

# Word associations and the distance properties of context-aware word embeddings

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## Supplementary materials

### Experiment 2.1

From Tversky and Gati (1978)

List of countries		Updated list of countries	
USA	Mexico	USA	Mexico
USSR	Poland	Russia	Poland
China	Albania	China	Albania
USA	Israel	USA	Israel
Japan	Philippines	Japan	Philippines
USA	Canada	USA	Canada
USSR	Israel	Russia	Israel
England	Ireland	England	Ireland
West Germany	Austria	Germany	Austria
USSR	France	Russia	France
Belgium	Luxembourg	Belgium	Luxembourg
USA	USSR	USA	Russia
China	North Korea	China	North Korea
India	Ceylon	India	Sri Lanka
USA	France	USA	France
USSR	Cuba	Russia	Cuba
England	Jordan	England	Jordan
France	Israel	France	Israel
USA	West Germany	USA	Germany
USSR	Syria	Russia	Syria
France	Algeria	France	Algeria

## Experiment 2.3

### List of hypernym/hyponym (He/Ho) verbs (Nelson et al., 2004)

Hyponym	Hyponym	Hyponym	Hyponym	Hyponym	Hyponym
change	affect	turn	flip	be	seem
surprise	amaze	move	flutter	hurt	shoot
inform	announce	drink	gulp	drink	sip
request	beg	pull	haul	jump	skip
jump	bounce	attach	hitch	move	slide
break	burst	travel	hitchhike	cover	smother
hide	bury	desire	hope	nap	snooze
breathe	choke	move	hustle	understand	solve
throw	chuck	touch	kiss	control	steer
rise	climb	bend	lean	remove	strip
travel	come	walk	limp	try	strive
control	command	sit	lounge	drink	suck
desire	crave	increase	magnify	tell	suggest
hold	cuddle	join	marry	guess	suspect
decrease	decline	control	operate	annoy	tease
change	decorate	beat	overcome	move	throw
leave	depart	beat	overpower	pull	tow
hide	disguise	forgive	pardon	move	tow
reject	disown	throw	pelt	move	transplant
choose	elect	pull	pluck	walk	tread
leave	escape	guess	predict	remove	unload
move	evict	like	prefer	shake	wag
forgive	excuse	watch	preview	inform	warn
tell	express	gather	reap	rub	wipe
attach	fasten	appear	reappear	cover	wrap
leave	flee	move	rearrange		
throw	fling	get	recruit		

**Sample of hypernym/hyponym (He/Ho) nouns** (Nelson et al., 2004)

Hyponym	Hyponym	Hyponym	Hyponym	Hyponym	Hyponym
animal	aardvark	Instrument	compass	animal	primate
athlete	acrobat	feeling	compassion	idea	principle
event	activity	group	conference	gift	prize
person	actor	person	contractor	plan	project
word	adjective	speech	conversation	word	pronoun
person	adult	bottle	flask	christian	protestant
person	adversary	container	flask	fruit	prune
group	agency	insect	flea	fairy	puck
plan	agenda	group	fleet	food	pudding
loyalty	allegiance	bubble	foam	wind	puff
street	alley	cloud	fog	goal	purpose
road	alley	word	form	pen	quill
book	almanac	animal	fox	fur	raccoon
singer	alto	group	fraternity	care	treatment
car	ambulance	crime	fraud	ditch	trench
science	anatomy	animal	frog	group	tribe
alcohol	anisetette	ice	frost	bird	turkey
drug	anisetette	candy	fudge	animal	turtle
joint	ankle	money	fund	tooth	tusk
animal	anteater	anger	fury	storm	typhoon
animal	antelope	hair	fuzz	group	union
remedy	antidote	bird	gander	part	unit
drug	antidote	instrument	gauge	lover	valentine
animal	ape	animal	gazelle	vehicle	van
alcohol	cocktail	man	gentleman	jar	vase
beverage	coffee	science	geology	meat	veal
salad	coleslaw	hole	leak	poison	venom
food	coleslaw	material	leather	cereal	wheat
group	committee	story	legend	liquor	whiskey
organization	committee	group	legion	woman	widow
group	community	fruit	lemon	woman	wife
group	company	car	limousine	animal	zebra

## Experiment 3

From Nelson et al. (2004)

Sample of transitive triples			Sample of intransitive triples		
w1	w2	w3	w1	w2	w3
achievement	grade	work	a	alphabet	school
advice	cramp	pain	abdomen	cramp	muscle
agriculture	land	earth	ability	power	wealth
ambulance	sickness	hospital	baby	adult	father
amount	money	lot	background	painting	brush
boundary	cross	country	case	story	teller
bounty	price	money	cashew	salt	water
burden	stress	work	catastrophe	destruction	war
chili	soup	food	cattle	herd	cow
chine	dish	food	furniture	couch	potato
chore	work	boring	gal	seagull	white
contractor	business	man	galaxy	space	ship
costume	shop	clothes	gang	war	death
creature	dragon	animal	gold	wealth	happiness
crest	waves	water	grade	letter	paper
degree	celsius	heat	grounds	mansion	home
democracy	majority	vote	holder	folder	book
dessert	food	fat	holiness	christian	god
gang	member	friend	home	plate	spoon
gate	door	house	hypothesis	statement	question
gazelle	giraffe	africa	lieutenant	war	pain
lord	prayer	bible	lip	stick	wood
lot	land	ground	male	boy	blue
lovers	two	love	mansion	dracula	blood
mate	marriage	husband	mole	rodent	roach
matter	atom	chemistry	molecule	science	art
mayonnaise	bread	white	month	time	money
moss	plant	tree	monument	cement	house

If you cite these supplementary materials,  
please cite

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## References

Amos Tversky and Itamar Gati. 1978. Studies of similarity. *Cognition and categorization*. Hillsdale, Erlbaum, pages 79–98.

Douglas L Nelson, Cathy L McEvoy, and Thomas A Schreiber. 2004. The University of South Florida free association, rhyme, and word fragment norms. *Behavior Research Methods, Instruments, & Computers*, 36(3):402–407.