Tse & Neely (2007, *Journal of Experimental Psychology: Learning, Memory and Cognition*) Online Addendum

Experiments 1-2 Stimuli – Prime-Target Pairs

Experiment 1 – Asymmetric-related prime, High-frequency target, Strong prime-target association

Prime	Target	Prime	Target
PROBLEM	ANSWER	LENGTH	LONG
TANK	ARMY	ROMANCE	LOVE
PACK	BACK	DESIGN	MAKE
GRAY	BLACK	SOME	MANY
JEANS	BLUE	RUDE	MEAN
DOCK	BOAT	SIMPLE	MIND
HANDLE	CARE	PROFIT	MONEY
STAIR	CASE	MUCH	MORE
VARY	CHANGE	LIPS	MOUTH
ABUSE	CHILD	HARP	MUSIC
MAYOR	CITY	DAILY	NEWS
FROST	COLD	LATE	NIGHT
TOWN	COUNTRY	SERIAL	NUMBER
TRIAL	COURT	GATE	OPEN
SHADOW	DARK	COSTUME	PARTY
CASKET	DEATH	DRAW	PICTURE
GRAVITY	EARTH	SITE	PLACE
SLAP	FACE	PILOT	PLANE
PARENT	FATHER	STEM	PLANT
CAPE	FEAR	PIANO	PLAY
PLOW	FIELD	SQUAD	POLICE
BRAWL	FIGHT	JUST	RIGHT
NAILS	FINGER	ROUTINE	SAME
BLAZE	FIRE	BRIEF	SHORT

Experiment 1 – Asymmetric-related prime, Low-frequency target, Strong prime-target association

Prime	Target	Prime	Target
STOMACH	ACHE	THRONE	KING
FURY	ANGER	TICKLE	LAUGH
ROBE	BATH	LOAF	LAZY
PIGEON	BIRD	LATCH	LOCK
DARING	BRAVE	NOISY	LOUD
STALE	BREAD	SEND	MAIL
FRAGILE	BREAK	THAW	MELT
LUMP	BREAST	SQUEAK	MOUSE
CRUMB	CAKE	TACK	NAIL
MINTS	CANDY	SAILOR	NAVY
SPADE	CARDS	ANXIETY	NERVOUS
STINGY	CHEAP	POLITE	NICE
LIAR	CHEAT	WAVES	OCEAN
MUNCH	CHEW	GROVE	ORANGE
TRENCH	COAT	MONK	PRIEST
CROPS	CORN	FORCE	PUSH
IMPACT	CRASH	DUCKS	QUACK
CHINA	DISH	PRIME	RIBS
MULE	DONKEY	OVAL	ROUND
HEROIN	DRUG	GRAIN	SAND
BLANK	EMPTY	HAUNT	SCARE
FINAL	EXAM	RISE	SHINE
RAPID	FAST	ANCHOR	SHIP
TUNA	FISH	BUCKLE	SHOE

GUEST	FRIEND	PROVE	SHOW	ORCHID	FLOWER	SYMBOL	SIGN
SIDE	FRONT	CIGAR	SMOKE	PARDON	FORGIVE	TARNISH	SILVER
WAGER	GAMBLE	COBRA	SNAKE	SCARY	FRIGHT	GRAFT	SKIN
SCOUT	GIRL	VOICE	SOUND	CROAK	FROG	SNAIL	SLIMY
VANISH	GONE	STORAGE	SPACE	PEAR	FRUIT	WISDOM	SMART
STRAND	HAIR	PHASE	STAGE	COAL	FUEL	PICKLE	SOUR
GLOVE	HAND	POISE	STAND	HOPE	GLORY	CLOVE	SPICE
COMPLEX	HARD	PAUSE	STOP	STUCK	GLUE	TEAM	SPORT
MUST	HAVE	PLOT	STORY	DESTINY	GOAL	FAMOUS	STAR
SCALP	HEAD	BRING	TAKE	SHAME	GUILT	DRUM	STICK
BROKEN	HEART	LOGIC	THINK	PLEAD	GUILTY	PASTE	STICKY
COUNSEL	HELP	SPAN	TIME	RITUAL	HABIT	HAIL	STORM
RETAIN	HOLD	HIKE	WALK	PALM	HAND	FRAY	TEAR
DOMAIN	HOME	HOSE	WATER	WARMTH	HEAT	LEAN	THIN
MARE	HORSE	SINCE	WHEN	MASK	HIDE	THIMBLE	THREAD
LODGE	HOTEL	BLEACH	WHITE	CAPTIVE	HOSTAGE	TREAD	TIRE
CABIN	HOUSE	CORK	WINE	FAMINE	HUNGER	RAIL	TRAIN
THEORY	IDEA	TERM	WORD	SPIDER	INSECT	MELODY	TUNE
SIZE	LARGE	CHORE	WORK	VEST	JACKET	SCAR	UGLY
GUIDE	LEAD	JOURNAL	WRITE	PRANK	JOKE	RINSE	WASH
REALITY	LIFE	FALSE	WRONG	PRUNE	JUICE	GAIN	WEIGHT
BEAM	LIGHT	CENTURY	YEAR	SKIP	JUMP	CURSE	WITCH

