

Supplemental Materials

SVET Design: Target names.

Car names. Names in the SVET-Car consisted of make and model names (e.g., Honda Accord). All makes for both target and foil names were real car brands sold in the United States between 2000 and 2013 (e.g., Toyota, Ford, Audi). Target model names were real models of sedans sold in the United States between the years 2000 and 2012 (e.g., Camry, Focus, A6). Foil model names were either real words or non-words that (to the best of our knowledge) had not been used as 20th or 21st century American car names (e.g., Olympic, Alepo, Primo). Target names always consisted of both a real make and real model name combined to form a real car name (e.g., Honda Accord). Foil names were of two forms, with equal frequency: 1) Mismatched, a real make and a real model name but that do not form a real car name when combined (e.g., Honda Camry); and 2) Fake, a real make and a fake model name (e.g., Honda Napa).

Plane names. Target names in the SVET-Plane were names of model airplanes used in the United States in the past 20 years, with the exception of 8 trials that were plane models used in World War I or World War II. Although planes could be referred to by a manufacturer name, model name and sub-model name (e.g. Airbus A340-300), we aimed to use only the model name that a person with knowledge of planes would use (e.g. A340). Plane models were from several types of aircraft: commercial (16 trials), general aviation (7 trials), World War I (1 trial), World War II (7 trials), military aircraft including fighter, fighter trainer, transport, and bomber (12 trials), drones (3 trials), and business jets (2 trials). Foil names were created to match the format of real plane model names, such that some were all numbers, combinations of letters and numbers, or words.

Transformer names. Target Transformer names were the names of characters capable of changing form (not human characters or the names of other objects or locations) from the Transformers entertainment franchise produced by Takara Tomy and Hasbro toy companies. Names were selected from *Generation 1*, *Generation 2*, and *Beast Wars* series of comics and television and from the recent film series (2007, 2009, 2011 movies). Foil names were created to match the style of real Transformer names and were words or non-words.

Dinosaur names. Target dinosaur names were the common names of discovered dinosaurs that are generally accepted by the scientific community. Names were taken with roughly equally sampling across time period (e.g., Jurassic, Cretaceous) and other dinosaur traits (e.g. herbivore vs. carnivore, bipedal vs. quadrupedal). Foil names were created to match the style of real dinosaur names, with some names based on physical attributes denoted by Greek roots (e.g. using roots tetra meaning four and cerato meaning horns) and others named after places or fictitious people who may have discovered them.

Shoe names. The VET-shoe and SVET-shoe both refer to knowledge of women's high-heeled pumps. Shoes are perhaps a particularly interesting category for name knowledge. Although individual shoes do have a model name on the box (e.g. Moxy, Delilah), these names change every season and would rarely be used to identify a shoe even by those who are very skilled at visual shoe recognition (see Study 2B). Instead, we used the brand (or designer) names of women's high-heeled pumps as the target names. We hypothesized that these were the names that one would acquire knowledge of as they become more experienced with shoes. All brand names are brands of women's high-

heeled pumps currently sold in the United States at Nordstrom or Saks Fifth Avenue department stores. Foil names were created to match the style of real brand names (e.g. one or two words or the name of a designer) and were words or non-words.

Bird names. Target names for the SVET-bird were all common names of passerine, or perching, birds found in a large portion of North America. Real bird names were selected to sample across a variety of passerine families (e.g. flycatchers, orioles, jays, finches) and east and west coast birds. Foil names were created to match the style of real bird names and were words or non-words.

Leaf names. Target names for the SVET-leaf were all common names of deciduous trees found in a large portion of North America. Foil names were created to match the style of real leaf (tree) names and were words or non-words.

Mushroom names. Target mushroom names were all common names of mushroom species found in North America. An effort was made to avoid using multiple names that refer to the same species. Most of the mushrooms used are edible, although some (6 trials) are poisonous or potentially poisonous.

Design of VET 2.0 Trials

In the VET 2.0 for each category, 6 object identities (e.g. cars: Chevrolet Cobalt, Lincoln MKS, Acura RL; birds: Cedar Waxwing, Blue Jay, Horned Lark) were used as target objects. One exemplar of each target was used at study and in same-exemplar trials. Three other exemplars of each target object were used for different-exemplar trials. The different exemplars of the targets differed from the studied exemplar in one or more ways including background, viewpoint, position, color, and other non-diagnostic features, but were always the same species or model. The objects were selected for each category according to the same guidelines as the SVET, described previously, to be species or models found in North America when applicable; all birds were passerine birds and only male birds were shown, cars were sedans, leaves were from deciduous trees, shoes were women's high heels, Transformers were shown in multiple forms from any of the series used in the SVET, and planes were a mix of commercial and military planes. Foil images were objects from the same category (e.g., cars, planes, leaves) but of a different type (e.g., model or species) than any of the six target objects. Different exemplars of the same foil object occurred between one and four times per VET, but never on the same trial. Catch trial foil images were obviously different from studied objects and were usually selected from a similar category or sub-category that was not studied (e.g. SUVs in the VET-Car, wading birds in the VET-Bird, sneakers in the VET-Shoe).

Complete SVET 1.0 Tests

The following pages present the complete SVET 1.0 tests for eight object categories. Each row shows the 3 item names presented in each trial. Catch trials are indicated. The bolded name in orange is the correct response.

