New Social Signals in a New Interaction Context

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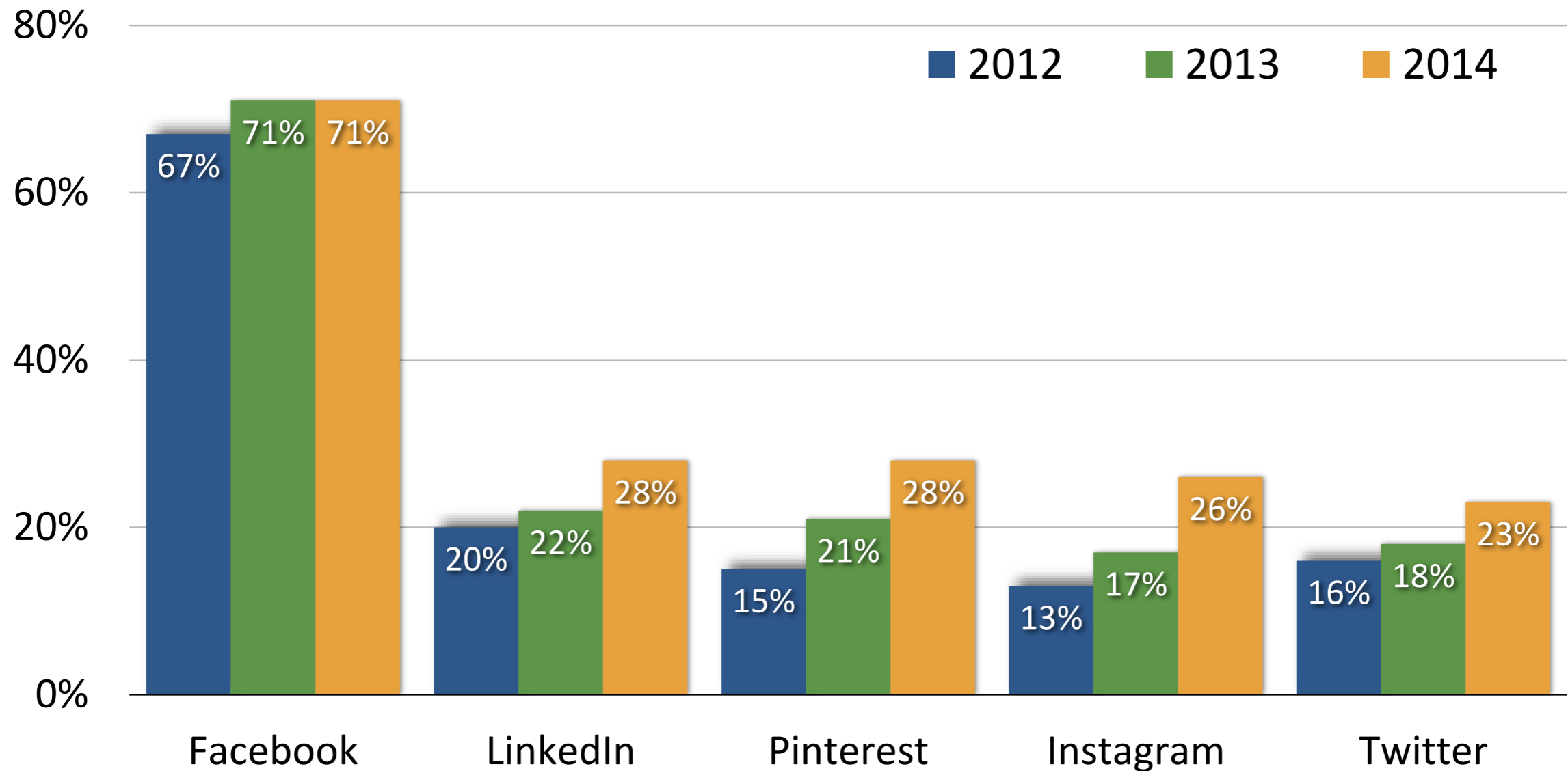
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Online Interactions

Duggan, Ellison, Lampe, Lenhart & Madden,"*Social Media Update 2014*", Pew Research Center, 2015

New Interactions …

"The human brain evolved in a world in which only humans exhibited rich social behaviours, and a world in which all perceived objects were real physical objects. Anything that seemed to be a real person or place was real."

Reeves & Nass, "*The Media Equation*", CSLI, 1996

New Interactions … Old Brain

"The human brain evolved in a world in which only humans exhibited rich social behaviours, and a world in which all perceived objects were real physical objects. Anything that seemed to be a real person or place was real."