Experiment 2 – Asymmetric-related prime, High-frequency target, Strong prime-target association

Experiment 2 – Asymmetric-related prime, Low-frequency target, Strong prime-target association

Prime	Target	Prime	Target	Prime	Target	Prime	Target
PRIVATE	ALONE	PHASE	PART	BRANDY	ALCOHOL	TOASTER	OVEN
CUDDLE	BEAR	COSTUME	PARTY	ORCHARD	APPLE	MUSSEL	OYSTER
IDEAL	BEST	JUSTICE	PEACE	BURST	BALLOON	SEAM	PANTS
STIFF	BOARD	SOCIETY	PEOPLE	BUNCH	BANANA	OUNCE	PINT
EXHALE	BREATH	CHOICE	PICK	WEDDING	BELL	REEL	POLE
CORE	CENTER	DRAWING	PICTURE	SPARROW	BIRD	WHIP	PUNISH

ABUSE	CHILD	MEETING	PLACE	SWORD	BLADE	POUND	PUPPY
LOOP	CIRCLE	PIANO	PLAY	ATOM	BOMB	PLUM	PURPLE
DISTANT	CLOSE	COMPASS	POINT	GOLF	BORING	BARRIER	REEF
FREE	COST	PACKAGE	PRESENT	CHECK	BOUNCE	MISSILE	ROCKET
TRIAL	COURT	TRACTOR	PULL	CARROTS	BUNNY	FOAM	RUBBER
CORPSE	DEAD	NOVEL	READ	CRUMB	CAKE	MONARCH	RULER
SMASH	DESTROY	MEANING	REASON	MINTS	CANDY	SHIP	SAIL
GERM	DISEASE	FAIR	RIDE	TRENCH	COAT	DESERT	SAND
THROUGH	DONE	PROPER	RIGHT	BRASS	COPPER	DANGER	SCARY
KNOCK	DOOR	DARING	RISK	CROPS	CORN	MUSK	SCENT
TRACE	DRAW	CREEK	RIVER	OUTLAW	COWBOY	SCALLOP	SEAFOOD
STEAM	ENGINE	ROUTINE	SAME	STALE	CRACKER	NERVOUS	SHAKE
GENDER	FEMALE	SPIRIT	SCHOOL	IMPACT	CRASH	FLANNEL	SHIRT
FACT	FIGURE	BENCH	SEAT	ATTACK	DEFEND	HEEL	SHOE
OUTCOME	FINAL	MOMENT	SECOND	CHINA	DISH	TOWEL	SHOWER
HIDE	FIND	BRIEF	SHORT	QUAIL	DUCK	LEAN	SKINNY
MARBLE	FLOOR	MAGIC	SHOW	FOOLISH	DUMB	HOOP	SKIRT
FILL	FULL	EASE	SIMPLE	HAWK	EAGLE	COBRA	SNAKE
DESTINY	FUTURE	QUICK	SLOW	OMELET	EGGS	DUST	SNEEZE
BUSH	GARDEN	PITY	SORRY	ORCHID	FLOWER	REFEREE	SOCCER
DONOR	GIVE	MARK	SPOT	CROAK	FROG	STRAW	SODA
JEWELRY	GOLD	GRANITE	STONE	DUMP	GARBAGE	PICKLE	SOUR
MEADOW	GRASS	PLOT	STORY	CEMENT	GLUE	CLOVE	SPICE
GLOVES	HANDS	ALLEY	STREET	CLIFF	HANGER	HAUNT	SPOOK
SCALP	HEAD	BRAVE	STRONG	MASK	HIDE	TARNISH	STAIN
SHELTER	HOME	EXAMINE	STUDY	SUBTLE	HINT	RAIL	STAIR
MAMMAL	HUMAN	REPORT	TELL	FAMINE	HUNGER	SEAL	STAMP
POLITE	KIND	LUMP	THROAT	OFFEND	HURT	THEFT	STEAL
DECIDE	KNOW	SPAN	TIME	DUNGEON	JAIL	SNORKEL	SWIM
ETERNAL	LIFE	YAWN	TIRED	PRANK	JOKE	RACQUET	TENNIS
BEAM	LIGHT	MAYOR	TOWN	PRUNE	JUICE	ROBBERY	THIEF

