

Background

Facial Personalities

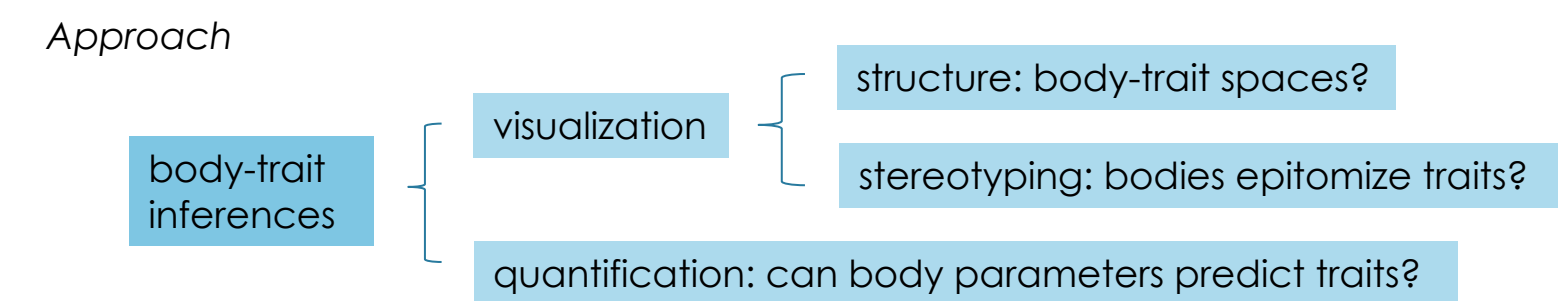
- people form first impressions from neutral faces
 - trustworthiness – perceived emotional expression and face structure
 - dominance – physical strength
- social judgments from faces can be modeled (Oosterhof & Todorov, 2008; Walker & Vetter, 2009)

Faces, however, are commonly seen along with bodies.