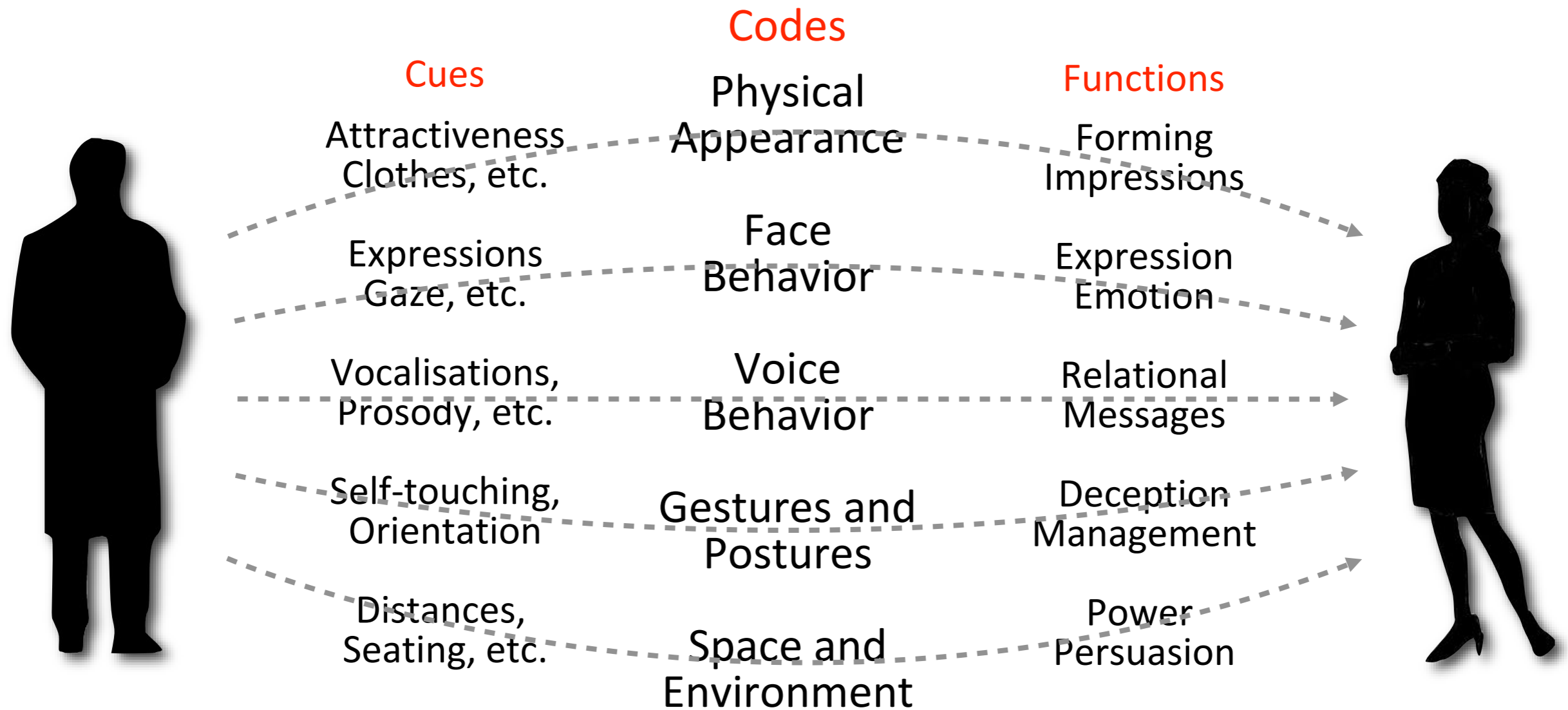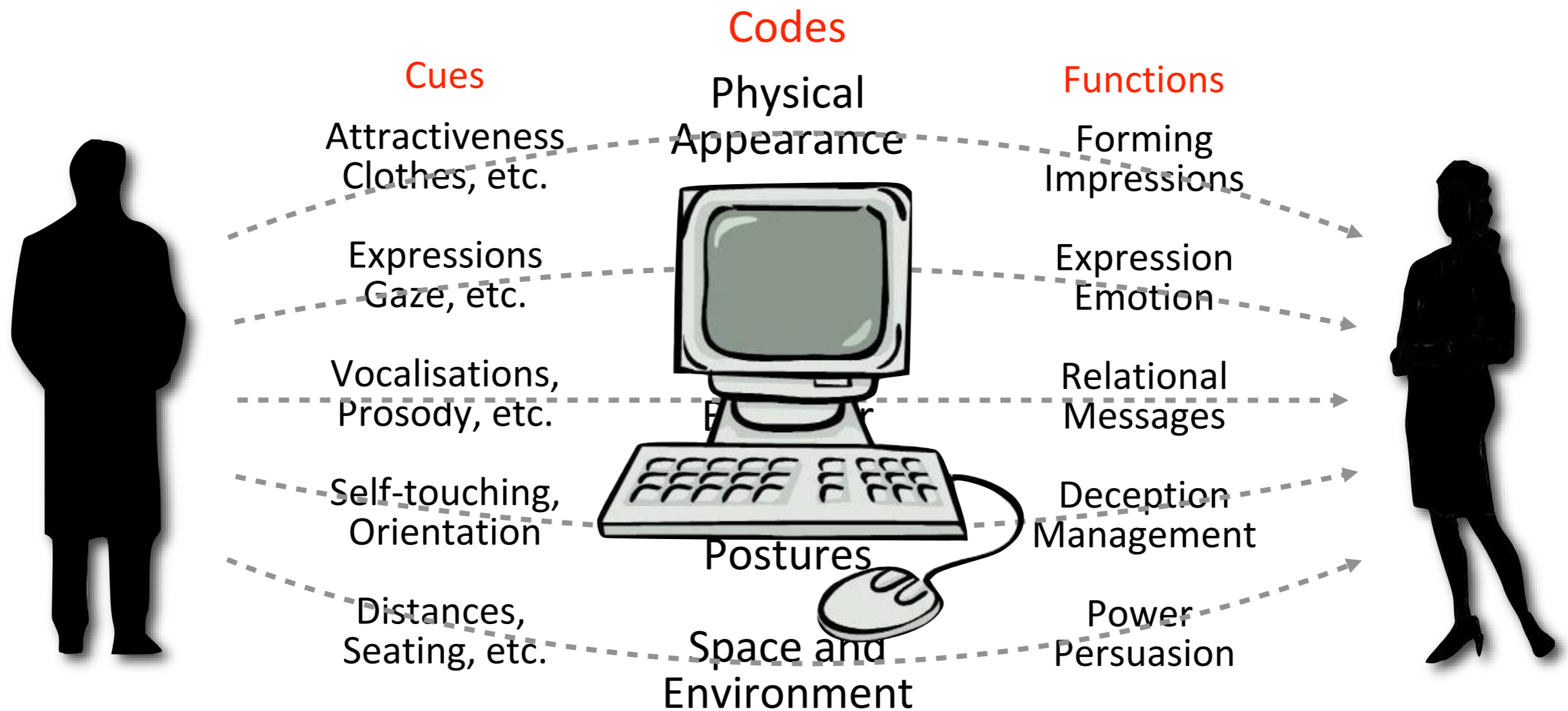Reeves & Nass, *"The Media Equation"*, CSLI, 1996
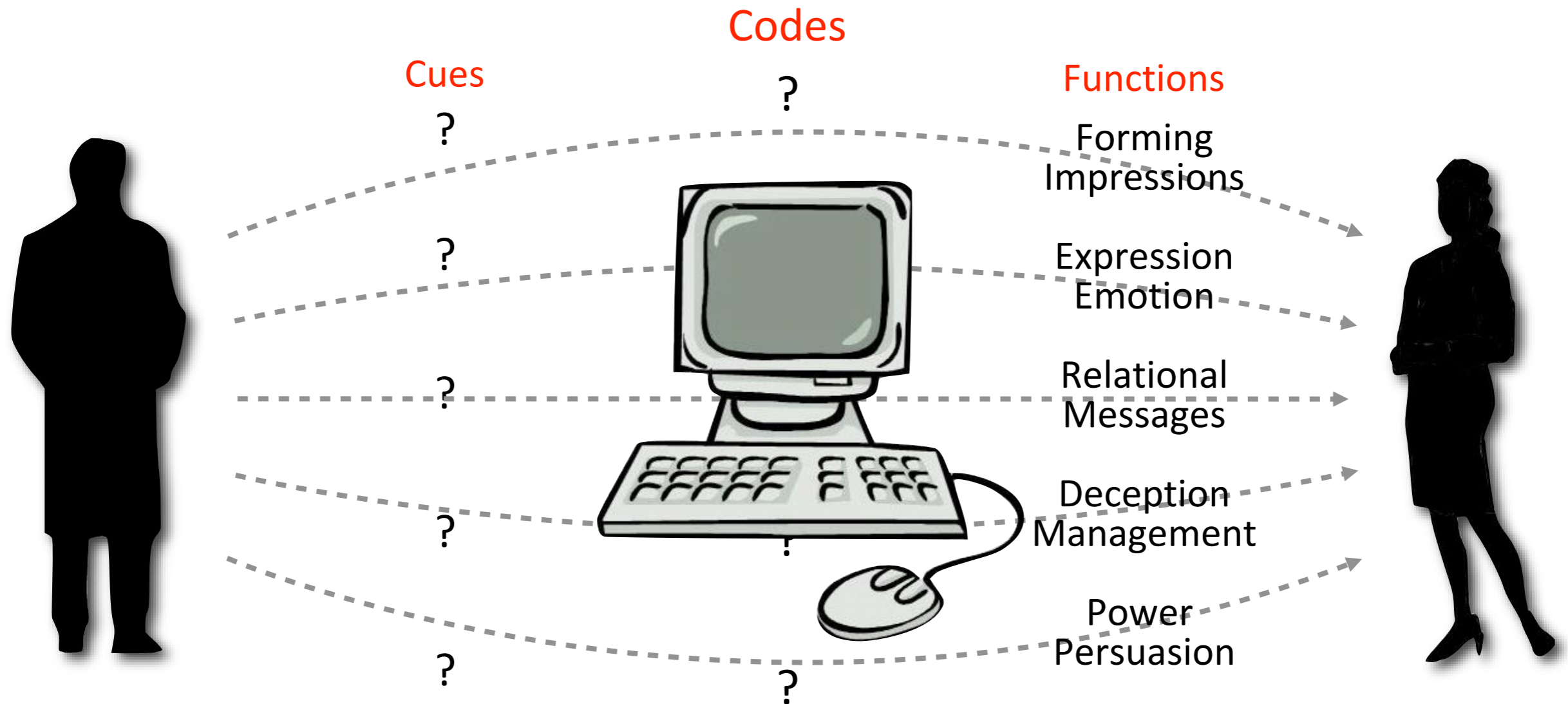
New Social Signals?

