

Analysis Plan for UC Recruit Letters of Recommendation

The availability of letters of recommendation submitted for each application in the UC Recruit system is a unique feature of the UC Recruit data. Analysis of the letters of recommendation will be both a primary research project (e.g., analyzing gender and race differences in how scholars are described by their references) and one that contributes important explanatory variables to other analyses (e.g. how those differences in descriptions influence applicants' outcomes).

This document lays out the plan for the coding of the letters and the primary analysis of their coded content. This will be a working document: it will evolve as the project progresses, becoming more developed as we work with the letters, the tools we can use to code them, and the data that emerges from the coding projects. We anticipate multiple analyses motivated by two of the fundamental research questions that frame the larger "Evaluating Equity in STEM Faculty Hiring" research project:

- Are there differences by gender and/or race/ethnicity in the applicants' characteristics/qualifications and labor market outcomes? (Characteristics include those of the letters themselves, e.g., letter writer gender and/or race, letter length, and those culled from the letter, e.g., the language used to describe the applicants' achievements.
- Are race/gender differences in applicants' labor market outcomes explained by race/gender differences in applicant characteristics?

Project 1: Coding the letters of recommendation

Levels of coding (see below for details about specific dictionaries):

Level 1: word-level coding

- according to dictionaries used in prior research and/or available in LIWC
 - masculine/feminine
 - agency/communal
 - ability
 - grindstone adjectives
 - superlatives, extreme modifiers, "standout adjectives"
 - teaching, research
 - possessive pronouns and modifiers
 - power (LIWC 2015 83)
 - communication (LIWC 2001 32)
 - achievement (LIWC 2015 82)
 - certainty (LIWC 2015 55)
 - tentative (LIWC 2015 54)
 - reward (LIWC 2015 84)
 - negate (LIWC 2015 15)
 - compare (LIWC 2015 22)
 - posemo (LIWC 2015 31)
 - negemo (LIWC 2015 32)
 - social (LIWC 2015 40)
 - numbers (both digits and words)
- concepts for which dictionaries are being developed
 - stereotypes
 - "real world" applications, connections
 - leadership
 - innovation and originality
 - specific skill and ability words
 - words related to family
 - co-authorship, team, collaborative, interdisciplinary
 - words/adjectives associated with gender - e.g., bossy, flighty, bubbly etc.
 - words/adjectives associated with race [harder] - e.g. "articulate" depending on context

Level 2: sentence/phrase-level coding

- co-occurrence of words within sentences
 - research words + descriptors (tentative, comparative, etc.)
 - possessives + following words (e.g., "research," "teaching," "project," "personal life," etc.)

Level 3: paragraph-level coding

- identify main focus of the paragraph (research, teaching, other)
- sentiment of the paragraph (degree of positive, negative sentiment)

- number of words in each paragraph (to be considered in relation to the main focus, sentiment,)
- Level 4: document metadata
- length of document - number of words
 - characteristics of letter writer (variables will be coded using core UC Recruit data)
 - relative frequency/presence/absence of expected components (research, teaching, other) relative to specific baselines (e.g., group/discipline averages, averages among “top” or “long-listed” candidates)

Mechanics of coding:

- Use most efficient tools to manage and code the text in the letters of recommendation, e.g., natural language processing packages in python, but also assess if the coding can be done in QDA Miner.
- Ensure that text coded outside of QDA Miner can be uploaded into QDA Miner because this is the tool that we may use for further coding and analysis.
- Coding must be “multi-layered,” i.e., a single word or phrase might have multiple codes assigned to it.
- Need to incorporate a process to estimate the validity of the automated coding
 - Process used by Madera, Hebl & Martin (2009), as specified in Footnote 2, page 1593:

“Despite the published evidence for the validity of the LIWC program (e.g., Pennebaker & Francis, 1996; Pennebaker et al., 2001; Pennebaker & King, 1999), we further validated our LIWC measures with three coders (who were unaware of the hypotheses) who rated the extent to which letter writers described the applicants as communal and agentic. More specifically, the coders used a 9-point scale (1 = not at all to 9 = very much) to respond to the following two questions: “To what extent was the applicant described as agentic (assertive, independent, aggressive)?” and “To what extent was the applicant described as communal (kind, nurturing, caring)?” The coders were provided with the definition and examples of agency and communal descriptors. The coders’ ratings of agentic description were significantly related to agentic adjectives ($r = .17, p < .05$) and agentic orientation ($r = .12, p < .05$). Similarly, the coders’ ratings of communal description were significantly related to communal adjectives ($r = .19, p < .05$) and social-communal orientation ($r = .12, p < .05$).

Sample of Letters:

- Coding will focus on letters uploaded as part of completed applications for non-clinical faculty positions.
- Subsample of machine-coded documents will need to be hand-checked for coding reliability

Dictionaries:

masculine/feminine (from Gaucher et al. 2011)

(Note: The asterisk denotes the acceptance of all letters, hyphens, or numbers following its appearance.)

Masculine:

Active	Decisive	Lead*
Adventurous	Decision*	Logic
Aggress*	Determin*	Masculine
Ambitio*	Dominant	Objective
Analy*	Domina*	Opinion
Assert*	Force*	Outspoken
Athlet*	Greedy	Persist
Autonom*	Headstrong	Principle*
Boast*	Hierarch*	Reckless
Challeng*	Hostil*	Stubborn
Compet*	Impulsive	Superior
Confident*	Independen*	Self-confiden*
Courag*	Individual*	Self-sufficien*
Decide	Intellect*	Self-relian*

Feminine:

Affectionate	Gentle	Respon*
Child*	Honest	Sensitiv*
Cheer*	Interpersonal	Submissive
Commit*	Interdependen*	Support*
Communal	Interpersona*	Sympath*
Compassion*	Kind	Tender*
Connect*	Kinship	Together*
Considerate	Loyal*	Trust*
Cooperat*	Modesty	Understand*
Depend*	Nag	Warm*
Emotiona*	Nurtur*	Whin*
Empath*	Pleasant*	Yield*