Body Work

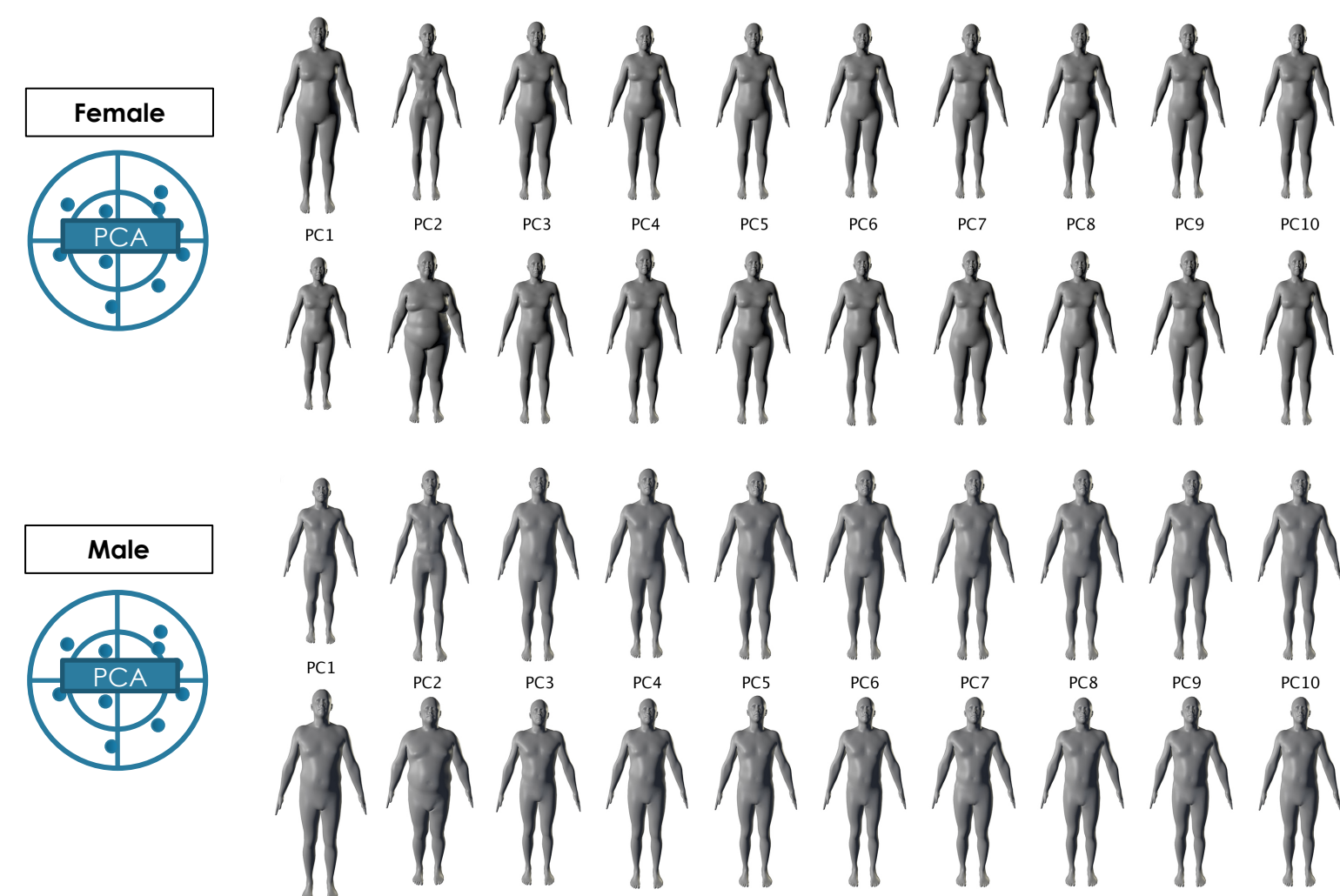
- social perception
 - weight stigma, height predicts election, etc. (e.g., Carr & Friedman, 2005)
 - But, body measures are simple -> weight, height, WHR
- physical descriptions: representation & reconstruction (Hill, Streuber, Hahn, Black, & O'Toole, 2016; Streuber et al., 2016)