Codes

Cues

Functions

Attractiveness
Clothes, etc.

Physical
Appearance

Forming
Impressions

Expressions
Gaze, etc.

Face
Behavior

Expression
Emotion

Vocalisations,
Prosody, etc.

Voice
Behavior

Relational
Messages

Self-touching,
Orientation

Gestures and
Postures

Deception
Management

Distances,
Seating, etc.

Space and
Environment

Power
Persuasion

Richmond and McCroskey, "*Nonverbal Behaviors in Interpersonal Relations*", Allyn and Bacon, 1995

5

New Social Signals?

Richmond and McCroskey, "*Nonverbal Behaviors in Interpersonal Relations*", Allyn and Bacon, 1995

New Social Signals?

Vinciarelli & Pentland, "*New Social Signals in a New Interaction World: The Next Frontier of SSP*", IEEE SMC Magazine (to appear), 2015

Outline

- Personality and its Measurement

- Personality and Computing

- Voice and Face of Personality

- **Online Personality**

- Conclusions

Online Impressions (I)

"[...] the audience layer sits beyond the weak ties layer. It is made up of strangers [that] can play constructive roles when they are activated."
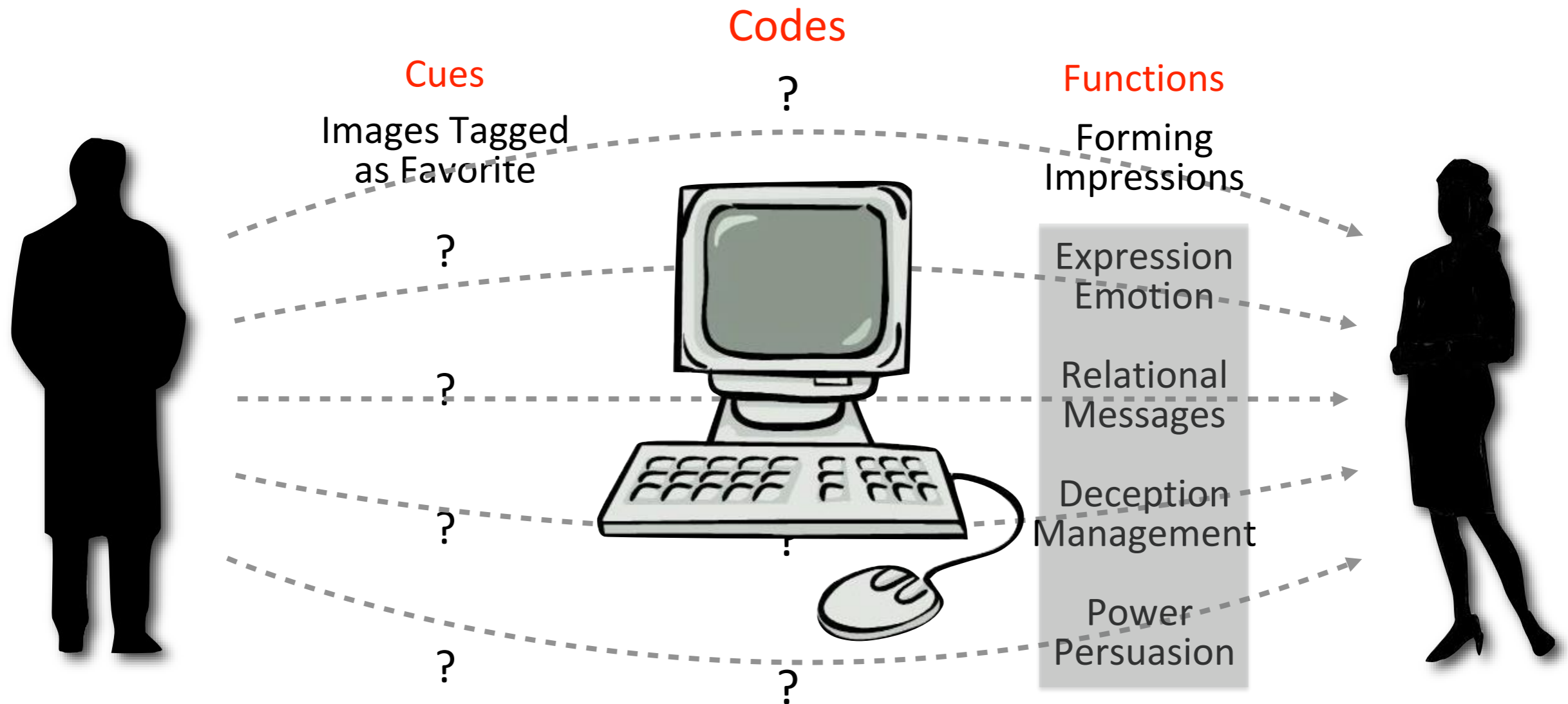
Rainie & Wellmann, "*Networked*", MIT Press, 2012

