

Personality

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Agenda

Main Goals:

- What is personality?
- Can we automatically detect personality?

Will also (briefly) address:

- How personality factors help predict differences in how people deceive and how people detect deception.

Think about someone you know well.

Write down how you would describe this person to others. Use as many words/phrases as necessary to fully describe the person.

What is Personality?

This is about who you are – your characteristic style of behaving, thinking, and feeling.

How can we assess differences in personality?

- 4 main approaches in psychology:
 - **Trait**
 - Psychodynamic
 - Humanistic
 - Social-Cognitive

Trait Approach

Personality = a combination of traits

Assumes:

- People differ from each other in (relatively) stable ways.
- Traits are consistent ways of behaving and therefore can predict future actions.

Attempts to find a taxonomy (classification scheme) for core traits that define personality.

Dimensions of Personality

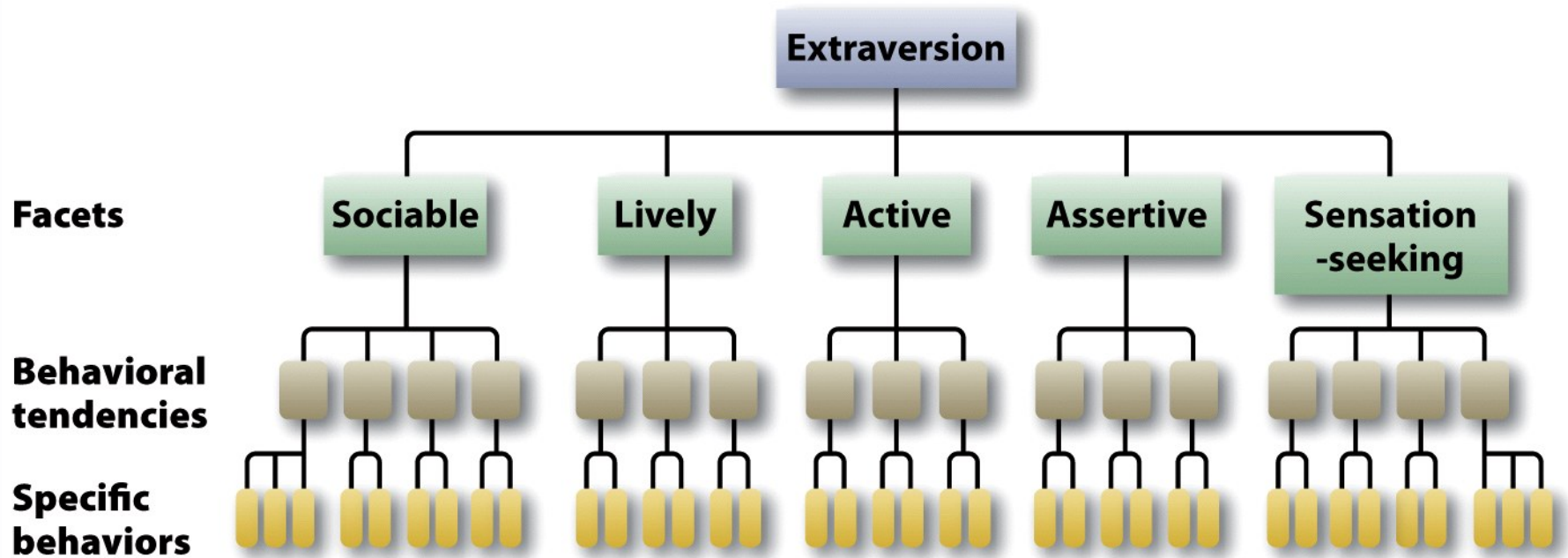
Traits are grouped into *dimensions of personality*.

- Thus, personality is thought of as a combination of separate dimensions (as opposed to types).

How are the dimensions determined?

- 18,000 words for potential traits (Allport & Odbert, 1936)
- Goal: sort words into underlying groups/dimensions
- Uses both self-report and informant data to measure personality.

