Word use, personality, and subjective well-being

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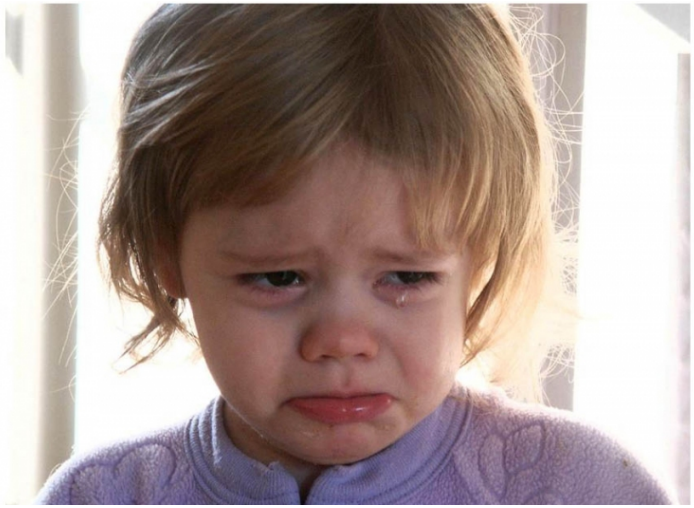
WWBP goal: Measure the world's well being using social media

- **Subjective well-being matters**
  - Happy people with better relationships live longer
  - We want *better* as well as *happier* lives
- **The words people use reveal a lot about them**
  - including personality and happiness



First step: measure personality

Associated data make social media valuable

- **Social media word use (Facebook posts, tweets) has associated data**
  - Age, sex,
  - Location, time
  - Answers to questions (personality …)
  - Link to M-turk provided labels
- *The words people use on social media such as Twitter, Facebook and Google are a rich, if imperfect, source of information about their personality and psychological state.*

Basic Sentiment Analysis

Do you like the product?

Psychologists also use word lists

- **Correlate percentage of words from a list**
  - usually positive vs. negative affect
- **with some outcome**
  - Find (e.g.) that nuns using positive affect words live longer

LIWC dictionary sample

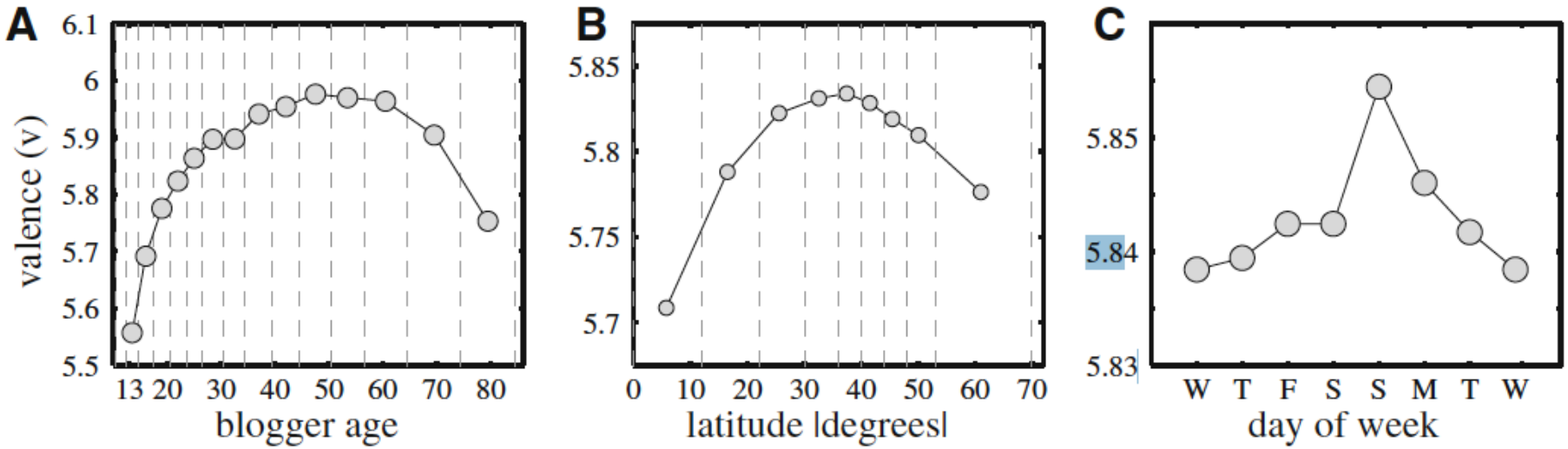
- accept
- accepta*
- accepts
- advantag*
- agreeing
- ….
- happy
- …
- merry
- ….