Question Are **complex body shapes** associated with **trait inferences**?



Methods

- Participants**
- undergraduate students (n = 76, 17 males, mean age = 20.4)
- Stimuli**
- Skinned Multi-Person Linear model (Loper, Mahmood, Romero, Pons-moll, & Black, 2015)
 - template mesh with 6890 vertices
 - laser scans in the CAESAR dataset (Robinette, Daanen, & Paquet, 1999)
 - 1700 male; 2100 female
 - American and European volunteers (age:18-65)
 - male and female bodies analyzed separately in principal component analysis



Stimulus Generation

- random bodies** (140: 70 female, 70 male)
- random PCA weights in body space define body parameters
- each body = a weighted linear combination of 10 PCs

Trait List

extraversion	agreeableness	conscientiousness	neuroticism	openness
enthusiastic	cooperative	dependable	calm	curious
extraverted	warm	self-disciplined	easy-going	open
dominant	trustworthy	careful	self-confident	intelligent
quiet	critical	careless	irritable	conventional
reserved	quarrelsome	disorganized	anxious	rigid
shy	stubborn	lazy	moody	simple-minded

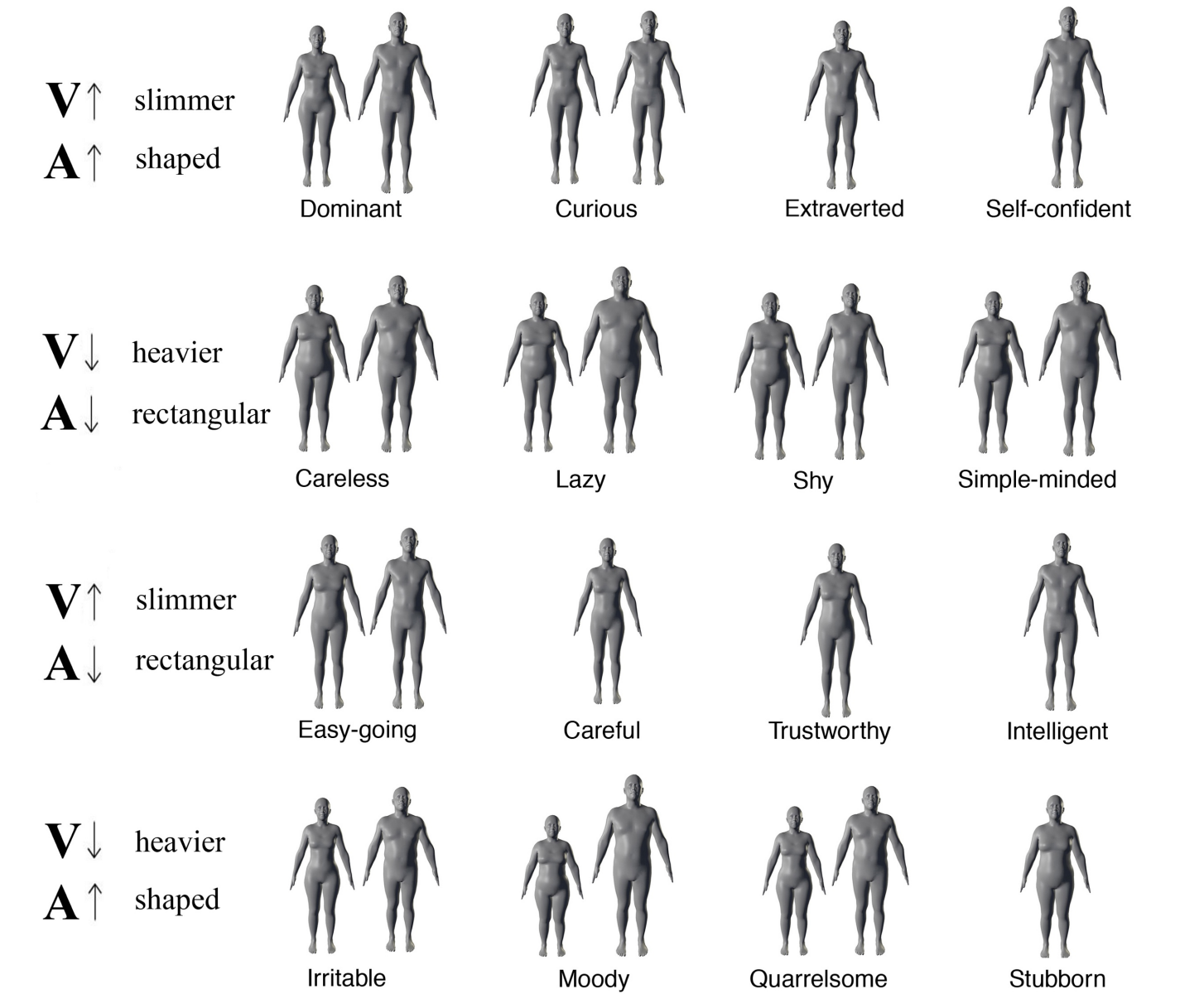
(Gosling, Rentfrow, & Swann, 2003)