APPEAL	LIKE	NEPHEW	UNCLE	TICKLE	LAUGH	SPEED	TICKET
POUR	LIQUID	WASTED	USED	NOISY	LOUD	PANTHER	TIGER
ROMANCE	LOVE	VIRTUE	VALUE	PHYSICS	MATH	SABER	TOOTH
SOME	MANY	MIRAGE	VISION	TIDY	MESSY	WALRUS	TUSK
HARSH	MEAN	SINGER	VOICE	BARREL	MONKEY	STAKE	VAMPIRE
WALLET	MONEY	DEMAND	WANT	STUD	MUFFIN	JUGGLER	VEIN
EARTH	MOON	WAVES	WATER	SAILOR	NAVY	AWKWARD	WEIRD
ROOSTER	MORNING	SOUTH	WEST	UNIFORM	NURSE	FLASK	WHISKEY
RHYTHM	MUSIC	GUESS	WHAT	LIVER	ONION	YARN	WOOL

Experiment 2 – Symmetric-related prime, High-frequency target, Strong prime-target association

Experiment 2 – Symmetric-related prime, Low-frequency target, Strong prime-target association

Prime	Target	Prime	Target	Prime	Target	Prime	Target
LONELY	ALONE	CHOOSE	PICK	DRUNK	ALCOHOL	FISHING	POLE
GRIZZLY	BEAR	FRAME	PICTURE	FRUIT	APPLE	SPANK	PUNISH
WORST	BEST	AREA	PLACE	HELIUM	BALLOON	KITTEN	PUPPY
CHALK	BOARD	GAME	PLAY	PEEL	BANANA	VIOLET	PURPLE
INHALE	BREATH	SHARP	POINT	LIBERTY	BELL	CORAL	REEF
MIDDLE	CENTER	GIFT	PRESENT	NEST	BIRD	LAUNCH	ROCKET
BABY	CHILD	PUSH	PULL	RAZOR	BLADE	TIRE	RUBBER
SQUARE	CIRCLE	WRITE	READ	EXPLODE	BOMB	MEASURE	RULER
OPEN	CLOSE	EXCUSE	REASON	DULL	BORING	BOAT	SAIL
PRICE	COST	BICYCLE	RIDE	BALL	BOUNCE	BEACH	SAND
JUDGE	COURT	CORRECT	RIGHT	RABBIT	BUNNY	HORROR	SCARY
ALIVE	DEAD	CHANCE	RISK	ICING	CAKE	PERFUME	SCENT
KILL	DESTROY	STREAM	RIVER	SWEET	CANDY	LOBSTER	SEAFOOD
CURE	DISEASE	ALIKE	SAME	JACKET	COAT	SHIVER	SHAKE
FINISH	DONE	COLLEGE	SCHOOL	PENNY	COPPER	BLOUSE	SHIRT
KNOB	DOOR	CHAIR	SEAT	HUSK	CORN	FOOT	SHOE
SKETCH	DRAW	MINUTE	SECOND	BOOTS	COWBOY	BATH	SHOWER
MOTOR	ENGINE	TALL	SHORT	SALTINE	CRACKER	THIN	SKINNY
MALE	FEMALE	MOVIE	SHOW	PLANE	CRASH	DRESS	SKIRT