Determining Core Traits



Psychology, 8/e Figure 15.2
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The Big Five

Openness to experience

Conscientiousness

Extraversion

Agreeableness

Neuroticism

Table 12.2 The Big Five Factor Model

Conscientiousness	organized ······ disorganized careful ······ careless self-disciplined ······ weak-willed
Agreeableness	softhearted ······ ruthless trusting ······ suspicious helpful ······ uncooperative
Neuroticism	worried ······ calm insecure ······ secure self-pitying ······ self-satisfied
Openness to experience	imaginative ······ down-to-earth variety ······ routine independent ······ conforming
Extraversion	social ······ retiring fun loving ······ sober affectionate ······ reserved

Source: McCrae & Costa, 1999, 1990.

Questions About The Big Five

How stable are the traits?

- Change over development
- Stable in adulthood

How heritable are they?

- ~50% for each trait (.40 to .55 heritability)
- Influence of temperament?
- Other factors, ie, in extraversion

How about other cultures?

- Traditionally traits are thought to be common across cultures
- But research has shown cultural differences in personality

Are Traits Truly Constant?

Personality paradox: people often behave less consistently than expected

- Part of the explanation for this paradox is the power of the situation
- Person-Situation Controversy
 - E.g., Walter Mischel (1968, 1984, 2004)

Counter-argument:

- Trait theorists argue that behaviors from a situation may be different, but average behavior remains the same
- Therefore, traits matter

Personality: stable and variable

Some people are more consistent in their behaviors—the Self-Monitoring Scale

- But there is always some interaction between personality and situations
 - Situations interact with individual differences

Traits & states

- Personality traits = consistent; stable
- Personality states = transient; variable

States are linked to traits (ie extraverted behavior vs extraversion)

Assessing personality states

Linked to traits but may range based on other factors

Behaviors, thoughts and feelings at a particular moment

Scores gathered using daily diary or experience sampling

- But no gold-standard measurement to date

Assessing Traits

Personality inventories: questionnaires (often with true-false or agree-disagree items) designed to gauge a wide range of feelings and behaviors assessing several traits at once

The Minnesota Multiphasic Personality Inventory (MMPI) is the most widely researched and clinically used of all personality tests.

NEO-FFI

Short questionnaire to assess the big 5 traits

Widely used in research

60 items (12/trait)

Likert scale

- SD (strongly disagree) — SA (strongly agree)
- 0 - 4

Example questions:

- When I'm under a great deal of stress, sometimes I feel like I'm going into pieces.
- I usually prefer to do things alone.

TIPI

Newer, even shorter questionnaire to assess the big 5 traits

Starting to be used in research

10 items (2/trait)

Likert scale

- 1 - 7
- 1 = Disagree strongly; 7 = Agree strongly

TEN-ITEM PERSONALITY INVENTORY-(TIPI)

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

- 1 = Disagree strongly
- 2 = Disagree moderately
- 3 = Disagree a little
- 4 = Neither agree nor disagree
- 5 = Agree a little
- 6 = Agree moderately
- 7 = Agree strongly

I see myself as:

1. _____ Extraverted, enthusiastic.
2. _____ Critical, quarrelsome.
3. _____ Dependable, self-disciplined.
4. _____ Anxious, easily upset.
5. _____ Open to new experiences, complex.
6. _____ Reserved, quiet.
7. _____ Sympathetic, warm.
8. _____ Disorganized, careless.
9. _____ Calm, emotionally stable.
10. _____ Conventional, uncreative.

Personality and Emotions

Emotions = transient

Personality = consistent

Automatic Personality Detection

Automatic Personality Detection (APD)

Research has examined a multitude of cues for determining traits:

- Written language
- Nonverbal vocal behaviors
- Spoken/conversational language

And from a multitude of sources:

- Facebook, Twitter, blogs, general language use

Now with more data available from wearable devices, smartphone sensor data and the like, *states* can probably be determined as well.