Feminine
Flatterable

Polite
Quiet*

Agency/communal (from Madera, Hebl & Martin 2009) :

Agentic orientation:

aggress*
ambitious
dominant
forceful
independent
daring
compet*
influence*
initiat*
active
direct*
suggest*
organize*
lead*
mastery

power
outspoken
intellectual
bold
manage*
assurance
assertive
control*confident
sure
success
Achievement
force*
strength
hardworking
conscientious

originat*
start*
blunt
candid
forthright
frank
rational
noetic
dynamic
produce*
persever*
reliable
assiduous

Communal orientation:

concern*
affectionate
helpful
kind
sympathetic
sensitive
nurtur*
gentle
tentative*
accept*
support*
interpersonal*
intima*
union

solidarity
communal
connect*
passive
submissive
warm
agreeable*
emotion*
caring
responsive
tactful
considerate
care*
refer*

relate*
worry
fond
tender
assist*
cooperate*
tolera*
genial
likable
likeable
feeling*
sympath*
accepting

Ability: (from Schmader, et al. 2007)

talent*
intell*
smart*
skill*
ability
genius
brilliant*
bright*
brain*
aptitude

gift*capacity
propensity
innate
flair
knack
clever*
expert*
proficient*
capable
adept*

able
competent
natural*
inherent*
instinct*
adroit*
creative*
insight*
analytical

Grindstone adjectives: (from Schmader, et al. 2007; Trix & Psenka 2003)

hardworking
conscientious
depend*
meticulous
thorough
diligen*
dedicate

careful
reliab*
effort*assiduous
trust*
responsib*
methodical
industrious

busy
work*
persist*
organiz*
disciplined

Superlatives/extreme modifiers: (from Schmader, et al. 2007; Trix & Psenka 2003)

Standout adjectives:

excellen*
superb

*est
most

remarkable
extraordinar*

outstanding
unique
exceptional
unparalleled

wonderful
terrific*
fabulous
magnificent

amazing
supreme*
unmatched

Teaching: (from Schmader, et al. 2007)

teach
instruct
educat*
train*
mentor
supervis*
adviser

counselor
syllabus
course*
class
service
colleague

citizen
communicate*
lectur*
student*
present*
rapport

Research: (from Schmader, et al. 2007)

research*
data
study
studies
experiment*
scholarship
test*
result*

finding*
publication*
publish*
vita*
method*
scien*
grant*

fund*
manuscript*
project*
journal*
theor*
discover*
contribution*

Possessive pronouns and possessives:

*'s
First person:
my
mine
our
ours
Second person:
your
yours

Third person masculine:
his
Third person feminine:
Her
Third person neuter:
its
Third person plural:
their
theirs

Power: (LIWC 2015 83)

a-list*
above
acclaimed
administr*
age
allow*
amateur*
ambition
ambitions
ambitious
apolog*
apprentic*
approv*
armies
army
asham*
assault*
assertive
attack*
attendant
authorit*
authorize
battl*
beat

delegated
delegates
delegating
delegation
demand*
demean*
denied
denies
deny
denying
dependent
destroy*
destruction
dictate
dictator*
dignitaries
dignitary
director*
disadvantag*
disciple*
disgrac*
dishonor*
disreput*
doctor*

intern
invade
invader
invades
invading
invasion
jd
judge
judged
judgement
judges
judging
junior*
justice*
kid
kid'*
king
king's
kingl*
kingpin
kings
lackey
landlord*
large

obeying
obeys
officehold*
officer*
official*
oppose*
oppositi*
order
orders
outcast
outrank*
over
overpower*
overrul*
owner*
pariah*
parliament*
passiv*
pathetic
pathetically
patriarch*
peasant*
peon*
permiss*

ses
sexploit*
shame*
sir
slave*
small
smaller
smallest
snob*
soldier
soldiers
sovereign*
spearhead*
sr
sra
staff*
status
strength*
strong
stronger
strongest
strongly
struggl*
student*

beaten	domina*	larger	permit*	subjugate*
beating	doofus	largest	persua*	submissive*
beats	down	law*	phd*	submit*
beg	dr	lead	pilot*	subordinat*
beggar*	drs	leader*	pitable	subserv*
begged	dufus	leading	pitied	subvers*
begging	dummy	leads	pities	subvert*
beginner	education	lend	pitiful	superior
begs	ego	lending	pitifully	superiority
below	elit*	lends	pity*	superiors
best	employee*	lil	plead*	superstar*
big	employer*	lil'	pledge	supervis*
bigger	enorm*	littler	polic*	suppress*
biggest	enslav*	littlest	politic*	surrender*
boss	exec	loan*	poor	taught
bossed	executive*	lord*	poorer	teach*
bosses	expert*	loser*	poorest	teen
bossy	exploit	low	poorhouse*	teenage*
bottom	fail*	lower	poorly	terror*
bullies	fame	lowered	poorness*	threat*
bully	famous	lowering	poverty*	throne*
bum	famously	lowers	power	tinier
bums	first-class	lowest	powerful	tiniest
campaign*	follower*	lowli*	powerfully	tiny
captain	forbade	lowly	powerless*	top
captive*	forbid	ma'am	powers	unaccept*
caretaker	forbidden	maam	predator*	under
cash	forbids	madam	presiden*	underclass*
caste	force*	madame*	prestig*	underdog*
celebrities	frail*	maid	prey	underling*
celebrity	freshm*	maid's	priest*	underprivileg*
ceo*	glori*	maids	principal	unimportant
cfo*	glory	mam	prison*	unqualified
chairm*	god	manage	privileg*	unwanted
chairperson	god's	manageabl*	probation*	up
chairw*	goddess*	managed	prof	upper
champ*	good-for-nothing	management*	professor*	upperclass*
charisma	govern*	manager*	profs	useless
cheap	greatest	manages	prominen*	vanquish*
cheaper*	greatness	managing	punish*	verb
cheaper	greed*	manipulat*	puny	veteran*
cheapest	grown-up*	massive	pushy	victim*
chief*	grownup*	master	queen	victor*
child	help	mastered	queen's	vip
child'*	helper*	masterful	queens	vp*
children*	helpless*	mastering	rabbi	vulnerab*
coach*	hierarch*	mastermind	rabbinal	war
command*	high	masters	rank	warfare*
compet*	high-ranking	mastery	rebel*	warred
compliance	higher	matriarch*	refus*	warring
compliant	highest	meek*	regulat*	wars
complied	highness	menial	reign*	weak
complies	hired	mentor*	reject*	weaken
comply*	hobo*	mighty	request*	weakened
condemn*	homeless*	militant	resist*	weakening
confidence	honor*	military	respect	weakens
confident	honour*	minion*	respected	weaker
confidently	hopeless*	minister*	respectful	weakest
conform	huge	minor	respectfully	weakling
conformity	huger	missus	respecting	weakly
congress*	hugest	mister	respects	weakness*
conquer*	humble	monarch*	revolution*	wealth
conquest*	humbler	monopol*	rich	wealthier
control*	humblest	moron*	richer	wealthiest