- heartfelt
- heaven*
- heh*
- helper*
- helps
- hilarious
- hoho*
- honest*
- honour*
- hoped
- hopefully
- hopes

- terrific*
- thank
- thanked
- thanks
- toleran*
- treasur*
- treat
- trueness
- truer
- truest
- truly
- trust*
- values
- valuing

Pennebaker

Blogger Happiness

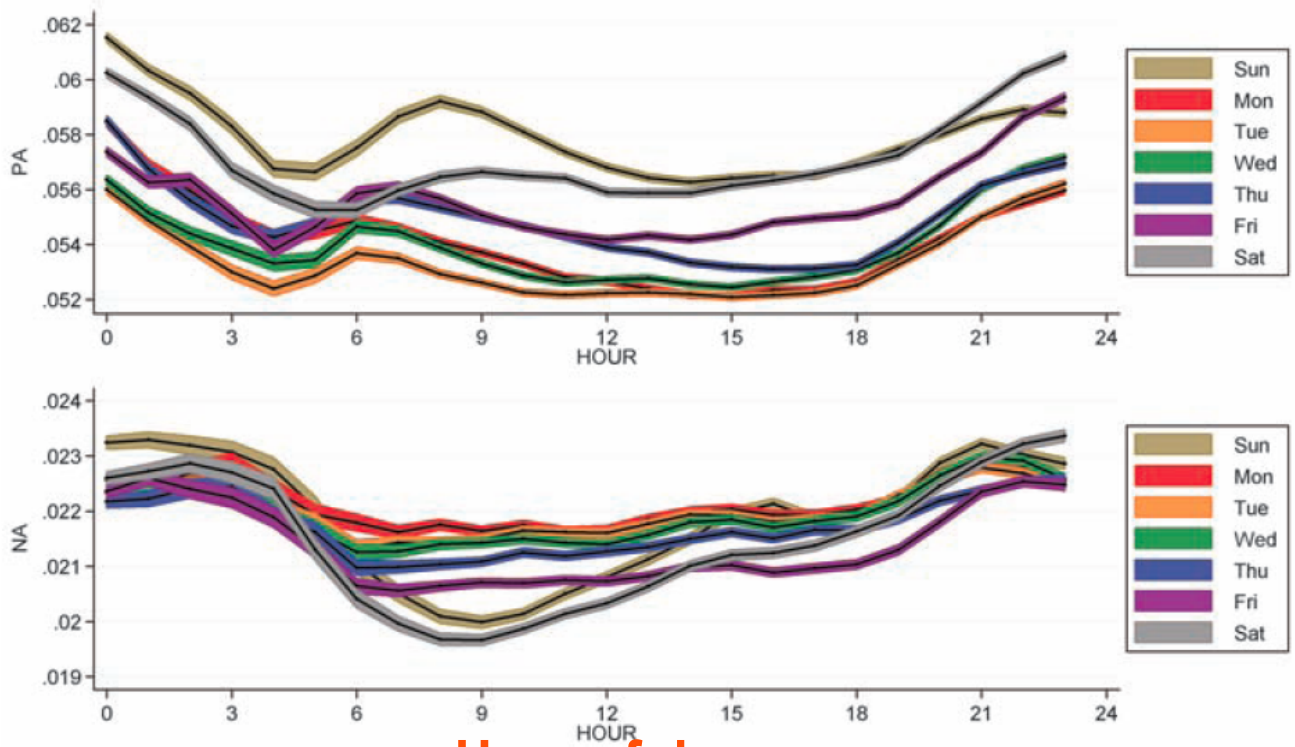


Measuring the Happiness of Large-Scale Written Expression: Songs, Blogs, and Presidents
Dodds and Danforth 2010

