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Experiment 2

Development of a new set of standardised photographic stimuli

The Picture Superiority Effect (PSE) is highly robust and replicable. In recognition memory paradigms, the PSE has been shown to manifest as both increased recollection [] and familiarity (Dewhurst & Conway, 1994; Rajaram, 1996, 1993; Wagner et al., 1997; Yonelinas, 2002). Studies utilising event-related potentials (ERPs) have also demonstrated how pictures enhance parietally-based ERP components (linked to recollection processes) compared to words (Ally & Budson, 2007; Curran & Doyle, 2011). The effect is also present in children, adolescents and healthy older adults [Whitehouse et al. (2006); need ref for healthy OAs], though perhaps more striking is the fact that patients with Alzheimer's disease or those presenting early isolated memory impairments, known as amnestic mild cognitive impairment (aMCI), also show memorial benefits toward pictures (Ally, 2012). This is supported by ERP studies demonstrating comparable enhancements to recollection-based ERP components between healthy older and aMCI groups when pictures, rather than words, are utilised (Ally et al., 2009). There is debate within the literature attempting to characterise the nature of memory deficits in aMCI, whereby despite general agreement that recollection processes are impaired in such individuals, findings show great inconsistency with regard to familiarity (Algarabel et al., 2012; Belleville, 2011; Pitarque, 2016; Wolk et al., 2011, 2013). The PSE may have been largely overlooked as an area for further research in an effort to help settle this debate, despite recent reviews highlighting methodological differences across studies as the potential source of inconsistent findings (Koen & Yonelinas, 2014; Migo et al., 2012; Schoemaker et al., 2014). The level at which stimuli distinctiveness impacts successful recognition is currently unclear, and there is little consistency across studies with regard to what is considered a 'picture'.

Many experiments utilise illustrations for their picture stimuli (van der Meulen et al., 2012; Westerberg et al., 2013; Wolk et al., 2011), with a standardised set of items published by Snodgrass & Vanderwart (1980) among the most-used illustrated picture stimuli within the domain of memory research (Bermúdez-Margaretto et al., 2018; Deason et al., 2015; Hockley, 2008; Martins & Lloyd-Jones, 2006; McBride & Anne Dosher, 2002; Meade et al., 2019; Schmitter-Edgecombe et al., 2009; van der Meulen et al., 2012; Wagner et al., 1997; Wammes et al., 2016; Weldon et al., 1989; Weldon & Roediger, 1987; Whitehouse et al., 2006). The set consists of 260 line drawings of common, everyday objects (in black ink), along with their written word counterpart (e.g. "shoe"). Items were selected on the basis of exemplifying a number of semantic categories, including animals, furniture, fruit, etc., and a range of normative data was collected for each item; indices of naming agreement, mental imagery agreement, visual complexity, and familiarity were all recorded for each drawing. The normative data for the Snodgrass & Vanderwart (1980) items has been continually revisited, with a number of studies gathering culturally-appropriate norms (e.g. in Spanish (Sanfeliu & Fernandez, 1996), Chinese (Yoon et al., 2004), and Russian (Tsaparina et al., 2011), and additional testing of the relationship between reaction time and naming agreement (Székely et al., 2003). There are multiple theories of object recognition; the recognition-by-components theory proposed by Biederman (1987) identifies shape as the most crucial factor for successful recognition, in which case, the object outlines found in the set by Snodgrass & Vanderwart (1980) should be more than sufficient for experimental cognitive research. Other theories, however, posit that surface details such as colour and texture are just

as crucial in forming object representations (Tanaka et al., 2001; Tarr & Bülthoff, 1998). The wide-ranging applicability of the Snodgrass & Vanderwart (1980) items throughout a number of cognitive disciplines has led to a more recent revision of the items by Rossion & Pourtois (2004). This revision consists of the exact same objects, digitally re-drawn to include surface textures and shading.

Another notable addition to the items by Rossion & Pourtois (2004) is the availability of both greyscale and colour versions

of each item - as opposed to the greyscale-only items found in the Snodgrass & Vanderwart (1980) set.

(see Figure 1 for example items contained in the Snodgrass & Vanderwart (1980) and Rossion & Pourtois (2004) stimuli sets). The Rossion & Pourtois (2004) revision now appears to be favoured over the original Snodgrass & Vanderwart (1980) set among many cognitive researchers (Rollins & Riggins, 2018, p. @ensor2019; Stenberg, 2006; Wolk et al., 2008), almost certainly attributable to the increased detail and ability to choose whether colour is a necessary condition.

Despite their widespread use, line drawings have been criticised for their relative simplicity and lack of realism (Viggiano et al. (2004)), with many researchers favouring the use of photographs as experimental stimuli (Embree et al., 2012; Pitarque, 2016; Troyer et al., 2016, 2012; Wang et al., 2013). Photographs of faces are especially useful in research examining emotion and face recognition (Barba, 1997; Bowen et al., 2019; Cui et al., 2016; Herzmann et al., 2018), though a number of common-object photograph sets have also emerged as ecological alternatives to line-drawn items (Adlington et al., 2009; Moreno-Martínez & Montoro, 2012; Viggiano et al., 2004).

While the published sets of photographs are undoubtedly useful in a range of cognitive domains, they do not allow us to specifically examine stimuli format as a factor on its own, as the concepts depicted are unique to the set they derive from. In order to make such comparisons, and ensure any differences in performance (e.g. recognition memory ability) are indeed attributable to stimuli format, the objects depicted must be consistent across stimuli formats. The current study presents a new set of photographic stimuli that extend the set of words and drawings provided by Rossion & Pourtois (2004), wherein each of the concepts depicted has been carefully matched across formats. These new stimuli will be utilised throughout a number of planned recognition experiments that aim to systematically compare measures of recognition against different 'levels' of stimuli. The curation of a new set of photographs - carefully matched to other formats - allows investigation into whether picture superiority magnitudes are mediated by the format pictures are presented in. The inconsistent use of different formats across studies has previously made it difficult to reconcile effects obtained in response to drawings with those obtained in response to photographs - an inherent problem when concepts are not matched across format. Normative data for the new set of photographs is also presented, allowing others who also wish to use our photograph stimuli to filter items by measures of naming agreement, mental imagery agreement, familiarity, visual complexity, and colour diagnosticity.

Method

Participants

A total of 374 subjects completed the online experiment (see Table 1 for a breakdown of the gender and age of the sample). This sample size provided 20 data points for each of the five response types, while also ensuring the experiment did not last too long for participants (approx 25-mins). Subjects were recruited from both voluntary participation websites such as Prolific Academic[1] (where they received payment at the rate of £5/hr), and via the in-school research participation system[2] (where they received course participation credits).

Table 1: Gender and age (*SD*) of the current sample.

Gender	N	Age	
Female	*197*	33.18	*(11.26)*
Male	*170*	33.23	*(10.28)*
Non-binary	*2*	23.50	*(-)*
Unspecified	*5*	29.40	*(6.11)*
Total	***374***	**33.10**	***(10.76)***

To meet our YA requirements, all participants were required to be aged between 18-59 years (actual obtained range: 18-59 years). As our experiment involved typing the English labels for a range of image stimuli, subjects were also asked whether English was their first language; all but one participant indicated that English was indeed their first language (99.73%).

Materials

A pool of 136 line drawings (Rossion & Pourtois, 2004) - depicting common, everyday objects - were brought forward from the previous experiment. These items (along with their written-word labels) would form two of the unique stimuli formats that would be used in future recognition experiments (words and drawings). In this study, the drawings from Rossion & Pourtois (2004) were simply used as a reference in the photograph matching process. Corresponding photographs were obtained online with the aim of depicting the everyday objects in a similar manner to the drawings. The inherent subjectivity involved in this process may have led to images that were not a reliable 'match' to the concepts they were selected to depict (for example, the photograph chosen to depict the concept "bottle" may inadvertently provoke the majority of participants to give the label "wine", thus indicating that this particular photograph fails to accurately depict the intended concept). To address this issue, and ensure all photographs more objectively depict the same concepts as the line drawings, three different photograph variations were found for each everyday object, with the aim of taking the best 'match' forward. An emphasis was placed on variety across these variations, with the aim of obtaining at least one photograph that very closely resembled the line-drawn depiction, and another offering a more modern depiction. Some items were substituted due to unique restrictions that meant they could not easily

[1] https://www.prolific.co/

[2] https://keelepsychology.sona-systems.com/

be translated into photographic format (for example, the shapes “arrow” and “star” can not be represented similarly as photographs). Photo stimuli were obtained by searching open-source, copyright-free image websites (e.g. Unsplash[3]; Pexels[4]) for photographs that depicted the same everyday objects as the line drawings (see Appendix B for the full list of image references).

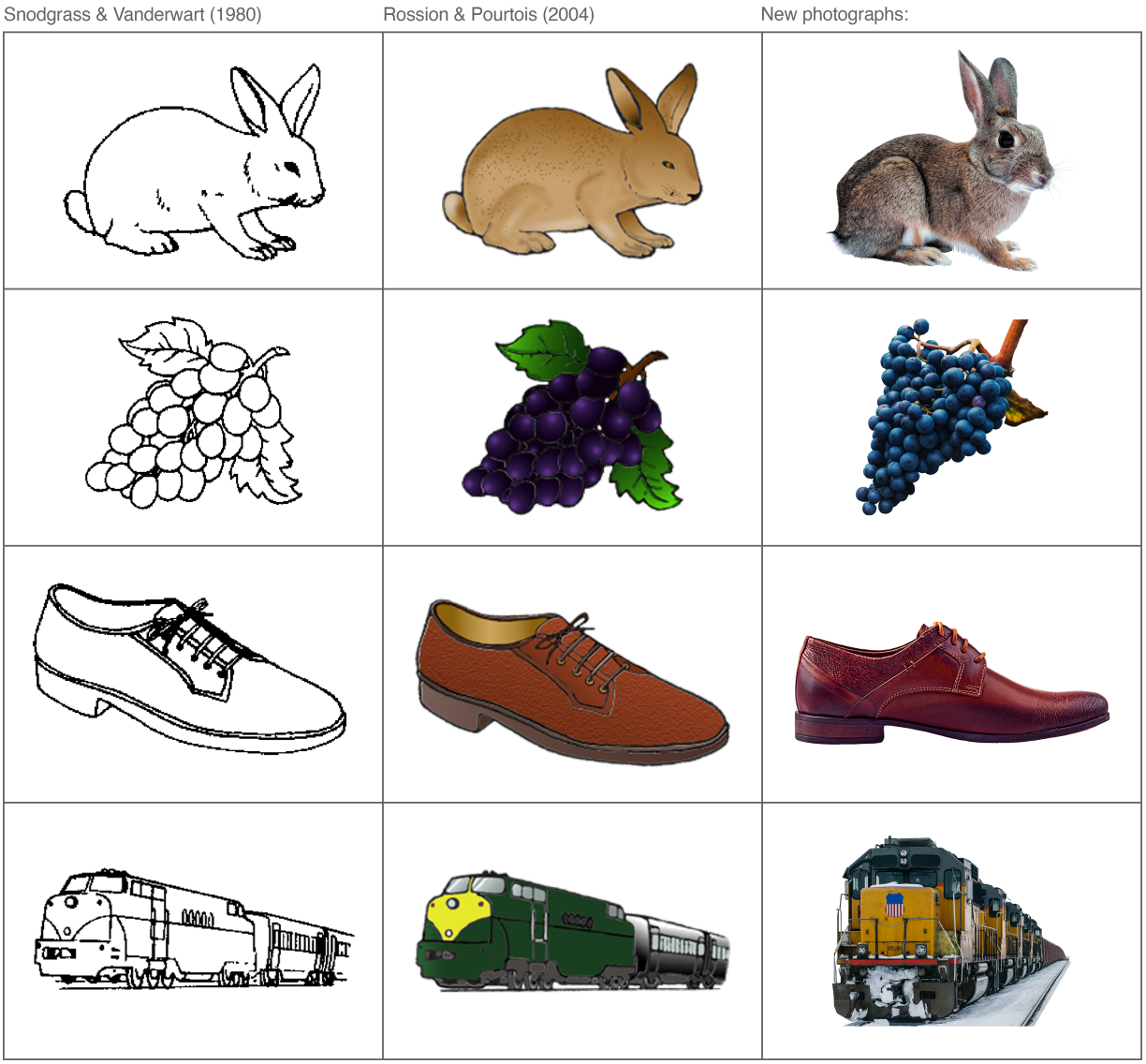

Figure 2: Example pictures from Snodgrass & Vanderwart (1980), Rossion & Pourtois (2004), and photographs from the current study selected to match.

The matching process produced a total of 408 unique photographs. All were imported into Adobe Photoshop (20.0.04 Release), where the background was removed to isolate the object of interest from other potentially distracting visual details. This was completed manually using the magnetic lasso and polygonal lasso tools (edges were either feathered by 1px or left un-

[3]https://unsplash.com/
[4]https://www.pexels.com/

feathered). The orientation of isolated objects was adjusted to ensure they matched as closely as possible with their line-drawn counterpart (e.g. all photograph variations of the item 'boot' were adjusted so the toe was facing left and the heel facing right, as in the line drawing); this was often achieved by flipping or mirroring the object to 'correct' the direction.

Despite isolating objects from their background, a small number of photographs still contained irrelevant and potentially distracting details. For example, in one photograph variation of the item 'piano', there was a sign on the object that may have impacted how the item was named or rated. Such details were removed as best as possible using the clone stamp and content-aware fill tools. Any obvious text (e.g. brand names) and numbers were also removed from photographs using the same method (see Figure 3). The primary aim of the current study was to obtain photographs that could be clearly distinguished as a unique stimuli format among words and line drawings; it is conceivable that combining these formats (i.e. inadvertently including photographs that also contain written words) might affect recognition performance in ways that are not directly comparable to items defined only by a single category. Any text in our photographs was therefore removed, apart from a couple of exceptions whereby such details happened to be integral to the depiction of the object (e.g. the numbers found on a ruler or clock).

All photographs were exported from Photoshop in ".png" format in both their original colour and in greyscale (by setting saturation levels to 0). Final edits were completed in Adobe Lightroom (Classic, 8.2 Release): exposure (brightness) adjustments were made on images that appeared too light or too dark; highlights were decreased if some areas were too bright compared to the rest of the photograph; shadows were raised if some areas were too dark compared to the rest of the photograph; noise reduction was applied to some items after isolating the subject had inadvertently made unwanted noise/grain more visible. The changes made to each image were systematically applied to both the colour and greyscale versions (e.g. if one variation of "shoe" had an exposure increase of .010 for the colour version, the greyscale version also received an exposure increase of .010). Some colour-specific adjustments were made to the colour photographs only, however; common photo artefacts such as chromatic aberration (purple fringing) were corrected, along with white balance normalisation. Finally, all photographs were placed on a 600x600 pixel white background, and made to fill this frame as much as possible (i.e. some items were restrained by height, whilst others were restrained by width).

Original Manipulated

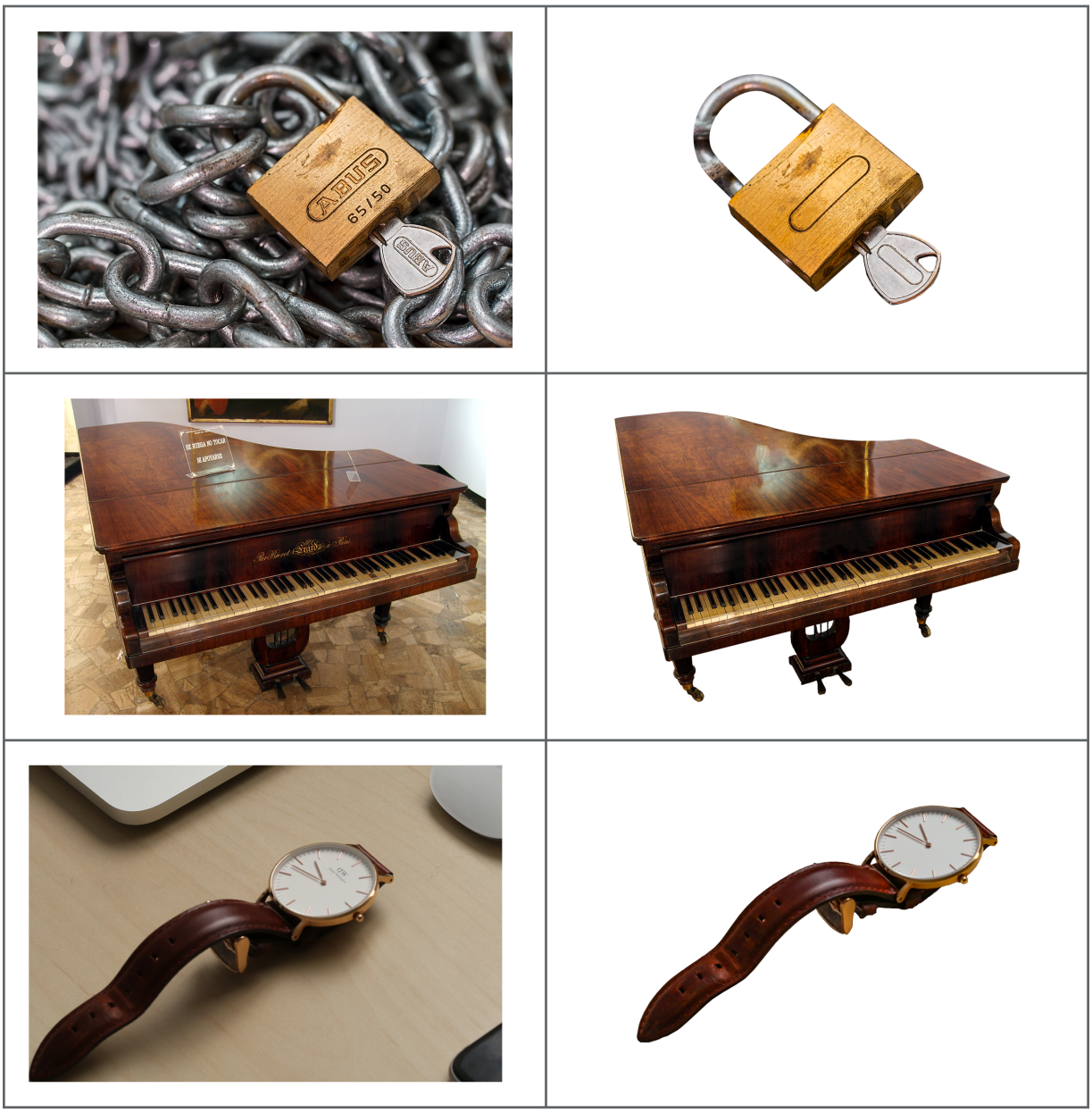

Figure 3: Examples of background and text removal in photograph items.

Design

This was a descriptive study; a mix of qualitative and quantitative data were gathered in the absence of hypothesis testing. Across three blocks, all participants provided five types of response toward photograph stimuli: i) Naming; ii) Familiarity; iii) Visual Complexity, iv) Colour Diagnosticity; and v) Mental Imagery Agreement. Excluding the Naming task (consisting of a typed single-word answer), all responses were provided on a 5-point ordinal scale. Within par-

ticipants, the maximum number of response type provided for any one item was two; Naming and Familiarity responses were paired in one block, Visual Complexity and Colour Diagnosticity responses were paired in another, and Mental Imagery Agreement responses were always presented in a separate block. The order of these three blocks was counterbalanced across participants. Toward each individual photograph, participants made only one or two types of response before moving on to the next item, and the same items were not repeated to participants. For each photograph, the five types of required data were obtained by counterbalancing between participants (e.g. for the first variation of the "cat" photograph, the Naming and Familiarity data was obtained from one participant, the Visual Complexity and Colour Diagnosticity data was obtained from another, and the Mental Imagery Agreement data was obtained from another).

Procedure

Data collection was conducted via two online platforms; i) Qualtrics[5] - a survey platform that allowed for straightforward collection of consent, demographics, and computer compatibility data, and ii) Pavlovia[6] - an open-source experiment hosting platform for studies programmed in Javascript (Peirce et al., 2019).