cop	humiliat*	mr	riches	wealthy
cops	ignorant	mrs	richest	weenie*
coup	important	ms	ringleader*	well-known
coward*	incapab*	mutin*	rookie*	wimp*
criminal*	incompeten*	mvp*	royal	win
crook	infallib*	n00b	royalty	winn*
crooks	infamous	nann*	rule	wins
crown*	inferior	newbie*	ruler	wise
crushed	inferiority	newcomer*	rules	worker*
crushing	inferiors	nominat*	ruling	world-class
deadbeat	influenc*	noob	scum*	worship*
dean*	influential	novice	senat*	worthless
defeat*	insecur*	obedience	senior*	wuss
defenseless	insignificant	obedient	senor	wussy
degrad*	inspector	obey	senora	
delegate		obeyed	servant*	

Communication: (LIWC 2001 32)

admit	confides	expressing	listen	rumor*
admits	confiding	feud*	listened	rumour*
admitted	consult*	fight	listening	said
admitting	contact*	fighting	listens	say*
advice	contradic*	fights	meet	secret
affair*	convers*	flatter*	meeting*	secrets
apolog*	counsel*	forgiv*	meets	share
argu*	critici*	fought	mention*	Shared
ask	describe	gave	messag*	shares
asked	described	give	met	sharing
asking	describes	given	negotiat*	speak
asks	describing	gives	participat*	speaking
beg*	discl*	giving	persua*	speaks
blam*	discuss*	gossip*hear	phone*	spoke*
call	email*	heard	praise*	suggest*
called	e-mail*	hearing	question	talk
calling	encourag*	hears	questioning	talked
calls	excuse*	hello	questionned	talking
chat*	explain	hi	questions	talks
comment*	explained	inform	reassur*	teas*
communic*	explaining	informs	refus*	telephon*
complain*	explains	insult*	replie*	tell
confess*	express	interact*	reply	telling
confide	expressed	interrup*	request*	tells
confided	expresses	interview*	respond*	told
				welcom*

Achievement: (LIWC 2015 82)

abilit*	conquer*	gain*	overcome	resourceful*
able	conscientious*	glory	overcomes	reward*
accomplish*	create	goal*	overcoming	skill*
ace	created	gpa	overconfiden*	solution*
achievable	creates	honor*	overtak*	solve
achieve*	creating	honour*	perfected	solved
achievi*	creation	ideal*	perfecting	solves
acquir*	creations	importance	perfection	solving
acquisition*	creative	improve*	perfectly	strateg*
actualiz*	creativity	improving	perfects	striv*
adequa*	defeat*	inadequa*	persever*	succeed*
advanc*	demot*	incapab*	persist*	success
advantag*	determina*	incentive*	plan	successes
ahead	determined	incompeten*	planned	successful
ambition	diligen*	ineffect*	planning	successfully
ambitions	domina*	initiat*	plans	super

ambitious	driven	irresponsible*	potential*	superb*
ambitiously	dropout*	lazier	powerful	surpass*
ambitiousness	earn	laziest	powerless*	surviv*
attain	earned	lazy	practice	team*
attainable	earning	lead	practiced	top
attained	earns	leader*	practices	tried
attaining	efficien*	leading	practicing	tries
attainment	effort*	leads	prais*	triumph*
attains	elit*	limit*	pride	try
authorit*	emptier	lose	prize*	trying
award*	emptiest	loser*	proficien*	unable
beat	emptiness	loses	progress	unbeat*
beaten	empty	losing	promot*	unproduc*
best	enabl*	loss*	proud	unsuccessful*
better	endeav*	lost	prouder	victor*
bonus*	excel	mastered	proudest	win
burnout*	excellent	mastery	proudly	winn*
capab*	excels	medal*	purpose*	wins
celebrat*	fail*	mediocr*	queen	won
challeng*	finaliz*	motiv*	quit	work
champ*	first	obtain	quitt*	workabl*
cheat*	firsts	obtainable	rank	worked
climb*	flunk*	obtained	ranked	worker*
compet*	founded	obtaining	ranking	working
confidence	founder*	obtains	ranks	works
confident	founding	opportun*	recover*	
confidently	fulfill*	overcame	resolv*	

Certainty: (LIWC 2015 55)

absolute	confidently	fact	necessari*	purest
absolutely	correct*	facts	necessary	purity
accura*	defined	factual*	never	specific
all	definite	forever	nothing	specifically
altogether	definitely	frankly	nowhere	specifics
always	definitive*	fundamental	obvious	sure*
apparent	directly	fundamentalis*	obviously	total
assur*	distinct*	fundamentally	particularly	totally
blatant*	entire*	fundamentals	perfection	true
certain*	especially	guarant*	perfectly	truest
clear	essential	implicit*	perfects	truly
clearly	ever	indeed	positive	truth*
commit	every	inevitab*	positively	unambigu*
commitment*	everybod*	infallib*	positives	undeniab*
commits	everyday	invariab*	positivi*	undoubt*
committed	everyone*	irrefu*	precis*	unquestion*
committing	everything*	must	promise*	visibly
complete	everytime	must'nt	proof	wholly
completed	everywhere*	must've	prove*	perfect
completely	evident*	mustn't	proving	perfected
completes	exact*	mustnt	pure	perfecting
confidence	explicit*	mustve	purely	
confident	extremely	namely	pureness	