Procedure



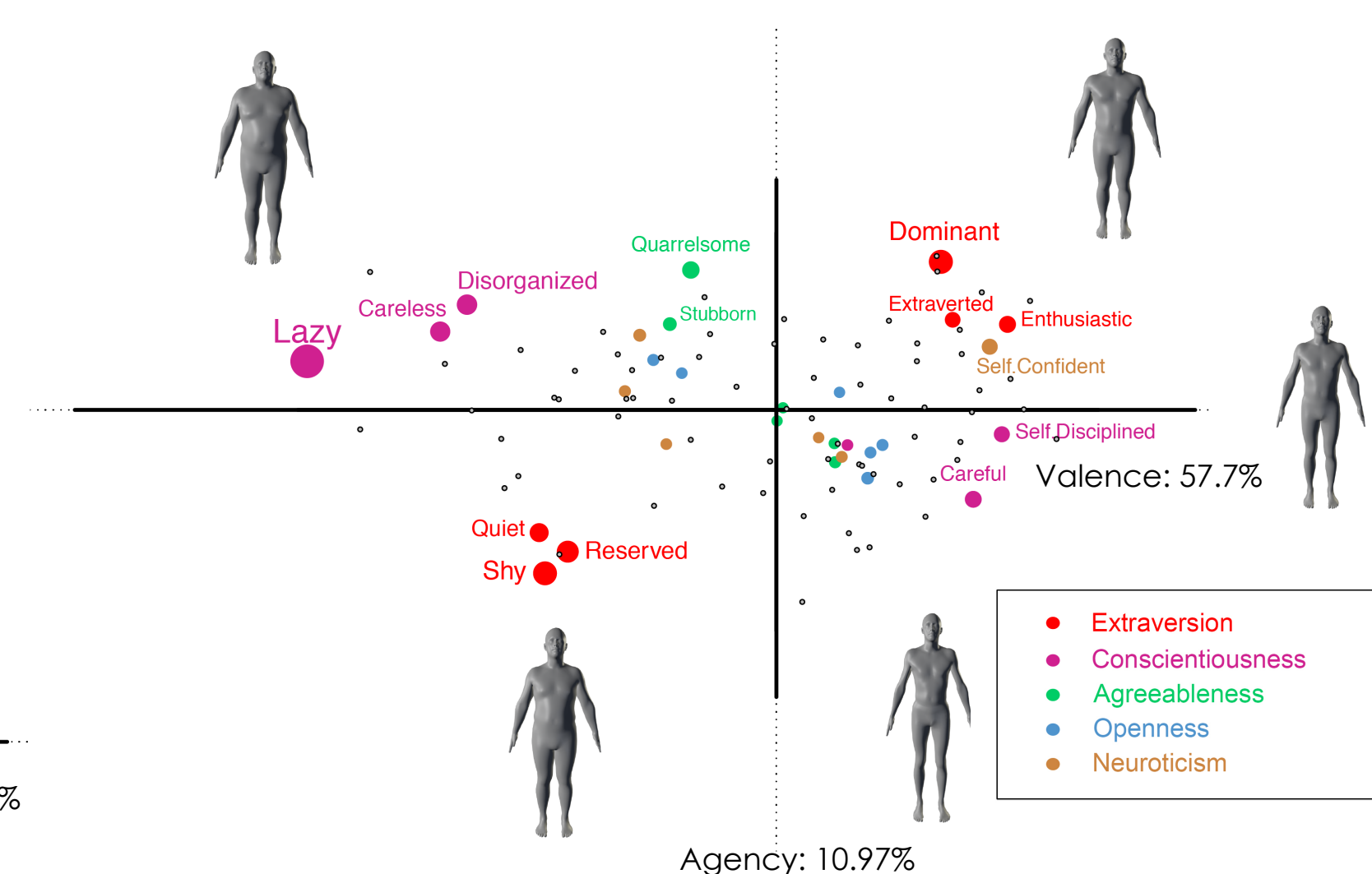