In the Naming and Familiarity block, participants were first asked "What is the name of the item depicted?". Subjects were instructed to name each photograph as briefly and unambiguously as possible, with one name only, and respond by typing their answer into the response box. If they did not know the name of an item, or had a tip-of-the-tongue experience, participants were instructed to type "no" for their answer (the term "don't know" was avoided so as not to encourage subjects to deviate from single-word responses, as instructed).Following the naming judgement, with the same photograph still present on-screen, participants were next asked "How familiar is the item depicted?". Subjects were instructed to judge each photo according to how usual or unusual the item was in their realm of experience; specifically, familiarity was defined as "the degree to which you come in contact with, or think about, the concept", and encouraged participants to rate the concept itself rather than the particular way it was currently shown. Participants selected one value from the 5-point scale, ranging from very unfamiliar (1) to very familiar (5), and were encouraged to use the full range of the scale throughout the set of photographs.

In the Visual Complexity and Colour Diagnosticity block, participants were first instructed to respond to the question "How visually complex is this picture?" using a 5-point scale that ranged from "very simple" (1) to "very complex" (5). Complexity was defined to subjects as "the amount of detail in the picture"; in contrast to the familiarity ratings, participants were encouraged here to rate the complexity of the picture itself, rather than the real-life item. If the photograph shown was greyscale, subjects would simply move on to the next item. If the item shown was in colour, however, participants were also required to make a colour diagnosticity judgement. This concept was defined as "how typical / normal the colour of the item is", instructing subjects to rate on a 5-point scale ranging from "Not at all diagnostic (i.e. this item could be in any other colour equally well)" (1) to "Highly diagnostic (i.e. this item appears only in this colour in real life). Participants were instructed to utilise the full range of options on the scale when making visual complexity

[5]https://www.qualtrics.com/uk/

[6]https://pavlovia.org/

and colour diagnosticity judgements. After making these ratings, a fixation cross was presented during a 1s interstimulus interval.

Due to the slight change in procedure and increased task complexity, Mental Imagery Agreement ratings were always acquired in an individual block (i.e. not alongside any other response types). First, participants were presented with a written label for 3s (e.g. “cat”) and told to focus their attention on the word. Once the written word disappeared, a beep tone was played alongside the instruction “close your eyes and imagine this item” (subjects were encouraged to close their eyes and begin imagining the item as soon as they heard the tone, but the written instruction were included as a further prompt). After 3s a second beep tone sounded to alert subjects to open their eyes, where they were presented with a photograph of the item they had been instructed to imagine. On a 5-point scale, participants were asked to “rate the agreement between your mental image and the picture”, from “low agreement” (1) to “high agreement” (5). The degree of agreement was defined as “how similar your mental image of the item is to the picture shown”. A fixation cross was displayed for 1s before the next word item was shown.

All responses were self-paced; the timing was only controlled during the study/imagine section of the Mental Imagery Agreement block.

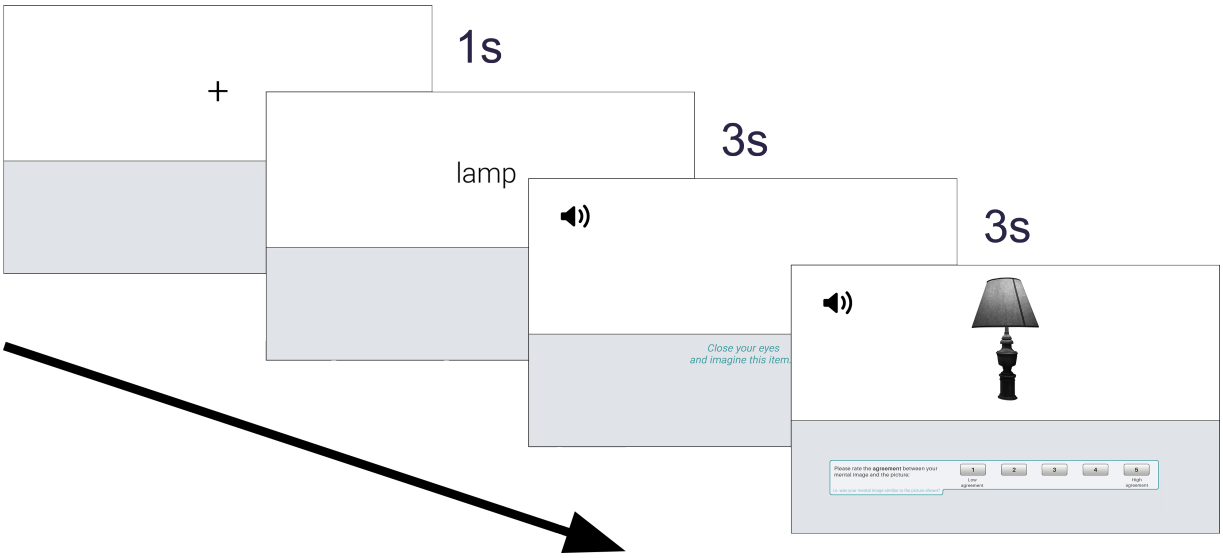

Figure 4: Data collection procedure for Mental Imagery Agreement responses.

Data processing

The naming responses for each photograph item were manually assessed for spelling and typing errors. Automatic spell checking software was avoided in an effort to avoid inadvertently introducing unique names that were not actually given by participants. The vast majority of errors were unambiguous and easy to correct (e.g. “anker” = “anchor”, “peguin” = “penguin”, “ssnowman” = “snowman”), or consisted of transforming plural words to singular (or vice versa, depending on the form of the intended label - e.g. “sock” to “socks”). Some responses were a little more ambiguous, and necessitated comparison to the photographs they were in response

to for additional clarity (e.g. a photograph depicting a plug that would fit into North American electrical sockets was labelled as “usplug” - given the nature of our UK-based sample, it’s likely the subject was responding: “U.S. (i.e. United States) plug”.

There were instances where subjects provided a sensible and correctly spelled English word, but that were clearly typos when examined against the photograph they were in response to (e.g. “dock” for a photograph depicting a duck, “frock” for a frog, and “beer” for a “bear”, etc). The most ambiguous spelling error to correct was “bittle”, which was provided by more than one participant and to more than one item; separate inspections of the photographs participants were responding to made this easy to correct though, with one participant clearly meaning to respond “bottle”, whilst the other meant to respond “beetle”. Though participants were instructed to only give a single label for each item, some multiple word responses were found (without spaces) during the spell checking process. On such occasions, a judgement was made regarding whether multiple words were retained, or whether the response could be shortened into a single word. A general rule was applied whereby if the other words provided additional information, they were retained (e.g.“maledear” - presumably “male deer” - was kept as a two-word answer). Multiple word responses were generally shortened into a single word when the intended label for the item was clearly present, and no information was lost in the process (e.g. “haircomb” was shortened to the intended answer “comb”). It is noted that there was some inherent subjectivity in this process, though as such items were not common among straightforward responses, their overall effects are estimated to be negligible.

Finally, there were some responses that were changed to “no” as they were clearly intended to signify that the responder did not know the name of the item shown; the experiment instructed participants to type “no” in these instances, though the labels “none” and “idk” (common abbreviation for “I don’t know) were provided instead. There was also a single response that was manually changed to”no“, as the provided label was a single letter and thus entirely unclear what the intended answer should be (see Appendix A for full list of manipulations to naming responses). This process yielded data that could be used to determine which photograph variation best matched the intended concepts (e.g. 100% of participants labelled the object “bottle”, indicating a perfect match), and which did not (e.g. only 50% of participants labelled the item “bottle”, whilst the other 50% gave the label “wine”, indicating a poor match). Photographs showing poor agreement across participant-generated labels, or those where the majority of labels differed from the intended concept, could be replaced with the variation demonstrating the most accurate depiction.

A number of variables were calculated prior to analysis. The output variables for the naming responses included the most frequent name,

percentage agreement (proportion of subjects reporting this most frequent name), and the statistic *H*. Like percentage agreement, the *H* statistic (ref) also reflects the naming agreement between participants, however, it also takes into account the number of unique names provided for any given item. A *H* value of 0 indicates perfect naming agreement (all subjects responded alike), whilst a *H* value of 1 shows that two unique names were given, but with identical proportions (i.e. 10 subjects responded with Name A, and 10 subjects responded with Name B). As the *H* value increases,

Mean ratings were calculated for familiarity, visual complexity, colour diagnosticity, and mental imagery agreement.

Results

Mean scores for each of the variables of interest, separated between colour and greyscale items, are shown in Table 2 (mean scores for each unique photograph are presented in Appendix B). To compare normative data across the grey and colour versions of the photographs, a series of independent samples t-tests were run on each variable, as well as their corresponding reaction times (excluding scores of colour diagnosticity, which only apply to items presented in colour).

Naming

Naming accuracy was very high across all items (*M* = 0.95), indicating that overall, the selected photographs accurately depicted the intended concepts. Accuracy was the same between the grey (*M* = 0.94) and colour (*M* = 0.95) versions of the photographs [$t(749.02) = -0.44$, $p = .660$]. Overall *H* values were low (*M* = 0.23), similarly indicating a good level of naming agreement across all items. While Rossion & Pourtois (2004) observed significantly better naming agreement for their colour items in comparison to their grey items, the same pattern was not replicated when comparing the colour photographs (*M* = 0.23) to the grey photographs (*M* = 0.24) in the current study [$t(747.06) = 0.55, p = .581$]. Naming RTs did not differ between grey (*M* = 3.99ms) and colour (*M* = 3.81ms) photographs [$t(666.35) = 1.46, p = .144$]. Overall, these analyses suggest no colour differences in the ability to accurately name photographic items.

Table 2: Summary statistics (mean and *SD*) for each of the measured variables, by colour and greyscale items.

Variable	Grey	Colour
Naming accuracy	0.94 (0.08)	0.95 (0.08)
Naming agreement (H)	0.24 (0.33)	0.23 (0.31)
Mental imagery agreement	3.46 (0.57)	3.74 (0.66)
Familiarity	4.15 (0.58)	4.21 (0.56)
Visual complexity	2.86 (0.63)	3.15 (0.64)
Colour diagnosticity	- -	3.22 (0.86)

Mental imagery agreement

(*M* = 3.6), grey (*M* = 3.46), colour (*M* = 3.74), [$t(797.29) = -6.45, p < .001$]

Scores of familiarity (*M* = 4.18), grey (*M* = 4.15), colour (*M* = 4.21), [$t(812.90) = -1.59$, $p = .113$]

Scores of visual complexity (*M* = 3), grey (*M* = 2.86), colour (*M* = 3.15), [$t(813.64) = -6.51$, $p < .001$]

Selection of final items

In an effort to reduce researcher bias, the normative naming data was assessed to determine which photograph variation best matched the concepts depicted in the line drawings (Rossion & Pourtois, 2004). For each item represented in the photographs, one variation (of a possible three) would be selected for inclusion in a final list of stimuli that would be taken forward into subsequent recognition experiments. The selection process was conducted on the basis of naming data only. If an item was found to primarily convey a different concept than intended during the naming task, then it could not be sufficiently compared to its line-drawn (and written-word) counterpart during recognition studies.

Naming data from all participants was collated, resulting in at least 20 unique naming responses for each of the 816 photographs (408 colour items and 408 greyscale items). The proportion of 'correct' responses (i.e. names that were congruent with the intended label) and the proportion of 'don't know' responses were calculated for each item. Photographs were subjected to a number of criteria to determine whether they should be taken any further. First, items were excluded if they received a high proportion of "don't know" responses (20%) - all of the photographs depicted common, everyday objects, and so if a number of subjects were unable to name the item, that particular photograph was considered to be a poor representation of the item. Similarly, items were excluded if they were incorrectly named by the majority of subjects (i.e. if the proportion of correct responses equalled .50 or lower), since it was essential for the photograph items to depict the same concepts as those found in the line drawings and word stimuli. Finally, items with particularly poor naming agreement were also excluded (i.e. 20% or fewer subjects named the object similarly). A total of 54 photographs matched at least one of these criteria. Regardless of whether flagged items were grey or colour, both items had to be removed since it was necessary to have otherwise identical grey and colour versions in our final stimuli list. Thus, a total of 64 items (32 grey / 32 colour) were excluded at this stage.

Next, the proportion of correct responses were compared between grey and colour photographs in order to identify items showing the lowest difference. In order to manipulate colour in later recognition experiments, it was important to select items where naming was congruent across colour/grey items; in other words, it would be difficult to attribute particular recognition response patterns to the addition of colour (if a difference were found) when the grey version could not be identified (or encoded) similarly. Variations exhibiting the least difference between colour and grey items (for the proportion of correct responses) were taken forward, while the rest were excluded. In a number of instances, multiple variations for the same object had the same 'difference' score. For example, all three variations of the item "balloon" exhibited perfect naming agreement, irrespective of whether they were presented in colour or grey (and thus "balloon1", "balloon2", and "balloon3" had a difference score of 0). For items where more than 1 variation remained, manual rankings were obtained from two of the researchers to determine which variation best depicted the intended concept. For each item, the researchers independently studied the remaining variations and provided a rank of which they thought was best (1) to worst (2 or 3, depending on the number of variations that remained). The ratings from both researchers were collated; items where there was agreement as to which variation best depicted the intended concept were selected for inclusion in the final stimuli list. For all the items where there was disagreement between the researchers rankings, one of the variations was simply selected at random.

Experiment 3

Common, everyday objects will be presented in: i) word form (written in simple, black ink); ii) drawing form (line-drawn illustrations); or iii) photograph form (detail rich exemplars of the real world object). To our knowledge, no study has systematically matched items across a number of formats in an effort to determine the point at which stimuli distinctiveness impacts recognition.

Method

Participants

A total of 158 subjects completed the online experiment (see Table 3 for a breakdown of the gender and age of the sample).

To meet our YA requirements, all participants were required to be between 18-59 years of age (actual range: 18-58). As our experiment involved English word stimuli, we also asked subjects whether English was their first language; the vast majority (95.57%) reported that English was indeed their first language.

The current sample was comprised of participants sourced from voluntary participation websites such as Prolific Academic[7] (72.78%), where payment at the rate of £5/hr was given, and via the in-school research participation system[8] (15.19%), where they received course participation credits. A small number of participants were also recruited from Psychological Research on the Net[9] (12.03%).

Rossion & Pourtois (2004) demonstrated that naming agreement could be improved sby adding surface texture and shading only resulted in a small improvement It is hypothesised that the grey photographs

Table 3: Gender and age (*SD*) of the current sample.

Gender	N	Age	
Female	*96*	29.53	*(10.18)*
Male	*58*	31.36	*(11.19)*
Questioning	*1*	21.00	*(0)*
Unspecified	*3*	50.33	*(4.93)*
Total	***158***	**30.54**	***(10.84)***

[7] https://www.prolific.co/

[8] https://keelepsychology.sona-systems.com/

[9] https://psych.hanover.edu/research/exponnet.html

Results

Overall hits, false alarms (FAs), and recognition

Separate 3 (stimuli format: words, drawings, photographs) x 2 (response-option condition: RFG-judgments, RFBG-judgements) mixed ANOVAs were conducted on the mean proportion of hits and false alarms (FAs; see Table 4).

Table 4: Mean proportion of hits and FAs by stimuli format and response-option condition.

	Hits	FAs
Stimuli format		
Words	0.55	0.21
Drawings	0.76	0.09
Photographs	0.86	0.05
Response option		
RFG	0.78	0.13
RFBG	0.74	0.11

Proportion of total hits For the proportion of hits, there was a significant main effect of stimuli format [$F(1.75, 273.58) = 229.89$, *MSE* $= 0.02$, $p < .001$]. The interaction effect was not significant [$F(1.75, 273.58) = 0.74$, *MSE* $= 0.02$, $p = .461$]. Post-hoc comparisons for the main effect of stimuli format showed that photographs ($M = 0.86$) produced a significantly higher proportion of hits than both words ($M = 0.55$) [$t(312) = -20.96$, $p < .001$] and drawings ($M = 0.76$) [$t(312) = -6.55$, $p < .001$]. Drawings ($M = 0.76$) also produced a significantly higher proportion of hits compared to words ($M = 0.55$) [$t(312) = -14.41$, $p < .001$].

Proportion of total FAs For the proportion of FAs, there was a significant main effect of stimuli format [$F(1.46, 227.29) = 106.64$, *MSE* $= 0.01$, $p < .001$]. The interaction effect was not significant [$F(1.46, 227.29) = 1.22$, *MSE* $= 0.01$, $p = .287$]. Post-hoc comparisons for the main effect of stimuli format showed that photographs ($M = 0.05$) produced a significantly lower proportion of FAs than both words ($M = 0.21$) [$t(312) = 13.98$, $p < .001$] and drawings ($M = 0.09$) [$t(312) = 3.34$, $p = .003$]. Drawings ($M = 0.09$) also produced a significantly lower proportion of FAs compared to words ($M = 0.21$) [$t(312) = 10.65$, $p < .001$].

Overall performance accuracy For overall performance accuracy, there was a significant main effect of stimuli format [$F(1.93, 300.97) = 586.13$, *MSE* $= 0.02$, $p < .001$]. The interaction effect was not significant [$F(1.93, 300.97) = 2.02$, *MSE* $= 0.02$, $p = .136$]. Post-hoc

comparisons for the main effect of stimuli format showed that photographs ($M = 0.81$) produced significantly better performance accuracy than both words ($M = 0.34$) [$t(312.00) = -33.25$, $p < .001$] and drawings ($M = 0.67$) [$t(312) = -9.57$, $p < .001$]. Drawings ($M = 0.67$) also produced significantly better performance accuracy compared to words ($M = 0.34$) [$t(312) = -23.69$, $p < .001$].

Discrimination (d') and response bias (c)

To assess the roles of discrimination and response bias, separate 3 (stimuli format: words, drawings, photographs) x 2 (response-option condition: RFG-judgements, RFBG-judgements) mixed ANOVAs were conducted on d' (d-prime; measure of sensitivity) and c-scores (decision criterion; see Table 5).

Table 5:

	d'	c
Stimuli format		
Words	1.06	0.39
Drawings	2.18	0.32
Photographs	2.78	0.22
Response option		
RFG	0.10	0.01
RFBG	0.10	0.02

d' (discrimination) For d' scores, there was a significant interaction between stimuli format and response-option [$F(2.00, 311.73) = 3.60$, *MSE* $= 0.26$, $p = .029$] (see Figure 5).

Photographs ($M = 2.86$) facilitated better discrimination between hits / FAs than both words ($M = 1.13$) [$t(312.00) = -21.66$, $p < .001$] and drawings ($M = 2.13$) [$t(312) = -9.13$, $p < .001$] in the RFG group. Drawings ($M = 2.13$) also showed significantly higher d' scores compared to words ($M = 1.13$) [$t(312) = -12.53$, $p < .001$]. In the RFBG group, the same pattern was evident; photographs ($M = 2.69$) facilitated better discrimination than both words ($M = 0.98$) [$t(312) = -20.79$, $p < .001$] and drawings ($M = 2.24$) [$t(312) = -5.53$, $p < .001$] Again, drawings ($M = 2.24$) also showed significantly higher d' scores than words ($M = 0.98$) [$t(319.09) = -10.22$, $p < .001$].

Comparisons of stimuli format across the response-option groups showed that d' scores for photographs did not significantly differ between the RFG ($M = 2.86$) and RFBG ($M = 2.69$) conditions [$t(319.09) = 1.43$, $p = .709$], nor for drawings (RFG: $M = 2.13$, RFBG: $M = 2.24$, [$t(319.09) = -0.96$, $p = .932$], nor for words (RFG: $M = 1.13$, RFBG: $M = 0.98$, [$t(319.09) = 1.39$, $p = .736$]).