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Car.

| Trial | Name1 | Name2 | Name3 |
|-----------------|-------------------------------|----------------------------|--------------------------|
| 1 | Infiniti Kobuk | Scion dT | Dodge Viper |
| 2 | BMW M56 | Mercury Manitu | Ford Mustang |
| 3 | Pontiac G7 | BMW Caspari | Ford Taurus |
| 4 | Lincoln Leaf | Nissan Sentra | Porsche Crossfire |
| 5 | Chrysler Osprey | Mitsubishi Prancer | Nissan Altima |
| 6 | Volvo Focus | Mercedes-Benz C300 | Mercury Alero |
| 7 | Hyundai Altitude | Mitsubishi Eclipse | Kia Gala |
| 8 | Chevrolet Flash | Volkswagen El Peso | Buick Regal |
| 9 | Toyota Prius | Jaguar Lisbon | Scion xR |
| 10 | Volvo GS350 | Chevrolet Lancer | Dodge Charger |
| 11 | Hyundai Yucatan | Buick LeSabre | Lincoln Jetta |
| 12 <i>Catch</i> | Honda Civic | Palm Tree | Snickers Bar |
| 13 | Toyota Calisto | Chrysler PT Cruiser | Hyundai Corolla |
| 14 | Pontiac GTO | Aston Martin Matrix | Subaru Woodlands |
| 15 | Pontiac Sky | Cadillac DeVille | Volvo Z60 |
| 16 | Volvo S60 | Suzuki 911 Carrera | Volkswagen Juniper |
| 17 | Nissan Muse | Audi A6 | Chevrolet LaCrosse |
| 18 | Hyundai Elantra | Saturn Neon | Kia Cloud |
| 19 | Dodge Festival | Audi Vita | Mazda Miata |
| 20 | Chevrolet Camaro | Cadillac Escort | Subaru Malibu |
| 21 | Jaguar XJ | Lamborghini Nuvola | Acura NRX |
| 22 | Audi Z4 | Mazda Kizashi | Chevrolet Volt |
| 23 <i>Catch</i> | Winter Storm | Ford Fiesta | Rose Garden |
| 24 | BMW 580d | Volkswagen GTI | Toyota Lucerne |
| 25 | Nissan Azera | BMW 550i | Kia Golf |
| 26 | Suzuki Prestige | Infiniti G37 | Pontiac S550 |
| 27 | Lamborghini Gallardo | Toyota Sonata | Lincoln Olympic |
| 28 | Oldsmobile Cavalier | Lexus Aventador | Volvo C70 |
| 29 | Chrysler Concorde | Lexus CD350 | Buick Inspiron |
| 30 | Mercury Grand Marquis | Suzuki Avenger | Honda Yaris |
| 31 | Buick Chesapeake | Subaru Impreza | BMW 490x |
| 32 | Mazda Blaze | Ford Fiber | Honda Fit |
| 33 | Saturn Fuze | Honda Soul | Toyota Avalon |
| 34 | Kia Forte | Mitsubishi STZ | Infiniti Dream |
| 35 | Dodge Grand Prix | Mitsubishi Ion | Subaru Legacy |
| 36 | Saab Eban | Lincoln MKZ | Lexus Sable |
| 37 | Scion G6 | Mercury Galant | Cadillac XTS |
| 38 | Oldsmobile Primo | Porsche 538 | Mercury Milan |
| 39 | Saab 3-9 | Hyundai Genesis | Cadillac Revel |
| 40 | Bentley Continental GT | Mercedes-Benz Park Avenue | Chrysler Crusader |
| 41 | Lexus ES300 | Ford Impala | Acura Optima |
| 42 | Acura QR320 | Porsche Cayman | Subaru Camry |
| 43 <i>Catch</i> | Denim Skirt | Yorkshire Terrier | Toyota Matrix |
| 44 | Chrysler Maxima | Scion tC | Lamborghini Magnum |
| 45 | Volkswagen Mulsanne | Buick Intrepid | Oldsmobile Aurora |
| 46 | Saab 9-5 | Acura Sebring | Nissan xD |
| 47 | Aston Martin DB9 | Honda Octave | Infiniti ILX |
| 48 | Lexus LF-CC | Bentley Beetle | Jaguar 9-3 |
| 49 | Saturn Fusion | Acura TSX | Saab S80 |
| 50 | Audi Allroad | Cadillac Amethyst | Bentley Baltic |
| 51 | Audi A9 | Oldsmobile Rocoto | Honda Insight |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Plane.