Tentative: (LIWC 2015 54)

allot	depends	lotof	puzzl*	supposing
almost	disorient*	lots	question	supposition*
alot	doubt*	lotsa	questioned	tempora*
ambigu*	dubious*	lotta	questioning	tentativ*
any	dunno	luck	questions	theor*
anybod*	fairly	lucked	quite	try
anyhow	feasible	luckier	random	trying

anyone*	fuzz*	luckiest	randomly	tryna
anything	generally	luckily	randomness	typically
anytime	guess	lucky	s'pose	uncertain*
anywhere	guessed	mainly	seem	unclear*
apparently	guesses	marginal*	seemed	undecided*
appear	guessing	may	seeming*	undetermin*
appeared	half-ass*	maybe	seems	unknowing
appearing	halfass*	might	shaky	unknowingly
appears	hardly	might've	skeptic*	unknown
apprehens*	hazy	mightve	some	unlikel*
approximat*	hesita*	most	somebod*	unresolv*
arbitrar*	hope	mostly	someday	unsettl*
assum*	hoped	myster*	somehow	unsure*
barely	hopeful	nearly	someone*	usually
bet	hopefully	obscur*	something*	vague
bets	hopes	occasional*	sometime	vaguely
betting	hoping	often	sometimes	vagueness
blur*	hypothes*	opinion	somewhat	vaguer
border*	hypothetic*	option*	somewhere	vaguest
chance	if	or	sort	variab*
confuse	incomplet*	overall	sorta	varies
confused	indecis*	partly	sortof	vary
confuses	indefinit*	perhaps	sorts	virtually
confusing	indirect*	possib*	sortsa	wonder
confusion*	kind of	potential*	spose	wondered
contingen*	kinda	practically	suppose	wondering
depend	kindof	pretty	supposed	wonders
depended	likel*	probab*	supposedly	
depending	lot	prolly	supposes	

Reward: (LIWC 2015 84)

access*	bets	excite	obtaining	steal*
accrue*	better	excited	obtains	stole
accumul*	betting	excitedly	opportun*	succeed*
achievable	bold	excitement	optimal*	success
achieve*	bonus*	exciting	optimism	successes
achievi*	confidence	fearless*	optimistic	successful
acquir*	confident	fulfill*	perfect	successfully
add	confidently	gain*	perfected	surpass*
added	crave	get	perfecting	take
adding	craving	gets	perfection	taken
adds	dare	getting	perfectly	takes
advanc*	dared	goal*	plus	taking
advantag*	dares	good	ipositive	took
adventur*	daring	got	positively	triumph*
amass*	desir*	gotten	positives	victor*
approach	eager	great	positivi*	wager
approached	eagerly	greed*	prize*	wagered
approaches	eagerness	nvigor*	profit*	wagering
approaching	earn	jackpot*	promot*	wagers
award*	earned	luck	reward*	willing
benefit	earning	lucky	score*	win
benefits	earnings	obtain	scoring	winn*
best	earns	obtainable	seize*	wins
bet	enthus*	obtained	snag*	won

Negate: (LIWC 2015 15)

ain't	don't	mustnt	nope	shouldn't
aint	dont	nah*	nor	shouldnt
aren't	hadn't	need'nt	not	uh-uh
arent	hadnt	needn't	nothing	wasn't

can't	hasn't	neednt	nowhere	wasnt
cannot	hasnt	negat*	np	weren't
cant	haven't	neither	ought'nt	werent
couldn't	havent	never	oughtn't	without
couldnt	idk	no	oughtnt	won't
didn't	isn't	nobod*	shan't	wont
didnt	isnt	noes	shant	wouldn't
doesn't	must'nt	none	should'nt	wouldnt
doesnt	mustn't			

Compare: (LIWC 2015 22)

after	either	hungriest	plainer	straighter
alike	emptier	identical	plainest	straightest
angrier	emptiest	lamer	poorer	strangest
angriest	equal*	lamest	poorest	stricter
as	equival*	larger	prettier	strictest
awesomer	fairer	largest	prettiest	stronger
awesomest	fairest	later	prouder	strongest
awfulest	farther	latest	proudest	stupider
before	farthest	lazier	purser	stupidest
best	faster	laziest	purest	sunnier
better	fastest	least	pushier	sunniest
bigger	fatter	less	pushiest	sweeter
biggest	fattest	lighter	quicker	sweetest
bolder	fattier	lightest	quickest	taller
boldest	fattiest	like	quieter	tallest
bottom	fewer	littler	quietest	tastier
braver	fewest	littlest	rarer	tastiest
bravest	finer	lonelier	rarest	than
brighter	finest	loneliest	recent*	thinner
brightest	former	longer	richer	thinnest
broad	formerly	longest	richest	thrifter
broadest	fresher	looser	rougher	thriftiest
busier	freshest	loosest	roughest	tighter
busiest	friendlier	louder	rounder	tightest
calmer	friendliest	loudest	roundest	tinier
calmest	fuller	lovelier	sadder	tiniest
cheaper	fullest	loveliest	saddest	top
cheapest	funner	lower	safer	tougher
cleaner	funnest	lowest	safest	toughest
cleanest	funnier	luckier	same	trickier
closer	funniest	luckiest	scarcer	trickiest
closest	further	madder	scarcest	truer
colder	furthest	maddest	scarier	truest
coldest	gayer	meaner	scariest	uglier
compar*	gayest	meanest	sexier	ugliest
cooler	gentler	messier	sexiest	unique
coolest	gentlest	messiest	shadier	vaguer
crazier	gloomier	middle	shadiest	vaguest
craziest	gloomiest	milder	shorter	variety
creepier	greater	mildest	shortest	various
creepiest	greatest	mo	sicker	warmer
crueler	grosser	mo'	sickest	warmest
cruellest	grossest	more	sillier	weaker
cuter	guiltier	most	silliest	weakest
cutest	guiltiest	narrower	similar*	wealthier
danker	handsomest	narrowest	simpler	wealthiest
dankest	happier	nearer	simplest	weirder
darker	happiest	nearest	skinnier	weirdest
darkest	harder	neater	skinniest	wetter
deeper	hardest	neatest	sleepier	wettest
deepest	healthier	neither	sleepiest	wider
difference*	healthiest	newer	slower	widest