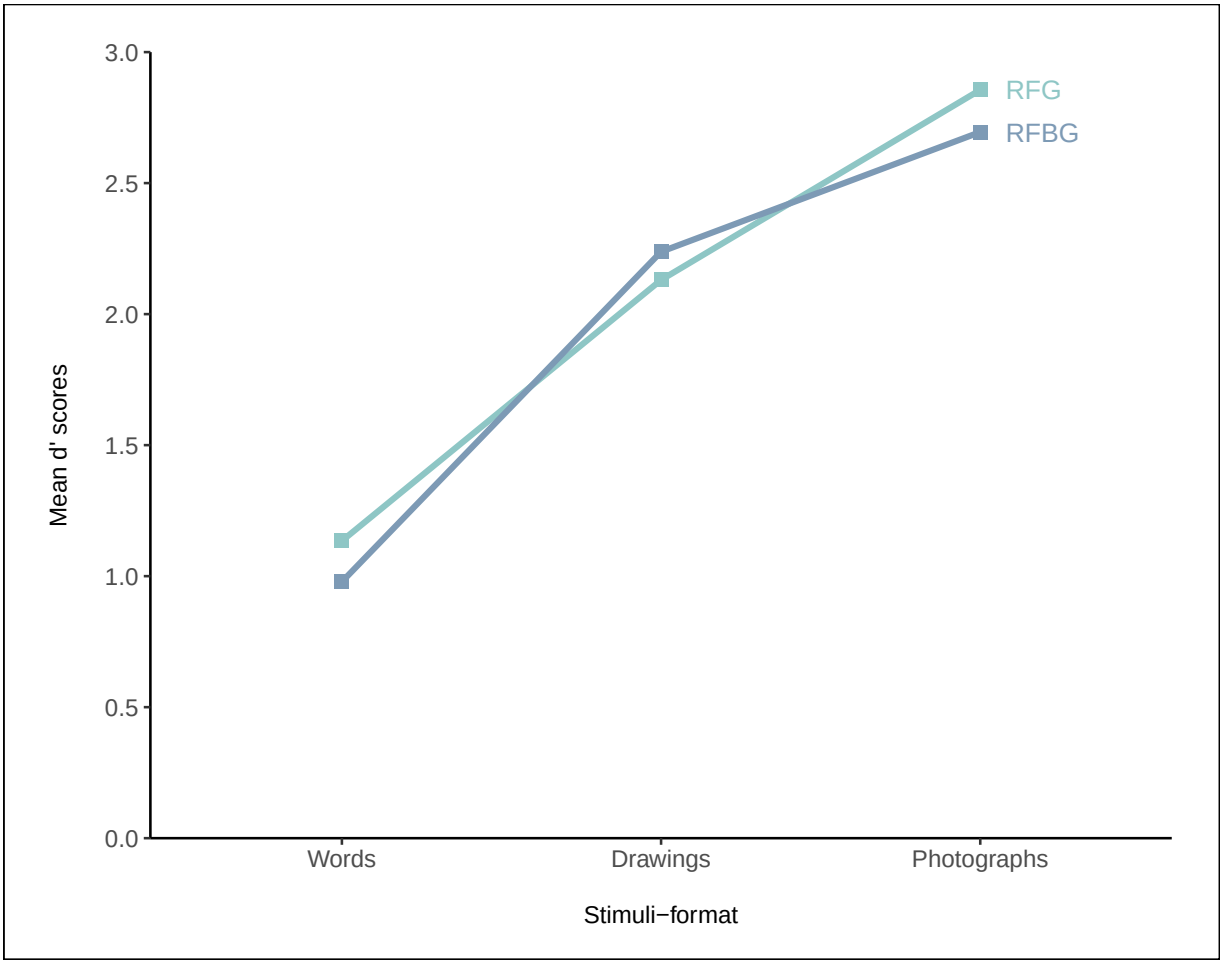

Figure 6: Interaction plot between stimuli format and response-option for d' scores.

c (response bias) For c-scores, there was a significant main effect of stimuli format [$F(1.74, 272.11) = 10.25$, *MSE* $= 0.13$, $p < .001$]. The interaction effect was not significant [$F(1.74, 272.11) = 0.62$, *MSE* $= 0.13$, $p = .518$]. Post-hoc comparisons for the main effect of stimuli format showed that photographs ($M = 0.22$) produced significantly lower c-scores (and thus a less conservative response bias) than both words ($M = 0.39$) [$t(312) = 4.52$, $p < .001$] and drawings ($M = 0.32$) [$t(312) = 2.53$, $p = .032$]. There was no difference in c-scores between drawings ($M = 0.32$) and words ($M = 0.39$) [$t(312) = 1.99$, $p = .116$].

Hits assigned Recollection, Familiarity, and Guessing

To determine the effects of stimuli format and response-option on accurate recognition memory judgements, separate 3 (stimuli format: words, drawings, photographs) x 2 (response-option condition: RFG-judgements, RFBG-judgements) mixed ANOVAs were conducted on the mean proportion of hits assigned Recollection, Familiarity, and Guessing (see Figure 7).

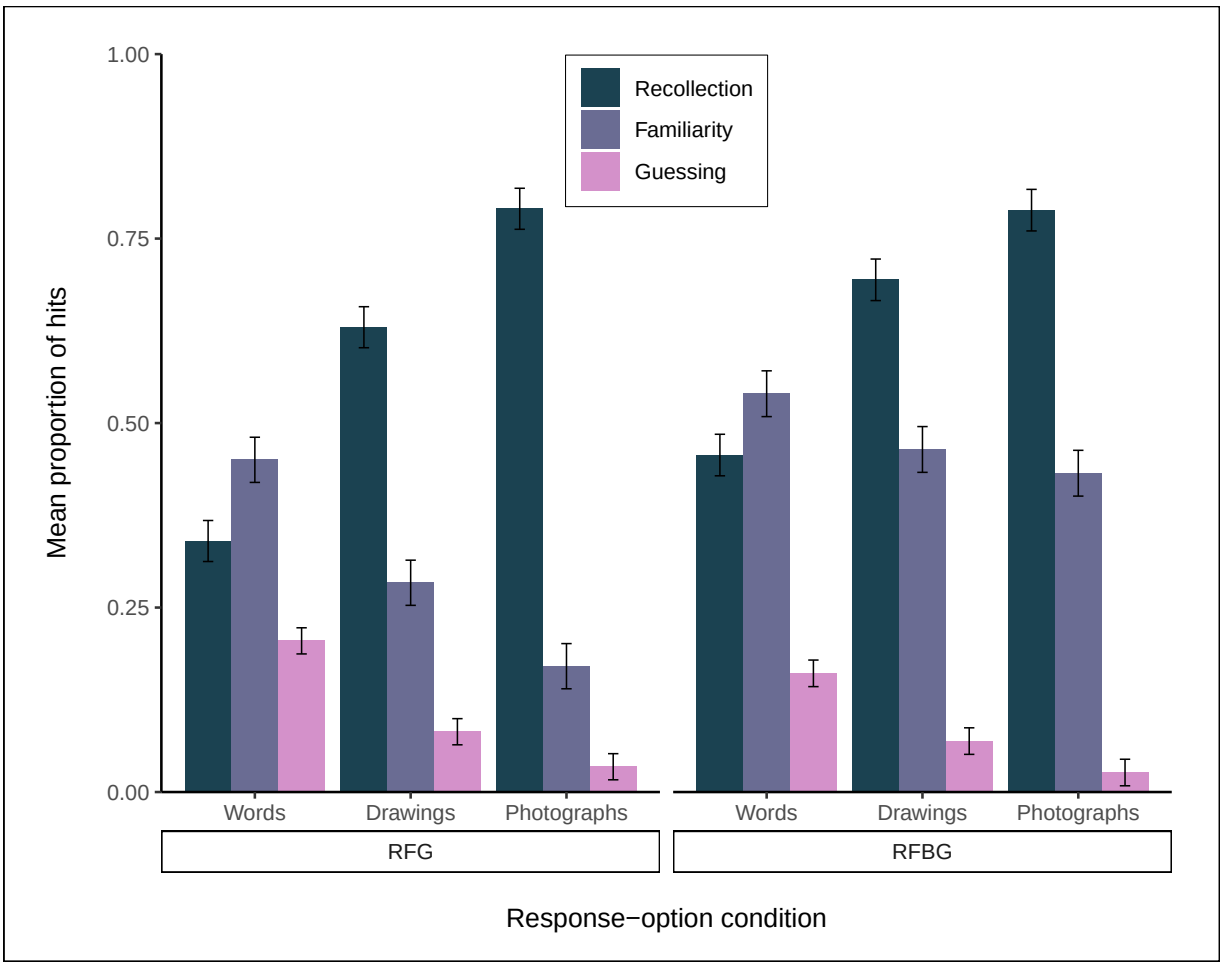

Figure 7: Proportion of hits assigned Recollection, Familiarity, and Guessing, by stimuli format and response-option condition.

Recollection (hits) For hits assigned Recollection, there was a significant interaction effect [$F(1.77, 273.98) = 5.32$, *MSE* $= 0.03$, $p = .007$] (see Figure 8). Photographs ($M = 0.79$) resulted in more Recollection hits than both words ($M = 0.34$) [$t(310) = -17.90$, $p < .001$] and drawings ($M = 0.63$) [$t(310) = -6.38$, $p < .001$] in the RFG group. Drawings ($M = 0.63$) also resulted in more Recollection hits than words ($M = 0.34$) [$t(310) = -11.52$, $p < .001$] in the RFG group. In the RFBG group, there was an identical pattern; photographs ($M = 0.79$) resulted in more Recollection hits than both words ($M = 0.46$) [$t(310) = -12.62$, $p < .001$] and drawings ($M = 0.69$) [$t(310) = -3.59$, $p = .005$]. Drawings ($M = 0.69$) also resulted in more Recollection hits than words ($M = 0.46$) [$t(310) = -9.03$, $p < .001$] in the RFBG group. Comparisons of stimuli format across the response-option groups showed no difference in the number of Recollection hits for photograph stimuli between the RFG ($M = 0.79$) and RFBG ($M = 0.79$) conditions [$t(278.97) = 0.05$, $p > .999$]. The same pattern was evident for drawings (RFG: $M = 0.63$, RFBG: $M = 0.69$ [$t(278.97) = -1.62$, $p = .584$]). Word stimuli, however, produced significantly more Recollection hits in the RFBG group ($M = 0.46$) compared to the RFG ($M = 0.34$) group

[$t(278.97) = -2.94, p = .041$].

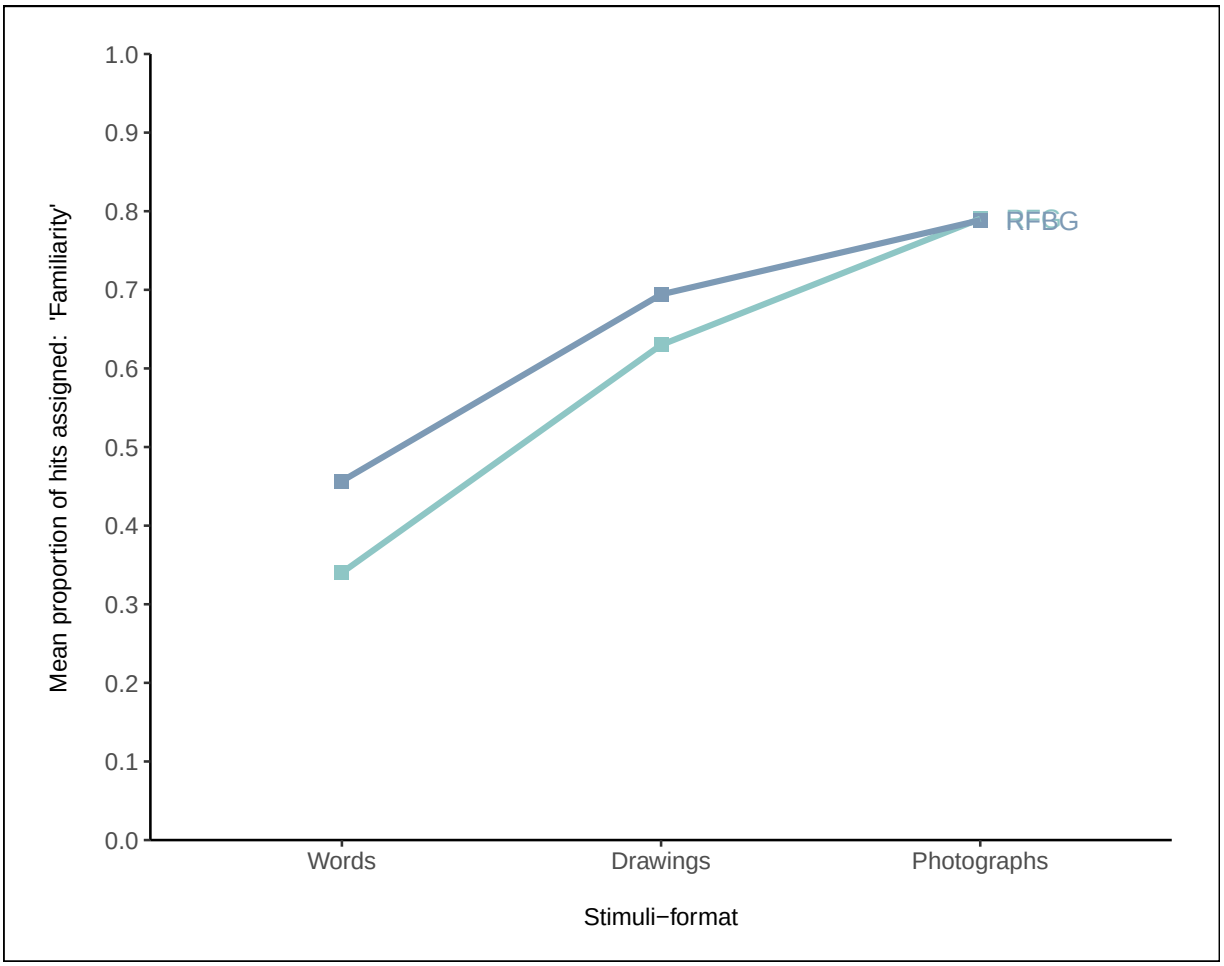

Figure 8: Interaction plot between stimuli format and response-option for the mean proportion of hits assigned Recollection.

Familiarity (hits) For hits assigned Familiarity, there was a significant interaction between stimuli format and response-option [$F(1.52, 236.21) = 8.68$, *MSE* $= 0.04$, $p = .001$] (see Figure 9). Within the RFG condition, words ($M = 0.45$) resulted in more Familiarity hits than both drawings ($M = 0.28$) [$t(310) = 5.84$, $p < .001$] and photographs ($M = 0.17$) [$t(310) = 9.80$, $p < .001$]. Drawings ($M = 0.28$) also produced more Familiarity hits compared to photographs ($M = 0.17$) [$t(310) = 3.96, p = .001$].

Within the RFBG condition, words ($M = 0.54$) still produced more Familiarity hits than photographs ($M = 0.43$) [$t(310) = 3.61$, $p = .005$]. However, there was no difference in the number of Familiarity hits when comparing words ($M = 0.54$) to drawings ($M = 0.46$) [$t(310) = 2.53, p = .118$]. Another difference from the within-RFG findings is the number of Familiarity hits for drawings ($M = 0.46$) did not differ from photographs ($M = 0.43$) in the RFBG condition [$t(310) = 1.08, p = .890$].

Comparisons across response-option conditions showed that drawings produced significantly more Familiarity hits in the RFBG ($M = 0.46$) condition compared to RFG ($M = 0.28$) [$t(289.15) = -4.14$, $p = .001$]. A similar pattern was also evident for photographs (RFG: $M = 0.17$, RFBG: $M = 0.43$ [$t(289.15) = -6.00$, $p < .001$]). Words, however, showed no difference in the number of Familiarity hits between the RFG ($M = 0.45$) and RFBG ($M = 0.54$) conditions [$t(289.15) = -2.06$, $p = .314$].

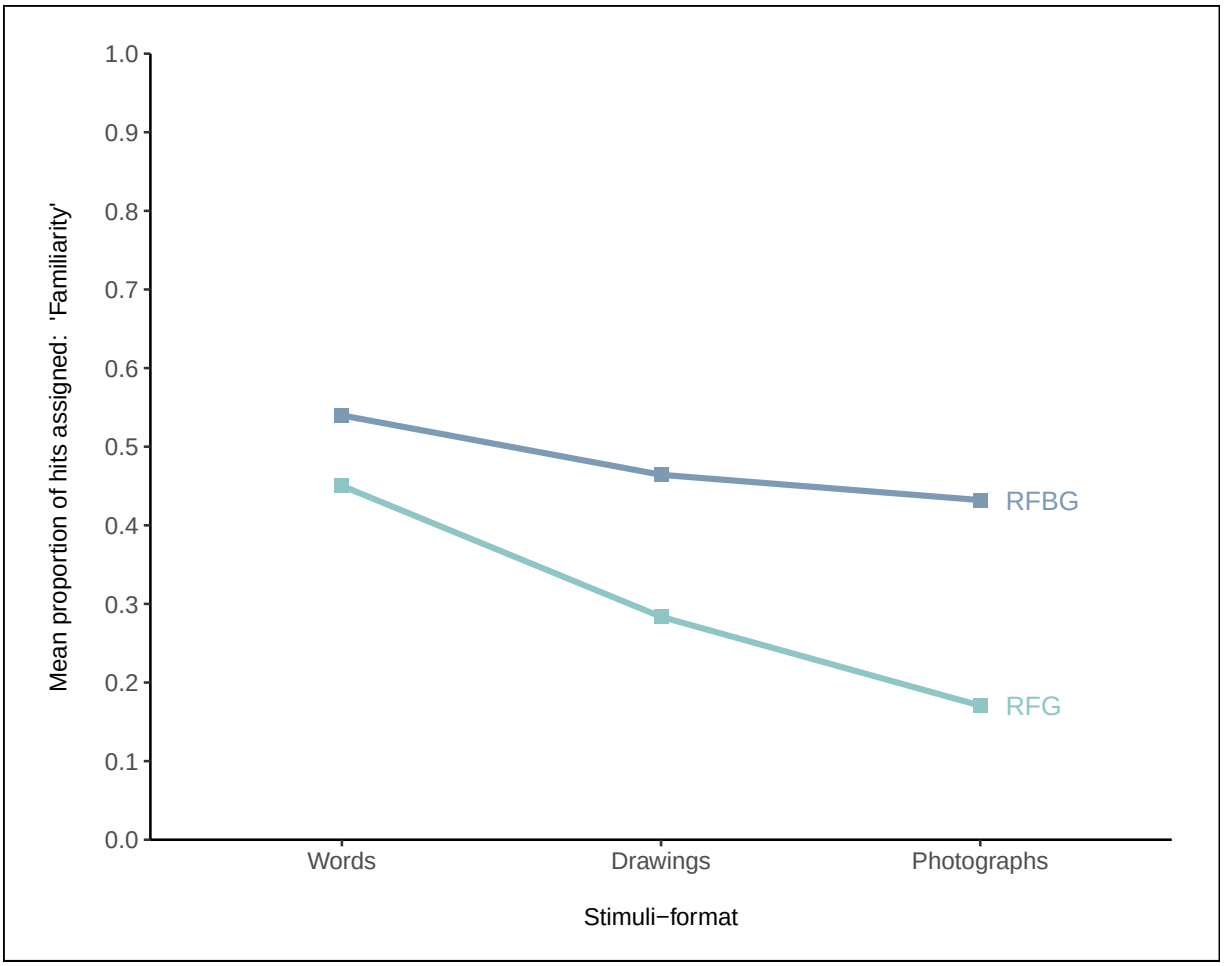

Figure 9: Interaction plot between stimuli format and response-option for the mean proportion of hits assigned 'Familiarity'.

Guessing (hits) For hits assigned Guessing, there was a significant main effect of stimuli format [$F(1.32, 204.20) = 71.22$, *MSE* $= 0.02$, $p < .001$]. The interaction effect was not significant [$F(1.32, 204.20) = 1.12$, *MSE* $= 0.02$, $p = .308$]. Post-hoc comparisons for the main effect of stimuli format showed that words ($M = 0.18$) produced significantly more Guessing hits than both drawings ($M = 0.08$) [$t(310) = 8.19$, $p < .001$] and photographs ($M = 0.03$) [$t(310) = 11.61$, $p < .001$]. Drawings ($M = 0.08$) also produced significantly more Guessing hits compared to photographs ($M = 0.03$) [$t(310) = 3.43$, $p = .002$].

FAs assigned Recollection, Familiarity, and Guessing

To determine the effects of stimuli format and response-option on false alarms, separate 3 (stimuli format: words, drawings, photographs) x 2 (response-option condition: RFG-judgements, RFBG-judgements) mixed ANOVAs were conducted on the mean proportion of FAs assigned Recollection, Familiarity, and Guessing (see Figure 10).