Detection with Written Language

Written language use → personality

Pennebaker and King (1999), Linguistic styles:
Language use as an individual difference

- Stream-of-conscious essays
- Big 5 personality assessment
- Lexical features (LIWC)
- Findings, ie.,
 - Agreeableness
 - more positive emotion words
 - fewer negative emotion words
 - fewer articles
 - more first-person

Table 6
LIWC Factors and Simple Correlations With Five-Factor Scores

LIWC factor	Five-factor dimension				
	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Immediacy	.10*	.04	-.16**	.07*	-.02
First-person singular	.13**	.04	-.13**	.07*	.01
Articles	-.09*	-.09*	.13**	-.15**	-.04
Words of more than 6 letters	-.03	-.04	.16**	-.03	.06
Present tense	.06	.01	-.15**	.04	.00
Discrepancies	.05	-.03	-.01	-.02	-.07*
Making Distinctions	.05	-.14**	.06	-.05	-.13**
Exclusive	.00	-.08*	.10*	-.06	-.08*
Tentativity	.06	-.14**	.11**	-.02	-.06
Negations	.05	-.12**	.00	-.04	-.15**
Inclusive	-.01	.07*	.01	.03	.06
The Social Past	.04	.00	.08*	-.02	-.04
Past tense	.03	.04	-.03	.06	-.06
Social	-.01	.12**	.02	.00	.02
Positive emotion	-.13**	.15**	-.06	.07*	.07*
Rationalization	-.06	.02	-.03	.07	.04
Insight	.03	-.02	.07*	.05	-.01
Causation	.03	-.08*	-.08*	.00	-.07*
Negative emotion	.16**	-.08*	.05	-.07*	-.15**

Detection with Prosodic Cues

Nonverbal vocal (prosodic) behaviors → personality

Are there cues in *how* something is said?

E.g., Mohammadi, Vinciarelli & Mortillaro (2010)

- Data:
 - Short audio clips from a French Speaking Swiss national broadcasting service
 - Personality ratings from 3 judges
- Features:
 - Praat (pitch, formants, energy, speaking rate)

Results

Traits	Recognition Rate			Inter-rater Index
	total	“High”	“Low”	
Extraversion	76.3	82.5	69.5	0.30
Agreeableness	63.0	75.9	47.7	0.30
Conscientiousness	72.0	77.0	65.8	0.32
Neuroticism	63.0	53.6	71.3	-0.11
Openness	57.9*	71.6	40.6*	-0.52

Detection with Lexical Cues

E.g., Mairesse & Walker (2006)

- Can personality be recognized automatically in conversation?
- Data (previously collected by Mehl & Pennebaker):
 - Daily life conversations, collected and transcribed
 - Personality ratings from 5-7 independent observers
- Features/analyses:
 - 5-7 judges of personality
 - LIWC (linguistic features)
 - MRC psycholinguistic database
 - Utterance type (ie, commands, back-channels)
 - Praat (pitch, intensity, speech rate)

Results

Feature set	All	LIWC	MRC	Type	Pros
Set size	117	88	14	4	11
Extraversion	0.35•	0.36•	0.45	0.55	0.26•
Emot. stability	0.40	0.41	0.39•	0.43	0.45
Agreeableness	0.31•	0.32•	0.44	0.45	0.54
Conscientious.	0.33•	0.36•	0.41•	0.44	0.55
Intellect	0.38•	0.37•	0.41	0.49	0.44

• statistically significant improvement over the random ordering baseline (two-tailed paired t-test, $p < 0.05$)