different	heavie*	newest	slowest	wilder
dirtier	higher	nicer	smaller	wildest
dirtiest	highest	nicest	smallest	wiser
dissimil*	holier	noisier	smarter	wisest
drier	holiest	Noisiest	smartest	wittier
driest	hotter	odder	softer	wittiest
dumber	hottest	oddest	softest	worse
dumbest	huger	older	sooner	worst
earlier	hugest	oldest	soonest	younger
earliest	humbler	particular	stiffer	youngest
easier	humblest	pettier	stiffest	
easiest	hungrier	pettiest		

posemo: (LIWC 2015 31 31)

accept	devot*	handsomely	merr*	stronger
accepta*	dignified	handsomest	neat	strongest
accepted	dignifies	happier	neater	strongly
accepting	dignifying	happiest	neatest	succeed*
accepts	dignity	happily	neatness	success
active	divin*	happiness	nice	successes
actively	eager	happy	nicely	successful
admir*	eagerly	harmon*	niceness*	successfully
ador*	eagerness	heal	nicer	sunnier
advantag*	ease*	healed	nicest	sunniest
adventur*	easier	healer*	niceties	sunny
affection*	easiest	healing	nurtur*	sunshin*
agree	easily	heals	ok	super
agreeable	easiness	healthy	okay	superb*
agreeableness	easing	heartfelt	okayed	superior
agreeably	easy*	heartwarm*	okays	support
agreed	ecsta*	heaven*	okey*	supported
agreeing	elegan*	heh*	oks	supporter*
agreement*	encourag*	helper*	open-minded*	supporting
agrees	energ*	helpful	openminded*	supportive
alright*	engag*	helpfully	openness	supports
amaze*	enjoy*	helpfulness	opportun*	suprem*
amazing	entertain*	helping	optimal*	sure*
amazingly	enthus*	helps	optimism	surprise
amor*	excel	hero	optimistic	surprised*
amus*	excelled	hero's	original	surprising*
aok	excellence	heroes	outgoing	sweet
appreciat*	excellent	heroic*	paradise*	sweeter
approv*	excellently	heroine*	partie*	sweetest
assur*	excelling	heroism	party*	sweetheart*
attract	excels	hilarious	passion*	sweetie*
attracted	excite	hoho*	peace	sweetly
attracting	excited	honest	peaceful	sweetness*
attraction	excitedly	honestly	peacefully	sweets
attracts	excitement	honesty	peacekeep*	talent*
award*	exciting	honor*	peacemak*	teehe*
awesome	fab	honour*	perfect	tender
beautiful	fabulous	hooray	perfected	tenderly
beautify	fabulously	hope	perfecting	terrific
beauty	fabulousness	hoped	perfection	terrifically
beloved	fair	hopeful	perfectly	thank
benefic*	fairer	hopefully	play	thanked
benefit	fairest	hopes	played	thankful
benefits	faith*	hoping	playful	thankfully
benefitt*	fantasi*	hug	playfully	thanking
benevolen*	fantastic	hugg*	playfulness	thanks
best	fantastical	hugs	playing	thanx
bestest	fantastically	humor*	plays	thnx
bestie	fantasy	humour*	pleasant*	thoughtful*

besties	fav	hurra*	please*	thrill*
better	fave	ideal*	pleasing	thx
bless*	favor	ily*	pleasur*	toleran*
bliss*	favoring	importance	polite	tranquil*
bold	favorite	important	politely	treasur*
bolder	favours	importantly	popular	treat
boldest	favour*	impress*	populari*	triumph*
boldly	fearless*	improve*	positive	true
bonus*	festiv*	improving	positively	truer
brave	fiesta*	incentive*	positives	truest
braved	fine	innocen*	positivi*	truly
braver	finer	inspir*	prais*	trust
bravery	finest	intellect*	precious*	trusted
braves	flatter*	intelligence	prettier	trusting
bravest	flawless*	intelligent	prettiest	trusts
bright	flexib*	interest	pretty	trustworthiness
brilliance*	flirt	interested	pride	trustworthy
brilliant	flirtatious	interesting	privileg*	trusty
brilliantly	flirting	interests	prize*	truth*
calm	flirts	invigor*	profit*	ty
calmer	flirty	joke*	promise*	upbeat
calmest	fond	joking	promising	useful
calming	fondly	jolly	proud	usefully
care	fondness	joy*	prouder	usefulness
cared	forgave	keen*	proudest	valuabl*
carefree	forgiv*	kidding	proudly	value
cares	fortunately	kind	radian*	valued
caring	free	kindly	readiness	values
certain*	free-think*	kindn*	ready	valuing
challeng*	freed*	kiss*	reassur*	vigor*
champ*	freeing	laidback	rein vigor*	vigour*
charit*	freely	laugh*	rejoice*	virtue*
charm*	frees*	legit	relax*	virtuo*
cheer	freethink*	libert*	relief	vital*
cheerful	fun	to like	reliev*	warm
cheers	funner	(i) like*	resolv*	warmed
cheery	funnest	(you) like*	respect	warmer
cherish*	funnier	(we) like*	respected	warmest
chuckl*	funnies	(they) like*	respectful	warming
clever	funniest	(do) like	respectfully	warmly
comed*	funnily	(don't) like	respecting	warms
comfort	funniness	(did) like	reward*	warmth
comfortable	funny	(didn't) like	rich	wealth
comfortably	genero*	(will) like	richer	wealthier
comforting	gentle	(won't) like	riches	wealthiest
comforts	gentler	(does) like	richest	wealthy
compassion*	gentlest	(doesn't) like	rofi*	welcom*
compliment*	gently	(did not) like	romanc*	well
confidence	giggl*	(will not) like	romantic*	wellbeing
confident	giver*	(do not) like	safe	wellness
confidently	giving	(does not) like	safely	win
considerate	glad	(would not) like	safer	winn*
contented*	gladly	(should not) like	safest	wins
contentment	glamor*	(could not) like	safety	wisdom
cool	glamour*	(discrep) like*	satisf*	wise
courag*	glori*	likeab*	save	wisely
create	glory	liked	scrumptious*	wiser
created	good	likes	secur*	wisest
creates	goodness	liking	sentimental*	won
creating	gorgeous	livel*	sexy	wonderful
creation	gorgeously	lmao*	share	wonderfully
creations	gorgeousness	lmfao*	shared	worship*
creative	grace	lol	shares	worthwhile
creativity	graced	love	sharing	wow*