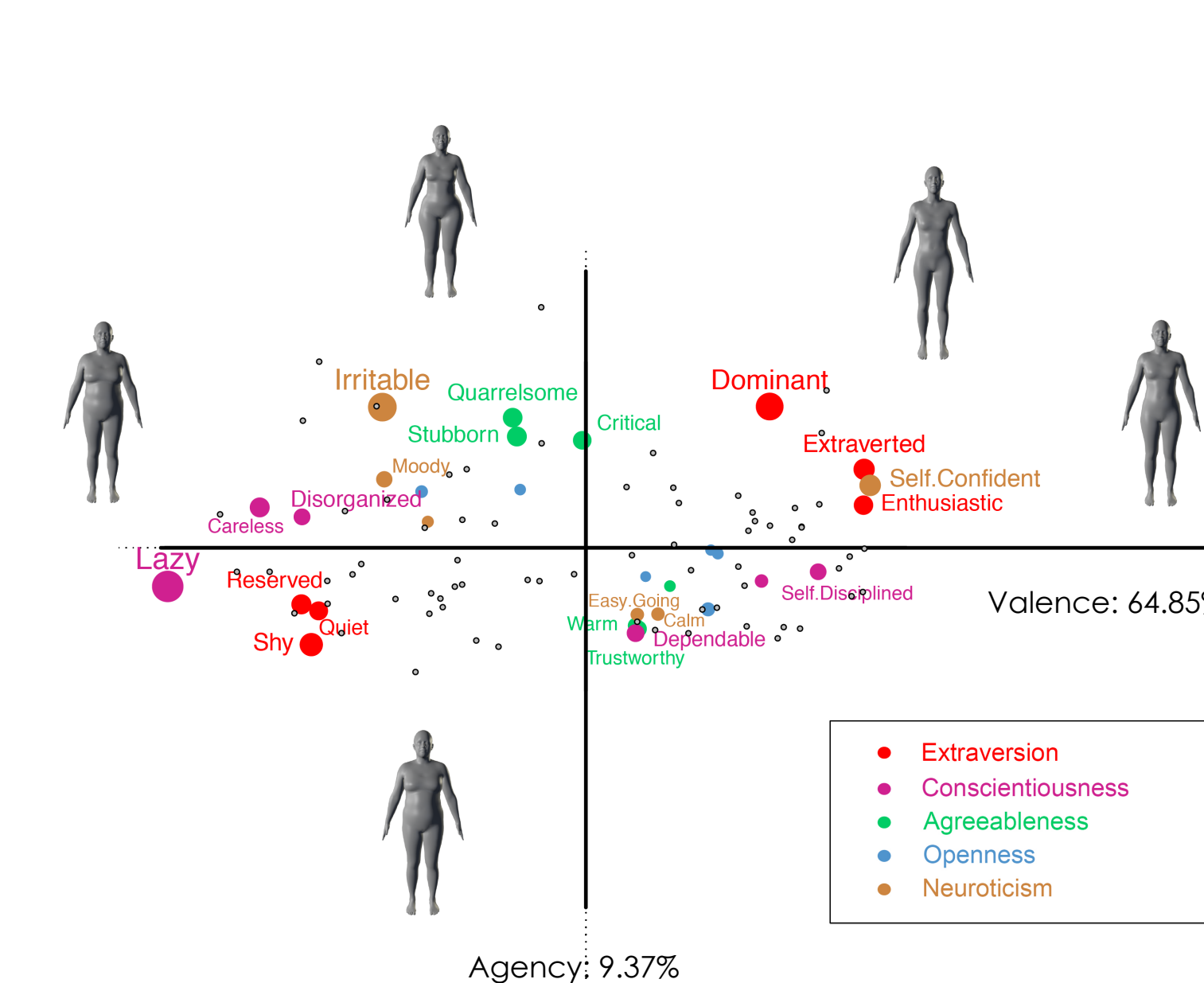
Stereotyping: bodies epitomize traits?