Online Impressions (II)

"Photos and videos as social currency online [...] Overall, 56% of Internet users do at least one of these [image] creating or curating activities."
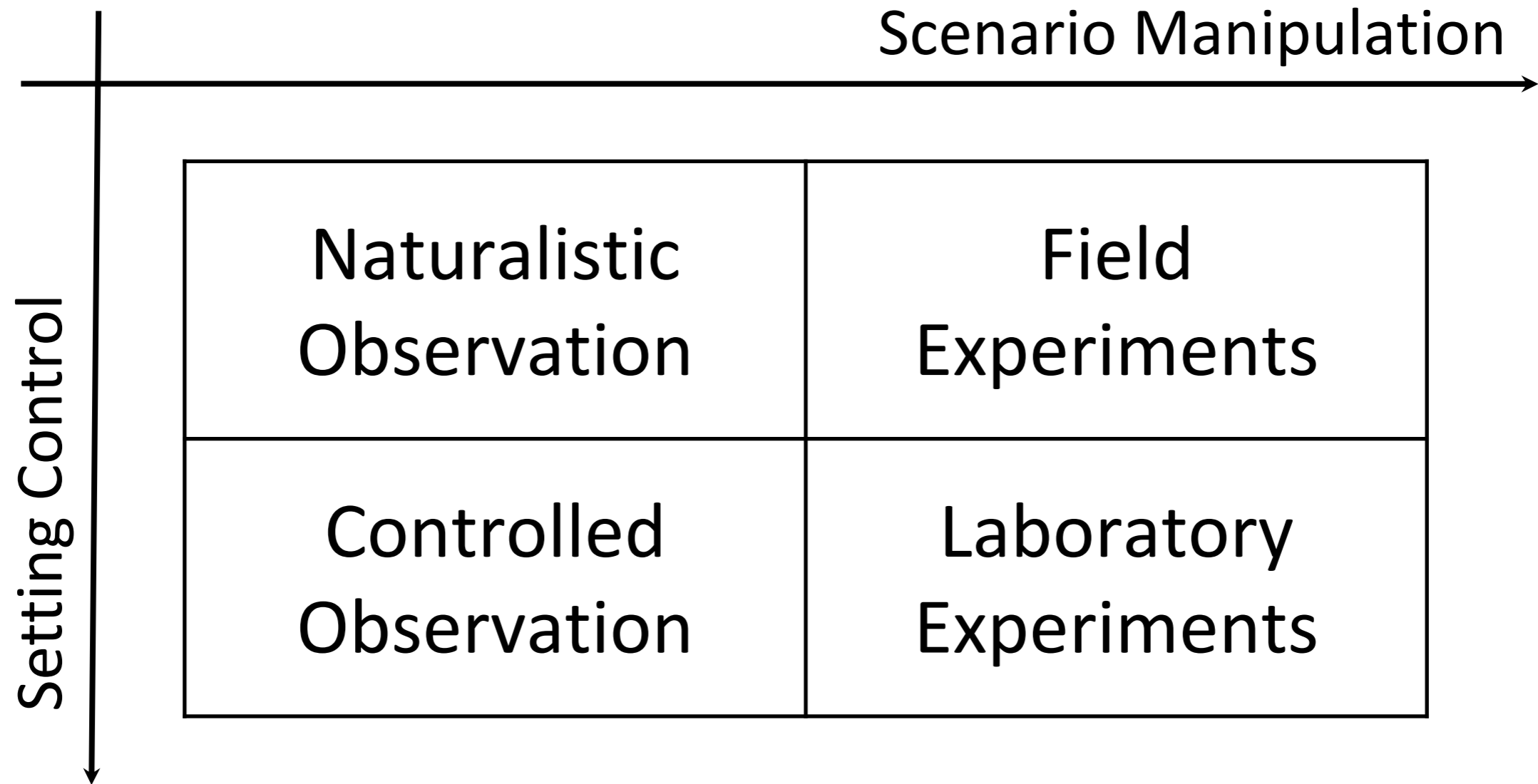
Rainie, Brenner and Purcell, *"Photos and Videos as Social Currency Online"*, Pew Research Center, 2012

Pictures as Social Signals?

Segalin, Perina, Cristani & Vinciarelli, "*Unveiling the Multimedia Unconscious*", Proceedings of ACM Multimedia, pp. 213-222, 2013 (BNI paper)

Experimental Setup

	Scenario Manipulation →
Setting Control ↓	Naturalistic Observation / Field Experiments
	Controlled Observation / Laboratory Experiments

Hecht, Guerrero, "*Perspectives on Nonverbal Research Methods*", in "The Nonverbal Communication Reader", Guerrero, De Vito, Hecht (Eds.), pp. 24-28, 1999.

Corpus Collection

BFI-10
1st Person

BFI-10
1st Person

Self-Assessment

Flickr

BFI-10
3rd Person

Assessment

The "*PsychoFlickr Corpus*"