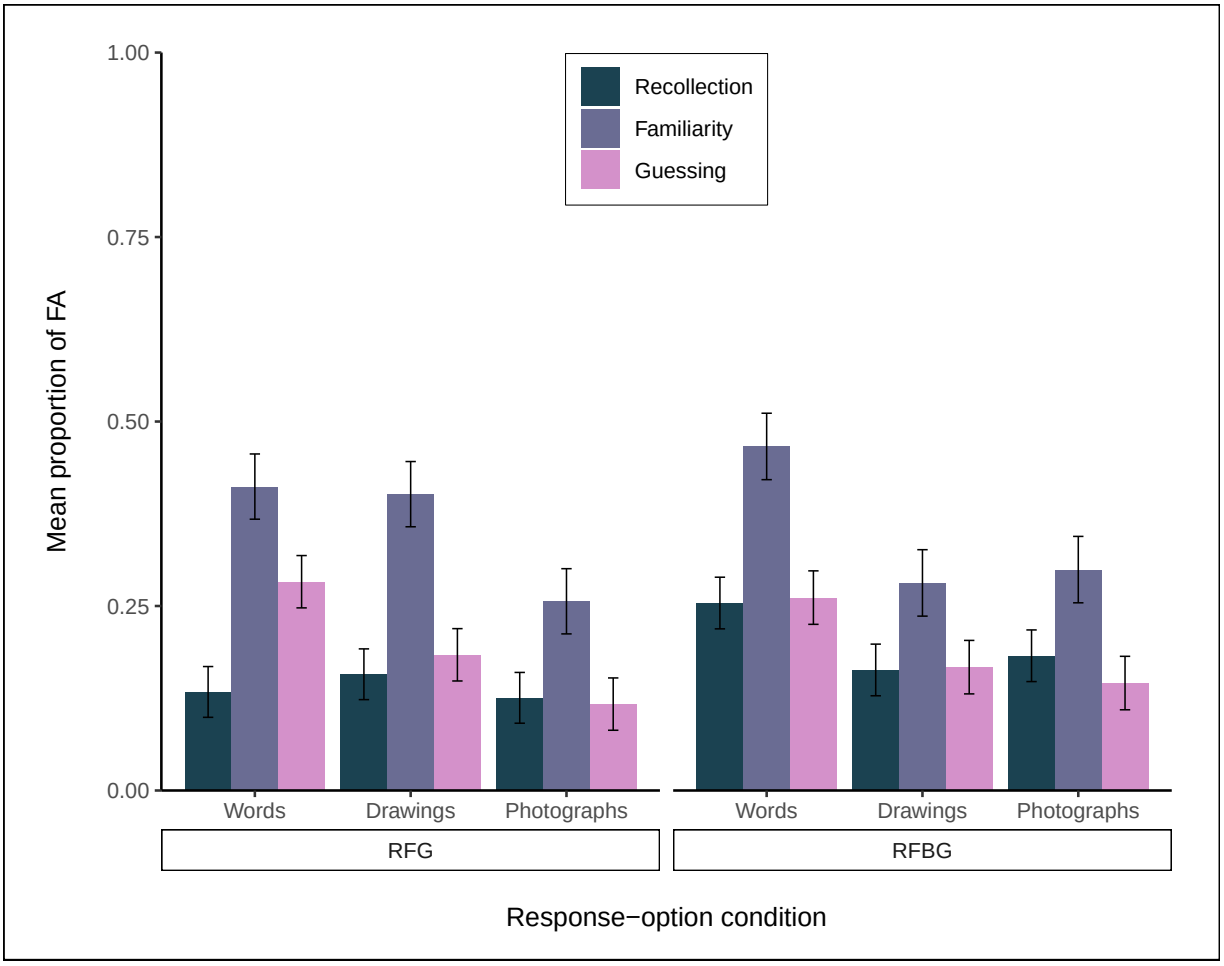

Figure 10: Proportion of FAs assigned Recollection, Familiarity, and Guessing, by stimuli format and response-option condition.

Recollection (FAs) For FAs assigned Recollection, there was no significant main effect of stimuli format [$F(1.94, 301.96) = 1.11$, *MSE* $= 0.07$, $p = .328$] or interaction [$F(1.94, 301.96) = 2.02$, *MSE* $= 0.07$, $p = .136$].

Familiarity (FAs) For FAs assigned Familiarity, there was a significant interaction between stimuli format and response-option [$F(1.98, 309.33) = 3.33$, *MSE* $= 0.11$, $p = .038$] (see Figure 11). Within the RFG condition, words ($M = 0.41$) resulted in more Familiarity FAs than photographs ($M = 0.26$) [$t(312) = 2.96$, $p = .039$], but not drawings ($M = 0.40$)

[$t(312) = 0.20$, $p > .999$]. The number of Familiarity FAs did not differ between drawings ($M = 0.40$) and photographs ($M = 0.26$) [$t(312) = 2.76$, $p = .066$] in the RFG condition.

Within the RFBG condition, words ($M = 0.47$) again produced more Familiarity FAs than photographs ($M = 0.30$) [$t(312) = 3.06$, $p = .029$]. However, words ($M = 0.47$) also produced more Familiarity FAs than drawings($M = 0.28$) [$t(312) = 3.39$, $p = .010$]. As before, the number of Familiarity FAs did not differ between drawings ($M = 0.28$) and photographs ($M = 0.30$) in the RFBG condition [$t(312) = -0.33$, $p = .999$].

Comparisons across response-option conditions showed no differences in the number of Familiarity FAs, for any stimuli format: words (RFG: $M = 0.41$, RFBG: $M = 0.47$ [$t(404.98) = -0.86$, $p = .955$]); drawings (RFG: $M = 0.40$, RFBG: $M = 0.28$ [$t(404.98) = 1.91$, $p = .400$]; photographs (RFG: $M = 0.26$, RFBG: $M = 0.30$ [$t(404.98) = -0.68$, $p = .984$]).

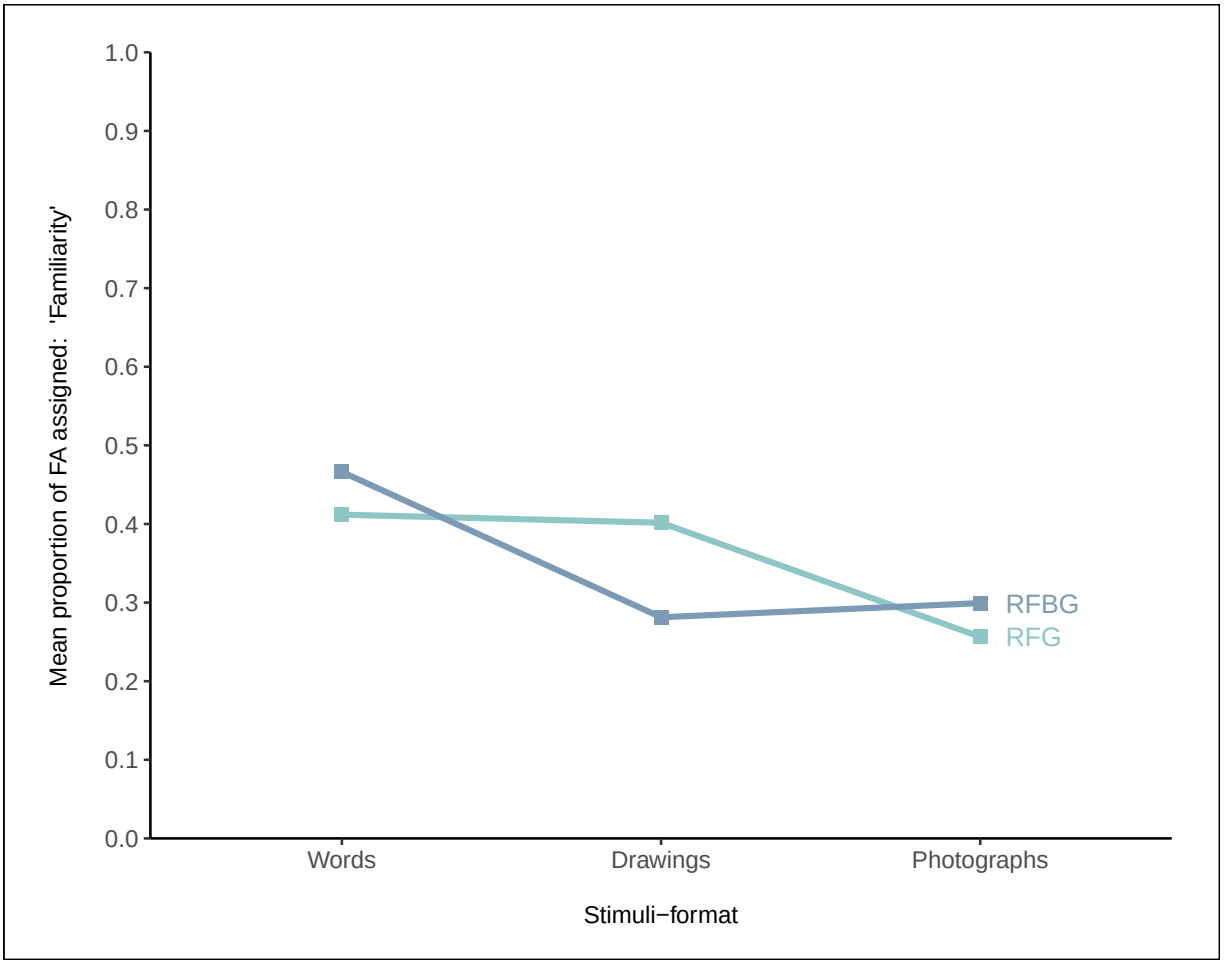

Figure 11: Interaction plot between stimuli format and response-option for the mean proportion of FAs assigned 'Familiarity'.

Guessing (FAs) For FAs assigned Guessing, there was a significant main effect of stimuli format [$F(1.93, 300.68) = 9.44$, *MSE* $= 0.09$, $p < .001$]. The interaction effect was not significant [$F(1.93, 300.68) = 0.35$, *MSE* $= 0.09$, $p = .699$]. Post-hoc comparisons for the main effect of stimuli format showed that words ($M = 0.27$) produced significantly more Guessing FAs than both drawings ($M = 0.18$) [$t(312) = 2.91$, $p = .011$] and photographs ($M = 0.13$) [$t(312) = 4.25$, $p < .001$]. There was no difference in the proportion of FAs assigned Guessing between drawings ($M = 0.18$) and photographs ($M = 0.13$) [$t(312.00) = 1.33$, $p = .378$].

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Appendices

Appendix A

Table 6: Spelling corrections / manipulations to naming responses.

Response	Correction	Response_1	Correction_1	Response_2	Correction_2
;ashtray	ashtray	draw	drawers	olobster	lobster
a	no	drawer	drawers	onions	onion
acoop	scoop	draws	drawers	onions	onion
ancher	anchor	drums	drum	osterich	ostrich
anchore	anchor	eagal	eagle	ostrage	ostrich
ancor	anchor	eclipes	eclipse	ostridge	ostrich
anker	anchor	eclipses	eclipse	ostrige	ostrich
aparagus	asparagus	eclipsse	eclipse	ostrisge	ostrich
apricorte	apricot	eeagle	eagle	ostritch	ostrich
ashtry	ashtray	eele	seal	pair	pear
ballon	balloon	eyeglass	eyeglasses	paper	pepper
ballone	balloon	falg	flag	peacck	peacock
balloone	balloon	feet	foot	pecock	peacock
ballun	balloon	fencing	fence	peguin	penguin
baloon	balloon	footstall	footstool	peneut	peanut
bamnna	banana	fott	foot	pengiuin	penguin
bananaa	banana	frock	frog	pengiun	penguin
bananna	banana	frog/	frog	penguine	penguin
bannan	banana	geese	goose	penquin	penguin
bannana	banana	giaffee	giraffe	peper	pepper
barel	barrel	giaraffe	giraffe	pestleandmorter	pestleandmortar
barrell	barrel	girafe	giraffe	piccalo	piccolo
barrle	barrel	giraff	giraffe	pilers	pliers
barrow	barrel	giraffee	giraffe	pliars	pliers
beatle	beetle	giraffe	giraffe	plier	pliers
beer	bear	girrafe	giraffe	pliyers	pliers
bellpepp34	bellpepper	girraffe	giraffe	plugin	plug
bettle	beetle	gitaur	guitar	plyers	pliers
bicucle	bicycle	gitter	guitar	potatoe	potato
bicyle	bicycle	glases	glasses	pottato	potato
bittle	bottle	glass	glasses	pumkin	pumpkin
bittle	beetle	glassesbottle	bottle	pumpkim	pumpkin

(continued)

Response	Correction	Response_1	Correction_1	Response_2	Correction_2
blueberrys	blueberries	gloves	glove	punpkin	pumpkin
bolw	bowl	grape	grapes	rabit	rabbit
bootle	bottle	gutair	guitar	racoon	raccoon
broon	broom	haircomb	comb	rubarb	rhubarb
broon	broom	hamp	harp	rule	ruler
brum	broom	hand5	hand	seel	seal
busket	basket	harper	hamper	showel	shovel
bycycle	bicycle	hemmar	hammer	snakw	snake
camal	camel	hose	house	soak	socks
canddle	candle	idk	no	specs	spectacles
canle	candle	kacket	jacket	spon	spoon
canon	cannon	kangroo	kangaroo	ssnowman	snowman
carott	carrot	ladders	ladder	steplader	stepladder
carrots	carrot	lader	ladder	sterss	step
carrott	carrot	latter	ladder	sweetcirn	sweetcorn
celary	celery	leafe	leaf	tabaccopipe	tobaccopipe
celeary	celery	leamon	lemon	teakettle	kettle
cellary	celery	leema	lemur	thinbell	thimble
cerlery	celery	lettace	lettuce	thmble	thimble
chain2	chain	lip	lips	thunb	thumb
chestofdrawerserss	chest of drawers	longdress	dress	timbil	thimble
chestofdraws	chest of drawers	maledear	maledeer	timble	thimble
chisle	chisel	meercat	meerkat	toitouse	tortoise
chissel	chisel	mercat	meerkat	tomatoe	tomato
chizel	chisel	mice	mouse	tomoato	tomato
claranet	clarinet	mit	mitten	tortise	tortoise
clouds	cloud	mittens	mitten	tortiste	tortoise
cochroach	cockroach	monkeybut	monkeynut	tortus	tortoise
cock	cockerel	mortle	mortar	usplug	plug
cockaroach	cockroach	mousse	moose	valture	vulture
cockrel	cockerel	muscat	muskrat	vicescripts	vicegrips
combe	comb	nectarin	nectarine	vioin	violin
cycle	bicycle	nectarinee	nectarine	violen	violin
dear	deer	nectrine	nectarine	volion	violin
deere	deer	neddle	needle	waistcoast	waistcoat
dock	duck	noise	nose	wale	well
dolly	doll	none	no	wastecoat	waistcoat
doormouse	dormouse	oencil	pencil	whisell	whistle

(continued)

Response	Correction	Response_1	Correction_1	Response_2	Correction_2
NA	NA	NA	NA	whistel	whistle
NA	NA	NA	NA	whitle	whistle
NA	NA	NA	NA	whsitle	whistle
NA	NA	NA	NA	windown	window

Appendix B

Table 7: Normative data for all photograph items.