| Trial | Name1 | Name2 | Name3 |
|-----------------|-------------------|-----------------|---------------------|
| 1 | F-16 | Utah | Vapor |
| 2 | 737 | Serpens | Sheffield |
| 3 | Hellcat | W-66 | LP-8 |
| 4 | 949 | B-52 | Flyingfish |
| 5 | C-130 | Su-800 | Black Skiff |
| 6 | P-209 | Libra | B-2 |
| 7 <i>Catch</i> | 747 | Lean Cuisine | Facebook |
| 8 | Me 200 | ES-69 | F-105 |
| 9 | HLB | J-49 | DC-3 |
| 10 | Starlight | Bouncer | 717 |
| 11 | A400 | Cygnus | 777 |
| 12 | 87A | CS100 | 1020 |
| 13 | 96Y | Hawk | Roehr |
| 14 | 8030 | T-38 | Bylon |
| 15 | NDA | DC-10 | Bowman Cx36 |
| 16 | Lester | Rotterdam | Liberator |
| 17 | 877 | A320 | Ruby |
| 18 | MD-80 | Q70 | 1010 |
| 19 | C-17 | MD-20 | Sl-60 |
| 20 | N7 | X-1 | RYY |
| 21 | A-10 | D789 | BV 10 |
| 22 | Falcon 900 | Courante | T-017 |
| 23 | A380 | B-6 Sprinter | Robson |
| 24 | 8900 | A2 Lobo | Spitfire |
| 25 <i>Catch</i> | Barnes and Noble | A319 | Cool Whip |
| 26 | A-49 | F/A-18 | 898 |
| 27 | L-300 | P-51 | Tempo |
| 28 | CS300 | Td 500 | R-180 |
| 29 | Gopher | Panther | MD-11 |
| 30 | Lagrange | A340 | 797 |
| 31 | Y 88 | Juno | Citation Jet |
| 32 | DA20 | Locus | 51-md |
| 33 | Predator | T700 | Ocelot |
| 34 | 6690 | Cub | r590 |
| 35 | Protector | Dakota | 78K |
| 36 | Yuri | CRJ 5007 | E175 |
| 37 <i>Catch</i> | Reese's Cup | Walgreens | F2 |
| 38 | KZ-66 | AirPrince | L-1011 |
| 39 | Yak-130 | XX-30 | MK-477 |
| 40 | 432 | King Air | LF-105 |
| 41 | Cherokee | Z-7 | Arizona |
| 42 | Missouri | J25 | Raven |
| 43 | AM 99 | LJ 431 | Su-47 |
| 44 | 67V | Booker B-8 | Otter |
| 45 | Mosquito | Western Lair | A480 |
| 46 | 393 | VB-40 | Starship |
| 47 | Z1 | Ju 88 | RT-9 |
| 48 | BT10 | Bf 109 | Nova 8 |
| 49 | Ural | DC-300 | Camel |
| 50 | F-25 | Dash 8 | 19-10 |
| 51 | Me 262 | F-41 | Nightranger |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Transformer.

| Trial | Name 1 | Name 2 | Name 3 |
|-----------------|-----------------------|---------------------|--------------------|
| 1 | Uppercut | Outlook | Megatron |
| 2 | Courage | Starscream | Top Notch |
| 3 | Fivepin | Razorclaw | Riot |
| 4 | Lavaman | Chromoburn | Quickstrike |
| 5 | Lightning Rod | Thunderclash | Firecraft |
| 6 | Highboxer | Tigatron | Terraclash |
| 7 | Bumblebee | Astromega | Receptor |
| 8 | Torrent | Ironhide | Delta Minor |
| 9 | Lordov | Amphius | Scorch |
| 10 | Quatraquake | Boomerjet | Sideswipe |
| 11 | Mallet | Dom | Soundwave |
| 12 | Ratchet | Volcano | Dasher |
| 13 | Wind Dagger | Camrod | Smokescreen |
| 14 | Dustrage | Roll Archer | Orion |
| 15 | Fox | Ricochet | Pitfall |
| 16 <i>Catch</i> | Dunkin Donuts | Cheddar Cheese | Shipwreck |
| 17 | Fireflight | Triblast | Dune Snare |
| 18 | Bluebreak | Moor Knight | Grapple |
| 19 | Spearonus | Inferno | Fuse |
| 20 | Roadbuster | Combust | Loggerhead |
| 21 | Vulture | Blitzwing | Crash |
| 22 | Skyhammer | Starshooter | Neoblot |
| 23 | Moonrider | Windcharger | Converse |
| 24 | Terp | Prowl | Carbonspin |
| 25 <i>Catch</i> | Frosted Flakes | Vanquish | Oatmeal Raisin |
| 26 | Flytrap | Tungsten | Reflector |
| 27 | Obsidian | Double Dare | Excelsion |
| 28 | Sunstreaker | Septawave | Proton |
| 29 | Cliffjumper | Nailclaw | Tanji |
| 30 | Grimmel | Giltwheel | Mirage |
| 31 | Jetstorm | Megaglide | Springshot |
| 32 | Speedswoop | Razorbyte | Talon |
| 33 | Thundercracker | Buzzcraft | Vilius |
| 34 | Flashrun | Solopred | Jazz |
| 35 | Hoverburst | Mort | Blurr |
| 36 | Enemy | Sonic Thunder | Bounce |
| 37 | Raincharge | Crosscut | Hustler |
| 38 | Zeus | Hurricane | Airlock |
| 39 | Long Haul | Quickjet | Junction |
| 40 | Breacher | Dawn Bird | Tracker |
| 41 | Wolfspur | Night Boomerang | Chase |
| 42 | Barracuda | Hubcap | Koben |
| 43 <i>Catch</i> | Shrapnel | Diet Coke | J. Crew |
| 44 | Barricade | Ironwheel | Skidbit |
| 45 | Space Terror | Omicron Prime | Air Raid |
| 46 | Waveracer | Hound | Sotter |
| 47 | Canis Major | Cheetor | Sharpstrike |
| 48 | Hornet | Kickback | Crossfire |
| 49 | Punch | Deepwave | Roadflux |
| 50 | Arcee | Grimbolt | Victorion |
| 51 | Suntracker | Steelhead | Pointblank |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Dinosaur.