credit*	graceful*	loved	sillier	yay*
cute	graces	lovelier	silliest	yum
cuter	graci*	loveliest	silly	yummy
cutest	grand	lovely	sincer*	
cutie*	grande*	lover*	smart	
daring	gratef*	loves	smarter	
darlin*	grati*	loving*	smartest	
dear	great	loyal	smartly	
dearly	greater	loyalt*	smil*	
decent	greatest	luck	sociability	
definitely	greatness	lucked	sociable	
delectabl*	grin	luckier	soulmate*	
delicate*	grinn*	luckiest	special	
delicious*	grins	luckily	splendid	
deligh*	ha	lucky	splendidly	
desir*	hah	luv	splendor	
determina*	haha*	magnific*	strength*	
determined	handsome	merit*	strong	

negemo: (LIWC 2015 32)

abandon*	dislike	horrible	pest*	tears
abuse*	disliked	horribly	petrif*	teas*
abusi*	dislikes	horrid*	pettier	tedious
ache*	disliking	horror*	pettiest	temper
aching*	dismay*	hostil*	petty	tempers
advers*	disreput*	humiliat*	phobi*	tense
afraid	diss	hungover	phony	tensely
aggravat*	dissatisf*	hurt*	piss*	tensing
aggress	distraught	idiot*	pitable	tension*
aggressed	distress*	ignorable	pitied	terrible
aggesses	distrust*	ignoramus	pities	terribly
aggressing	disturb*	ignorant	pitiful	terrified
aggression*	domina*	ignore	pitifully	terrifies
aggressive	doom*	ignored	pity*	terrify
aggressively	dork*	ignores	poison*	terrifying
aggressor*	doubt*	ignoring	poor	terror*
agitat*	dread*	immoral*	poorer	thief
agoniz*	dull	impatien*	poorest	thiev*
agony	dumb	impersonal	poorly	threat*
alarm*	dumbass*	impolite*	poorness*	timid*
alone	dumber	inadequa*	powerless*	tortur*
anger*	dumbest	incompeten*	prejudic*	traged*
angrier	dummy	indecis*	pressur*	tragically
angriest	dump*	ineffect*	prick*	tragic
angry	dwel*	inferior	problem*	trauma*
anguish*	egotis*	inferiority	protest	trembl*
annoy	embarrass*	inhibit*	protested	trick
annoyed	emotional	insecur*	protesting	tricked
annoying	emptier	insincer*	protests	trickier
annoys	emptiest	insult*	puk*	trickiest
antagoni*	emptiness	interrup*	punish*	tricks
anxiety	empty	intimidat*	pushy	tricky
anxious	enemie*	irrational*	queas*	trite
anxiously	enemy*	irrita*	rage*	trivial
anxiousness	enrag*	isolat*	raging	troubl*
apath*	envie*	jaded	rancid*	turmoil
appall*	envious	jealous	rape*	twitchy
apprehens*	envy*	jealousies	raping	ugh
argh*	evil	jealously	rapist*	uglier
argu*	excruciat*	jealousy	rebel*	ugliest
arrogan*	exhaust*	jerk	reek*	ugly
asham*	fail*	jerked	regret*	unaccept*
assault*	fake	jerks	reject*	unattractive