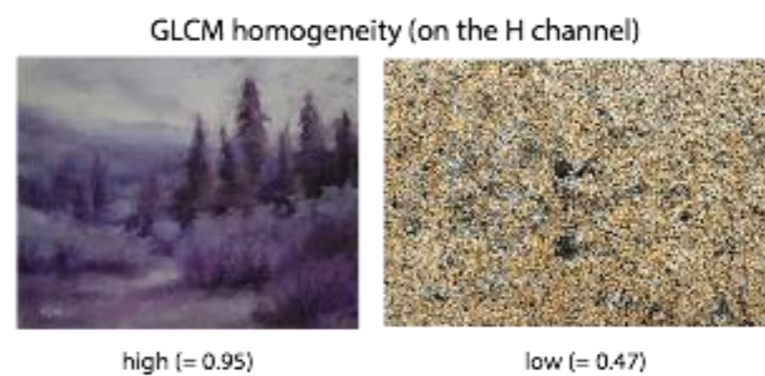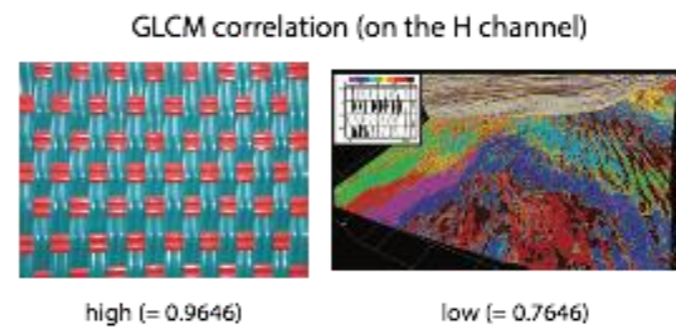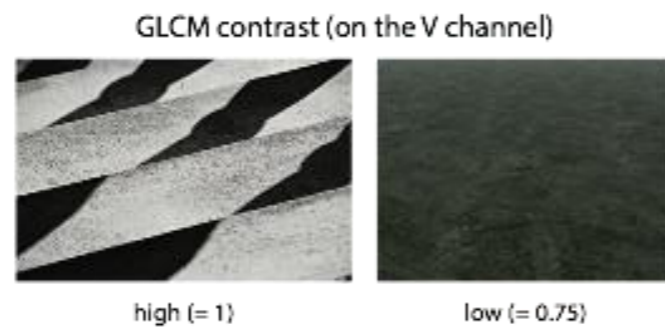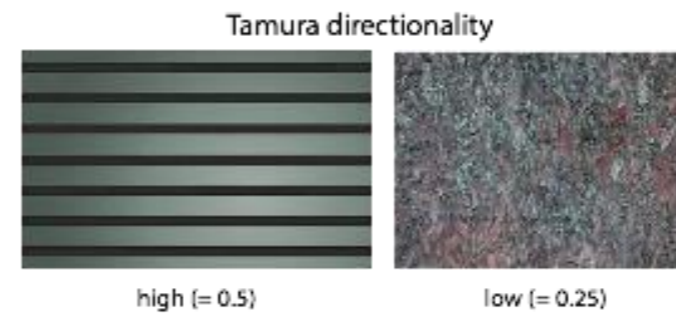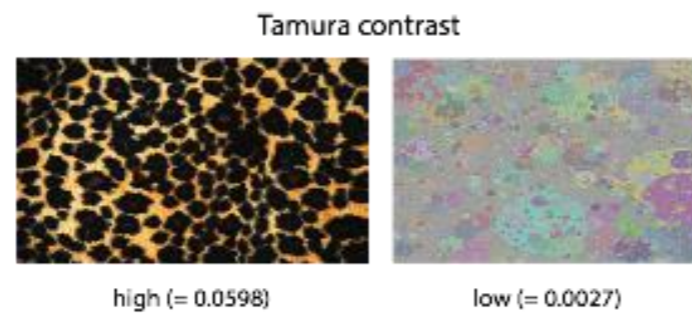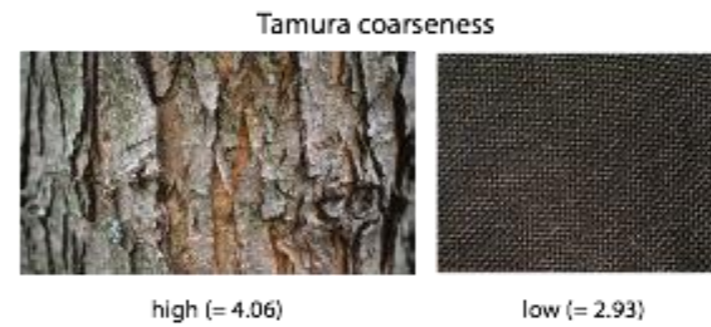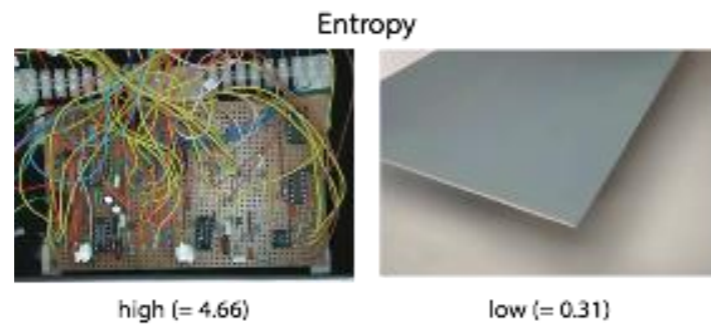|	
Number of Galleries	300
Number of Pictures	60000
Number of Subjects	300
Gender Balance	71.3% M / 28.7% F
Category Balance	100% Pro Users
Subjects Distribution	100% = 300
Assessors	11 (UK) + 11 (Asia)
Total Items	44000

Segalin, Perina, Cristani & Vinciarelli, "*Unveiling the Multimedia Unconscious*", Proceedings of ACM Multimedia, pp. 213-222, 2013 (BNI paper)

Aesthetic Preferences

Texture

Entropy
high (= 4.66)   low (= 0.31)

Tamura coarseness
high (= 4.06)   low (= 2.93)

Tamura contrast
high (= 0.0598)   low (= 0.0027)

Tamura directionality
high (= 0.5)   low (= 0.25)

GLCM contrast (on the V channel)
high (= 1)   low (= 0.75)

GLCM correlation (on the H channel)
high (= 0.9646)   low (= 0.7646)

GLCM energy (on the S channel)
high (= 0.99)   low (= 0.58)