| Trial | Name1 | Name2 | Name3 |
|----------|---------------------------|------------------------|-------------------------|
| 1 | Tyrannosaurus Rex | Asperdatylus | Telemosaurus |
| 2 | Phoboraptor | Triceratops | Ditlosaurus |
| 3 | Brachiosaurus | Paramaxilosaurus | Fabrilukosaurus |
| 4 | Lopholurius | Pirongocoelus | Velociraptor |
| 5 | Canthusius | Meranoleptes | Plateosaurus |
| 6 | Tarboonyx | Dragosaurus | Ceratosaurus |
| 7 | Pentaceratops | Eudontidectes | Microtarius |
| 8 | Pachycephalosaurus | Namibiasaurus | Reginasaurus |
| 9 | Plesiosaurus | Timorspondylus | Lanaptasaurus |
| 10 | Tonivius | Amygdalodon | Amerivenator |
| 11 | Geldanosaurus | Panoplosaurus | Scuriosaurus |
| 12 | Nodocaudosaurus | Spikosaurus | Segisaurus |
| 13 Catch | Barosaurus | Betty Crocker | Nike |
| 14 | Dyptiodon | Protoceratops | Maxiosaurus |
| 15 | Tetrachelodon | Coleoptera | Megalosaurus |
| 16 | Celeritasaurus | Apatosaurus | Delphysis |
| 17 | Bactronychus | Dilophosaurus | Latimosaurus |
| 18 | Dromopedosaurus | Diplodocus | Gymnodontosaurus |
| 19 | Lestipidius | Parasaurolophus | Dneipidosaurus |
| 20 | Herbiodon | Archaeopteryx | Appellasaurus |
| 21 | Montanasaurus | Erhinodon | Stegoceras |
| 22 | Stuthioceratops | Centaurisaurus | Iguanodon |
| 23 | Ramseysaurus | Caenagnathus | Dirulius |
| 24 Catch | KitchenAid | Titanosaurus | Microsoft |
| 25 | Spinosaurus | Roxithromius | Andromelosaurus |
| 26 | Saurolophus | Allocephale | Ceralopus |
| 27 | Compsognathus | Amorispinax | Artemidorus |
| 28 | Tetramorphodon | Oviraptor | Draconychus |
| 29 | Deinonychus | Salvatosaurus | Rugosaurus |
| 30 | Voloceratops | Hepatulodon | Ankylosaurus |
| 31 | Hadrosaurus | Letoraptor | Plateothersaurus |
| 32 | Angusticeratops | Yukonsaurus | Gallimimus |
| 33 | Vulcanodon | Poissalodon | Okavangosaurus |
| 34 | Lesothosaurus | Allobrachiosaurus | Voltaeodon |
| 35 | Paraprantadon | Telmatosaurus | Barocheirus |
| 36 | Segnoceratops | Zulosaurus | Deinocheirus |
| 37 | Corythosaurus | Styrenosaurus | Homodagnius |
| 38 | Mauyonyx | Rostrosaurus | Achillobator |
| 39 | Parbosaurus | Polybutisaurus | Lambeosaurus |
| 40 | Brassicasaurus | Deinosternus | Lapparentosaurus |
| 41 | Heptalogodon | Zephyrosaurus | Procerimimus |
| 42 | Prontosaurus | Orthithomimus | Hydrapentasaurus |
| 43 | Decacornutosaurus | Euovatosaurus | Stygmoloch |
| 44 Catch | Cadillac | Crock-pot | Conchoraptor |
| 45 | Ornitholopolus | Niposcephales | Mircovenator |
| 46 | Seismosaurus | Tyrannoraptor | Pallosaurus |
| 47 | Microceratus | Dryptoplatyornis | Rhynchodon |
| 48 | Corposaurus | Monocyclosaurus | Mussaurus |
| 49 | Ceraphalangiamimus | Othnielia | Plurasaurus |
| 50 | Indostedosaurus | Skorpiovenator | Bagalosaurus |
| 51 | Maiasaura | Megacapitosaurus | Pachypedolus |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Shoe.

| Trial | Name1 | Name2 | Name3 |
|-----------------|----------------------------|----------------------------|---------------------------|
| 1 | Cristallo | Gucci | Fazzolari |
| 2 | Angelo Frega | Anong | Prada |
| 3 | Comoros | Christopher Phan | Anne Klein |
| 4 | Nine West | Rebecca Fox | Aloft |
| 5 | Kenneth Cole | Londa | Steve Hart |
| 6 | Carolyn Palmer | Clover | Dolce Vita |
| 7 | Birdie Hamel | Thaksin | Michael Kors |
| 8 <i>Catch</i> | Cuisinart | Honda | Vigotti |
| 9 | Semillon | Jimmy Choo | Madison Long |
| 10 | Guillaume Deschamps | Oscar de la Renta | Eze |
| 11 | Le Chat Chic | Christian Louboutin | Lindsey Speegle |
| 12 | Tai Ladd | Elliott Pierce | Miz Mooz |
| 13 | Dahlia | Versa | Yves Saint Laurent |
| 14 | Parade | Betsey Johnson | Dowell |
| 15 | Ruby | Soustel | Etienne Aigner |
| 16 | Phillip Weinkopf | Lotte | Kate Spade |
| 17 | Paul Xu | Enna | Manolo Blahnik |
| 18 | Marcus Rivera | Aldo | Cimarron |
| 19 | Isaac Mizrahi | Six Swans | Lily James |
| 20 | Alexandre Birman | Portici | Larkin |
| 21 | Arzog | Brian Atwood | M. Rose |
| 22 | Anika Taylor | James Colver | Balenciaga |
| 23 | Nissa Takou | Olivia Skelt | Pedro Garcia |
| 24 | Piper | Joseph Blount | Miu Miu |
| 25 | Zetta | Kalden White | Franco Sarto |
| 26 | Rebecca Minkoff | Daquin | Paolo Trella |
| 27 | Vasquez | Taryn Rose | Darby Hill |
| 28 <i>Catch</i> | Hyundai | J. Renee | Pepperidge Farm |
| 29 | Giuseppe Zanotti | Francisco Soto | Sara and Sophie |
| 30 | Cole Haan | Operetti | Melissa Perry |
| 31 | Ava Amini | Ivanka Trump | Serra |
| 32 | Enzo Angiolini | Nicole Hall | Victor Russo |
| 33 | Azzuri | Via Spiga | Maison du Roi |
| 34 | Steve Madden | Isabelle Laurent | Five Degrees |
| 35 | Kevin Dunn | Badgley Mischka | Cecille |
| 36 | Lola Wong | Sam Edelman | DBA |
| 37 | Pollini | Arresi | P. Van Vliet |
| 38 | Marcelino | Stuart Weitzman | R. Campbell |
| 39 | Nina | Adele Hirsch | Molinelli |
| 40 | Sigerson Morrison | Pebble and Stream | Michael Williams |
| 41 | Alston Brett | Tiger Pearl | Seychelles |
| 42 <i>Catch</i> | Alfani | John Deere | Duracell |
| 43 | Alice + Olivia | Belle Amie | Vega |
| 44 | Laurel | Charlotte Olympia | J.R. Santuk |
| 45 | Cote Vert | Vince Camuto | Sergio Nicoletti |
| 46 | Elizabeth and James | Joshua Gold | Claudia Escotto |
| 47 | Graham Wood | Gravelle | Chinese Laundry |
| 48 | Joan & David | Antonio Zaccaro | Harry and Hampton |
| 49 | Emilio Fenzi | Kelsi Dagger | Poz Poz |
| 50 | Donald J Pliner | Bella Domani | Eve Hatton |
| 51 | Revelle | Jean-Pierre Arnaud | Corso Como |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Bird