Twitter Happiness

Positive Affect

Negative Affect



Hour of day

Diurnal and Seasonal Mood Vary with Work, Sleep, and Daylength Across Diverse Cultures
Golder* and Macy (2011)

We want to

Go beyond positive and negative affect

Get a picture of people's personalities, relationships, and concerns

PERMA measures well-being

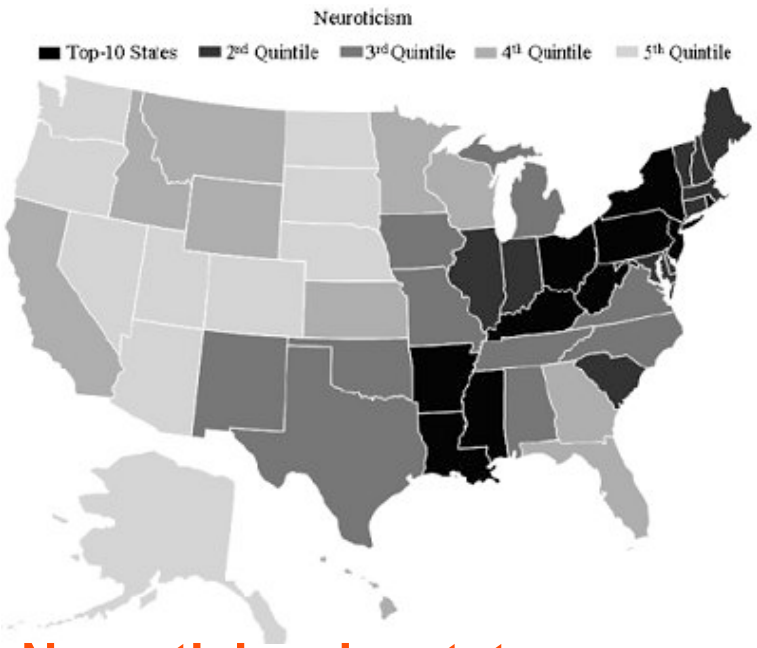
- **P**ositive emotion
- **E**ngagement
- **R**elationships
- **M**eaning
- **A**chievement

OCEAN measures personality

- **O**penness
- **C**onscientiousness
- **E**xtroversion
- **A**greeableness
- **N**euroticism

Facebook Individual Data

- **100,000 individuals who took Big Five Personality test**
  - And their Facebook posts



Neuroticism by state:
Rentfrow, Gosling, and Potter

Kosinski, M. & Stillwell, D.J. (2011)

Gender

Female

bestie
she's
can't_believe
blessed
daughter
so_tired
mom
her_first
soooo
she
cry
loving
beautiful
princess
cute
yummy
hubby
time_with
her
loved
cake
:d_<3
wishes_she
so_much
sooooo
super_excited
thank_you
lots
husband
loves_her
girl
love_you
so_happy
soo
such_a
nails
dress
I_miss
sick
thankful
ugh
my_heart
christmas
am_so
love_him
wonderful
:(
excited
I'm_so
drama
my_little
to_see_my
gosh
proud_of
yum
tummy
love_you_guys
having_a
mommy
?_?
aunt
much_fun
my_hair
;)
shopping
birthday
smile
bed
herself
boyfriend
sad
<3
yay_!
like_it_on
:)
girls
can't_wait
lovely
her_new
make_me
so_glad
sooo
dinner
best_friend
sister
cookies
babysitting
omg
my_family
chocolate
love_them
baby
laugh
with_my
daddy
baking
go_away
cleaning
babies
adorable