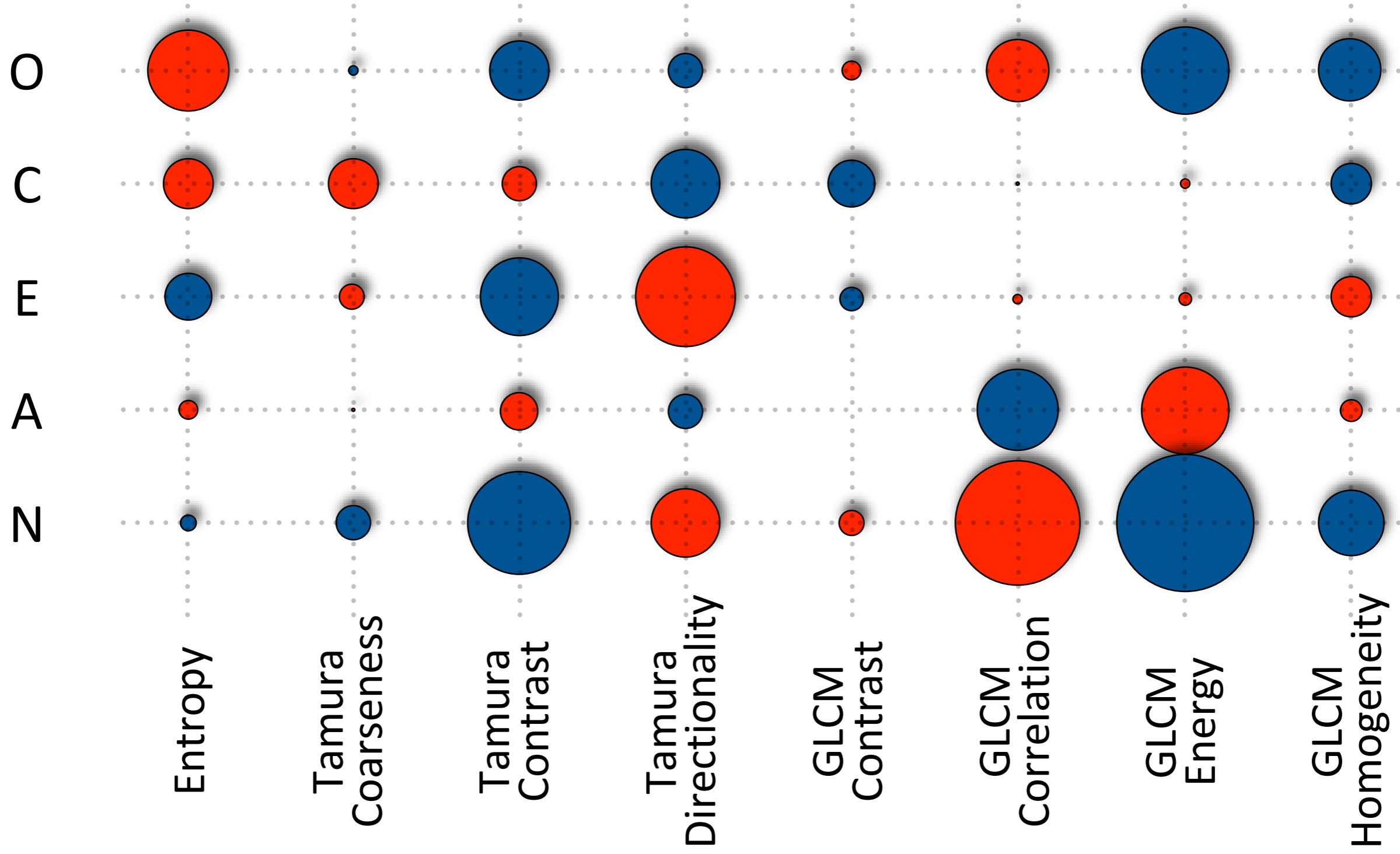GLCM homogeneity (on the H channel)
high (= 0.95)   low (= 0.47)

Texture

Composition

Canny

original   processed

Level of detail

high (number of segments = 528
norm. average extension = 0.002)

low (number of segments = 2
norm. average extension = 0.5)

Low depth of field indicator

strong (= 2,1.3, 2)

weak (= 1.1, 0.9, 0.9)

Color

Use of light
high (= 0.79)   low (= 0.14)

Average saturation
high (= 0.89)   low (= 0.17)

Valence
high (= 0.72)   low (= 0.18)

Dominance
high (= -0.03)   low (= -0.50)

Arousal
high (= 0.36)   low (= -0.22)