| Trial | Name1 | Name2 | Name3 |
|-----------------|------------------------------|------------------------------|---------------------------------|
| 1 | Ochre Gabbro | Kassam Thrasher | Mountain Bluebird |
| 2 | Masked Golong | Blue Jay | Canyon Kingfisher |
| 3 | Great Mulmul | Streak-tailed Dogbird | Northern Raven |
| 4 | Purple-breasted Shrew | Olive Mohee | Barn Swallow |
| 5 | Savannah Sparrow | Tufted Gemthroat | Green Huckaloo |
| 6 <i>Catch</i> | JCPenney | White-eyed Vireo | Tea Kettle |
| 7 | Gray-capped Woodcreeper | Allegheny Bog Swallow | American Goldfinch |
| 8 | American Robin | Bluegrass Chickadee | Eastern Scrub Nuthatch |
| 9 | Wilmer's Cuckoo | Black-billed Cuckoo | Long-billed Noddy |
| 10 | Holtzschell | Mountain Chickadee | Missouri Starling |
| 11 | Blue Downbill | Cliff Swallow | Antique Sage |
| 12 | Winter Wren | Pine Plover | Horned Lark |
| 13 | Bay Pipit | White-winged Parakeet | Liriope |
| 14 | Hooded Warbler | Cape Cod Myna | Western Kingbird |
| 15 | Northern Mockingbird | Silver-crowned Oriole | American Goldenwing |
| 16 | Long-tailed Noddy | Chesapeake Broadwing | Red-winged Blackbird |
| 17 | Rock Wren | Scoria | Oregon Grosbeak |
| 18 | Yellow-banded Vireo | Belted Kingfisher | Gold-collared Shortspur |
| 19 <i>Catch</i> | American Tree Sparrow | Microwave Oven | Hyundai |
| 20 | Northern Cardinal | White-eyed Noddy | White-rumped Noddy |
| 21 | Fox Sparrow | Cascade Sparrow | Mouse Geomys |
| 22 | Lapland Longspur | Orchard Spot-breast | Weigela |
| 23 | Scarlet Tanager | Blue-stripe Noddy | Tri-colored Woodcreeper |
| 24 | Baltimore Oriole | Cloaked Queenbird | Broadwing's Flycatcher |
| 25 | Black-headed Grosbeak | Brown-winged Diver | California Towhee |
| 26 | Hesperus Kingbird | Painted Ozark | Cassin's Kingbird |
| 27 | Thistle Grosbeak | Sage Thrasher | Wood Pewee |
| 28 | Orange Shrub Vireo | Alder Flycatcher | Waxhaw |
| 29 | Jefferson's Bunting | Loggerhead Shrike | California Gull |
| 30 | Warbling Vireo | Bush Mopet | Siouxland Jay |
| 31 | Brownpoll | Northern Gibbon | Gray Catbird |
| 32 | Coastal Abelia | Brown-spotted Foxglove | Tufted Titmouse |
| 33 | American Pipit | Scuffy Fletcher | Dark-horned Thrasher |
| 34 | Lark Tango | Phainopepla | Knight's Solitaire |
| 35 | Rose-throated Congaree | Brogan's Jay | Bicknell's Thrush |
| 36 | River Pointwing | Bohemian Waxwing | Dusky Noddy |
| 37 | Spot-breasted Noddy | McCown's Longspur | Pale-eyed Baylin |
| 38 | Kieffer Tanager | Bronze-headed Tanager | Western Wood-Pewee |
| 39 <i>Catch</i> | Reebok | Ziploc | Bullock's Oriole |
| 40 | Evening Grosbeak | Dakota Raven | Antietam |
| 41 | Yellow-eyed Junco | Kipp's Grackle | Red-throated Noddy |
| 42 | Pinyon Jay | Vermilion-tipped Finch | Eastern Ruffe |
| 43 | Whiskered Thrush | Kirkland Waterthrush | Black-capped Gnatcatcher |
| 44 | Green-notched Starling | Indigo Bunting | Yellow-eyed Tanager |
| 45 | Mississippi Kinglet | Kate's Warbler | Budgerigar |
| 46 | Violet-green Cowbird | Bobolink | Tortoise Crossbill |
| 47 | Pine Siskin | Crimson Wrenrobin | Blue Swinger |
| 48 | Emerald Mockingbird | Valerian | Eastern Phoebe |
| 49 | Grey Mountain Pinchot | Great Kiskadee | Cobbler's Oriole |
| 50 | Shiny Ridgeway | Veery | Honeyed Manakin |
| 51 | Red-rumped Noddy | American Treetit | Ovenbird |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Leaf.