SHAPE	FIGURE	PLAIN	SIMPLE	PROTECT	DEFEND	SLITHER	SNAKE
LAST	FINAL	TURTLE	SLOW	PLATE	DISH	COUGH	SNEEZE
LOSE	FIND	APOLOGY	SORRY	POND	DUCK	SPORT	SOCCER
CEILING	FLOOR	STAIN	SPOT	SMART	DUMB	COKE	SODA
EMPTY	FULL	ROCK	STONE	SOAR	EAGLE	BITTER	SOUR
PAST	FUTURE	TALE	STORY	BACON	EGGS	SUGAR	SPICE
HOSE	GARDEN	AVENUE	STREET	ROSE	FLOWER	GHOST	SPOOK
RECEIVE	GIVE	WEAK	STRONG	TOAD	FROG	SPOT	STAIN
SILVER	GOLD	SCHOOL	STUDY	TRASH	GARBAGE	STEP	STAIR
GREEN	GRASS	STORY	TELL	STICK	GLUE	MAIL	STAMP
FINGERS	HANDS	NECK	THROAT	CLOSET	HANGER	THIEF	STEAL
BRAIN	HEAD	WATCH	TIME	SEEK	HIDE	POOL	SWIM
HOUSE	HOME	SLEEP	TIRED	CLUE	HINT	RACKET	TENNIS
PERSON	HUMAN	VILLAGE	TOWN	THIRST	HUNGER	ROBBER	THIEF
GENTLE	KIND	AUNT	UNCLE	PAIN	HURT	STUB	TICKET
LEARN	KNOW	WORN	USED	PRISON	JAIL	LION	TIGER
LIVE	LIFE	WORTH	VALUE	FUNNY	JOKE	BRUSH	TOOTH
DARK	LIGHT	SIGHT	VISION	ORANGE	JUICE	IVORY	TUSK
DISLIKE	LIKE	SING	VOICE	GIGGLE	LAUGH	FANGS	VAMPIRE
SOLID	LIQUID	DESIRE	WANT	QUIET	LOUD	ARTERY	VEIN
HATE	LOVE	DRINK	WATER	ALGEBRA	MATH	STRANGE	WEIRD
MUCH	MANY	EAST	WEST	NEAT	MESSY	BOURBON	WHISKEY
NICE	MEAN	WHERE	WHAT	BANANA	MONKEY	SHEEP	WOOL
CASH	MONEY			BISCUIT	MUFFIN		
STAR	MOON			ARMY	NAVY		
EARLY	MORNING			DOCTOR	NURSE		
SONG	MUSIC			GARLIC	ONION		
PIECE	PART			STOVE	OVEN		
BEER	PARTY			CLAM	OYSTER		
CALM	PEACE			SHIRT	PANTS		
CROWD	PEOPLE			QUART	PINT		

Experiments 1-2 Stimuli – <u>Significant</u> Pairwise Comparison of Lexical Characteristics

FASY = Forward Asymmetric, SYM = Symmetric, HF = High *Target* Frequency, LF = Low *Target* Frequency (No significant pairwise comparison for the unmentioned lexical characteristics)