Color diversity
high (= 1/8.16)   low (= 1/16.7)
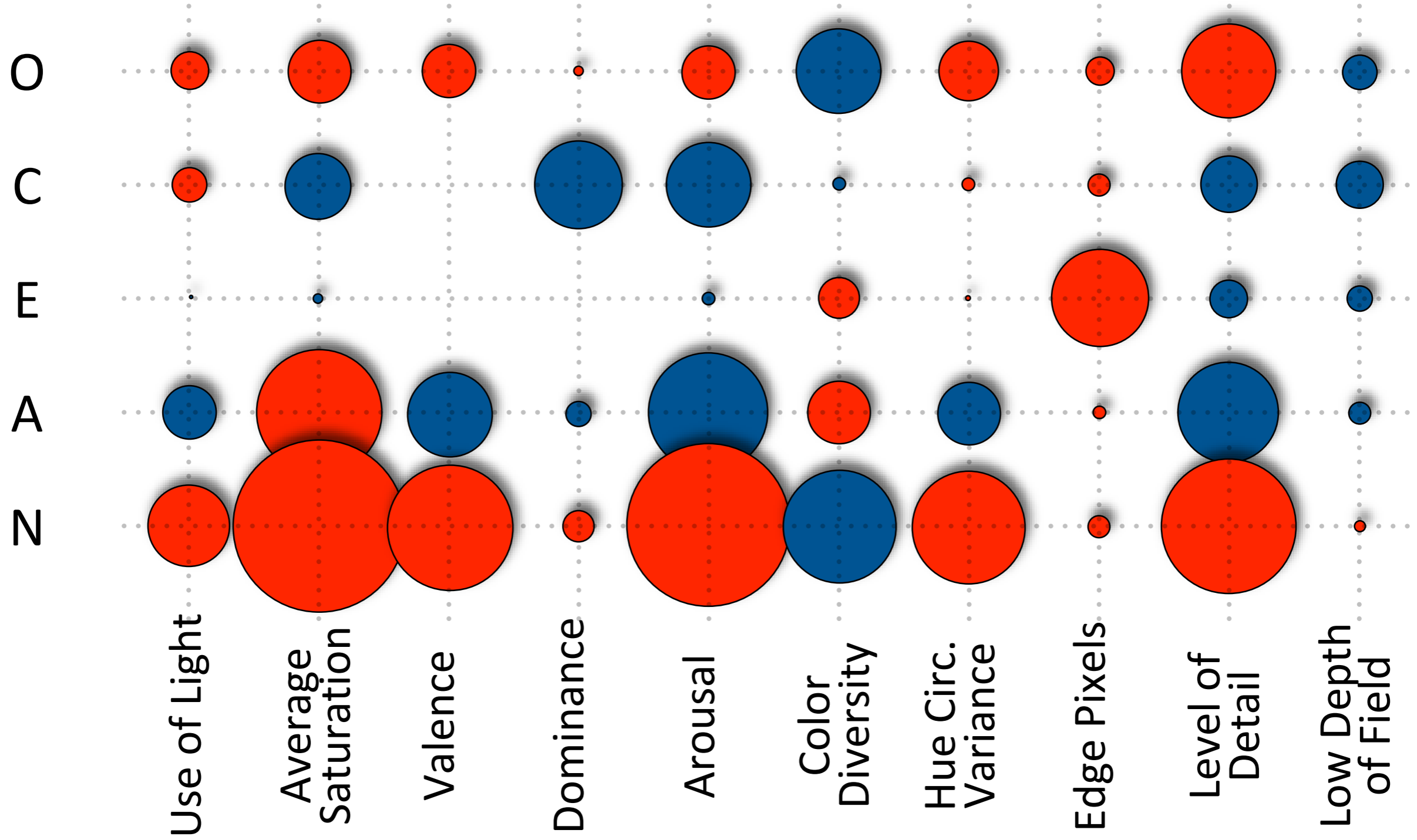
Hue circular variance
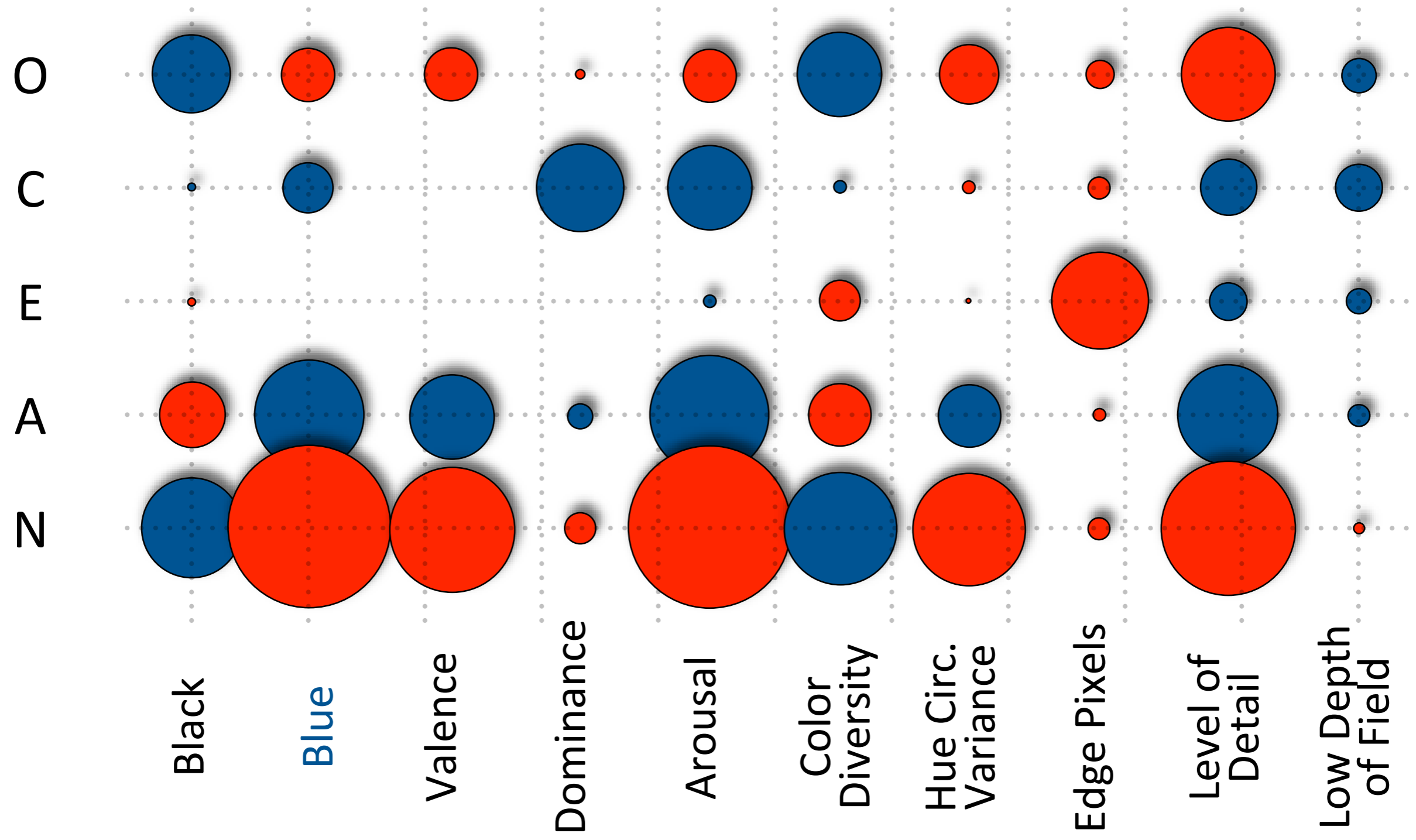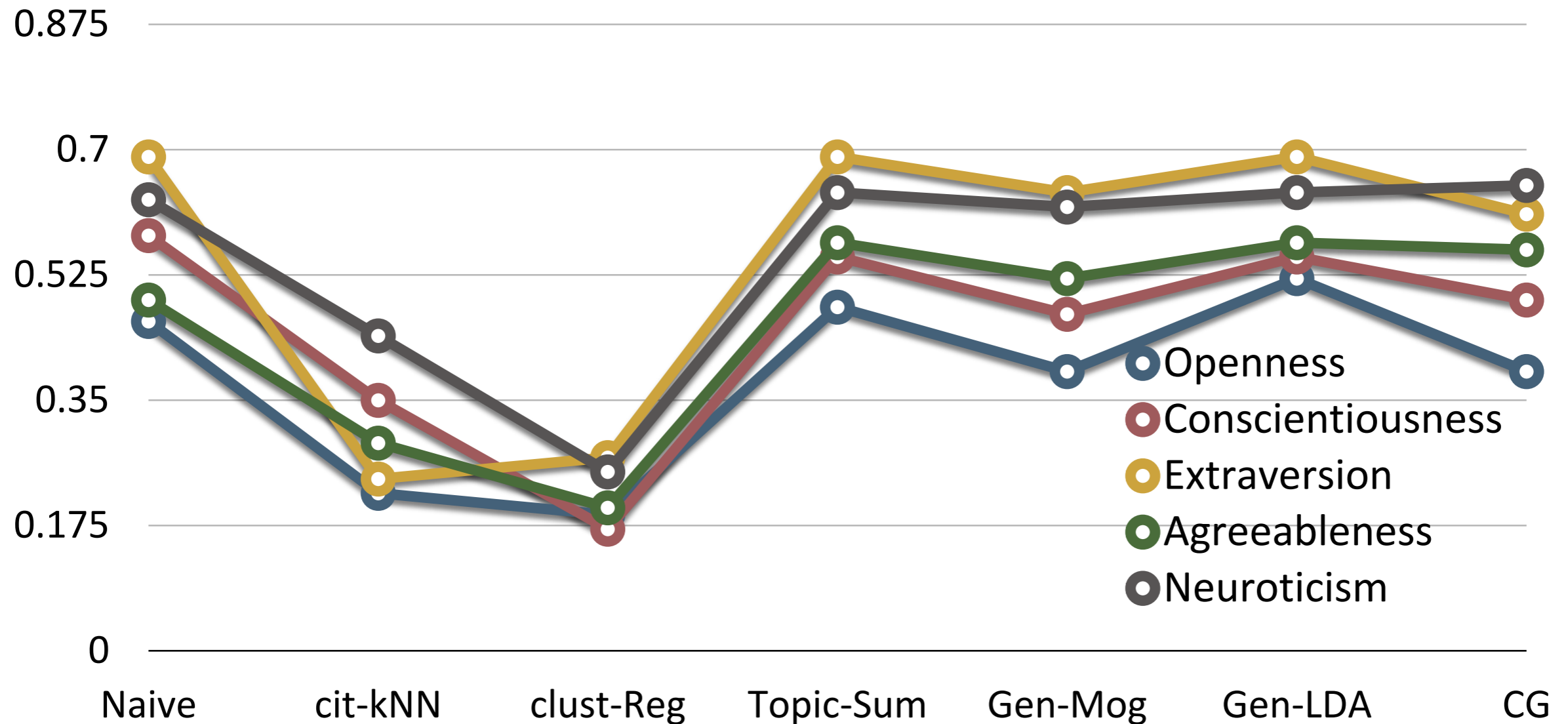high (= 0.84)   low (= 0.04)