| Trial | Name 1 | Name 2 | Name 3 |
|-----------------|----------------------------|--------------------------|------------------------------|
| 1 | Weeping Willow | Sweetnut | Dandelion Ash |
| 2 | River Birch | Winternut | Bronze Mountain Elm |
| 3 | Red Mountainwood | Venuswood | American Sycamore |
| 4 | Bur Oak | Green Hazel | Flowering Placket |
| 5 | Monte Cassino Oak | White Ash | Purple Watertree |
| 6 | Goldenbark Burr | Tennessee Grapin | Apricot |
| 7 | Prairie Redbark | Cat-eye Hickory | Sugar Maple |
| 8 | Japanese Maple | Orange Planterwood | Roundleaf Alder |
| 9 | Black Walnut | Yirgacheffe | Calumet Sycamore |
| 10 | Silver Firth | White Bruck | American Mountain-ash |
| 11 | Capaya | Boxelder Maple | Saranac Tupelo |
| 12 <i>Catch</i> | Scarlet Oak | Cheese Nips | Adidas |
| 13 | Northern Winslow | Rock Elm | Wallich's Cherry |
| 14 | Pignut Hickory | Anthurium | Pittberry |
| 15 | Alstroemeria | Quaking Aspen | Yellow Oolong |
| 16 | Lily Elm | Pendleton Oak | American Beech |
| 17 | Flowering Dogwood | Yellow Cottonwood | Bristleleaf Catalpa |
| 18 | Mouse Oak | Norwegian Silkbark | Pecan |
| 19 | Yellow Poplar | California Bargo | Feather Willow |
| 20 | Rooibos | Redbud | Moon Plum |
| 21 | Victorian Poplar | Tibouren | Black Cherry |
| 22 | Cherrybark Oak | Brisco Birch | Broadleaf Dago |
| 23 | Black Brandywine | Crimson Walnut | Oregon White Oak |
| 24 <i>Catch</i> | Springer Spaniel | Bigleaf Maple | American Airlines |
| 25 | Bigtooth Aspen | Martin's Locust | Western Tolvo |
| 26 | Dancing Ash | Cone Maple | Southern Magnolia |
| 27 | Southern Kamut | Post Oak | Red River Vosch |
| 28 | Christmas Maple | Red Alder | Pewter Oak |
| 29 | Montana Green Oak | Paper Birch | Coppernut |
| 30 | Slippery Elm | American Moffett | Meridan Whitewood |
| 31 | Sweetgum | Peruvian Hickory | Sepia |
| 32 | Mississippi Alder | Ebony Spleenwood | Blue Ash |
| 33 <i>Catch</i> | Cadillac | Siamese Cat | Black Cottonwood |
| 34 | Coffee Gum | Horse Chestnut | Black Linwood |
| 35 | Mowamba | Black Tupelo | Sourroot |
| 36 | Delta Maidenhair | Jubilee Magnolia | Live Oak |
| 37 | Spanish Maple | Black Muscat | Eastern Cottonwood |
| 38 | Frosted Beech | Sassafras | Japanese Painted Birch |
| 39 | White Kava | Overcup Oak | American Finwood |
| 40 | Sweeney's Oak | Notched-bark Cottonwood | Honey Locust |
| 41 | Regal Poplin | Red Loden | Littleleaf Linden |
| 42 | Shellbark Hickory | Hudson Willow | Terrywood |
| 43 | Trembling Elm | Hackberry | Shiny Gum |
| 44 | Spine Oak | Sickle-leaf Willow | Ginkgo |
| 45 | Butternut | Colonial Bricktree | Honey Boxwood |
| 46 | Baldcypress | Ringed Dogwood | Littleleaf Tappan |
| 47 | Silver Aster | Valley Walnut | Tulip Poplar |
| 48 | Kentucky Coffeetree | Dixiewood | Mottlewood |
| 49 | Henwood | Water Tupelo | Jade Birch |
| 50 | Chervil | Netleaf Hackberry | Sierra Hickory |
| 51 | Yorkshire Aspen | Goldenrain | Sun Cypress |

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

SVET-Mushroom.