- screening
- normalize the body vector
 - select the representative bodies (z score >= 2 (95%))
- visualization
- single body – presented
 - multiple bodies – synthesized by averaging



Structure: body-trait spaces?

- Correspondence Analysis** (Greenacre, 2010)
- multivariate technique similar to PCA
 - used for categorical rather than continuous variables
 - simultaneous visualization of observations and variables

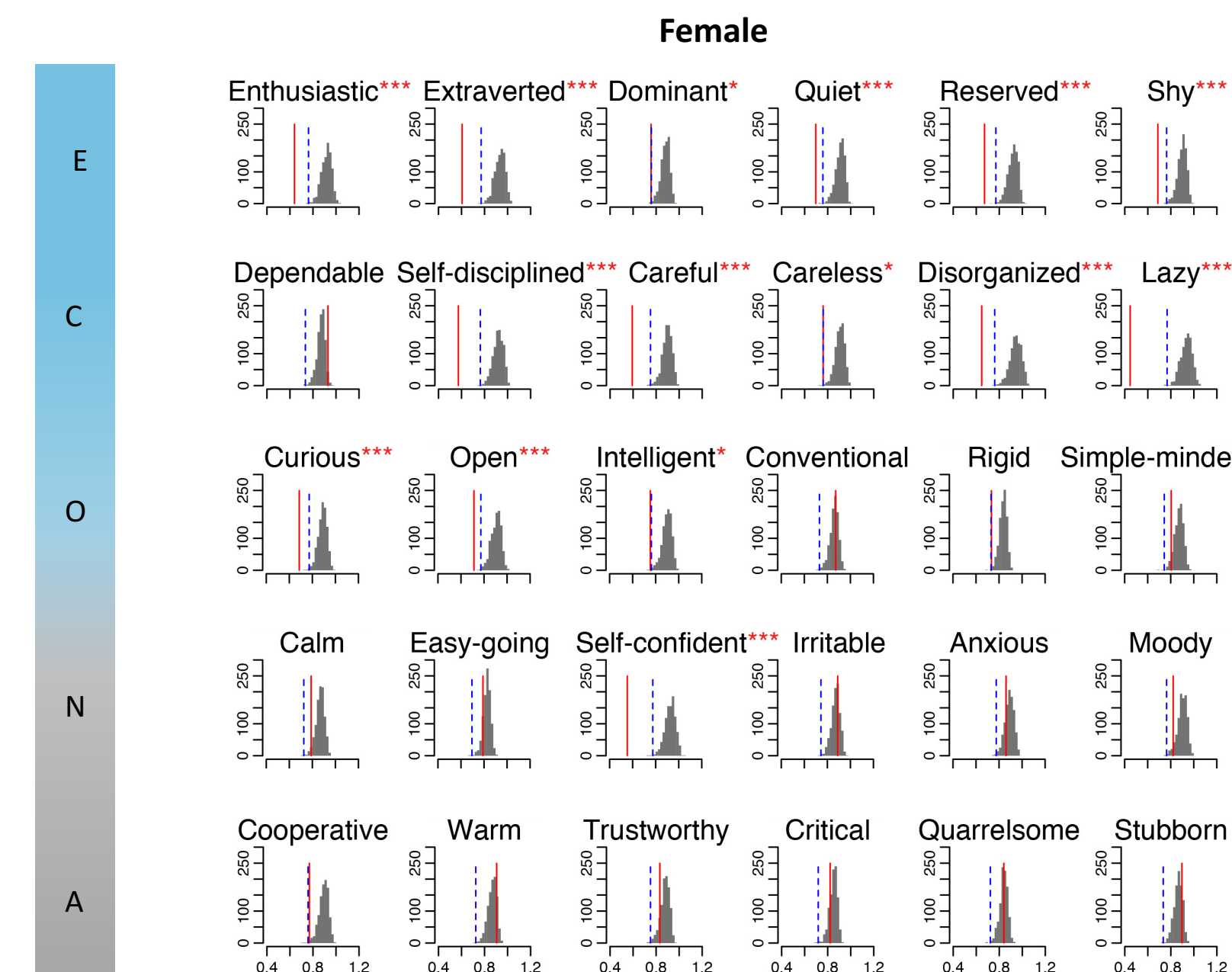
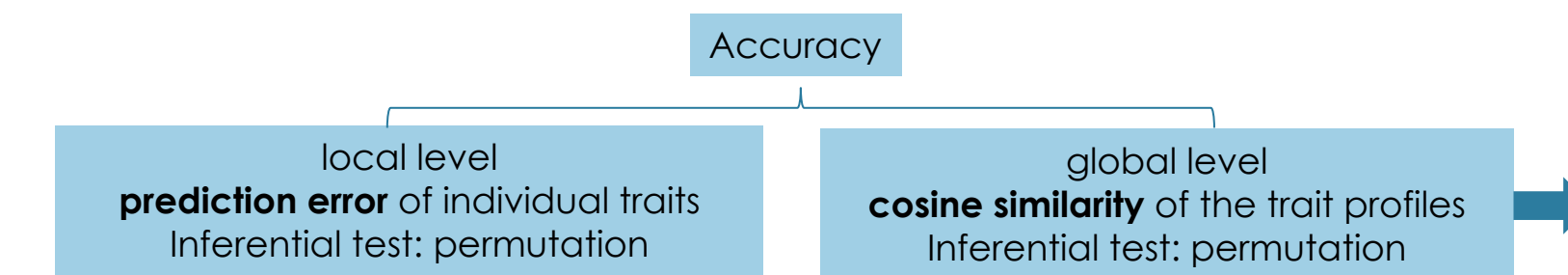