Exp	Pair Type	Lexical Variable	Significant Pairwise Comparison (*$p < .05$)
1	FASY-HF	Prime Frequency (LogHAL)	FASY-HF > FASY-LF *
	FASY-LF	Prime normed LDT RTs (in ms)	FASY-LF > FASY-HF *
		Target Frequency (LogHAL)	FASY-HF > FASY-LF *
		Target normed LDT RTs (in ms)	FASY-LF > FASY-HF *
2	FASY-HF	Prime Length (in # of letters)	FASY-HF > SYM-HF *, FASY-HF > SYM-LF *, FASY-LF > SYM-HF *,
	FASY-LF	Prime Length (in # of syllables)	FASY-HF > SYM-HF *
	SYM-HF SYM-LF	Prime Frequency (LogHAL)	FASY-HF > FASY-LF *, FASY-HF > SYM-LF *, SYM-HF > FASY-LF *, SYM-HF > SYM-LF *, SYM-HF > FASY-LF *, SYM-HF > FASY-LF *
		Prime normed LDT RTs (in ms)	FASY-LF > FASY-HF *, FASY-HF > SYM-HF *, FASY-LF > SYM-HF *, FASY-LF > SYM-LF *
		Prime normed LDT Accuracy	FASY-HF > FASY-LF *, SYM-HF > FASY-LF *, SYM-LF > FASY-LF *, SYM-LF > FASY-LF *
		Target Frequency (LogHAL)	FASY-HF > FASY-LF *, FASY-HF > SYM-LF *, SYM-HF > FASY-LF *, SYM-HF > SYM-LF *
		Target normed LDT RTs (in ms)	FASY-LF > FASY-HF *, FASY-LF > SYM-HF *, SYM-LF > FASY-HF *, SYM-LF > SYM-HF *
		Prime-to-Target Associative Strength	SYM-HF > FASY-HF *, SYM-HF > FASY-LF *, SYM-LF > FASY-HF *, SYM-LF > FASY-LF *
		Target-to-Prime Associative Strength	SYM-HF > FASY-HF *, SYM-HF > FASY-LF *, SYM-LF > FASY-HF *, SYM-LF > FASY-LF *
		LSA Cosine Semantic Similarity	FASY-HF > FASY-LF *, SYM-HF > FASY-HF *, SYM-HF > FASY-LF *, SYM-LF > FASY-HF * SYM-LF > FASY-LF *

Mean RTs and error priming effects in unmentioned studies using LS priming paradigm with lexical decision task

Study	NP	NWR	RP	SOA	Mode	Order	LS Priming		Probe Location	Control Group	Priming	
							RT	Error			RT	Error
HM'85 (2) u	36	0.67	0.50	714	KP	LD-LS	-3	2.2	One First	Silent-Read	-13	0.4
HM'85 (3) u	36	0.67	0.50	1564	KP	LD-LS	4	3.8*	One First	Silent-Read	-3	-1.4
FHT'91 (4) av	20	0.50	0.50	950	V	LS-LD	15*	0.0	Dup Abv	Naming	17*	2.0
HFTT'94 (2)	24	0.83	0.80	1755	V	LS-LD	36*	3.7	Dup Abv	Naming	114*	7.3*
HFTT'94 (3) s	24	0.83	0.80	240	V	LD-LS	45#	3.8#	Dup Abv	Naming	118#	5.2#
HFTT'94 (3) l	24	0.83	0.80	840	V	LD-LS	50#	3.1#	Dup Abv	Naming	120#	7.3#
BRB'01 (1) u	32/16	0.67	0.25	1335	KP	LS-LD	1	1.1	Dup Abv	Silent-Read	27*	-1.2
BRB'01 (2) u	32	0.67	0.25	1316	KP	LS-LD	2	1.9	Dup Abv	Not Included	--	--
M'96(1)	24	0.5	0.5	1700	KP	LS-LD	17*	0.2	Dup Abv	Silent-Read	39*	0.6
M'96(1)	24	0.5	0.5	300	KP	LS-LD	16*	1.9	Dup Abv	Silent-Read	35*	0.3
M'96 (2)	24	0.5	0.5	1055	KP	LS-LD	21*	1.4	Dup Abv	Silent-Read	7	1.5
SB'96 (1) – 200	16	0.67	0.5	1029	KP	LS-LD	55*	1.2	Dup Abv	Not Included	--	--
SB'96 (1) – Sim	32	0.67	0.5	1110	KP	LS-LD	30*	0.9	Dup Abv	Not Included	--	--
SB'96 (1) – 200	32	0.67	0.5	965	KP	LS-LD	28*	1.4	Dup Abv	Not Included	--	--
CPM'00 (1)	33	0.5	0.5	1055	V	LS-LD	-29*	--	Dup Abv	Silent-Read	34	--
MFCH'00 (1) a	36	0.60	0.08	1402	KP	LS-LD	15*	1.0	One First	LD on prime	35*	-1.0
MFCH'00 (1) u	36	0.60	0.08	1402	KP	LS-LD	39*	0.0	One First	LD on prime	-17*	-4.0
MFCH'00 (2) a	32	0.60	0.08	1300	KP	LS-LD	23*	2.0	One First	Categorization	44*	2.0
MFCH'00 (2) u	32	0.60	0.08	1300	KP	LS-LD	26*	0.0	One First	Categorization	-12	0.0

