                      5                      6                      7

3. Man should be recognised as the egoistic and aggressive animal that he deep down is. Our behavior is basically controlled by fundamental biological needs which are a result of our struggle for survival and reproduction. In order to have a civilised society man must be tamed by morals, norms and laws. Moral behaviour emerges within a group because it's to the benefit of all its members. Even when we show compassion, this is on a deeper level really self-interest. Because humans are group animals, it's natural a hierarchy emerges, where some people are stronger and some are weaker. Some persons are simply more fit to reproduce their genes and we shouldn't ignore this fact by pretending that all human beings are equal. Conflicts, striving for status and power, and destructive behavior are natural parts of life.

1                      2                      3                      4                      5                      6                      7

4. Man has an inner drive to develop into a good, happy, and self fulfilled. Deep down we all strive to actualise the unique potential we all have and to become loving and happy persons; we strive towards blossoming rather than just surviving and reproducing our genes. In contrast to animals in general, we are aware of our own existence, we have freedom to choose how we want to be, and we can take responsibility for who we are. Aggressive and evil behavior arises when our drive towards self-fulfilment gets frustrated, that is, when we are not functioning properly. How much love and respect you receive from others is not the crucial thing, but rather to take responsibility for yourself and to be accepting and loving towards others.

1                      2                      3                      4                      5                      6                      7

Which one of these views do you agree the most with? Choose **one** of the views above. Nr: .....

### Excluded materials 3: A Q-sort of self-views

The participants Q-sorted a second sample with 36 statements about the self and personal life as well. Four factors were extracted through principal components analysis, varimax rotation, and automatic flagging (similar to the worldview Q-factors).

In sum, the largest worldview Q-factor was associated with a self-view that was characterized mainly by a sense of satisfaction in life, happiness, general optimism, effective coping strategies, good friendships, and to some extent meaning and purpose in life, authentic living, and an intellectual pursuit of knowledge. The second worldview Q-factor was associated with a self-view that was characterized by a sense of confusion, uncertainty, lack of meaning and purpose in life, inauthenticity, unhappiness, insecurity in relationships, and concern about not being accepted, but also by good friendships and a motivation for open-minded reflection. The third worldview Q-factor was associated with a self-view that was characterized by a sense of uncertainty and inauthenticity, a moderate degree of happiness and optimism, a preference for structure in life, an orientation toward being in the present moment, concrete rather than abstract thinking, and placing a strong premium on friends. The fourth worldview Q-factor was not associated with any of the self-view Q-factors. These results were excluded from the paper because they are peripheral to its purpose.

The correlations between the factor scores and the worldview variables are presented in Supplementary Table 3, and the statements and factor scores are presented in Supplementary Table 4.

#### Supplementary Table 3

*Correlations between Q-factor self-views and worldviews*

	Q-Selfview 1		Q-Selfview 2		Q-Selfview 3		Q-Selfview 4	
	Loading	Member	Loading	Member	Loading	Member	Loading	Member
Q-Selfview 2 loading	-.65***	-.40***	1	.72***	-.47***	-.01	-.30**	.07
Q-Selfview 3 loading	-.26*	-.06	-.47***	-.48***	1	.50***	.00	-.13
Q-Selfview 4 loading	.07	-.12	-.30**	-.32**	.00	-.14	1	.47
Normativism	-.20#	-.14	-.03	-.07	.12	.06	-.07	-.17
Humanism	.04	.06	.06	.08	-.18	-.04	.05	-.12
Q-Worldview 1 loading	.47***	.36***	-.37***	-.37***	.28*	.06	.03	-.08
Q-Worldview 2 loading	-.05	-.09	.22*	.27*	.04	.05	-.10	-.15
Q-Worldview 3 loading	-.06	.07	.12	.13	-.33**	-.11	.00	-.14
Q-Worldview 4 loading	-.14	-.11	-.01	-.08	.16	-.03	-.10	.08

Note. #  $p \leq .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$ . Loading: Results based on factor loadings (i.e., similarity between participants Q-sorts and each extracted worldview). Member: Results based on a dichotomous split between persons who defined the factor and those who did not.