Results: Specific Features

#	Extraversion with prosody	α	Emotional stability with MRC	α	Agreeableness with all	α	Conscientiousness with all	α	Intellect with LIWC	α
1	Word-per-sec \geq 0.73	1.43	Nlet \geq 3.28	0.53	Nphon \geq 2.66	0.56	Occup \geq 1.21	0.37	Colon \geq 0.03	0.49
2	Pitch-mean \geq 194.61	0.41	T-L-freq \geq 28416	0.25	Tentat \geq 2.83	0.50	Insight \geq 2.15	0.36	Insight \geq 1.75	0.37
3	Voiced \geq 647.35	0.41	Meanc \geq 384.17	0.24	Colon \geq 0.03	0.41	Posfeel \geq 0.30	0.30	Job \geq 0.29	0.33
4	Word-per-sec \geq 2.22	0.36	AOA \geq 277.36	0.24	Posemo \geq 2.67	0.32	Int-stddev \geq 7.83	0.29	Music \geq 0.18	0.32
5	Voiced \geq 442.95	0.31	K-F-nsamp \geq 322	0.22	Voiced \geq 584	0.32	Nlet \geq 3.29	0.27	Optim \geq 0.19	0.24
6	Pitch-max \geq 599.88	0.30	Meanp \geq 654.57	0.19	Relig \geq 0.43	0.27	Comm \geq 1.20	0.26	Inhib \geq 0.15	0.24
7	Pitch-mean \geq 238.99	0.26	Conc \geq 313.55	0.17	Insight \geq 2.09	0.25	Nphon \geq 2.66	0.25	Tentat \geq 2.23	0.22
8	Int-stddev \geq 6.96	0.24	K-F-ncats \geq 14.08	0.15	Prompt \geq 0.06	0.25	Nphon \geq 2.67	0.22	Posemo \geq 2.67	0.19
9	Int-max \geq 85.87	0.24	Nlet \geq 3.28	0.14	Comma \geq 4.60	0.23	Nphon \geq 2.76	0.20	Future \geq 0.87	0.17
10	Voiced \geq 132.35	0.23	Nphon \geq 2.64	0.13	Money \geq 0.38	0.20	K-F-nsamp \geq 329	0.19	Certain \geq 0.92	0.17
11	Pitch-max \geq 636.35	-0.05	Fam \geq 601.98	-0.19	Fam \geq 601.61	-0.16	Swear \geq 0.20	-0.18	Affect \geq 5.07	-0.16
12	Pitch-slope \geq 312.67	-0.06	Nphon \geq 2.71	-0.19	Swear \geq 0.41	-0.18	WPS \geq 6.25	-0.19	Achieve \geq 0.62	-0.17
13	Int-min \geq 54.30	-0.06	AOA \geq 308.39	-0.23	Anger \geq 0.92	-0.19	Pitch-mean \geq 229	-0.20	Othref \geq 7.67	-0.17
14	Word-per-sec \geq 1.69	-0.06	Brown-freq \geq 1884	-0.25	Time \geq 3.71	-0.20	Othref \geq 7.64	-0.20	I \geq 7.11	-0.19
15	Pitch-stddev \geq 115.49	-0.06	Fam \geq 601.07	-0.25	Negate \geq 3.52	-0.20	Humans \geq 0.83	-0.21	WPS \geq 5.60	-0.20
16	Pitch-max \geq 637.27	-0.06	K-F-nsamp \geq 329	-0.26	Fillers \geq 0.54	-0.22	Swear \geq 0.93	-0.21	Social \geq 10.56	-0.20
17	Pitch-slope \geq 260.51	-0.12	Imag \geq 333.50	-0.27	Time \geq 3.69	-0.23	Swear \geq 0.17	-0.24	You \geq 3.57	-0.21
18	Pitch-stddev \geq 118.10	-0.15	Meanp \geq 642.81	-0.28	Swear \geq 0.61	-0.27	Relig \geq 0.32	-0.27	Incl \geq 4.30	-0.33
19	Int-stddev \geq 6.30	-0.18	K-F-ncats \geq 14.32	-0.35	Swear \geq 0.45	-0.27	Swear \geq 0.65	-0.31	Physcal \geq 1.79	-0.33
20	Pitch-stddev \geq 119.73	-0.47	Nsyl \geq 1.17	-0.63	WPS \geq 6.13	-0.45	Int-max \geq 86.84	-0.50	Family \geq 0.08	-0.39

Computer vs Human Judgments

E.g., Youyou, Kosinski & Stillwell (2015)