| Trial | Name 1 | Name 2 | Name 3 |
|-----------------|-------------------------------|--------------------------|-----------------------------|
| 1 | Portabello | Witches Brew | Pignoli |
| 2 | Porcini | Cabbage | Fiddle |
| 3 | Fluted Russica | Cannelle | Shiitake |
| 4 | White Truffle | Milky Scaber | Sugar Siullus |
| 5 <i>Catch</i> | Dishwasher | Cauliflower | Taco Bell |
| 6 | River Vervain | Red-capped Scaber | Fern |
| 7 | Wood Ear | Molasses | Steely Wood |
| 8 | Vinegar | Black Saddle | Barrel |
| 9 | Cardoon | Bunny Ear | Green-spored Parasol |
| 10 | Black Perigord Truffle | Cat's Paw | Bachilucium |
| 11 | Fan | Russell's Redfoot | Wine-cap Stropharia |
| 12 | Zeller's Bolete | Camel | Death in the Afternoon |
| 13 | Black Tollius | Bleeding Plovit | Black Trumpet |
| 14 | Sea String | Mountain Puff | Matsutake |
| 15 | Burgundy Top | Morel | Hiziki |
| 16 | Midoni | Crimini | Scarlet Tulip |
| 17 | Painted Bark | Brown Shandy | Death Cap |
| 18 | Udupi | Cinnamon Cap | Mauricus |
| 19 | Chanterelle | Globe | Mozuku |
| 20 | Button | Snowcap | Beaver Tooth |
| 21 | Cipolini | Teddy Bear | Reishi |
| 22 | Horn-toothed Bolete | Shaggy Parasol | Habutai |
| 23 | Pig's Ear | Mouse of the Woods | Raven Claw |
| 24 <i>Catch</i> | Macy's | Velveeta | King Bolete |
| 25 | Amber Stalk | Tavel | Enoki |
| 26 | Cognac | Cloud Ear | Sousaire |
| 27 | Portalo | Gombe | King Trumpet |
| 28 | Urikandji | Canopy | Velvet Foot |
| 29 | Oyster | Potelle | Ten Penny |
| 30 | Shiso | Palm | Bleeding Milkcap |
| 31 | Hen of the Woods | Egoji | Conch |
| 32 | Tarutake | Candy Cap | Alsace Brown |
| 33 | Sun-dotted | Bear's Head | Tri-colored Culotte |
| 34 | Courgette | Golden Needle | Chandelier |
| 35 | Parkeo | Straw | Giblet |
| 36 | Smoke | Salmon | Honey |
| 37 | Green Cap | Ballast | Old Man of the Woods |
| 38 | Petaluma | Paddy Straw | Bogie |
| 39 | Fawn | Starburst | Midnight Korme |
| 40 | Clam | Shaggy Mane | Royal Gilded |
| 41 <i>Catch</i> | Field | Hershey's | Google |
| 42 | King's Head | Ivory Plume | Yellowfoot |
| 43 | Blue Foot | Gnome's Hat | Bobbin |
| 44 | Cassava | Angel Wings | Patapan |
| 45 | French Tardis | Hedgehog | Summer Cobalt |
| 46 | Crab Brittlegill | Elephant Trunk | Glass Cap |
| 47 | Fontanelle | Birch Bolete | Spring Fiori |
| 48 | Willow Ash | Diving Bell | Sweet Tooth |
| 49 | Fairy-ring | Ruffle Cap | Pag Lace |
| 50 | Satin Top | Harutake | Slippery Jack |
| 51 | Horse | Dotted Pin | Jester |

Birder Specific Experience Questionnaire. Extended bird-specific experience questions for birders used in Study 2. Note that for the order of the responses for question 6 are reversed from the others and so responses were adjusted before analysis.

1. At what age did you first develop an interest in birds?
___(Age)
2. At what age did you first start birding relatively seriously (e.g., spending time learning bird identifications, going on planned bird walks, joining local Audubon or ornithological societies, etc.)
___(Age)
3. How often do you go birding (specifically set aside time for bird watching at home or elsewhere)?
 - _ Less than once a year
 - _ 1-3 times per year
 - _ 4-6 times per year
 - _ 7-12 times per year (every 1-2 months)
 - _ 13-24 times per year (1-2 times per month)
 - _ 25-48 times per year (every 1-2 weeks)
 - _ 49 or more times per year (several times each week)
4. How often do you travel outside of your region (more than 1 hour travel time from your home), at least in part, for specific bird watching opportunities?
 - _ Almost never
 - _ 1 time per year
 - _ 2-3 times per year
 - _ 4-6 times per year
 - _ 7 or more times per year
5. How often have you planned a vacation with a primary intent of birding, on average?
 - _ I am a professional who regularly identifies birds (e.g., ornithological research, photographer, tour leader, educator, wildlife resource manager)
 - _ More than once a year
 - _ Once a year
 - _ Every other year
 - _ Once every few years
 - _ Rarely or never
6. Do you keep a log (journal, online list, etc.) of birds that you see?
 - _ Never
 - _ Sometimes
 - _ Almost always

SEMANTIC VANDERBILT EXPERTISE TEST – SUPPLEMENTAL MATERIALS

7. About how many different types of birds (specific species or subspecies) have you observed in person while birding during your lifetime?

___(Number)

8. How would you rate your own bird expertise for birds where you live?

_ I am a novice. Nearly all other birders I meet are more skilled than I am.

_ I am a beginner. Most birders I meet are more skilled than I am, but I occasionally meet other beginners like me when out birding.

_ I have intermediate birding skills. While there are many birders more skilled than I am, I can identify many birds that beginners cannot.

_ I have advanced birding skills. While I am not the most expert birder that I know in my area, I often identify birds quicker and more accurately than others.

_ I have expert birding skills. While not a professional, I often lead birding trips for my local birding societies, organize local bird counts, etc.

_ I have expert birding skills. While I have met some people who are more expert than I am, I have done things like lead birding tour groups professionally, conduct ornithological research, educate about bird identification and bird conservation, or work in wildlife management.

_ I have expert birding skills. I am recognized by my peers in my state, nationally, or internationally as someone other experts would turn to because of my expertise.

9. How many birding periodicals (magazines, newsletters, journals) do you subscribe to?

___(Number)

10. How many local, national, or international birding organizations do you belong to (groups involved in planning or tracking bird sightings, science of birds, bird identification, formal groups of bird enthusiasts, etc.)

___(Number)

11. How often do you attend birding events, conferences, or meetings with other bird enthusiasts?

_ Almost never

_ 1-3 times per year

_ 4-6 times per year

_ 7-12 times per year (every 1-2 months)

_ 13-24 times per year (1-2 times per month)

_ 25-48 times a year (every 1-2 weeks)

_ 49 or more times per year (several times each week)

The case of a category without semantic labels.