### Supplementary Table 4

*Q-sample of statements and their weighted average category assignments among the groups of persons who define each Q-factor*

Q-sample of statements		Self-view Q-factor			
		1	2	3	4
1	I would prefer a task that's intellectually demanding, difficult and important above one that isn't as important but demands less thinking.	0.82	1.71	0.10	0.94
2	For me it is enough that something works as it is supposed to. I don't care about how or why it works.	-0.80	-1.32	0.22	-0.59
3	Even if I have decided about something, I'm still willing to consider someone else's opinion.	0.56	0.89	1.16	0.24
4	I don't like situations that are uncertain so that you don't know what to expect.	-0.41	0.66	0.06	0.22
5	I usually postpone important decisions for as long as possible.	-0.44	1.21	-1.61	0.68
6	In considering most conflict situations I can usually see how both sides can be right.	1.09	1.54	0.40	1.80
7	I like to have well-structured life with regular routines. It helps me to get more out of life.	-0.42	-0.24	0.91	0.61
8	I would prefer getting bad news over living in uncertainty.	1.11	0.91	0.13	0.30
9	I prefer considering concrete examples above thinking abstractly.	-0.66	-0.68	0.42	0.25
10	I often think things through thoroughly and weigh pros and cons carefully.	0.58	1.05	-0.07	1.45
11	I'm satisfied with my life and feel positive and optimistic about life in general.	1.40	-1.13	0.67	0.88
12	I'm satisfied with being exactly the person that I am.	1.55	-0.59	0.84	-0.23
13	I often feel helpless in face of the difficulties of my life and I easily eat myself up about my problems.	-1.15	0.88	-0.67	-1.12
14	I seldom worry about what other people will think about me.	0.17	-0.99	-0.04	-1.05
15	I feel hopeful about the future and my possibilities to get what I want from my life.	1.50	-0.90	0.46	0.79
16	There are good people around me that understand my views and thoughts.	1.19	0.22	1.73	-0.01
17	I have big problems getting new friends and keeping the ones that I have.	-1.49	-1.18	-1.43	-0.45

18	I have good friends that I can trust and turn to in times of trouble.	1.20	0.70	1.93	0.63
19	I feel needed and important to others and they accept me exactly the way I am.	0.87	-0.86	1.43	0.63
20	I never feel completely confident in a close relationship.	-1.15	0.85	0.22	-1.00
21	I have problems understanding why people feel as they do.	-1.26	-1.36	-1.56	-0.73
22	Death fills me with terror and I feel unprepared for my own death.	-0.76	-0.18	0.64	-2.05
23	I'm aware of when I don't display my true self to other people.	0.79	0.52	0.11	1.42
24	I'm willing to wear the right social mask at the right social occasion if it will get me what I want.	-0.25	-0.44	0.12	0.76
25	People that are close to me would be shocked and surprised if they knew what I hide inside of myself.	-0.61	0.84	-1.35	-0.45
26	I live my life exactly the way I feel I want to and should deep down.	0.53	-1.67	-0.54	-0.79
27	I have trouble focusing on what happens in the present moment. I'm often occupied thinking about the future or the past.	-0.08	1.46	-0.89	0.00
28	Sometimes I feel confused and uncertain about what I want to do with my life. I feel uncertain about who I really am and I wonder if I'm becoming the person I want to be.	-0.67	1.31	1.27	1.64
29	I feel that I live fully. I do things that are exciting and important to me every day, which gives me a deep sense of satisfaction.	0.45	-1.23	-0.88	-1.15
30	I have very mixed thoughts and feelings and I'm often uncertain about what I really think and feel.	-0.73	0.92	0.42	-0.26
31	I often have the feeling that there is little meaning in human relationships and things you do in everyday life.	-1.29	-0.52	-1.53	-0.24
32	I have clear goals in life and a meaningful purpose to life for.	0.99	-1.45	0.26	0.46
33	My life is empty, meaningless, and filled with despair.	-1.91	0.30	-1.64	-1.99
34	I seldom feel lonely. I enjoy being by myself and relaxing.	0.81	-0.23	-0.29	-1.38
35	I would change many things in my past if I could.	0.15	-0.79	0.74	1.14
36	I'm bitter because life has treated me unfairly. I have worked hard and I have been good, but I have received little in return.	-1.68	-0.19	-1.73	-1.35

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*Note.* The statements have been translated from Swedish to English. Positive values indicate more agreement and negative values indicates more disagreement.