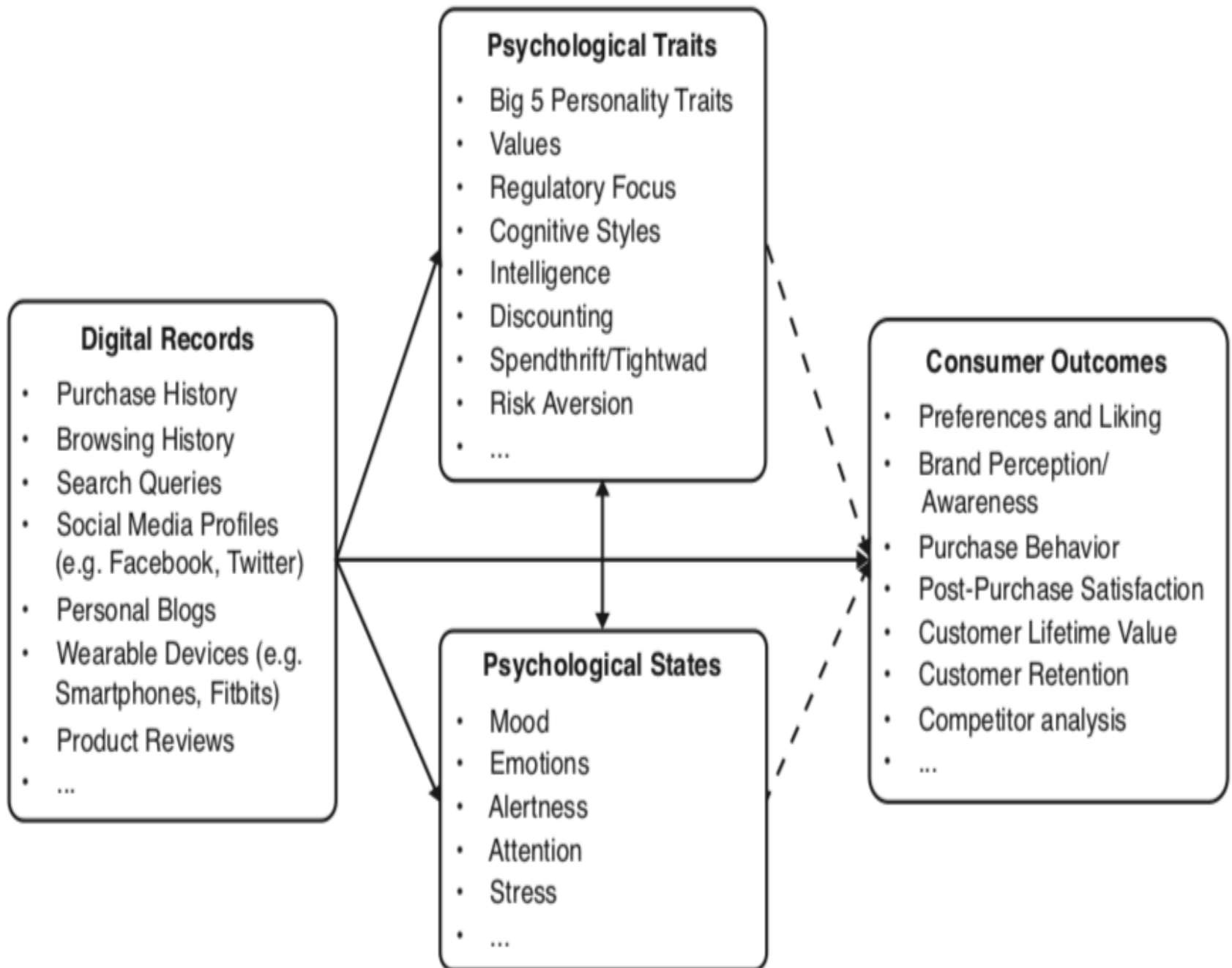
- Assessed accuracy of personality judgments by humans vs computers using 3 different criteria:
 - Self-other agreement
 - Interjudge agreement
 - External validity
- And compared it to scores on the IPIP (International Personality Item Pool)

Traits & states → marketing

Matz, S.C. & Netzer, O. (2017)

Can big data help predict psychological traits and states and thus help marketing strategy?

Hypothesis: Now that vast amount of consumer information is available, consumers' general tendency to think (traits) and how they feel in a particular context (states) can be inferred and thus targeted marketing can improve.



“We expect both researchers and practitioners to go beyond the understanding and prediction of psychological states and traits and towards real-time ‘optimization’ of marketing actions on the basis of these predictions.”