Color and Composition
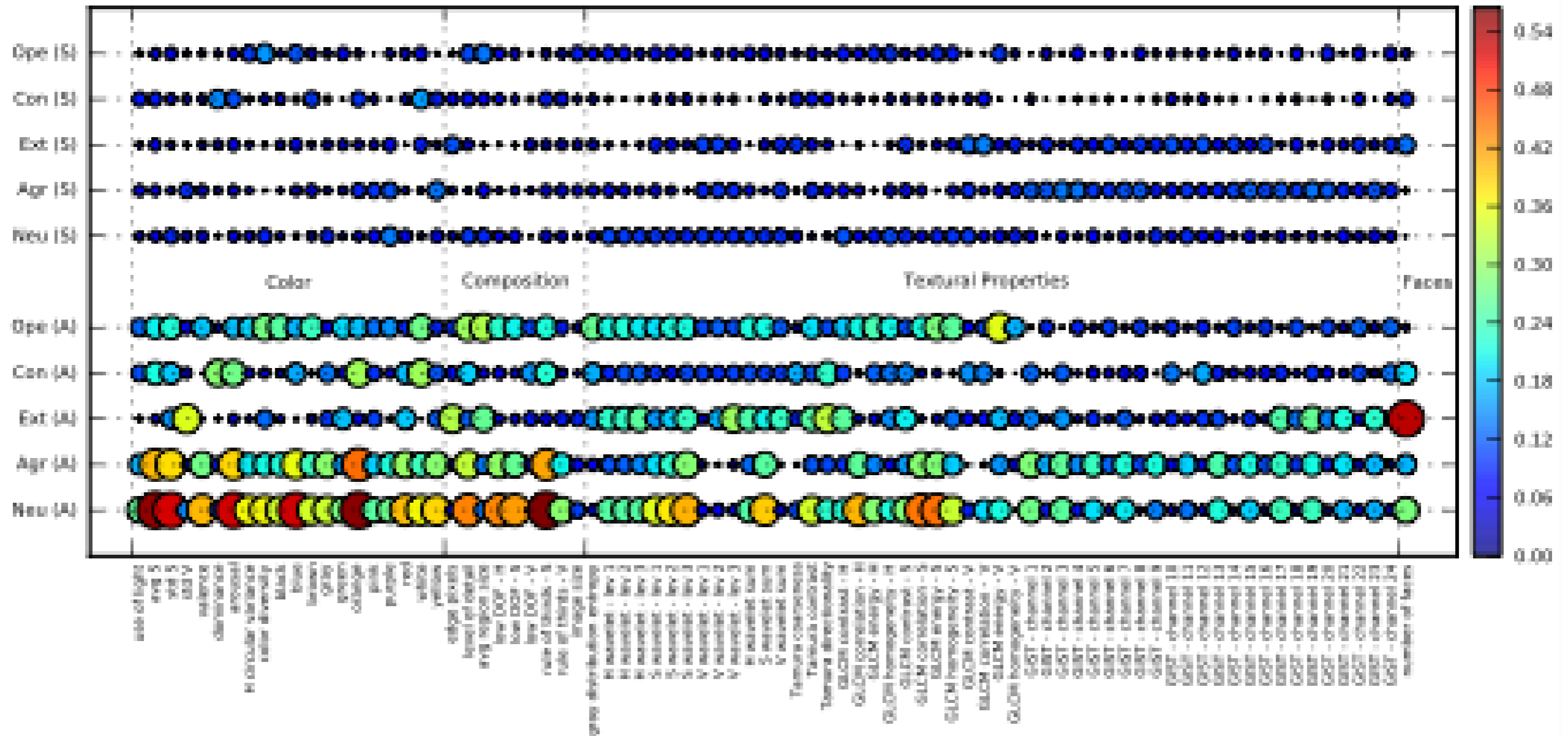
Color Distribution

Multiple Instance Regression

Correlation (Spearman Coefficient) between actual and predicted traits.

Correlational Analysis

Outline

- Personality and its Measurement

- Personality and Computing

- Voice and Personality

- Face and Personality

- Conclusions

Further Reading

- A.Vinciarelli & G.Mohammadi, "*A Survey of Personality Computing*", IEEE Transactions on Affective Computing, 5(3):273-291, 2014

- A.Wright, "*Current Directions in Personality Science and the Potential for Advances through Computing*", IEEE Transactions on Affective Computing, 5(3):292-296, 2014

- A.Vinciarelli & G.Mohammadi, "*More Personality in Personality Computing*", IEEE Transactions on Affective Computing, 5(3):297-300, 2014

Conclusions

- Personality Computing is important for any technology dealing with people

- Personality Computing should move from the prediction of traits to the prediction of consequential outcomes

- Tighter integration with Personality Science is needed to improve both Computing and Psychology

Thank you!

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- Alex McKay (University of Glasgow)
- Antonio Origlia (University of Napoli Federico II)
- Alessandro Perina (Microsoft Research)
- Cristina Segalin (University of Verona)
- Yolanda Vazquez Alvarez (University of Glasgow)
- Bjoern Schuller (Imperial College / TU Munich)