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
anchor				
anchor1-photo-colour	3.55 (1.32)	2.95 (1.12)	2.81 (1.21)	4.05 (1.05)
anchor1-photo-grey	2.97 (1.52)	2.81 (0.93)		3.95 (0.89)
anchor2-photo-colour	3.3 (1.56)	3.45 (1.23)	3.5 (1.19)	3.75 (1.25)
anchor2-photo-grey	2.81 (1.57)	3 (0.97)		3.52 (1.33)
anchor3-photo-colour	3.52 (1.33)	2.4 (0.88)	2.7 (1.3)	3.8 (1.01)
anchor3-photo-grey	3.1 (1.52)	2.35 (1.09)		4.25 (0.79)
apple				
apple1-photo-colour	4.79 (0.49)	3.1 (1.14)	3.43 (1.08)	4.15 (0.88)
apple1-photo-grey	4.85 (0.49)	2.19 (1.08)		3.05 (1.23)
apple2-photo-colour	4.95 (0.22)	3 (0.97)	3.5 (1.32)	3.76 (1.04)
apple2-photo-grey	4.4 (0.88)	2.4 (0.99)		2.75 (1.45)
apple3-photo-colour	4.75 (0.55)	3.05 (1.36)	3.75 (1.21)	4.25 (1.02)
apple3-photo-grey	4.71 (0.64)	2.25 (0.91)		3.35 (1.31)
ashtray				
ashtray1-photo-colour	3.62 (1.52)	3.05 (1.16)	2.71 (1.1)	3.9 (1.07)
ashtray1-photo-grey	4.15 (1.14)	2.9 (1.14)		3.5 (1.28)
ashtray2-photo-colour	3.9 (1.48)	3 (1.08)	2.25 (1.29)	4.1 (1.3)
ashtray2-photo-grey	3.5 (1.5)	3 (1.12)		3.5 (1.28)
ashtray3-photo-colour	3.55 (1.39)	3.55 (1.15)	3.1 (1.21)	3.4 (1.19)
ashtray3-photo-grey	4.1 (1)	3.15 (1.14)		3.8 (1.01)
balloon				
balloon1-photo-colour	4.4 (1.1)	1.66 (1.01)	2.25 (1.71)	4.62 (0.92)
balloon1-photo-grey	4.15 (1.18)	1.8 (1.11)		3.48 (1.08)
balloon2-photo-colour	4.45 (1)	2.14 (1.11)	1.81 (1.33)	4.5 (1)
balloon2-photo-grey	4.35 (0.81)	1.85 (0.99)		4.05 (0.94)
balloon3-photo-colour	4.05 (1.05)	1.9 (1.07)	1.95 (1.54)	4.35 (0.93)
balloon3-photo-grey	4.2 (0.95)	1.67 (1.02)		3.55 (1.43)
banana				
banana1-photo-colour	4.65 (0.99)	2.55 (1.5)	4.55 (0.76)	4.48 (0.87)
banana1-photo-grey	4.8 (0.7)	2.1 (0.98)	2.36 (1.5)	3.76 (0.94)
banana2-photo-colour	4.8 (0.41)	2.1 (1.25)	3.95 (1.32)	4.85 (0.37)
banana2-photo-grey	4.9 (0.45)	2.24 (1.26)		3.3 (1.42)
banana3-photo-colour	4.3 (1.03)	2 (1.1)	4.67 (0.91)	4.65 (0.67)
banana3-photo-grey	4.85 (0.49)	2 (0.92)		3.35 (1.04)
barrel				
barrel1-photo-colour	3.45 (1.35)	3.57 (0.93)	3.95 (0.97)	4.9 (0.45)
barrel1-photo-grey	3.9 (1.29)	2.95 (1.02)		4.05 (1.05)
barrel2-photo-colour	4.05 (1.02)	3 (1.08)	3.5 (1.15)	4.43 (0.81)
barrel2-photo-grey	3.9 (1.52)	2.95 (1.1)		4.15 (0.93)
barrel3-photo-colour	3.55 (1.28)	3.15 (1.14)	2.85 (1.18)	4.2 (1.01)
barrel3-photo-grey	3.57 (1.43)	2.85 (1.04)		3.95 (0.94)
basket				
basket1-photo-colour	4.17 (1.04)	3.86 (0.96)	3.62 (1.24)	4.3 (1.13)
basket1-photo-grey	4.5 (0.83)	3.38 (1.12)		3.85 (1.14)
basket2-photo-colour	4.14 (1.11)	3.05 (1)	2.8 (1.36)	3.95 (0.97)
basket2-photo-grey	4.45 (0.94)	2.9 (1.45)		3.55 (1.23)
basket3-photo-colour	4.25 (0.85)	3.7 (1.03)	3.45 (1.47)	3.75 (1.12)
basket3-photo-grey	4.52 (0.81)	3.05 (1.05)		3.95 (0.94)
bear				
bear1-photo-colour	3.48 (1.47)	3.9 (0.79)	3.9 (0.72)	4.15 (1.09)
bear1-photo-grey	3.9 (1.34)	3.5 (1.15)		3.97 (1.09)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
bear2-photo-colour	3.85 (1.53)	3.25 (0.91)	4.3 (0.73)	4.25 (1.25)
bear2-photo-grey	3.25 (1.45)	3.25 (1.16)		4.24 (1.14)
bear3-photo-colour	3.95 (1.39)	3.75 (1.25)	3.7 (1.13)	4.1 (0.89)
bear3-photo-grey	3.65 (1.5)	3.05 (0.94)		3.95 (1.28)
beetle				
beetle1-photo-colour	3.1 (1.59)	4.07 (0.7)	3.25 (1.41)	2.95 (1.07)
beetle1-photo-grey	3.1 (1.45)	3.1 (1.21)		2.86 (1.15)
beetle2-photo-colour	3.2 (1.4)	3.81 (1.12)	3.05 (1.4)	2.95 (1.19)
beetle2-photo-grey	3 (1.34)	3 (1.26)		2.7 (1.13)
beetle3-photo-colour	2.65 (1.31)	3.4 (0.99)	3 (1.17)	2.95 (1)
beetle3-photo-grey	2.9 (1.21)	3.19 (1.08)		3.3 (1.03)
bell				
bell1-photo-colour	4 (1.21)	2.31 (1.39)	3.75 (1.29)	4 (1.05)
bell1-photo-grey	3.8 (1.28)	2.45 (1.05)		3.62 (0.97)
bell2-photo-colour	3.9 (1.14)	3.29 (0.96)	3.43 (1.33)	3.95 (1.1)
bell2-photo-grey	3.5 (1.15)	2.2 (0.62)		3.3 (0.86)
bell3-photo-colour	3.4 (1.47)	3.2 (0.95)	3 (1.34)	3.25 (0.97)
bell3-photo-grey	3.55 (1.47)	2.9 (0.89)		3.05 (1.39)
belt				
belt1-photo-colour	4.8 (0.52)	2.95 (1.16)	2.76 (1.45)	3.95 (0.83)
belt1-photo-grey	4.76 (0.58)	3.05 (0.97)		4 (0.92)
belt2-photo-colour	4.8 (0.62)	3 (1.38)	2.85 (1.46)	4.05 (1.05)
belt2-photo-grey	4.76 (0.54)	2.4 (1.1)		4.48 (0.87)
belt3-photo-colour	5 (0)	2.3 (1.17)	2.95 (1.39)	4.25 (0.79)
belt3-photo-grey	4.5 (0.89)	2.2 (1.2)		3.95 (1.15)
bicycle				
bicycle1-photo-colour	4.3 (1.13)	3.55 (1.1)	2.45 (1.47)	3.05 (1.12)
bicycle1-photo-grey	4.5 (1)	3.69 (0.93)	1.73 (1.19)	3.33 (1.2)
bicycle2-photo-colour	4.65 (0.67)	3 (1.12)	1.55 (1)	4.05 (0.94)
bicycle2-photo-grey	4.76 (0.62)	3.38 (1.07)		3.65 (0.93)
bicycle3-photo-colour	3.8 (1.15)	3.29 (1.01)	1.86 (1.28)	3.35 (1.18)
bicycle3-photo-grey	4.05 (1.05)	3.55 (0.89)		3 (1.38)
book				
book1-photo-colour	4.85 (0.37)	3.15 (1.23)	2.4 (1.27)	3.67 (1.11)
book1-photo-grey	4.9 (0.45)	2.59 (1.02)	1.45 (0.93)	3.62 (0.8)
book2-photo-colour	4.75 (0.72)	3.2 (1.01)	1.55 (0.76)	3.65 (1.35)
book2-photo-grey	4.75 (0.55)	2.86 (1.11)		3.2 (1.15)
book3-photo-colour	4.3 (0.92)	3 (1.05)	2.19 (1.21)	3.05 (1.15)
book3-photo-grey	4.05 (1.36)	2.45 (0.51)		2.7 (1.03)
boot				
boot1-photo-colour	4.15 (1.18)	2.95 (1.05)	2.5 (1.47)	3.33 (1.2)
boot1-photo-grey	4.7 (0.47)	2.79 (1.37)	2.82 (1.6)	2.76 (0.94)
boot2-photo-colour	4.6 (0.6)	2.95 (1.23)	2.05 (0.94)	4.25 (0.85)
boot2-photo-grey	4.7 (0.66)	3.48 (0.98)		3.75 (1.02)
boot3-photo-colour	4.25 (0.97)	2.86 (1.01)	2.33 (1.35)	4.05 (1)
boot3-photo-grey	4.45 (0.69)	2.9 (1.02)		3.7 (1.26)
bottle				
bottle1-photo-colour	4.72 (0.45)	3.33 (1.35)	3.14 (1.2)	3.7 (0.98)
bottle1-photo-grey	4.85 (0.37)	2.33 (0.97)		3.15 (0.99)
bottle2-photo-colour	4.81 (0.51)	2.25 (1.07)	2.25 (1.21)	2.81 (1.5)
bottle2-photo-grey	4.65 (0.81)	1.85 (0.93)		3.2 (1.11)
bottle3-photo-colour	4.5 (0.89)	1.85 (1.18)	2 (1.12)	2.4 (1.1)
bottle3-photo-grey	4.67 (0.58)	1.4 (0.88)		3.3 (1.45)
bowl				
bowl1-photo-colour	4.81 (0.51)	2.25 (1.16)	1.65 (0.99)	3.7 (1.13)
bowl1-photo-grey	4.81 (0.51)	2 (0.86)		3.1 (1.01)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
bowl2-photo-colour	4.8 (0.41)	2.5 (1.1)	1.9 (1.55)	3.4 (1.19)
bowl2-photo-grey	4.75 (0.44)	1.9 (1.45)		4.1 (1.09)
bowl3-photo-colour	4.6 (0.68)	2.05 (1.1)	1.75 (1.29)	3.24 (1.3)
bowl3-photo-grey	4.55 (0.83)	1.8 (1.01)		3.15 (1.09)
bread				
bread1-photo-colour	4.95 (0.22)	3.45 (0.94)	3.85 (1.04)	3.8 (1.15)
bread1-photo-grey	4.52 (0.87)	2.8 (1.06)		3.1 (1.01)
bread2-photo-colour	5 (0)	3.2 (1.24)	3.75 (1.02)	3.85 (1.23)
bread2-photo-grey	4.9 (0.31)	2.35 (1.31)		3.29 (1.15)
bread3-photo-colour	4.8 (0.52)	3.45 (1.39)	3.25 (1.29)	3.48 (1.36)
bread3-photo-grey	4.7 (0.66)	2.75 (0.85)		3.1 (1.12)
broom				
broom1-photo-colour	4.14 (1.2)	2.3 (1.08)	2.55 (1.19)	3.35 (1.35)
broom1-photo-grey	4.29 (1.01)	2.55 (1.05)		3.34 (1.14)
broom2-photo-colour	4.2 (1.15)	2.85 (1.09)	3.3 (1.3)	3.2 (1.47)
broom2-photo-grey	4.05 (0.76)	2.1 (1.02)		3.33 (1.35)
broom3-photo-colour	4 (1.03)	2.35 (1.04)	2.65 (1.31)	3.86 (1.35)
broom3-photo-grey	4.1 (1.17)	2.4 (1.23)		3.3 (1.42)
brush				
brush1-photo-colour	4.33 (0.91)	3 (1.17)	2.15 (1.42)	2.21 (1.26)
brush1-photo-grey	4.52 (0.6)	2.8 (0.83)		2.85 (1.39)
brush2-photo-colour	4.1 (0.97)	3.5 (1.24)	3.65 (1.23)	2.24 (1.22)
brush2-photo-grey	4 (0.97)	3.2 (1.11)		2.15 (1.27)
brush3-photo-colour	4.25 (1.02)	3.05 (1.15)	2.95 (1.32)	2.5 (1.28)
brush3-photo-grey	4.05 (0.94)	3.1 (1.07)		2.43 (1.12)
button				
button1-photo-colour	4.45 (1)	2.76 (1.3)	1.95 (1.24)	3.05 (1.54)
button1-photo-grey	4.69 (0.54)	2.33 (1.02)		4.05 (1.23)
button2-photo-colour	4.85 (0.49)	1.55 (0.89)	1.45 (0.83)	4.45 (1.1)
button2-photo-grey	4.9 (0.3)	1.5 (0.83)		4.24 (1.34)
button3-photo-colour	4.76 (0.44)	2.2 (1.51)	1.8 (1.2)	3.65 (1.31)
button3-photo-grey	4.6 (0.68)	2 (1.45)		3.45 (1.15)
cake				
cake1-photo-colour	4.62 (0.59)	3.35 (1.04)	2.5 (1.57)	3.31 (1.07)
cake1-photo-grey	4.71 (0.64)	3.9 (0.91)		3.35 (1.27)
cake2-photo-colour	4.5 (0.69)	4.4 (0.99)	2.6 (1.93)	3.81 (1.08)
cake2-photo-grey	4.7 (0.57)	4 (0.92)		2.55 (1.19)
cake3-photo-colour	4.8 (0.41)	3.65 (0.99)	3 (1.03)	3.15 (1.23)
cake3-photo-grey	4.3 (0.92)	2.85 (0.99)		2.43 (0.98)
camel				
camel1-photo-colour	3.4 (1.57)	3.6 (1.19)	3.75 (1.21)	4.29 (1.06)
camel1-photo-grey	3.65 (1.6)	3.83 (1.04)	2.36 (1.5)	3.95 (1.07)
camel2-photo-colour	3.9 (1.17)	3.6 (1.43)	3.9 (1.17)	3.85 (0.93)
camel2-photo-grey	3.3 (1.72)	3.81 (1.03)		3.35 (0.99)
camel3-photo-colour	3.2 (1.4)	3.43 (0.98)	4.38 (0.97)	4.25 (0.91)
camel3-photo-grey	2.95 (1.47)	3.15 (1.04)		3.75 (1.16)
candle				
candle1-photo-colour	4.6 (0.68)	2.24 (0.79)	2.9 (1.21)	3.67 (1.06)
candle1-photo-grey	4.45 (0.89)	1.8 (0.89)		3 (1.1)
candle2-photo-colour	4.71 (0.64)	2.52 (0.98)	2.38 (1.5)	3.65 (1.14)
candle2-photo-grey	4.35 (0.93)	1.7 (0.98)		3.8 (1.15)
candle3-photo-colour	3.6 (1.05)	3 (1.03)	2.6 (1.19)	3 (0.92)
candle3-photo-grey	4.1 (0.79)	2.38 (0.86)		2.65 (1.31)
cannon				
cannon1-photo-colour	3.2 (1.51)	3.43 (1.03)	3.43 (1.12)	3.7 (0.92)
cannon1-photo-grey	3 (1.56)	3.43 (0.87)		3.8 (1.36)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
cannon2-photo-colour	3.85 (1.35)	3.3 (1.03)	3.75 (1.02)	3.95 (0.69)
cannon2-photo-grey	3.48 (1.47)	2.8 (0.95)		3.71 (1.19)
cannon3-photo-colour	3.43 (1.54)	3.5 (1.15)	2.95 (1.32)	3.05 (1.28)
cannon3-photo-grey	3 (1.41)	3.2 (1.15)		2.45 (1.47)
carrot				
carrot1-photo-colour	4.9 (0.3)	3 (1.12)	4.15 (1.27)	4.25 (0.85)
carrot1-photo-grey	4.57 (0.6)	2.25 (0.97)		2.76 (0.99)
carrot2-photo-colour	4.9 (0.31)	3.1 (1.17)	4.6 (0.68)	4.25 (1.07)
carrot2-photo-grey	4.75 (0.55)	2.35 (0.99)		3.57 (1.12)
carrot3-photo-colour	4.7 (0.57)	3.55 (1.23)	4.2 (1.01)	3.95 (1.12)
carrot3-photo-grey	4.65 (0.49)	3.2 (1.01)		3.65 (1.14)
celery				
celery1-photo-colour	4.4 (0.99)	2.28 (1.39)	4.6 (0.82)	4.1 (1)
celery1-photo-grey	4 (1.38)	1.95 (1.23)		2.9 (1.26)
celery2-photo-colour	4.15 (1.27)	3.33 (1.02)	4.71 (0.46)	3.9 (1.12)
celery2-photo-grey	3.9 (1.12)	2.9 (1.21)		2.75 (1.21)
celery3-photo-colour	3.2 (1.61)	3 (1.08)	4.4 (1.1)	3.95 (1.23)
celery3-photo-grey	3.65 (1.39)	3.1 (1.09)		2.85 (1.39)
chain				
chain1-photo-colour	4.1 (1.25)	2.34 (1.11)	3.25 (1.29)	3.67 (1.15)
chain1-photo-grey	3.55 (1.39)	2.1 (1.17)		3.38 (1.5)
chain2-photo-colour	4.2 (0.89)	2.52 (1.12)	2.81 (1.29)	3.6 (1.35)
chain2-photo-grey	3.75 (1.16)	1.85 (0.88)		4.55 (0.69)
chain3-photo-colour	3.8 (1.4)	2.7 (0.92)	3.5 (1.32)	4.1 (1.07)
chain3-photo-grey	3.6 (1.39)	2.24 (1.04)		3.8 (1.11)
chair				
chair1-photo-colour	4.76 (0.77)	3.15 (1.14)	2.9 (1.45)	3.45 (1.27)
chair1-photo-grey	4.71 (0.56)	3.1 (0.72)		3.4 (1.31)
chair2-photo-colour	4.6 (0.75)	3.1 (1.25)	3 (1.56)	3.71 (1.23)
chair2-photo-grey	4.95 (0.22)	2.7 (1.08)		3.45 (1.36)
chair3-photo-colour	5 (0)	2.15 (1.14)	3.05 (1.32)	4.35 (0.93)
chair3-photo-grey	4.8 (0.52)	2.5 (0.95)		3.48 (1.21)
cherry				
cherry1-photo-colour	4.4 (0.94)	2.55 (1.32)	4.3 (0.8)	4.29 (1.1)
cherry1-photo-grey	4.2 (1.11)	2.14 (1.03)	1.73 (1.1)	3.48 (1.03)
cherry2-photo-colour	4.3 (0.8)	2.25 (1.37)	4.1 (1.21)	4.7 (0.57)
cherry2-photo-grey	4.45 (0.83)	2.38 (1.02)		3.25 (1.25)
cherry3-photo-colour	4.1 (1.07)	2.52 (1.17)	4.43 (0.98)	4.45 (0.76)
cherry3-photo-grey	3.95 (1.05)	2.2 (0.89)		3.55 (1.1)
chicken				
chicken1-photo-colour	4.24 (0.99)	4.14 (1.06)	3.81 (1.12)	3.85 (0.93)
chicken1-photo-grey	4.25 (1.12)	3.52 (1.12)		2.9 (1.17)
chicken2-photo-colour	4.52 (0.75)	4 (0.92)	3.35 (1.04)	4.43 (0.98)
chicken2-photo-grey	4.4 (0.88)	3.4 (1.47)		3.7 (1.13)
chicken3-photo-colour	4.1 (0.97)	4.15 (0.88)	3.8 (1.28)	3.55 (1.1)
chicken3-photo-grey	4.05 (1.12)	3.5 (1.28)		3.25 (1.16)
chisel				
chisel1-photo-colour	4 (1.22)	2.8 (1.15)	2.4 (1.31)	3.7 (1.17)
chisel1-photo-grey	3.86 (1.2)	2.45 (1.15)		3.34 (1.34)
chisel2-photo-colour	3.45 (1.36)	3.6 (1.1)	2.7 (1.45)	3.55 (1.39)
chisel2-photo-grey	2.6 (1.5)	2.5 (1.4)		3.86 (0.73)
chisel3-photo-colour	3 (1.56)	3.15 (1.14)	2.55 (1.19)	3.81 (1.12)
chisel3-photo-grey	2.35 (1.23)	2.4 (1.1)		3.8 (1.2)
clock				
clock1-photo-colour	5 (0)	3.24 (0.94)	2.86 (1.24)	3.55 (1.19)
clock1-photo-grey	4.9 (0.41)	3.24 (1)		4.2 (0.83)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
clock2-photo-colour	4.8 (0.52)	3.15 (1.14)	3.2 (1.51)	2.9 (1.12)
clock2-photo-grey	4.81 (0.4)	2.6 (0.88)		2.9 (1.3)
clock3-photo-colour	4.86 (0.36)	3.25 (1.07)	2.35 (0.99)	3.25 (1.37)
clock3-photo-grey	4.4 (0.88)	3.35 (1.31)		2.5 (1.19)
cloud				
cloud1-photo-colour	4.2 (1.15)	2.9 (1.25)	3.15 (1.04)	4.05 (0.92)
cloud1-photo-grey	4.75 (0.91)	2.69 (1.26)	3.64 (1.29)	4 (1.14)
cloud2-photo-colour	4.55 (0.94)	2.75 (1.12)	2.85 (1.35)	3.15 (1.35)
cloud2-photo-grey	4.2 (1.2)	2.29 (1.15)		2.55 (1.36)
cloud3-photo-colour	4.45 (0.83)	1.67 (0.8)	4.33 (0.97)	3.75 (1.29)
cloud3-photo-grey	4.05 (1.19)	2.1 (0.91)		3.55 (1.05)
comb				
comb1-photo-colour	4.57 (0.75)	2.45 (1.23)	2.25 (1.48)	3.45 (1.23)
comb1-photo-grey	4.67 (0.73)	2.05 (1)		3.72 (1.19)
comb2-photo-colour	4.5 (0.89)	2.85 (1.27)	1.8 (1.32)	3.95 (0.89)
comb2-photo-grey	4.6 (0.75)	1.85 (1.04)		3.95 (0.86)
comb3-photo-colour	4.6 (0.6)	2.3 (1.08)	1.7 (1.26)	3.86 (1.24)
comb3-photo-grey	4.6 (0.75)	2 (0.97)		4.25 (0.85)
corn				
corn1-photo-colour	4.29 (0.9)	3.8 (0.95)	4.6 (0.75)	4.25 (1.07)
corn1-photo-grey	4.71 (0.56)	2.9 (1.29)		3.48 (1.06)
corn2-photo-colour	4.55 (0.69)	3.5 (1.19)	4.55 (0.89)	4.45 (1.05)
corn2-photo-grey	4.45 (0.69)	3 (1.34)		4.19 (0.75)
corn3-photo-colour	4.55 (0.6)	3.5 (1.15)	4.6 (0.6)	4.1 (1.14)
corn3-photo-grey	4.4 (0.88)	3.15 (1.04)		4.1 (0.97)
crown				
crown1-photo-colour	3.69 (1.47)	4.57 (0.6)	4.38 (0.67)	4.2 (0.95)
crown1-photo-grey	4.2 (1.2)	4.33 (1.06)		3.4 (1.19)
crown2-photo-colour	3.86 (1.49)	4 (1.08)	3.1 (1.41)	4.19 (1.03)
crown2-photo-grey	4 (1.49)	3.5 (0.95)		3.55 (1.23)
crown3-photo-colour	3.25 (1.52)	4.55 (0.69)	3.85 (1.39)	3.15 (1.09)
crown3-photo-grey	3.43 (1.6)	3.6 (1.23)		2.95 (1.05)
deer				
deer1-photo-colour	3.55 (1.54)	3.52 (1.08)	3.67 (1.2)	3.15 (1.31)
deer1-photo-grey	3.45 (1.45)	3.29 (0.9)		3.65 (1.18)
deer2-photo-colour	3.55 (1.32)	3.8 (1.15)	4.4 (0.94)	3.5 (1)
deer2-photo-grey	3.43 (1.25)	3.3 (1.22)		3.1 (1.51)
deer3-photo-colour	3.43 (1.36)	3.6 (1.1)	3.75 (1.16)	3.8 (0.89)
deer3-photo-grey	3.45 (1.36)	3.3 (1.13)		3.05 (1.15)
doll				
doll1-photo-colour	4.4 (1.23)	3 (1)	2.81 (1.33)	2.95 (1)
doll1-photo-grey	3.83 (1.34)	3.05 (0.74)		3.2 (1.11)
doll2-photo-colour	4.4 (0.94)	4.05 (1.05)	2.8 (1.28)	3.35 (1.14)
doll2-photo-grey	4.19 (1.12)	3.4 (1.14)		3.43 (1.33)
doll3-photo-colour	4.1 (1.14)	3.65 (1.23)	3.1 (1.12)	2.55 (1.19)
doll3-photo-grey	3.6 (1.19)	3.7 (1.38)		2.6 (1.23)
donkey				
donkey1-photo-colour	3.81 (1.17)	3.55 (1.1)	4.05 (0.94)	4.45 (0.76)
donkey1-photo-grey	4.14 (1.01)	3.55 (1.19)		3.86 (0.95)
donkey2-photo-colour	4.15 (1.09)	3.7 (1.13)	3.6 (1.1)	4.5 (0.95)
donkey2-photo-grey	3.65 (1.27)	3.05 (1.23)		4.33 (0.86)
donkey3-photo-colour	4.1 (0.91)	3.6 (1.19)	3.2 (1.24)	4.33 (0.73)
donkey3-photo-grey	3.3 (1.53)	3.2 (1.11)		4.05 (1)
door				
door1-photo-colour	4.95 (0.22)	2.34 (1.11)	2.8 (1.51)	3.43 (1.12)
door1-photo-grey	4.8 (0.52)	2.2 (1.15)		3.19 (1.12)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
door2-photo-colour	4.8 (0.52)	3.71 (1.1)	1.9 (1.48)	2.9 (1.17)
door2-photo-grey	4.5 (0.89)	2.6 (0.94)		2.9 (0.97)
door3-photo-colour	4.8 (0.41)	2.35 (0.99)	1.85 (1.09)	3.8 (1.11)
door3-photo-grey	4.8 (0.52)	1.76 (0.77)		3.55 (1)
dress				
dress1-photo-colour	4.14 (1.11)	3.45 (0.83)	1.6 (1.1)	2.8 (1.44)
dress1-photo-grey	4.38 (0.74)	2.7 (0.98)		2.34 (0.9)
dress2-photo-colour	4.7 (0.8)	3.9 (0.97)	2.2 (1.64)	2.25 (1.21)
dress2-photo-grey	4.15 (1.27)	3.4 (1.31)		2.86 (1.31)
dress3-photo-colour	4.1 (0.97)	2.7 (1.03)	1.55 (0.94)	2.81 (0.98)
dress3-photo-grey	4.45 (1)	2.15 (0.93)		3.25 (0.91)
dresser				
dresser1-photo-colour	4.25 (1.25)	2.4 (1.27)	2.15 (1.14)	3.24 (1.26)
dresser1-photo-grey	4.8 (0.52)	2.21 (1.11)	2.27 (1.42)	3.1 (1.34)
dresser2-photo-colour	4.5 (0.69)	2.7 (0.86)	1.6 (1.14)	2.65 (1.31)
dresser2-photo-grey	4.6 (0.6)	2.76 (0.94)		2.9 (1.45)
dresser3-photo-colour	4.3 (0.8)	3 (1.05)	2.67 (1.2)	2.95 (1.28)
dresser3-photo-grey	4.5 (0.61)	2.95 (1.1)		3.4 (1.27)
drum				
drum1-photo-colour	3.9 (1.41)	3.52 (1.03)	2.81 (1.25)	3.6 (1.19)
drum1-photo-grey	4.14 (0.79)	3.48 (0.87)		3.95 (0.89)
drum2-photo-colour	3.9 (1.33)	3.5 (1.1)	2.45 (1.23)	3.55 (1.15)
drum2-photo-grey	4.1 (1.26)	3.45 (1.05)		4.1 (1.18)
drum3-photo-colour	3.95 (1.43)	3.2 (1.2)	2.7 (1.26)	3.85 (0.88)
drum3-photo-grey	4 (1.21)	3.15 (1.04)		3.2 (1.32)
duck				
duck1-photo-colour	4.71 (0.64)	3.75 (1.25)	3.85 (1.18)	4 (0.96)
duck1-photo-grey	4.19 (1.17)	3.9 (1.07)		3.55 (0.94)
duck2-photo-colour	4.35 (0.99)	4.65 (0.75)	3.75 (1.41)	4.29 (0.96)
duck2-photo-grey	4.4 (0.82)	4.1 (0.91)		3.75 (1.29)
duck3-photo-colour	3.95 (1.15)	3.3 (1.17)	3.7 (0.86)	3.7 (1.08)
duck3-photo-grey	4.6 (0.6)	3.4 (1.1)		3.1 (1.09)
eagle				
eagle1-photo-colour	3.65 (1.5)	3.83 (1.17)	4.45 (1.05)	4 (1.05)
eagle1-photo-grey	3.15 (1.63)	2.95 (1.19)		3.29 (1.19)
eagle2-photo-colour	3.4 (1.5)	4.19 (1.17)	4.33 (0.97)	3.95 (1.15)
eagle2-photo-grey	3.4 (1.19)	3.7 (1.03)		3.75 (1.07)
eagle3-photo-colour	3.3 (1.45)	3.45 (1)	4.4 (0.94)	4.35 (0.93)
eagle3-photo-grey	3.05 (1.32)	3.76 (1.04)		3.6 (0.88)
fence				
fence1-photo-colour	4.57 (0.68)	2.25 (1.07)	2.6 (1.23)	3.5 (1.05)
fence1-photo-grey	4.57 (0.68)	1.95 (1)		3.21 (0.94)
fence2-photo-colour	4.75 (0.55)	3.1 (1.02)	2.75 (1.48)	3.35 (1.23)
fence2-photo-grey	4.5 (0.61)	2.9 (1.41)		2.9 (1.3)
fence3-photo-colour	4.7 (0.66)	3 (1.45)	2.45 (1.36)	3.86 (1.24)
fence3-photo-grey	4.45 (0.89)	2.35 (1.14)		3.4 (1.31)
fish				
fish1-photo-colour	4.62 (0.59)	3.6 (1.14)	3 (1.41)	3.66 (1.11)
fish1-photo-grey	4.1 (1.04)	3.05 (0.94)		3.3 (1.49)
fish2-photo-colour	4.2 (0.95)	4.05 (0.94)	2.9 (1.37)	3.29 (1.42)
fish2-photo-grey	4.4 (0.75)	4 (0.92)		3 (1.34)
fish3-photo-colour	4.4 (1.05)	3.4 (1.19)	3.1 (1.29)	3.55 (1.23)
fish3-photo-grey	4.1 (0.91)	3.3 (1.17)		3.95 (0.97)
flag				
flag1-photo-colour	4.62 (0.8)	2.4 (1.1)	2.1 (1.33)	2.86 (1.36)
flag1-photo-grey	3.81 (1.36)	2.15 (0.88)		3.3 (1.38)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
flag2-photo-colour	4.05 (1.1)	2.85 (1.35)	4.25 (1.25)	3.05 (1.43)
flag2-photo-grey	4.6 (0.68)	2.25 (0.91)		2.4 (1.31)
flag3-photo-colour	4.25 (1.07)	2.6 (1.1)	2.2 (1.32)	3.2 (1.15)
flag3-photo-grey	3.95 (1)	2.25 (0.97)		2.81 (1.5)
flower				
flower1-photo-colour	4.45 (1)	3.8 (1.36)	3.1 (1.41)	3.62 (1.24)
flower1-photo-grey	4.65 (0.67)	3.41 (1.05)	1.82 (1.08)	3.14 (1.31)
flower2-photo-colour	4.25 (1.07)	3.65 (1.18)	1.8 (1.01)	3.2 (1.2)
flower2-photo-grey	3.9 (1.21)	3.95 (1.02)		2.4 (0.99)
flower3-photo-colour	4.1 (0.85)	3.76 (0.83)	2.95 (1.28)	3.05 (1.39)
flower3-photo-grey	4.2 (0.83)	3.7 (0.98)		2.75 (1.07)
flute				
flute1-photo-colour	3.35 (1.23)	3.83 (1)	4.15 (1.09)	3.95 (1.24)
flute1-photo-grey	3.3 (1.45)	3.25 (1.16)		3.9 (0.94)
flute2-photo-colour	2.55 (1.39)	2.81 (1.08)	2.48 (1.25)	2.8 (1.36)
flute2-photo-grey	2.95 (1.5)	2.35 (1.04)		3.05 (1.43)
flute3-photo-colour	3.05 (1.76)	3.3 (0.98)	3.55 (1.19)	3.7 (1.38)
flute3-photo-grey	2.95 (1.73)	2.9 (1.04)		4 (1.08)
foot				
foot1-photo-colour	4.95 (0.22)	2.8 (1.24)	3.3 (1.42)	4.29 (1.01)
foot1-photo-grey	5 (0)	2.86 (0.88)	1.82 (0.98)	4.05 (0.8)
foot2-photo-colour	4.85 (0.49)	2.65 (1.39)	2.25 (1.29)	3.55 (1.32)
foot2-photo-grey	4.65 (0.81)	3.43 (1.12)		3.2 (1.2)
foot3-photo-colour	4.8 (0.52)	2.24 (1)	3.05 (1.32)	3.9 (1.41)
foot3-photo-grey	4.9 (0.45)	2.45 (1.05)		3.75 (1.12)
frog				
frog1-photo-colour	4.2 (1.32)	3.95 (1.24)	3.86 (1.01)	3.95 (1.05)
frog1-photo-grey	4.21 (0.9)	3.9 (0.94)		3.75 (0.97)
frog2-photo-colour	4.1 (1.17)	3.85 (1.09)	3.95 (1.1)	4 (1.03)
frog2-photo-grey	4.14 (1.15)	3.55 (1.19)		3.81 (1.25)
frog3-photo-colour	4 (1.1)	3.8 (1.15)	3.65 (1.39)	4.1 (0.97)
frog3-photo-grey	4 (1.17)	3.8 (1.28)		3.25 (1.02)
giraffe				
giraffe1-photo-colour	4.43 (1.03)	4.1 (1.07)	4.85 (0.37)	4.69 (0.66)
giraffe1-photo-grey	3.52 (1.54)	3.65 (1.09)		4.15 (1.18)
giraffe2-photo-colour	3.5 (1.36)	4.25 (0.91)	4.75 (0.55)	4.76 (0.54)
giraffe2-photo-grey	4 (1.41)	3.8 (0.77)		4.35 (0.99)
giraffe3-photo-colour	3.75 (1.45)	3.8 (0.89)	4.45 (0.83)	5 (0)
giraffe3-photo-grey	4.1 (1.21)	3.7 (1.22)		4.29 (0.96)
glasses				
glasses1-photo-colour	4.57 (0.6)	2.6 (1.19)	1.95 (1.32)	3.93 (1)
glasses1-photo-grey	4.76 (0.62)	2.1 (0.79)		4 (0.97)
glasses2-photo-colour	4.8 (0.41)	2.35 (1.23)	2.35 (1.63)	4.19 (0.81)
glasses2-photo-grey	4.65 (0.81)	2.15 (1.04)		3.85 (1.35)
glasses3-photo-colour	4.9 (0.45)	2.65 (0.81)	2.3 (1.13)	3.05 (1.15)
glasses3-photo-grey	4.4 (0.88)	2.4 (1.05)		3.29 (1.23)
goat				
goat1-photo-colour	4.19 (1.03)	3.9 (1.07)	3.8 (0.95)	4 (1)
goat1-photo-grey	3.33 (1.24)	3.75 (0.55)		3.7 (1.08)
goat2-photo-colour	3.6 (1.1)	4 (0.97)	3.25 (1.45)	4.19 (0.87)
goat2-photo-grey	3.95 (1)	3.7 (1.03)		3.95 (1.15)
goat3-photo-colour	3.25 (1.55)	3.9 (0.97)	3.9 (1.02)	3.35 (1.18)
goat3-photo-grey	3.4 (1.23)	3.8 (1.28)		2.95 (1.16)
grapes				
grapes1-photo-colour	4.65 (0.75)	3.45 (1.12)	4.2 (0.89)	3.76 (1)
grapes1-photo-grey	4.7 (0.57)	2.85 (1.31)		3.1 (1.26)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
grapes2-photo-colour	4.45 (0.76)	3.9 (1.14)	3.67 (1.15)	3.25 (1.16)