asshole*	fatal*	kill*	reluctan*	uncertain*
attack*	fatigu*	lame	remorse*	uncomfortabl*
aversi*	fault*	lamely	repress*	uncontrol*
avoid*	fear	lameness	resent*	undesir*
awful	feared	lamer	resign*	uneas*
awkward	fearful*	lamest	restless*	unfair
bad	fearing	lazier	revenge*	unfortunate*
badly	fears	laziest	ridicul*	unfriendly
bashful*	feroc*	lazy	rigid	ungrateful*
bastard*	feud*	liabilit*	rigidity	unhapp*
battl*	fiery	liar*	rigidly	unimportant
beaten	fight*	lied	risk*	unimpress*
bereave*	fired	lies	rotten	unkind
bitch*	flunk*	lone	rude	unlov*
bitter	foe*	lonelier	rudely	unlucky
bitterly	fool	loneliest	ruin*	unpleasant
bitterness	fooled	loneliness	sad	unprotected
blam*	fooling	lonely	sadder	unsafe
bore*	foolish	loner*	saddest	unsavory
boring	foolishly	longing*	sadly	unsettl*
bother*	fools	lose	sadness	unsuccessful*
broke	forbade	loser*	sarcas*	unsure*
brutal*	forbid	loses	savage*	unwelcom*
burden*	forbidden	losing	scare	upset
careless*	forbidding	loss*	scared	upsets
cheat*	forbids	lost	scares	upsetting
coldly	fought	lous*	scarier	uptight*
complain*	frantic*	loveless	scariest	useless
condemn*	freak*	low	scaring	uselessly
confront*	fright*	lower	scary	uselessness
confuse	frustrat*	lowered	sceptic*	vain
confused	fuck	lowering	scream*	vanity
confusedly	fucked*	lowers	screw*	vicious
confusing	fucker*	lowest	selfish*	viciously
contempt*	fuckface*	lowli*	serious	viciousness
contradic*	fuckh*	lowly	seriously	victim*
crap	fuckin*	luckless*	seriousness	vile
crappy	fucks	ludicrous*	severe*	villain*
crazy	fucktard	lying	shake*	violat*
cried	fucktwat*	mad	shaki*	violence
cries	fuckwad*	maddening*	shaky	violent
critical	fume*	madder	shame*	violently
critici*	fuming	maddest	shit*	vomit*
crude	furious*	maniac*	shock*	vulnerab*
crudely	fury	masochis*	shook	war
cruel	geek*	meaner	shy	warfare*
crueler	gloom	meanest	shyly	warn*
cruellest	gloomier	melanchol*	shyness	warred
cruelty	gloomiest	mess	sick	warring
crushed	gloomily	messier	sicken*	wars
cry	gloominess	messiest	sicker	weak
crying	gloomy	messy	sickest	weaken
cunt*	goddam*	miser*	sickly	weakened
curse	good-for-nothi	miss	sigh	weakening
cut	ng	missed	sighed	weakens
cynic*	gossip*	misses	sighing	weaker
damag*	grave*	missing	sighs	weakest
damn*	greed*	mistak*	sin	weakling
danger	grief	mock	sinister	weakly
dangerous	griev*	mocked	sins	weapon*
dangerously	grim	mocked*	slut*	weary
dangers	grimac*	mocking	smh	weep*
daze*	grimly	mocks	smother*	weird
decay*	gross	molest*	smug*	weirded

deceptive	grossed	mooch*	snob*	weirder
deceiv*	grosser	moodi*	sob	weirdest
defeat*	grossest	moody	sobbed	weirdly
defect*	grossing	moron*	sobbing	weirdness
defenc*	grossly	mourn*	sobs	weirdo
defend*	grossness	murder*	solemn*	weirdos
defense	grouch*	nag*	sorrow*	weirds
defenseless	grr*	nast*	sorry	wept
defensive	grudg*	needy	spite*	whine*
defensively	guilt	neglect*	stale	whining
defensiveness	guilt-trip*	nerd*	stammer*	whore*
degrad*	guiltier	nervous	stank*	wicked
demean*	guiltiest	nervously	startl*	wickedly
demot*	guilty	nervousness	steal*	wimp*
denial	hangover*	neurotic*	stench*	witch*
depress*	harass*	nightmar*	stink	woe*
depriv*	harm	numbed	stinky	worried
despair*	harmed	numbing	strain*	worrier
desperat*	harmful	numbness	strange	worries
despis*	harmfully	numbs	strangest	worry
destroy*	harmfulness	obnoxious*	stress*	worrying
destruct	harming	obsess*	struggl*	worse
destructured	harms	offence*	stubborn*	worsen
destruction	harsh	offend*	stunk	worsened
destructive	hate	offense	stupid	worsening
destructiveness	hated	offenses	stupider	worsens
devastat*	hateful*	offensive	stupidest	worst
devil*	hater*	outrag*	stupidity	worthless
difficult	hates	overwhelm*	stupidly	wrong
difficulties	hating	pain	stutter*	wrongdoing
difficulty	hatred	pained	suck	wronged
disadvantag*	haunted	painf*	sucked	wrongful
disagree*	hazard*	pains	sucker*	wrongly
disappoint*	heartbreak*	panic*	sucks	wrongness
disaster*	heartbroke*	paranoi*	sucky	wrongs
discomfort*	heartless*	pathetic	suffer	yearn*
discourag*	hell	pathetically	suffered	yell
disgrac*	hellish	peculiar*	sufferer*	yelled
disgust*	helpless*	perv	suffering	yelling
dishearthen*	hesita*	perv*	suffers	yells
dishonor*	homesick*	pervy	suspicio*	yuck
disillusion*	hopeless*	pessimis*	tantrum*	

social: (LIWC 2015 40)

accomplice*	divorc*	helping	mothered	sons
acquainta*	duchess*	helps	motherhood	sororit*
admit	dude*	her	mothering	soulmate*
admits	duke*	heroine*	motherl*	speak
admitted	e-mail	hers	mothers	speaking
admitting	e-mailed	herself	mr	speaks
adult	e-mailing	hes	mrs	spoke*
adults	e-mails	hey	ms	spous*
advice	email	hi	mum	squad*
advis*	emailed	him	mum's	step-child*
affair*	emailing	himself	mummy*	step-dad*
ally	emails	hipster	mums	step-dau*
amigo*	embarrass*	his	name	step-fath*
anonymous*	encourag*	hissel*	names	step-kid*
anybod*	enemie*	homie	nana	step-moth*
anyone*	enemy*	honey	nana's	step-son*
apolog*	engag*	honeymoon*	nanas	stepchild*
approachable	everybod*	hostil*	nann*	stepdad*
argu*	everyone*	hottie	negotiat*	stepdau*