Male

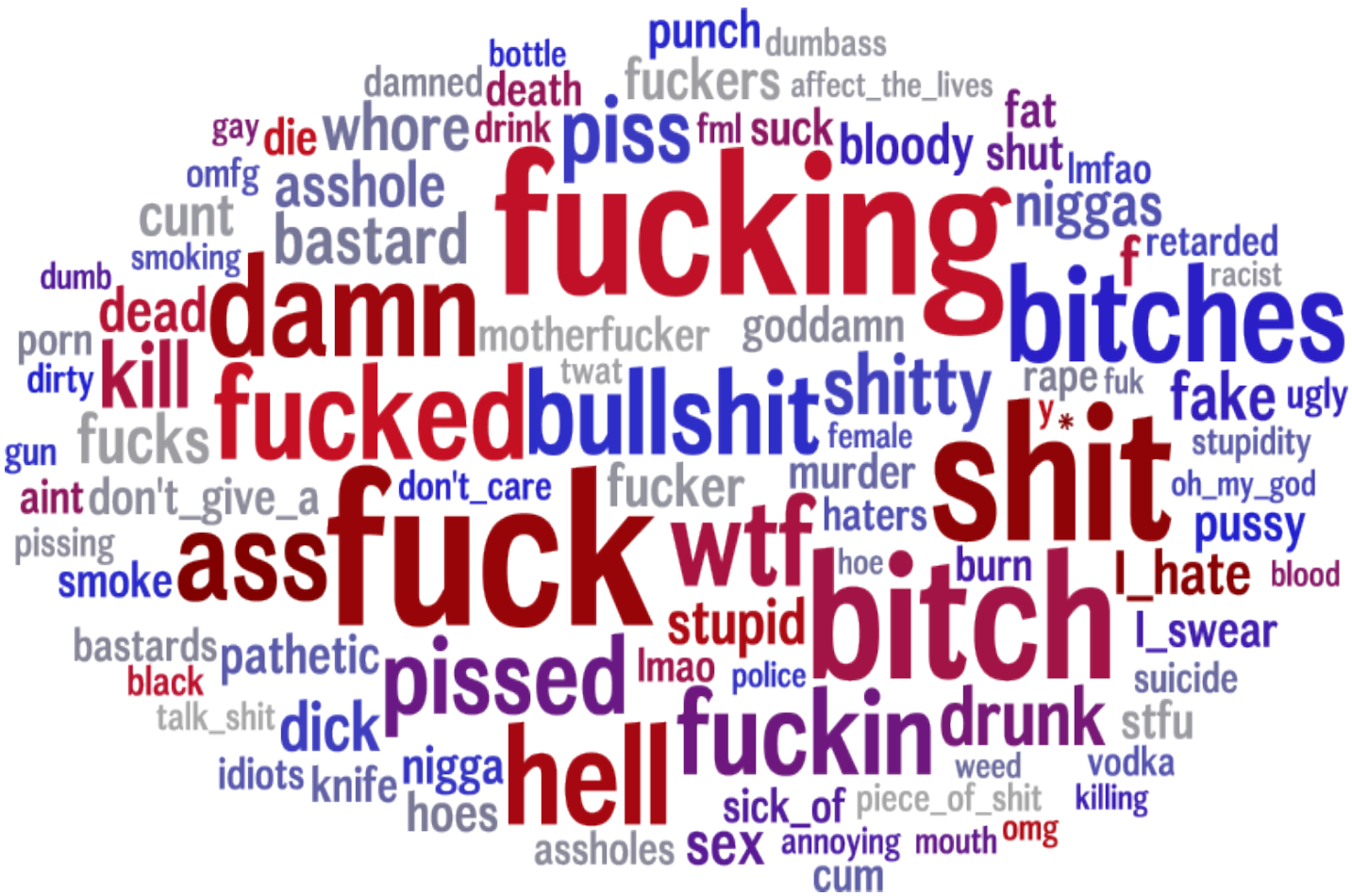
2-0
windows_7
dick
feature
nfl
holy_shit
www
bastard
lebron
weapons
gun
political
modern_warfare
beard
fans
his_own
fifa
his_mind
gaming
playoffs
government
victory
chuck_norris
master
win
fucked
fuck
pc
my_wife
http://
religion
bass
fuck_yeah
espn
software
champions
hell
hit_me_up
black_ops
vs
world_cup
league
system
team
beat
my_girlfriend
youtube.com
shave
epic
his_phone
india
nation
destroyed
1-0
call_of_duty
fuckin
speed
war
cod
fucking
wishes
he
nba
ftw
god_damn
beer
nahi
wins
politics
shaved
thinks_he
xbox
championship
himself
360
nuclear
engineering
of_death
metal
ps3
teams
his_life
cock
album
halo
creed
legendary
arsenal
sword
match
shit
players
loves_his
brazil
legend
germany
united
president
player