grapes2-photo-grey	4.2 (1.01)	3.4 (0.94)		3 (0.97)
grapes3-photo-colour	4.55 (0.69)	3.4 (0.99)	3.8 (0.89)	3.8 (1.06)
grapes3-photo-grey	4.4 (0.68)	3.48 (0.93)		3.1 (1.02)
guitar				
guitar1-photo-colour	4.15 (1.27)	3.35 (1.09)	3.05 (1.23)	4.43 (0.87)
guitar1-photo-grey	4.35 (0.99)	3.24 (1.02)	2 (1.1)	3.9 (0.7)
guitar2-photo-colour	4.45 (0.89)	2.9 (1.21)	2.15 (0.99)	4.3 (1.03)
guitar2-photo-grey	4.25 (1.12)	3.57 (1.08)		3.85 (1.09)
guitar3-photo-colour	3.6 (1.47)	2.86 (1.06)	3.24 (1.22)	4.1 (0.97)
guitar3-photo-grey	4.35 (0.93)	3.05 (0.76)		4 (1.08)
hammer				
hammer1-photo-colour	4.5 (0.89)	2.48 (1.18)	3.7 (1.22)	4.62 (0.5)
hammer1-photo-grey	4.5 (0.76)	2.1 (1.02)		3.62 (1.07)
hammer2-photo-colour	4.75 (0.55)	2.95 (1.07)	3.29 (1.19)	4.4 (0.88)
hammer2-photo-grey	4.55 (0.83)	2.45 (1.15)		4.55 (1)
hammer3-photo-colour	4.25 (0.97)	2.65 (0.88)	2.6 (1.5)	4.1 (1.07)
hammer3-photo-grey	4.25 (1.02)	2.33 (0.86)		3.8 (1.15)
hand				
hand1-photo-colour	4.97 (0.19)	3.33 (0.91)	3.14 (1.56)	4.6 (0.75)
hand1-photo-grey	5 (0)	3.14 (1.31)		4.2 (0.89)
hand2-photo-colour	4.9 (0.3)	3.4 (1.23)	3.15 (1.39)	4.62 (0.67)
hand2-photo-grey	5 (0)	3.05 (1.32)		3.9 (0.91)
hand3-photo-colour	5 (0)	3.35 (1.42)	2.9 (1.25)	2.6 (1.19)
hand3-photo-grey	4.95 (0.22)	3.25 (1.07)		3.4 (1.27)
harp				
harp1-photo-colour	3.25 (1.77)	3.69 (1)	3.5 (1.32)	3.81 (0.75)
harp1-photo-grey	2.75 (1.48)	3.15 (1.31)		3.67 (1.11)
harp2-photo-colour	3.15 (1.57)	4.19 (0.98)	2.95 (1.28)	4.15 (0.88)
harp2-photo-grey	3.4 (1.14)	3.2 (1.06)		4.25 (0.85)
harp3-photo-colour	2.65 (1.53)	3.5 (0.95)	2.95 (1.36)	4.35 (0.81)
harp3-photo-grey	2.9 (1.55)	3.1 (0.94)		3.75 (1.25)
horse				
horse1-photo-colour	4.24 (0.94)	3.45 (1.23)	2.45 (1.15)	4.3 (0.86)
horse1-photo-grey	4.48 (0.93)	3.35 (0.99)		3.83 (0.8)
horse2-photo-colour	4.4 (0.88)	3.75 (0.97)	3.55 (1)	3.85 (1.09)
horse2-photo-grey	3.9 (1.17)	3.55 (1.32)		3.71 (1.19)
horse3-photo-colour	4.25 (0.97)	3.55 (1.19)	3.1 (1.29)	4.1 (1.14)
horse3-photo-grey	3.95 (1.39)	3.25 (1.07)		3.75 (1.02)
house				
house1-photo-colour	4.57 (0.98)	2.95 (1.05)	2.15 (1.23)	2.48 (1.15)
house1-photo-grey	4.48 (1.08)	2.45 (0.89)		2.8 (1.4)
house2-photo-colour	4.75 (0.44)	3.55 (1.19)	2.6 (1.6)	2.81 (0.81)
house2-photo-grey	4.75 (0.55)	3.35 (0.93)		2.35 (1.14)
house3-photo-colour	4.6 (0.94)	4.15 (1.04)	3.35 (1.39)	2.65 (1.23)
house3-photo-grey	4.35 (0.99)	4 (1.34)		2.05 (0.92)
iron				
iron1-photo-colour	4.52 (0.78)	3.71 (1.06)	2.9 (1.45)	3.95 (1.39)
iron1-photo-grey	4.9 (0.45)	3.05 (1.2)		4.3 (0.98)
iron2-photo-colour	4.71 (0.46)	3.45 (1.28)	2.65 (1.57)	3.9 (1.45)
iron2-photo-grey	4.35 (1.35)	3.75 (1.37)		4.2 (0.83)
iron3-photo-colour	4.3 (0.86)	2.45 (1)	2.3 (1.38)	2.55 (1.32)
iron3-photo-grey	4.43 (0.87)	1.85 (0.81)		3.85 (0.81)
jacket				
jacket1-photo-colour	4.5 (0.89)	3.15 (1.14)	2.95 (1.36)	2.43 (1.16)
jacket1-photo-grey	4.8 (0.41)	3.34 (1.08)	2.27 (1.56)	2.52 (1.12)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
jacket2-photo-colour	4.55 (0.51)	2.7 (0.86)	2.7 (1.3)	3 (1.21)
jacket2-photo-grey	4.7 (0.47)	3.1 (0.94)		3.1 (1.17)
jacket3-photo-colour	4.4 (0.75)	2.48 (0.87)	1.71 (0.96)	2.6 (1.1)
jacket3-photo-grey	4.25 (0.85)	2.85 (0.93)		3.05 (1.1)
kettle				
kettle1-photo-colour	4.55 (1.02)	3.05 (0.8)	2.81 (1.54)	3.3 (1.03)
kettle1-photo-grey	4.75 (0.64)	2.76 (1.22)		2.7 (1.17)
kettle2-photo-colour	4.52 (0.81)	2.85 (1.23)	2.6 (1.05)	3.1 (1.41)
kettle2-photo-grey	4.35 (1.04)	2.75 (1.29)		2.6 (1.23)
kettle3-photo-colour	4.3 (0.98)	2.5 (0.89)	2.1 (0.97)	2.05 (1.1)
kettle3-photo-grey	4.48 (0.68)	2.25 (1.02)		2.05 (1)
kite				
kite1-photo-colour	4.25 (1.16)	3.14 (1.06)	2.4 (1.7)	4.05 (0.74)
kite1-photo-grey	4.2 (1.06)	2.4 (1.23)		3.29 (1.15)
kite2-photo-colour	4.2 (1.11)	3.14 (1.11)	2 (1.41)	3.85 (0.99)
kite2-photo-grey	3.6 (1.05)	2.2 (0.89)		3.45 (1.15)
kite3-photo-colour	3.35 (1.42)	3.4 (0.68)	1.95 (1.43)	2.85 (1.31)
kite3-photo-grey	3.2 (1.32)	3.19 (0.75)		2.05 (0.94)
knife				
knife1-photo-colour	4.69 (0.54)	2.67 (0.91)	3.43 (0.93)	3.5 (1.15)
knife1-photo-grey	4.95 (0.22)	2.19 (0.93)		3.6 (0.99)
knife2-photo-colour	4.95 (0.22)	2.6 (0.82)	3.15 (1.18)	3.67 (1.2)
knife2-photo-grey	4.8 (0.7)	2.2 (0.77)		3.7 (1.3)
knife3-photo-colour	4.35 (1.04)	3 (0.79)	3.25 (1.21)	2.1 (0.91)
knife3-photo-grey	4.38 (0.8)	2.75 (1.02)		2.6 (0.94)
ladder				
ladder1-photo-colour	4.75 (0.55)	1.86 (0.85)	2.86 (1.35)	3.1 (1.37)
ladder1-photo-grey	4.31 (0.97)	1.62 (0.67)		3.95 (1.05)
ladder2-photo-colour	4.55 (1)	1.95 (1.28)	1.8 (1.01)	4.1 (0.97)
ladder2-photo-grey	4.48 (0.75)	1.6 (0.94)		4.24 (1.09)
ladder3-photo-colour	4.62 (0.8)	2.35 (1.09)	2.85 (1.39)	3.15 (1.31)
ladder3-photo-grey	4.4 (0.68)	1.55 (0.69)		3.4 (1.05)
lamp				
lamp1-photo-colour	4.62 (0.68)	2.76 (0.77)	2.9 (1.14)	3.55 (1.28)
lamp1-photo-grey	4.85 (0.49)	2.29 (0.64)		3.2 (1.2)
lamp2-photo-colour	4.81 (0.4)	3.35 (0.67)	2.55 (1.28)	4.05 (1.02)
lamp2-photo-grey	4.75 (0.55)	2.95 (1)		3.6 (1.05)
lamp3-photo-colour	4.45 (1.1)	3.7 (1.08)	2.55 (1.19)	2.85 (1.18)
lamp3-photo-grey	4.76 (0.54)	3.25 (0.91)		2.8 (1.06)
leaf				
leaf1-photo-colour	4.8 (0.52)	3.57 (1.12)	3.24 (1.22)	3.35 (1.35)
leaf1-photo-grey	4.83 (0.47)	3.43 (1.21)		3.4 (1.19)
leaf2-photo-colour	4.85 (0.37)	2.85 (1.31)	3.05 (1.15)	4.1 (1.07)
leaf2-photo-grey	5 (0)	2.9 (1.02)		3.48 (1.33)
leaf3-photo-colour	4.71 (0.56)	3 (1.21)	2.8 (0.83)	3.4 (1.35)
leaf3-photo-grey	4.7 (0.57)	2.6 (1.23)		2.65 (1.27)
lemon				
lemon1-photo-colour	4.76 (0.7)	3.05 (1.32)	4.5 (0.76)	3.93 (1.16)
lemon1-photo-grey	4.29 (1.01)	2.45 (0.94)		3.35 (1.35)
lemon2-photo-colour	4.65 (0.59)	3.05 (1.43)	4.7 (0.57)	4.95 (0.22)
lemon2-photo-grey	4.5 (0.69)	2.95 (1.23)		3.9 (0.97)
lemon3-photo-colour	4.75 (0.64)	2.2 (1.44)	4.35 (0.99)	5 (0)
lemon3-photo-grey	3.95 (1)	2.6 (1.05)		3.38 (1.32)
lion				
lion1-photo-colour	4.1 (1.21)	3.62 (1.07)	4.33 (1.02)	4.7 (0.57)
lion1-photo-grey	4.17 (1.07)	3.33 (1.24)		4.35 (0.81)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
lion2-photo-colour	4.1 (1.41)	3.75 (0.91)	4.65 (0.67)	4.65 (0.93)
lion2-photo-grey	4.1 (1.22)	3.4 (1.1)		4.29 (0.78)
lion3-photo-colour	3.95 (1.32)	3.95 (1.1)	4.3 (1.13)	4.65 (0.49)
lion3-photo-grey	3.35 (1.39)	3.65 (1.39)		3.35 (1.18)
lips				
lips1-photo-colour	4.8 (0.62)	3.19 (1.08)	3.14 (0.96)	3.8 (0.95)
lips1-photo-grey	4.9 (0.41)	3.29 (1.01)		3.8 (0.95)
lips2-photo-colour	5 (0)	2.15 (0.81)	3.25 (1.29)	4.55 (0.6)
lips2-photo-grey	5 (0)	2.15 (0.99)		4.14 (1.28)
lips3-photo-colour	4.95 (0.22)	2.3 (0.92)	3.3 (1.42)	4 (0.92)
lips3-photo-grey	4.8 (0.52)	1.75 (0.85)		3.25 (1.29)
lobster				
lobster1-photo-colour	3.45 (1.5)	4.21 (1.08)	4.25 (0.85)	4.43 (0.68)
lobster1-photo-grey	3.5 (1.5)	3.65 (1.27)		3.38 (1.12)
lobster2-photo-colour	4.24 (1.14)	4.05 (1.02)	4.19 (1.08)	4.15 (0.81)
lobster2-photo-grey	3.75 (1.33)	3.05 (1.32)		3.35 (1.23)
lobster3-photo-colour	3.05 (1.54)	3.45 (0.94)	4.3 (0.8)	4.35 (0.75)
lobster3-photo-grey	2.85 (1.35)	3.19 (0.93)		3.25 (1.33)
lock				
lock1-photo-colour	4.31 (1)	3.81 (1.21)	4.05 (0.92)	4.15 (1.18)
lock1-photo-grey	4.5 (0.69)	3.29 (1.27)		3.45 (1.39)
lock2-photo-colour	4.29 (1.1)	3.4 (1.19)	2.7 (1.03)	3.48 (1.4)
lock2-photo-grey	4.4 (0.99)	2.6 (1.35)		4.1 (0.97)
lock3-photo-colour	4.05 (0.94)	3.3 (1.17)	3.7 (1.26)	3.8 (1.15)
lock3-photo-grey	4.38 (0.86)	2.85 (0.93)		3.55 (1.28)
mitten				
mitten1-photo-colour	4.14 (1.2)	3.95 (0.94)	1.85 (1.14)	3.35 (1.18)
mitten1-photo-grey	4.48 (0.68)	3.2 (1.11)		3.62 (1.05)
mitten2-photo-colour	4.1 (1.17)	3.35 (0.88)	2 (1.59)	3.3 (1.3)
mitten2-photo-grey	3.75 (1.21)	2.3 (1.26)		3.76 (1.04)
mitten3-photo-colour	4.15 (0.99)	2.35 (1.31)	1.7 (1.34)	3.71 (1.38)
mitten3-photo-grey	4.4 (0.75)	1.95 (1.1)		3.8 (1.01)
monkey				
monkey1-photo-colour	3.62 (1.24)	3.95 (1.32)	3.85 (1.14)	3.41 (1.21)
monkey1-photo-grey	3.19 (1.57)	3.9 (0.97)		3.1 (1.25)
monkey2-photo-colour	3.1 (1.25)	4.15 (1.14)	4.15 (1.14)	3.52 (0.98)
monkey2-photo-grey	3.65 (1.42)	3.85 (0.99)		3.1 (1.21)
monkey3-photo-colour	3.75 (1.45)	3.4 (1.1)	3.75 (0.85)	3.55 (1)
monkey3-photo-grey	3.6 (1.27)	3.35 (1.14)		3.14 (1.2)
moon				
moon1-photo-colour	4.6 (0.68)	2.55 (0.99)	2.85 (1.23)	2.71 (1.27)
moon1-photo-grey	4.05 (1.47)	2.25 (1.02)		2.95 (1.43)
moon2-photo-colour	4.1 (1.17)	2.43 (1.16)	3.38 (1.07)	2.55 (1.28)
moon2-photo-grey	3.55 (1.39)	1.85 (0.93)		2.6 (1.27)
moon3-photo-colour	4.25 (1.02)	2.85 (1.27)	3.35 (1.04)	2.1 (0.97)
moon3-photo-grey	4.1 (1.12)	2 (0.89)		2.1 (1.25)
mouse				
mouse1-photo-colour	3.76 (1.22)	3.75 (0.91)	3.6 (1.19)	3.75 (1.29)
mouse1-photo-grey	4.43 (0.87)	3.35 (1.09)		3.59 (1.09)
mouse2-photo-colour	4.15 (0.99)	3.9 (0.91)	3.7 (1.03)	3.85 (1.42)
mouse2-photo-grey	3.8 (1.24)	3.1 (1.37)		3.95 (1.07)
mouse3-photo-colour	3.85 (0.99)	3.85 (1.27)	3.25 (1.21)	3.48 (1.17)
mouse3-photo-grey	3.65 (1.46)	3.2 (1.06)		3.05 (1.36)
nail				
nail1-photo-colour	4.17 (1.26)	2.14 (1.31)	3.57 (1.43)	3.7 (1.75)
nail1-photo-grey	4.5 (0.95)	2.1 (1.09)		3.4 (1.7)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
nail2-photo-colour	4.43 (0.81)	2.05 (1.05)	2.7 (1.22)	3.33 (1.77)
nail2-photo-grey	4.65 (0.59)	1.5 (0.76)		3.85 (1.27)
nail3-photo-colour	4.15 (1.18)	1.95 (1.05)	3.7 (1.59)	3.65 (1.73)
nail3-photo-grey	4.57 (0.75)	1.75 (1.07)		4.1 (1.41)
needle				
needle1-photo-colour	4.03 (1.05)	2.48 (1.4)	3.48 (1.08)	4.6 (0.82)
needle1-photo-grey	4.45 (1.05)	2.14 (1.11)		4.4 (0.99)
needle2-photo-colour	4.24 (1.22)	1.9 (0.85)	2.4 (1.23)	4 (1.34)
needle2-photo-grey	4.4 (0.99)	1.7 (1.03)		3.95 (1.15)
needle3-photo-colour	3.75 (1.16)	1.75 (1.02)	3.45 (1.57)	4 (1.08)
needle3-photo-grey	3.86 (1.24)	1.85 (0.59)		3.75 (1.29)
nose				
nose1-photo-colour	5 (0)	2.72 (1.46)	3.15 (1.76)	4 (0.84)
nose1-photo-grey	5 (0)	2.55 (1.19)		3.76 (1.26)
nose2-photo-colour	4.95 (0.22)	3.24 (1.14)	2.67 (1.56)	3.85 (1.09)
nose2-photo-grey	4.7 (0.66)	2.4 (1.05)		3.6 (0.99)
nose3-photo-colour	4.85 (0.49)	3.15 (0.88)	3.25 (1.41)	4.1 (1.02)
nose3-photo-grey	4.75 (0.72)	2.52 (1.29)		3.4 (1.1)
onion				
onion1-photo-colour	4.9 (0.31)	2.83 (1.28)	4 (1.17)	4.67 (0.73)
onion1-photo-grey	4.8 (0.52)	2.55 (1.15)		3.43 (1.21)
onion2-photo-colour	4.8 (0.7)	3.38 (1.36)	3.76 (0.94)	4.25 (1.07)
onion2-photo-grey	4.5 (0.69)	2.9 (1.21)		3.65 (0.93)
onion3-photo-colour	4.6 (0.6)	2.45 (1.15)	3.85 (1.09)	4.7 (0.73)
onion3-photo-grey	4.35 (0.93)	2.14 (0.91)		3.2 (1.2)
orange				
orange1-photo-colour	4.67 (0.66)	2.3 (1.45)	4.7 (0.73)	4.75 (0.55)
orange1-photo-grey	4.48 (0.87)	2.35 (1.04)		2.79 (1.32)
orange2-photo-colour	4.9 (0.31)	3.25 (1.37)	4.85 (0.37)	4.8 (0.7)
orange2-photo-grey	4.25 (0.91)	1.9 (1.37)		3.76 (1)
orange3-photo-colour	4.85 (0.37)	3.55 (1.36)	4.7 (0.57)	4.62 (0.74)
orange3-photo-grey	4.45 (1.1)	2.3 (1.08)		3.1 (1.02)
ostrich				
ostrich1-photo-colour	3.48 (1.35)	3.81 (0.68)	4.19 (1.12)	4.7 (0.47)
ostrich1-photo-grey	3.4 (1.57)	3.1 (0.94)		4.3 (0.73)
ostrich2-photo-colour	3.33 (1.35)	3.85 (0.99)	3.55 (0.89)	4.52 (0.68)
ostrich2-photo-grey	3.3 (1.42)	3.5 (1.43)		3.9 (1.07)
ostrich3-photo-colour	3.1 (1.62)	3.6 (0.99)	3.95 (1.05)	3.75 (1.16)
ostrich3-photo-grey	3 (1.73)	3.25 (1.25)		3.35 (1.23)
peach				
peach1-photo-colour	4.45 (1)	3.19 (1.12)	4 (0.95)	3.95 (1.1)
peach1-photo-grey	4.31 (0.97)	2.95 (1.2)		2.95 (1.39)
peach2-photo-colour	4.35 (1.09)	3.2 (1.28)	4.2 (1.01)	4.45 (0.76)
peach2-photo-grey	4.33 (0.8)	2.2 (0.95)		2.9 (1.41)
peach3-photo-colour	4.1 (1.09)	2.2 (0.89)	3.95 (1.19)	4 (1.08)
peach3-photo-grey	3.75 (1.45)	1.9 (1.07)		1.75 (1.02)
peacock				
peacock1-photo-colour	3.79 (1.4)	4.43 (0.68)	4.76 (0.44)	4.4 (0.68)
peacock1-photo-grey	3.7 (1.56)	3.62 (1.32)		3.1 (1.12)
peacock2-photo-colour	3.86 (1.39)	4.55 (0.83)	4.2 (1.06)	4 (1.1)
peacock2-photo-grey	3.6 (1.47)	3.85 (1.31)		2.55 (1.05)
peacock3-photo-colour	3.4 (1.43)	4.45 (0.6)	4.55 (0.94)	4 (0.97)
peacock3-photo-grey	3.43 (1.47)	3.9 (1.21)		3.2 (1.15)
peanut				
peanut1-photo-colour	4.38 (0.86)	3.2 (1.2)	4.1 (1.02)	4.1 (1.26)
peanut1-photo-grey	3.95 (1.12)	2.75 (1.12)		3.35 (1.31)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
peanut2-photo-colour	4 (0.97)	3.45 (1.15)	4.4 (0.75)	3.95 (1.5)
peanut2-photo-grey	4.2 (0.89)	3.45 (0.94)		4 (1.12)
peanut3-photo-colour	4.2 (1.06)	2.85 (1.18)	4.1 (1.12)	4 (1.21)
peanut3-photo-grey	4 (1.12)	3.05 (0.89)		4.14 (1.06)
pear				
pear1-photo-colour	4.59 (0.78)	3.14 (1.24)	4.48 (0.6)	5 (0)
pear1-photo-grey	4.8 (0.41)	2.48 (1.12)		3.55 (1.23)
pear2-photo-colour	4.67 (0.8)	2.8 (1.2)	3.6 (1.1)	4.33 (0.73)
pear2-photo-grey	4.4 (1.05)	2.45 (1.05)		3.55 (1.05)
pear3-photo-colour	4.25 (1.02)	2.9 (1.12)	4 (1.21)	4.1 (0.97)
pear3-photo-grey	4.43 (1.08)	2.35 (1.18)		3.1 (0.97)
pencil				
pencil1-photo-colour	4.95 (0.22)	2.25 (1.55)	2.15 (1.6)	3.83 (1.07)
pencil1-photo-grey	4.57 (0.87)	1.75 (1.02)		3.85 (1.04)
pencil2-photo-colour	4.8 (0.7)	2.8 (1.54)	2.3 (1.49)	4 (0.95)
pencil2-photo-grey	4.9 (0.31)	2.6 (1.23)		3.75 (1.02)
pencil3-photo-colour	4.95 (0.22)	1.95 (1.05)	2.4 (1.1)	3.9 (0.91)
pencil3-photo-grey	4.6 (0.68)	1.8 (0.95)		2.57 (1.21)
penguin				
penguin1-photo-colour	4 (1.45)	3.55 (1.18)	4.65 (0.75)	4.62 (0.59)
penguin1-photo-grey	3.5 (1.4)	2.65 (1.18)		3.86 (0.85)
penguin2-photo-colour	3.85 (1.57)	3.76 (1.26)	4.52 (0.6)	4.65 (0.59)
penguin2-photo-grey	4.05 (1.15)	3 (1.21)		4.5 (0.69)
penguin3-photo-colour	3.6 (1.54)	3.45 (0.94)	4.2 (0.89)	4.4 (0.82)
penguin3-photo-grey	3.45 (1.43)	2.76 (0.77)		3.75 (1.12)
pepper				
pepper1-photo-colour	4.76 (0.44)	2.2 (1.36)	2.95 (1.1)	3.1 (1.48)
pepper1-photo-grey	4.71 (0.64)	2.4 (1.1)		2.69 (1.34)
pepper2-photo-colour	4.65 (0.67)	3.1 (1.29)	3.5 (1.36)	2.5 (1.7)
pepper2-photo-grey	4.55 (0.6)	2.15 (1.39)		3.14 (1.28)
pepper3-photo-colour	4.45 (0.6)	3.3 (1.34)	2.95 (1.19)	2.76 (1.22)
pepper3-photo-grey	4.4 (0.99)	2.35 (0.81)		2.9 (1.52)
piano				
piano1-photo-colour	4.48 (0.75)	3.9 (1.25)	3.55 (1.19)	4 (1)
piano1-photo-grey	3.9 (1.14)	3.95 (1.15)		4.2 (0.95)
piano2-photo-colour	4.15 (0.81)	4.15 (1.09)	3.6 (1.27)	4.43 (0.75)
piano2-photo-grey	4.15 (1.23)	3.4 (0.94)		4.15 (1.18)
piano3-photo-colour	4.3 (0.98)	3.75 (0.97)	3.65 (0.99)	3.85 (0.88)
piano3-photo-grey	4.25 (0.91)	3.7 (1.17)		4 (0.89)
pipe				
pipe1-photo-colour	3.43 (1.25)	4.1 (1.33)	3.2 (1.11)	2.79 (1.76)
pipe1-photo-grey	2.86 (1.53)	4.35 (0.88)		2.8 (1.47)
pipe2-photo-colour	3 (1.38)	2.75 (1.62)	3.55 (1.23)	2.76 (1.64)
pipe2-photo-grey	3.65 (1.23)	2.6 (1.1)		2.95 (1.5)
pipe3-photo-colour	2.8 (1.4)	2.4 (0.99)	3.35 (1.27)	2.9 (1.48)
pipe3-photo-grey	3.4 (1.47)	2.3 (1.08)		2.57 (1.66)
pitcher				
pitcher1-photo-colour	4.25 (1.07)	3.3 (1.26)	3.45 (1.36)	3.14 (1.42)
pitcher1-photo-grey	4.5 (0.76)	2.48 (0.95)	2.27 (1.1)	2.9 (1.18)
pitcher2-photo-colour	4.45 (0.6)	2.75 (1.16)	1.45 (1)	2.3 (0.98)
pitcher2-photo-grey	3.85 (1.14)	2.67 (1.02)		3.1 (1.25)
pitcher3-photo-colour	3.6 (1.19)	2.1 (1.09)	1.43 (0.81)	2.35 (0.99)
pitcher3-photo-grey	3.5 (1)	2.15 (0.81)		2.65 (1.14)
pliers				
pliers1-photo-colour	4.05 (1.32)	3 (1.08)	2.4 (1.05)	3.9 (0.97)
pliers1-photo-grey	3.95 (1.16)	3.05 (1.05)		3.59 (0.98)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
pliers2-photo-colour	4.25 (0.79)	2.75 (1.33)	2.9 (1.37)	4.15 (0.99)
pliers2-photo-grey	3.6 (1.31)	2.45 (1.23)		3.81 (1.17)
pliers3-photo-colour	4.1 (1.17)	2.6 (1.05)	2.3 (1.34)	3.86 (1.06)
pliers3-photo-grey	3.45 (1.19)	2.2 (0.95)		3.85 (1.14)
plug				
plug1-photo-colour	4.05 (1.36)	2.65 (1.14)	3 (1.17)	2 (1.22)
plug1-photo-grey	4.45 (0.83)	2.52 (1.09)	3.18 (1.4)	2.33 (1.39)
plug2-photo-colour	4.1 (1.29)	2.05 (0.69)	2.85 (1.35)	2 (1.49)
plug2-photo-grey	4.5 (1.15)	3.14 (1.11)		2.35 (1.5)
plug3-photo-colour	3.75 (1.41)	2.48 (0.87)	3.48 (1.21)	2.2 (1.32)
plug3-photo-grey	3 (1.38)	2.7 (1.13)		2.2 (1.28)
potato				
potato1-photo-colour	4.9 (0.56)	2.71 (1.45)	4 (1.26)	5 (0)
potato1-photo-grey	4.85 (0.37)	2.38 (1.07)		4 (1.12)
potato2-photo-colour	4.9 (0.3)	2.75 (1.12)	3.7 (1.3)	4.52 (0.81)
potato2-photo-grey	4.45 (1.23)	2.45 (1.15)		3.5 (1.24)
potato3-photo-colour	5 (0)	2.3 (1.53)	3.95 (1.15)	4.55 (0.69)
potato3-photo-grey	4.9 (0.3)	2.45 (1.1)		3.8 (1.01)
pumpkin				
pumpkin1-photo-colour	4.38 (1.02)	3 (1.17)	4.2 (1.28)	4.6 (0.75)
pumpkin1-photo-grey	4.1 (1.04)	2.55 (1)		3.28 (1.28)
pumpkin2-photo-colour	4 (1.08)	2.95 (1.23)	4.45 (0.83)	4.25 (1.12)
pumpkin2-photo-grey	3.5 (1.19)	2.25 (1.02)		3.29 (0.96)
pumpkin3-photo-colour	4.2 (0.7)	3.15 (1.35)	4.5 (1)	4.57 (0.75)
pumpkin3-photo-grey	3.85 (1.27)	2.5 (1.15)		3.65 (0.93)
rabbit				
rabbit1-photo-colour	4.35 (1.18)	3.52 (1.36)	3.71 (0.9)	3.9 (0.85)
rabbit1-photo-grey	4.41 (0.82)	3.38 (0.97)		4.05 (1.05)
rabbit2-photo-colour	4.2 (1.28)	3.2 (1.06)	3.6 (1.1)	3.7 (1.22)
rabbit2-photo-grey	4.1 (1.18)	3.1 (1.17)		3.43 (1.12)
rabbit3-photo-colour	4.29 (0.96)	3.9 (1.21)	3.75 (1.25)	3.85 (1.09)
rabbit3-photo-grey	4.2 (0.89)	3.75 (1.07)		3.7 (0.8)
raccoon				
raccoon1-photo-colour	3.45 (1.73)	3.52 (1.15)	4.25 (0.85)	4.33 (0.86)
raccoon1-photo-grey	3.45 (1.36)	3.25 (1.33)		3.95 (1.02)
raccoon2-photo-colour	3.6 (1.47)	4.14 (1.06)	4.62 (0.59)	3.95 (1.19)
raccoon2-photo-grey	3.65 (1.27)	3.6 (1.43)		4.3 (0.73)
raccoon3-photo-colour	2.9 (1.48)	3.6 (1.05)	4.35 (1.04)	4.35 (0.75)
raccoon3-photo-grey	2.8 (1.36)	3.29 (1.15)		3.6 (1.14)
ring				
ring1-photo-colour	4.62 (0.67)	2.35 (0.75)	2.9 (1.17)	3.31 (1.31)
ring1-photo-grey	4.38 (0.8)	2.7 (0.98)		3.4 (1.39)
ring2-photo-colour	2.55 (1.61)	3.45 (1.19)	3.2 (1.36)	2.05 (0.86)
ring2-photo-grey	2.75 (1.71)	2.85 (1.04)		1.85 (0.99)
ring3-photo-colour	4.2 (1.15)	1.85 (0.88)	2.25 (1.12)	3.35 (1.27)
ring3-photo-grey	4.15 (0.93)	1.9 (0.97)		2.67 (1.28)
ruler				
ruler1-photo-colour	4.76 (0.44)	2 (1.26)	2.15 (1.39)	3.34 (1.14)
ruler1-photo-grey	4.57 (0.93)	2.05 (1.05)		3.3 (1.17)
ruler2-photo-colour	4.4 (0.82)	3 (1.59)	3.2 (1.61)	3.86 (1.11)
ruler2-photo-grey	4.55 (0.69)	2.65 (1.04)		4.05 (0.89)
ruler3-photo-colour	4.4 (1.19)	2.55 (1.1)	2.5 (1.15)	3.25 (1.48)
ruler3-photo-grey	4.15 (1.04)	2.65 (1.04)		3.62 (0.97)
screw				
screw1-photo-colour	4.8 (0.62)	3.1 (1.18)	3.29 (1.42)	4.6 (0.6)
screw1-photo-grey	4.48 (0.91)	3.38 (1.16)		4.9 (0.31)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
screw2-photo-colour	4.75 (0.55)	3.1 (1.41)	3.4 (1.43)	4.45 (0.69)
screw2-photo-grey	4.76 (0.54)	2.6 (1.05)		4.38 (0.92)
screw3-photo-colour	4.52 (0.75)	3.05 (1.15)	3.25 (1.48)	4.45 (0.69)
screw3-photo-grey	4.2 (1.24)	2.55 (1.28)		4.4 (0.82)
seal				
seal1-photo-colour	3.8 (1.44)	3.29 (1.23)	3.67 (1.32)	3.95 (1.1)
seal1-photo-grey	3.59 (1.43)	3.48 (1.08)		3.8 (1.15)
seal2-photo-colour	3.75 (1.45)	2.95 (1.15)	4.15 (1.04)	3.95 (1.15)
seal2-photo-grey	3.71 (1.38)	3.25 (1.07)		4.38 (0.97)
seal3-photo-colour	3.76 (1.37)	3.55 (1.19)	4.15 (1.31)	3.75 (1.02)
seal3-photo-grey	3.4 (1.47)	2.75 (1.02)		3.25 (1.12)
sheep				
sheep1-photo-colour	4.3 (1.03)	3.71 (1.27)	3.71 (1.1)	3.95 (1.15)
sheep1-photo-grey	4.07 (1.22)	3.43 (0.87)		4 (0.97)
sheep2-photo-colour	4.05 (1.23)	3.75 (1.25)	4.3 (0.66)	3.85 (1.09)
sheep2-photo-grey	4.24 (0.89)	3.6 (1.1)		4 (0.89)
sheep3-photo-colour	3.95 (1.02)	3.55 (1.19)	4.1 (1.17)	3.95 (1)
sheep3-photo-grey	4 (1.08)	3.3 (1.03)		3.6 (1.23)
shirt				
shirt1-photo-colour	4.6 (0.75)	3.35 (1.14)	2.25 (1.45)	3.38 (1.24)
shirt1-photo-grey	4.75 (0.64)	3.21 (0.86)	2.09 (1.22)	3.71 (1.01)
shirt2-photo-colour	4.45 (0.89)	2.5 (1.32)	2.3 (1.22)	3.1 (1.41)
shirt2-photo-grey	4.75 (0.55)	3.24 (1.14)		2.6 (1.39)
shirt3-photo-colour	4.55 (0.51)	3 (1.18)	1.67 (0.97)	3.4 (1.14)
shirt3-photo-grey	4.55 (0.76)	3.15 (0.67)		3.65 (1.04)
shoe				
shoe1-photo-colour	4.9 (0.31)	3.19 (1.08)	2.67 (1.2)	4.05 (1.32)
shoe1-photo-grey	4.95 (0.22)	2.57 (0.87)		3.6 (1.14)
shoe2-photo-colour	4.9 (0.3)	3.55 (0.94)	2.95 (1.1)	3.52 (1.44)
shoe2-photo-grey	4.95 (0.22)	3.05 (1.36)		3.35 (1.35)
shoe3-photo-colour	4.7 (0.66)	3.45 (1.23)	2.85 (1.57)	3.3 (1.63)
shoe3-photo-grey	4.95 (0.22)	2.85 (1.18)		3.85 (0.93)
skirt				
skirt1-photo-colour	4.15 (1.09)	3.24 (1.27)	2.15 (1.6)	2.81 (1.08)
skirt1-photo-grey	3.95 (1.36)	3.05 (1.23)		2.76 (1.18)
skirt2-photo-colour	4.15 (1.18)	3.33 (1.11)	1.71 (1.42)	2.6 (1.27)
skirt2-photo-grey	4 (1.08)	3.05 (1.05)		2.4 (0.94)
skirt3-photo-colour	3.5 (1.28)	3 (0.79)	1.8 (1.06)	3 (1.12)
skirt3-photo-grey	3.95 (0.94)	2.71 (0.96)		2.65 (1.09)
skunk				
skunk1-photo-colour	3.19 (1.66)	3.65 (0.93)	4.4 (0.99)	4.28 (1.22)
skunk1-photo-grey	3.14 (1.68)	3.7 (1.08)		4.15 (0.88)
skunk2-photo-colour	2.85 (1.53)	3.65 (1.04)	4.35 (0.88)	3.95 (0.86)
skunk2-photo-grey	3 (1.45)	3.35 (1.14)		3.5 (1.24)
skunk3-photo-colour	2.35 (1.18)	3.5 (0.95)	3.6 (1.35)	3.3 (1.17)
skunk3-photo-grey	2.7 (1.45)	3.35 (1.09)		2.81 (1.21)
snail				
snail1-photo-colour	4.19 (0.93)	4.1 (0.72)	3.25 (1.21)	4.15 (1.04)
snail1-photo-grey	4.57 (0.6)	3 (1.03)		3.62 (1.05)
snail2-photo-colour	4.55 (0.69)	3.95 (1.1)	4.25 (0.72)	4.3 (0.98)
snail2-photo-grey	4.2 (1.2)	3.5 (1.32)		4.1 (0.89)
snail3-photo-colour	4.25 (1.16)	4 (1.21)	2.85 (1.14)	3.43 (1.08)
snail3-photo-grey	4.25 (1.07)	3.75 (1.02)		4.05 (0.83)
snake				
snake1-photo-colour	4.1 (1.45)	2.95 (1.12)	2.71 (0.78)	3.65 (1.09)
snake1-photo-grey	3.93 (1.33)	3.1 (0.94)		3.55 (1)