Summary

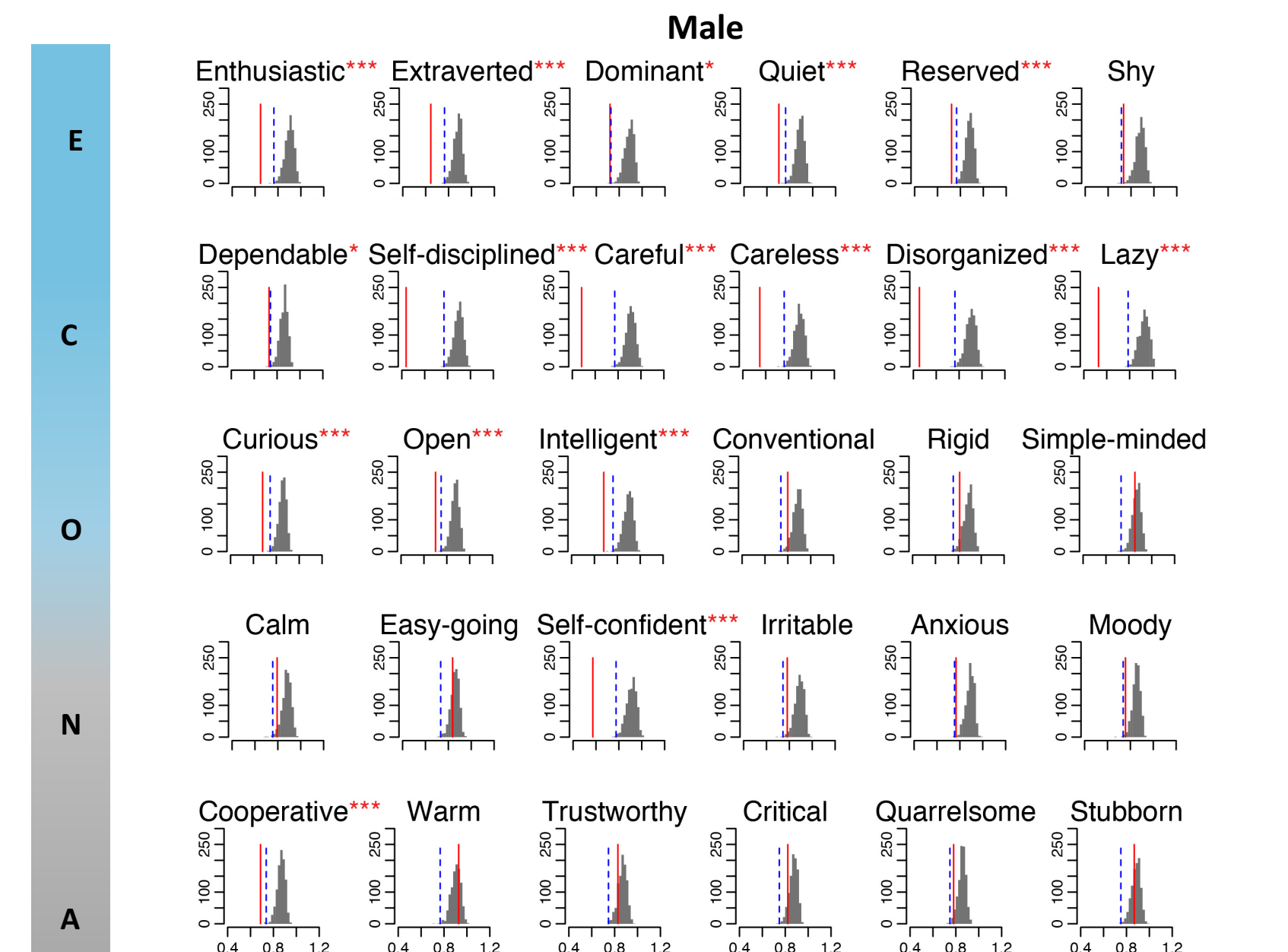
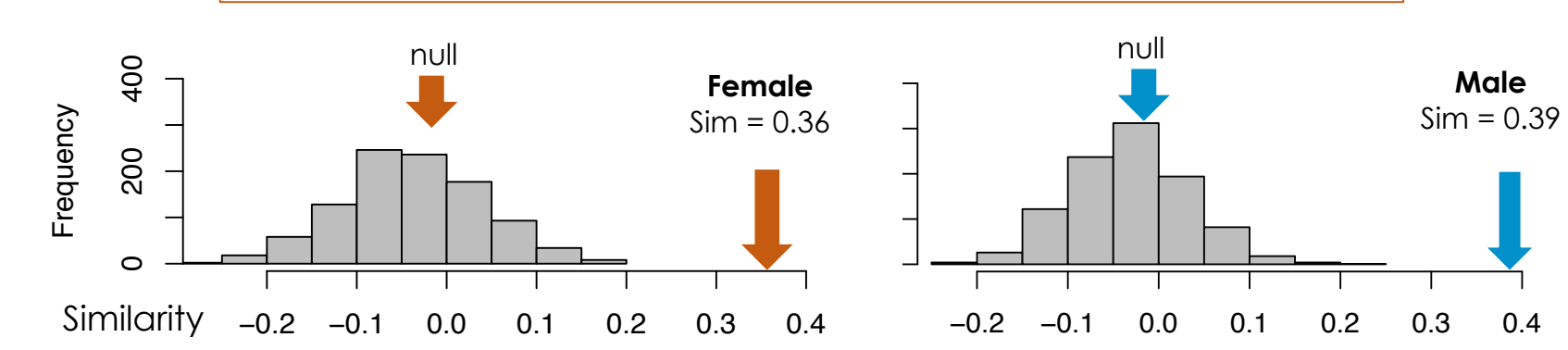
- consistent and reliable structure
- separate positive and negative traits of the Big 5 personality domains
- 2 axes
 - valence - body weight
 - agency - shaped vs. rectangular

Quantification: can body parameters predict traits?

Multiple Linear Regression (for each gender) + cross-validation technique



Can trait profiles be predicted from body parameters? - Yes



Note: * p < 0.002 (0.05/30), *** p < 0.00003 (0.001/30)

Conclusions

- People infer personality traits from **complex** body shapes in systematic ways.
 - valence / agency
 - contrast the positive and negative sides of the Big Five domains
- Trait inferences are grounded into specific body features.
 - valence – weight
 - agency – shaped vs. rectangular
- Many personality traits can be predicted from body shapes.
 - consensus: extraversion > conscientiousness > openness
- Implications: first study to explore a diversity range of body-trait inferences

Discussions

- comparison to facial personalities (Oosterhof & Todorov, 2008)
 - face valence - approachability (e.g., expressions)
 - body valence - weight
- visualized, but not predicted (e.g., agreeableness)
 - some features are too complex to capture in linear regression
- predicted, but not visualized (e.g., openness) -> may be a sampling issue
- inferences differ across ethnicity, culture, and possibly age

Open Questions

- link between the physical descriptions and trait ratings of bodies
- generalization to real-life cases
- interaction with facial personalities

References

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