Personality: Big 5

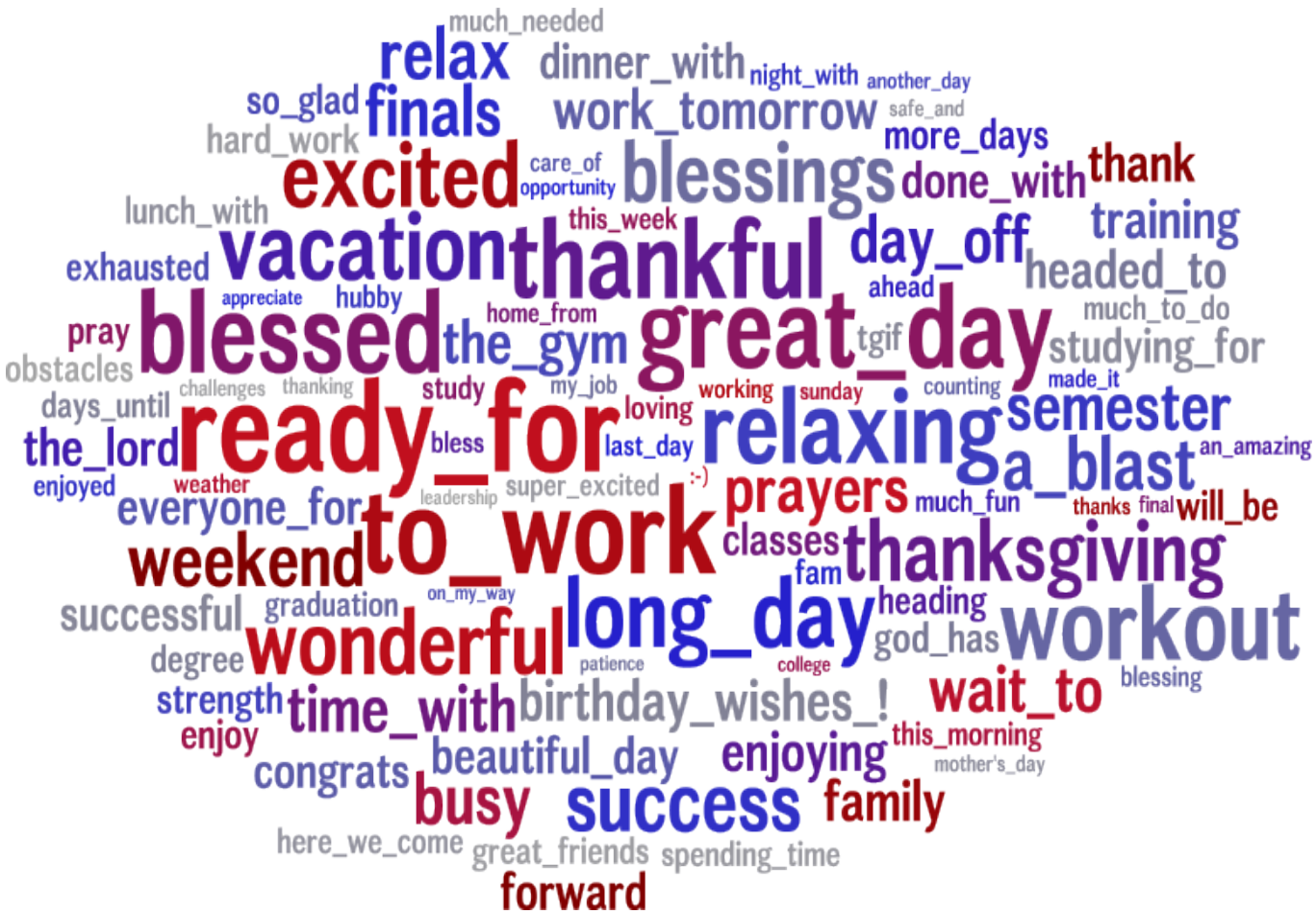
Lyle Ungar, University of Pennsylvania

More Agreeableness

Less Agreeableness



More Conscientiousness



Less Conscientiousness

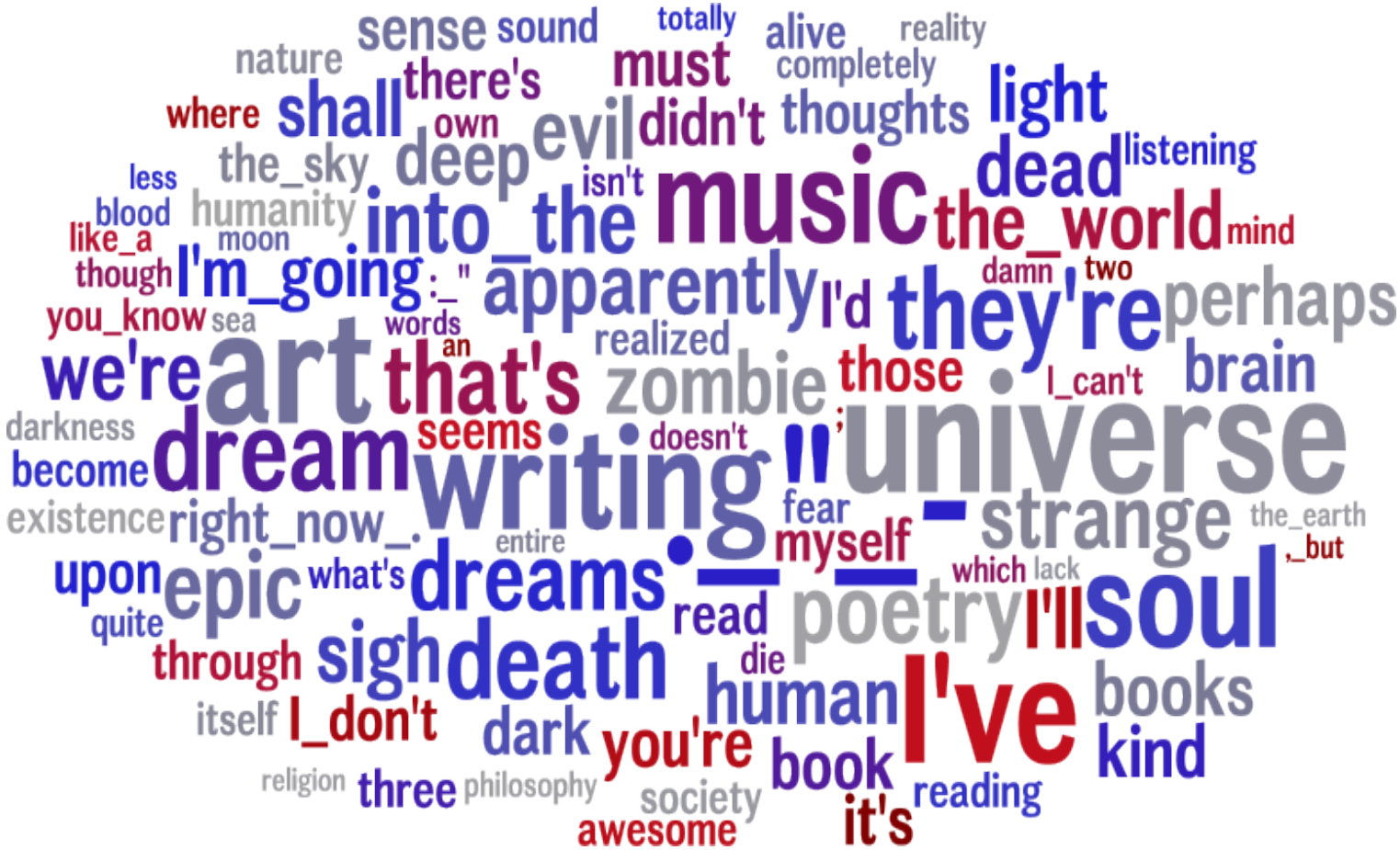
More Extraversion

Less Extraversion (Introversion)

Less Neuroticism

More Neuroticism

More Openness to Experience



Less Openness to Experience

Conclusions

- **People's words on Facebook reveal their personality and concerns**
  - Combining with online *surveys* adds huge power
- **Word use correlates with Gallup polls and CDC data**
  - Twitter: more data, better spatial and temporal resolution
- **Open vocabulary allows hypothesis generation**
  - Enhanced by ambiguity resolution, phrase detection, topic analysis, and visualization