(continued)

Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
snake2-photo-colour	4.35 (1.04)	2.95 (1.1)	2.6 (1.23)	3.45 (0.94)
snake2-photo-grey	3.9 (1.37)	2.65 (0.99)		3.86 (1.11)
snake3-photo-colour	3.62 (1.32)	3.05 (1)	2.7 (1.17)	3.6 (1.05)
snake3-photo-grey	3.5 (1.4)	3.1 (1.17)		3.4 (0.94)
snowman				
snowman1-photo-colour	4.25 (1.07)	2.38 (1.2)	3.86 (1.42)	3.05 (1.19)
snowman1-photo-grey	4.17 (1)	2.33 (1.15)		3.6 (1.19)
snowman2-photo-colour	4.3 (1.08)	3.4 (1.14)	4.4 (1.05)	3.9 (0.91)
snowman2-photo-grey	4.1 (1.26)	2.6 (1.14)		4.1 (0.94)
snowman3-photo-colour	4.19 (1.03)	3 (1.12)	4.3 (1.26)	3.3 (0.98)
snowman3-photo-grey	3.75 (1.29)	2.8 (1.11)		2.65 (1.27)
socks				
socks1-photo-colour	4.9 (0.45)	2.14 (0.96)	1.9 (1.34)	2.9 (1.29)
socks1-photo-grey	5 (0)	1.81 (0.87)		4.05 (1.1)
socks2-photo-colour	5 (0)	2.05 (0.94)	1.65 (0.99)	3.55 (1.39)
socks2-photo-grey	5 (0)	2 (0.86)		3.29 (1.45)
socks3-photo-colour	5 (0)	2.55 (1.28)	1.75 (1.16)	3.1 (1.21)
socks3-photo-grey	4.9 (0.31)	2 (1.17)		2.9 (1.17)
spider				
spider1-photo-colour	4.52 (0.91)	4 (0.77)	3.38 (1.16)	3.3 (1.45)
spider1-photo-grey	4.35 (0.99)	3.62 (1.2)		3.15 (1.27)
spider2-photo-colour	4.71 (0.64)	4.25 (0.91)	3.2 (1.2)	3.33 (1.49)
spider2-photo-grey	4.5 (0.76)	3.95 (1.1)		2.85 (1.04)
spider3-photo-colour	4.05 (1.19)	4.45 (1)	3.45 (1.32)	2.05 (1.23)
spider3-photo-grey	4.33 (1.02)	3.95 (1.1)		3.15 (1.27)
spoon				
spoon1-photo-colour	4.95 (0.22)	2.65 (1.42)	3.85 (1.46)	4.45 (0.74)
spoon1-photo-grey	4.9 (0.3)	2.5 (1.24)		4.35 (0.88)
spoon2-photo-colour	4.6 (0.68)	2.7 (1.26)	2.95 (1.39)	3.86 (1.15)
spoon2-photo-grey	4.9 (0.31)	2.55 (1.1)		3.8 (1.15)
spoon3-photo-colour	4.9 (0.31)	2.25 (1.29)	3.7 (1.34)	4.5 (0.95)
spoon3-photo-grey	4.85 (0.37)	2.55 (1.23)		4.52 (0.81)
stool				
stool1-photo-colour	3.48 (1.33)	2.85 (1.04)	2.85 (1.18)	2.45 (1.36)
stool1-photo-grey	3.52 (1.25)	2.35 (0.88)		1.86 (0.99)
stool2-photo-colour	4.3 (0.8)	3.1 (1.02)	2.8 (1.4)	3.65 (1.18)
stool2-photo-grey	4.3 (0.86)	2.55 (1)		3.33 (1.06)
stool3-photo-colour	4.25 (0.91)	2.75 (1.07)	2.1 (1.12)	3.14 (1.24)
stool3-photo-grey	4.4 (0.68)	2.4 (0.75)		3.55 (1.15)
swan				
swan1-photo-colour	4.62 (0.59)	3.45 (1.28)	4.4 (0.99)	4.38 (0.82)
swan1-photo-grey	4.05 (0.92)	3.2 (1.15)		3.65 (1.35)
swan2-photo-colour	3.9 (1.17)	4.15 (0.88)	4.45 (1.1)	4.67 (0.58)
swan2-photo-grey	4.3 (1.03)	3.9 (0.85)		3.9 (1.12)
swan3-photo-colour	4.05 (1.28)	2.6 (1.19)	4.2 (1.01)	4.65 (0.59)
swan3-photo-grey	4.45 (0.6)	2.55 (1.15)		4.1 (0.83)
swing				
swing1-photo-colour	4.14 (1.27)	2.33 (1.06)	3.05 (1.28)	3.65 (0.93)
swing1-photo-grey	4.25 (1.12)	2 (0.77)		2.95 (1.28)
swing2-photo-colour	4.19 (1.08)	2.35 (0.88)	2.8 (1.28)	3.14 (1.35)
swing2-photo-grey	4.2 (1.01)	1.9 (0.64)		2.95 (1.39)
swing3-photo-colour	3.45 (1.39)	2.65 (1.04)	3.15 (1.27)	2.7 (1.22)
swing3-photo-grey	3.81 (1.4)	2 (0.73)		3.3 (0.98)
table				
table1-photo-colour	5 (0)	2.15 (1.27)	2.8 (1.36)	3.95 (1)
table1-photo-grey	4.9 (0.44)	1.9 (0.91)		3.48 (1.15)