MHEF'00 (1)	24	0.67	0.50	989	KP	LS-LD	4	2.0	One First	Naming	44*	-1.0
MHEF'00 (2)	22	0.67	0.50	1031	KP	LS-LD	19	2.0	One First	Segregated	-45*	4.0
MHEF'00 (3)	22	0.67	0.50	1283	KP	LS-LD	27	-3.0	One First	Segregated	-54^	2.0

*$p < .05$, ^$p < .10$. # inferential statistics were not reported. NP = number of participants contributing to the reported effects in each of LS group and control group, NWR = Nonword ratio, RP = Relatedness proportion of related prime-target word pairs, SOA = Stimulus-onset asynchrony (in ms), Response Mode = key press (KP) or vocal(V) response for the LS task, Order = Order of LS and lexical-decision (LD) responses [participants either immediately gave the LS response to the prime before the target appeared (LS-LD, LS before LD) or delayed their LS response until they finished the lexical decision (LD-LS, LD before LS)], Probe Location = Location of probe letter for the LS (Dup Abv, identical probe letters duplicated above the prime; One Abv, a single probe letter presented above the prime; One First, a single probe letter presented *before* the prime; Forced Choice, no probe letter, with participants detecting the presence of an A or E in the prime), Control Group on Prime Processing = Living/Nonliving (participants need to decide whether the prime refers to a living object or not).

For the many studies did not set a response deadline for the LS prime task the SOAs were estimated by adding the overall mean LS RTs of other studies (1055 ms) to the interstimulus interval between the prime and target. Because some studies (e.g., Stolz & Besner, 1996) reported mean LS RTs only for correct responses but did not explicitly state that they analyzed only the target RTs for trials in which both the LS and lexical decision responses were correct, the estimated prime-target SOA for their study will be "off" to the degree that correct and incorrect LS responses had very different mean RTs in the LS prime task.

HM'85 (2 & 3): Participants were cued by an arrow for which one of two primes the LS was to be conducted on. In the related condition, either the cued or uncued primes were related to the targets. In the unrelated condition, neither the cued nor uncued prime was related to the target. Only the uncued condition is reported here. See the data from cued condition in our paper.

HFTT'94 (2 & 3): There were short (s) vs. long (l) prime-target SOA. Only the high RP (0.8) condition is reported here. See the data

from low RP (0.2) and medium RP (0.5) conditions in our paper.

SB'96 (1): Only the condition that the prime was presented *before* the probe letter is included here. See the data from “prime presented after the probe letter” condition in our paper.

SB’98 (3): The morphologically related prime-target pairs were included in their experiment (RP = .25). Only the letter-searched morphological prime condition is reported here. See the data from “letter-searched semantic prime condition” in our paper.

FHT’91 (4): Only the condition for the auditorily and then visually presented primes is reported here. See the data from “the visually presented primes” condition in our paper.

BRB’01 (1 & 2): The participants were cued by color for which one of two primes that they needed to search the letter. In the related condition, either the cued or uncued primes were related to the targets. In the unrelated condition, neither the cued nor uncued primes was related to the targets. Only the uncued condition is reported here. See the data from cued condition in our paper. The numbers of participants are 32 and 16 for LS and SR conditions, respectively.

M'96 (1): The LS or SR prime task was cued after the prime display was presented.

M'96 (2): The dual task paradigm (attention) was used in the trials with SR and LS prime task.

MFCH’00 (1 & 2): The participants were presented attended prime spatially sandwiched by two identical unattended primes in the experiment. Either the attended or unattended prime was related to the target. They repeated individual words (as primes), but not pairs, five or six times in order to rotate across all conditions.

MHEF’00 (1-3): The participants were presented the probe letter first and then ###S# above the prime, in which the subjects need to search the letter either on the prime or on the ###S# string (i.e., segregated condition).

CPM'00: The error data were not reported in this study.