armies	everything*	househusband	neighbor*	stepfath*
army	ex	*	neighbour*	stepkid*
ask	ex-bf*	housewi*	nephew*	stepmoth*
asked	ex-boyfriend*	hubby	newborn*	stepson
asking	ex-gf*	hug	niece*	stories
asks	ex-girlfriend*	human*	offer*	story
assembl*	exbf*	husband*	oomf	sugardadd*
aunt*	exboy*	impersonal	our	sugarmam*
awkward	excus*	impolite*	ours	sugarmom*
awkwardness	exes	impress*	ourselves	suggest*
babe*	exgf*	in-law*	outsider*	sweetheart*
babies	exgirl*	individual*	overhear*	sweetie*
baby	exhusb*	infant	owner*	sympath*
bachelor	explain	infant's	pa	talk
bachelor'*	explained	infants*	pa's	talkative
bachelorette	explaining	inform	pal	talked
bachelors	explains	informed	pal's	talker*
bae	express*	informing	pals	talking
band	exwife*	informs	papa	talks
bands	exwife*	inlaw*	papa's	team*
banter*	facebook	inquir*	papas	teas*
bb	fam	instagram	pappy	teen
bby	families	insult*	pappy's	teenage*
bcc	family	interact*	parent*	telephon*
beau	farewell	interpersonal*	participant*	tell
beloved	father*	interrup*	participat*	telling
bestfriend*	fb	interview*	partie*	tells
bestie	fella	involv*	partner*	texted
besties	fellow	kegger*	party*	texting
bf	fellow's	kid	paternal	thee
bf's	fellows	kid'*	paternity	their*
bff*	fellowship*	kidding	patriarch*	them
bfs	female	kids*	peeps	themselves
blam*	females	kik	people*	they
boi	feminine	kin	person	they'd
boy	femininity	king	person's	they'll
boy's	femme*	king's	personal	they're
boyfriend*	feud*	kingl*	persons	they've
boyhood	fiance	kings	persua*	theyd
boyish	fiance's	knight*	phone*	theyll
boys	fiancee*	lad	phoning	theyre
breakup	fiances	ladies	playmate*	theyve
bride*	fight*	lady	polite	thine
bro	flatter*	lady's	politely	thou
bro'*	flirt	language*	popular	thoust
bros	flirtatious	lass	posse	thy
brother*	flirted	lassie	ppl*	together
bruh	flirting	leader*	prais*	told
bud	flirts	lesbian*	pregnan*	tomboy*
buddies	flirty	let's	prince	trust
buddy*	foe*	lets	prince'*	trusted
bye	folks	letter	princes	trusting
call	follower*	liar*	princess*	trusts
called	fool	likeab*	private	tweet*
caller*	fooled	listen	prom	twitter
calling	fooling	listened	provide	uncle
calls	fools	listener*	provides	uncle's
cc	forgave	listening	providing	uncles
cced	forgiv*	listens	public	ur
celebrat*	formal	locals	queen	us
chap	forwarded	love	queen's	valentin*
chat*	fought	loved	queens	visit
chick	frenem*	lover*	question	visited
chick'*	friend	loves	reassur*	visiting

chicks	friendlier	loving*	receiv*	visits
child	friendliest	luv	recommend*	we
child'*	friendly	lying	refus*	we'd
children*	friends	ma	relate*	we'll
chit-chat*	fwb	ma'am	relationship*	we're
chitchat*	gal	ma's	relatives	we've
chum	gals	maam	replie*	wed
chums	game*	madam	reply*	wedding*
citizen	gang	madame*	request*	weds
citizen'*	gangs	mademoiselle*	respond*	welcom*
citizens	gather*	maid	role*	wench*
classmate	gave	maid's	roomate*	weve
classmates	genero*	maiden	roomed	who
clique*	gent	maids	roomie*	who'd
co-work*	gentlem*	mail	rooming	who'll
colleague*	gentlewom*	mailed	roommate*	who's
coma*	gents	mailing	rt	whod
comment*	gf*	mails	rumor*	whoever
commun*	girl	male	rumour*	wholl
compadre*	girl's	male's	said	whom
companion*	girlfriend*	males	say	whomever
company	girlh*	mam	saying	whos
compassion*	girli*	mama	says	whose
complain*	girls*	man	schoolboy*	widow*
compliment*	girly	man's	schoolgirl*	wife*
comrad*	give	manly	schoolmate	witch*
confess*	giver*	manners	secret	wive*
confidant*	gives	marriag*	secretive	woman
confide	giving	marrie*	secretively	woman's
confided	goddess*	marry	secretly	womanhood
confides	godfather*	masculine	secrets	womanly
confiding	godmother	masculinity	self	womans
congregat*	godparent	mate	send	women*
consult*	goodbye	mate's	sender	y'all
contact	gossip*	maternal*	sending	y'all's
contacted	gramp*	maternity	sends	ya
contacts	grandchil*	mates	senor	ya'll*
contradic*	granddad*	mating	senora	yall
convers*	granddau*	matriarch*	senorita	yalls
counc*	grandfath*	meet	sent	ye
couns*	grandkid*	meeting*	share	you
courtship	grandm*	meets	shared	you'd
cousin*	grandpa*	member*	shares	you'll
cowboy*	grandson*	men	sharing	you're
cowgirl*	granny	men'*	she	you've
cowork*	greet*	mens	she'd	youd
crew	grl*	mention*	she'll	youll
crowd*	groom'*	message	she's	youngster*
cultur*	group*	messaged	she-*	your
cutie*	grown-up*	messages	shes	youre
dad	grownup*	messaging	shy	yours
dad's	grudg*	met	shyly	yourself
daddies	guest*	milf*	shyness	yourselves
daddy	gurl*	mimi	sibling*	youve
daddy's	guy*	mimi'*	sidekick*	
dads	handshake	mimis	sir	
dame*	hangout*	missus	sis	
damsel*	he	mister	sister*	
dance	he'd	mistres*	sms	
danced	he'll	mock	smsed	
dances	he's	mocked	snapchat*	
dancing	he-*	mocking	snob*	
darlin*	hear	mocks	sociability	
date	heard	mom	sociable	

dating	hearing	mom's	social
daughter*	hears	momma*	socially
dawg*	hello*	mommy*	societ*
dear	help	moms	somebod*
debate	helper*	monsieur	someone*
dilf*	helpful	mooch*	son
disclo*	helpfully	mother	son's
discuss*	helpfulness	mother's	son-in-law*

numbers:

zero	thirty*
one	forty*
two	fifty*
three	sixty*
four*	seventy*
five	eighty*
six*	ninty*
seven*	hundred*
eight*	first
nine	second
ten*	third
eleven*	fourth
twelve*	fifth
thirteen	ninth
fourteen	
fifteen	
sixteen	
seventeen	
eighteen	
nineteen	
twenty*	