We hypothesized that the underlying abilities that support the acquisition of visual and semantic knowledge may be independent and predicted that the only common contribution to visual and semantic performance for a given category would be experience with that category. Even keeping with the original assumption, another possible reason for a correlation between visual and semantic performance could be the use of labels to help encode and remember the objects in a visual task like the VET. While labels are not used in the VET, some subjects with domain-relevant semantic knowledge may still use object names during the task. Therefore, it is important to consider the extent to which performance on the visual tasks is potentially contaminated by verbal strategies.

However, a verbal strategy may not be equally available for all categories. There are categories for which every exemplar has a name that is likely available to experts, such as cars. For other categories, semantic knowledge, at least individual object names, might not be as readily available, even to an expert. This would reduce the potential overlap between semantic knowledge and performance on a visual task. Shoes (in our case women's high heels) are a good example of such a category. Individuals highly familiar with women's high heels might be very good at recognizing diagnostic visual features of women's high heels, such that they would do very well on the VET-Shoe in which they need to generalize across non-diagnostic features (color, material, viewpoint) but not diagnostic features (toe shape, heel design, heel height) to recognize different exemplars of the same pump. Yet, these subjects may not know the labels for specific shoes. While they might be able to recognize the style of some shoe designers, specific shoes models change frequently and those names are rarely used to identify shoes beyond the immediate shopping experience.

To test this, we compared two categories for which labels would be either available to experts, or not. After the VET and SVET in Study 2, we asked subjects to perform an explicit naming task for 18 images of birds and shoes taken from the VETs. For shoes, we expected that few subjects, if any, would provide a specific brand or model name, while for birds, we expected that some would be able to name the birds by common species names.

Bird and shoe image naming task. Images used for the naming test were the grey-scale images of birds and shoes used as foils in the VET-Bird and VET-Shoe, respectively. There were 18 trials for each category. Subjects completed the naming test as an online survey using REDCap electronic data capture survey tools (<http://redcap.vanderbilt.edu>; Harris et al., 2009) hosted by Vanderbilt University. Each image was presented with a blank textbox below it in which subjects were instructed to type the most specific name they had for each object or “NA” if they did not have a name for the object. All of the bird trials were shown on a single page first, followed by all of the shoe trials on another page.

Results and discussion of naming task.

Shoe naming. No subject, even those with high VET-Shoe and SVET-Shoe scores, provided brand or designer names for shoes, as are used in the SVET, or specific shoe model names to name each shoe image. Instead, all shoe naming responses were descriptions of the pictured shoe. These descriptions were almost always either very

general category names (e.g., pump, stiletto, peep-toe, platform) or descriptions of the shoe's physical attributes including shape, color, fabric, and style (e.g., pointy-toe heel, ornate open-toed pumps, scalloped pumps, black bow, round-toe, beige suede). While some subjects included elaborate descriptions of shoes, suggesting an understanding of diagnostic shoe features, a specific subordinate-level name for the shoe was never given.

In general, this suggested that verbally recoding the shoe images with these labels would not be very helpful. Nonetheless, we scored naming performance according to whether they provided any detailed description. For each subject we looked at all 18 shoe trials and assigned a single score based on their naming responses across trials. If a subject put "NA" or a single, general word (heel, shoe, pump) for more than half of the trials, they were scored as 0. Subjects were scored as 1 if they listed a more detailed description on more than half of the trials ($N=133$, 101 female). This descriptive measure was significantly and positively correlated with all shoe measures: experience (shoe experience aggregate; $r(208)=0.37$, $p\leq 0.0001$), VET-Shoe ($r(208)=0.29$, $p\leq 0.0001$), and SVET-Shoe ($r(208)=0.28$, $p\leq 0.0001$). This suggests that the ability (or willingness to) provide detailed descriptions of shoes reflects domain-relevant experience. However these descriptions were long (e.g., nude peep toe pump, black suede closed toe stiletto with snakeskin back) and do not appear sufficiently unique to distinguish between shoes on the test.

Bird naming. To score the names subjects provided for each of the bird images, we counted any name that was at least a partial match to the common species name of each bird as correct (e.g. for barn swallow: barn swallow, swallow, and swallow with a different sub-species descriptor, such as tree swallow or cliff swallow, were all counted as correct). More than half of subjects ($N=112$) did not correctly name *any* birds. Overall, scores ranged from 0-7 birds correctly named out of 18 bird trials (mean=0.84 birds correct, $SD=1.27$).

Performance on the bird naming task was significantly correlated with all other bird measures: self-report bird experience aggregate ($r(208)=0.46$, $p\leq 0.0001$), VET-Bird ($r(208)=0.37$, $p\leq 0.0001$), and SVET-Bird ($r(208)=0.42$, $p\leq 0.0001$). While many subjects could not name any birds, those who did correctly name even a few birds performed better on both the visual and semantic bird tests. These naming data provide further evidence of the convergent validity of our measures and suggest that with greater levels of bird experience, people typically acquire greater knowledge of subordinate-level bird names.

A positive correlation between VET and SVET performance was found for a category for which expertise affords the ability to name objects (birds: $r(208)=0.35$, $p\leq 0.0001$), but also for a category for which objects cannot be named at the subordinate-level by experts, as demonstrated by our naming survey (shoes: $r(208)=0.42$, $p\leq 0.0001$). This suggests that subordinate-level names are not required to demonstrate shared variance between visual and semantic performance.