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Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
table2-photo-colour	4.95 (0.22)	1.95 (1.15)	1.8 (1.32)	3.65 (1.27)
table2-photo-grey	4.8 (0.62)	1.5 (0.95)		3.33 (1.15)
table3-photo-colour	4.1 (1.25)	3.45 (1.1)	2.1 (1.17)	2.24 (1)
table3-photo-grey	4.2 (0.95)	3.25 (1.07)		2.15 (0.93)
thimble				
thimble1-photo-colour	3.4 (1.64)	2.83 (1.04)	3.45 (1.32)	3.95 (1.28)
thimble1-photo-grey	3.45 (1.64)	2.4 (1.1)		4.05 (1.24)
thimble2-photo-colour	3.25 (1.62)	3.81 (1.12)	2.67 (1.49)	3.7 (1.03)
thimble2-photo-grey	3.15 (1.14)	3.4 (1.47)		4.55 (0.89)
thimble3-photo-colour	2.85 (1.39)	3.1 (1.41)	3.4 (1.47)	3.9 (1.41)
thimble3-photo-grey	2.75 (1.52)	2.57 (1.33)		3.6 (1.54)
thumb				
thumb1-photo-colour	4.9 (0.31)	2.95 (1.28)	3.2 (1.44)	3.81 (1.36)
thumb1-photo-grey	5 (0)	2.52 (1.18)	1.82 (0.87)	3.52 (1.29)
thumb2-photo-colour	4.55 (0.69)	2.5 (1.1)	2.85 (1.57)	4.15 (0.99)
thumb2-photo-grey	4.67 (0.91)	3 (0.89)		3.3 (1.45)
thumb3-photo-colour	4.65 (0.75)	3.33 (1.11)	2.81 (1.36)	3.45 (1.43)
thumb3-photo-grey	4.45 (1.1)	3.1 (1.37)		3.85 (1.14)
tiger				
tiger1-photo-colour	3.52 (1.72)	4.1 (0.91)	4.45 (0.76)	4.55 (0.83)
tiger1-photo-grey	4.1 (1.18)	3.55 (1.23)		3.55 (1.09)
tiger2-photo-colour	4.15 (1.18)	4.05 (0.83)	4.65 (0.59)	4.65 (0.75)
tiger2-photo-grey	3.6 (1.35)	3.2 (1.28)		4.19 (0.75)
tiger3-photo-colour	4.1 (1.21)	4 (1.21)	4.1 (1.07)	4.62 (0.67)
tiger3-photo-grey	3.65 (1.6)	3.55 (1.15)		4.25 (0.85)
toaster				
toaster1-photo-colour	4.7 (0.66)	2.9 (1.02)	2.6 (1.35)	3.33 (1.15)
toaster1-photo-grey	4.9 (0.31)	2.83 (1.1)	2.55 (1.69)	3.48 (0.93)
toaster2-photo-colour	4.75 (0.55)	3.15 (1.23)	1.95 (1.05)	3.95 (1.23)
toaster2-photo-grey	4.4 (0.75)	3.71 (1.15)		4.1 (0.91)
toaster3-photo-colour	4.55 (0.6)	3.38 (1.07)	1.67 (1.2)	3.15 (1.35)
toaster3-photo-grey	4.35 (0.59)	3.55 (0.76)		2.9 (1.25)
tomato				
tomato1-photo-colour	4.85 (0.49)	2.41 (1.3)	4.45 (1)	4.67 (0.58)
tomato1-photo-grey	4.5 (0.95)	2.2 (1.15)		2.9 (1.22)
tomato2-photo-colour	4.76 (0.54)	3.48 (1.33)	4.24 (0.89)	4.3 (0.73)
tomato2-photo-grey	4.3 (1.08)	2.4 (0.94)		3.05 (1.32)
tomato3-photo-colour	4.4 (0.82)	2.2 (1.11)	4.4 (0.88)	4.9 (0.31)
tomato3-photo-grey	4.35 (0.99)	2.14 (1.01)		3.15 (1.42)
train				
train1-photo-colour	4.38 (0.92)	4.55 (0.6)	2.6 (1.35)	3.3 (1.69)
train1-photo-grey	4.05 (1.02)	4.1 (1.33)		2.55 (1.12)
train2-photo-colour	4.15 (0.93)	4.3 (0.47)	2.3 (1.53)	2.85 (1.27)
train2-photo-grey	3.85 (1.14)	3.5 (1.5)		3 (1.26)
train3-photo-colour	4.55 (0.69)	4 (1.3)	2.5 (1.36)	2.95 (0.86)
train3-photo-grey	4.35 (1.09)	3.95 (1)		3.2 (1.28)
tree				
tree1-photo-colour	4.9 (0.3)	4.05 (1.28)	3.7 (1.03)	3.9 (1.21)
tree1-photo-grey	4.76 (0.77)	4.2 (0.83)		3.55 (1.23)
tree2-photo-colour	4.9 (0.31)	4.1 (1.07)	4.05 (1.19)	4.57 (0.6)
tree2-photo-grey	4.9 (0.31)	3.4 (1.1)		3.8 (1.36)
tree3-photo-colour	4.85 (0.37)	3.6 (1.19)	4.25 (0.85)	4.25 (1.02)
tree3-photo-grey	4.55 (0.76)	3.3 (1.3)		3.24 (1.14)
trumpet				
trumpet1-photo-colour	3.3 (1.59)	3.6 (1.14)	3.5 (0.95)	3.81 (1.12)
trumpet1-photo-grey	3.55 (1.54)	3.52 (0.91)	2.82 (0.98)	3.81 (1.17)

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Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
trumpet2-photo-colour	3.8 (1.2)	2.95 (1.32)	4.45 (0.83)	4.9 (0.31)
trumpet2-photo-grey	3.5 (1.54)	3.52 (1.03)		4.05 (1)
trumpet3-photo-colour	3.3 (1.53)	3.43 (0.81)	4.1 (1.09)	4.2 (0.83)
trumpet3-photo-grey	2.8 (1.36)	3.3 (0.86)		3.95 (1.15)
turtle				
turtle1-photo-colour	3.45 (1.43)	3.25 (1.12)	3.65 (1.14)	3.43 (1.25)
turtle1-photo-grey	3.65 (1.39)	3.52 (0.91)	2 (1.1)	3.24 (1.18)
turtle2-photo-colour	3.95 (1.19)	3.35 (1.35)	4.45 (0.69)	3.1 (1.37)
turtle2-photo-grey	3.35 (1.39)	3.81 (1.08)		2.55 (1.39)
turtle3-photo-colour	3.45 (1.43)	4.14 (0.91)	4.24 (1.09)	3.9 (1.52)
turtle3-photo-grey	3.35 (1.42)	3.3 (1.08)		3.45 (1.57)
vest				
vest1-photo-colour	4.05 (1.28)	1.81 (0.93)	1.71 (1.01)	1.85 (1.09)
vest1-photo-grey	3.66 (1.32)	2 (1.22)		2.7 (1.38)
vest2-photo-colour	4.1 (1.17)	2.05 (0.94)	2.05 (1.15)	2.2 (1.28)
vest2-photo-grey	4.1 (1.09)	2.1 (0.91)		2.76 (1.48)
vest3-photo-colour	3.76 (1.22)	3.1 (1.07)	2.1 (1.12)	2.35 (1.23)
vest3-photo-grey	3.25 (1.45)	2.75 (1.07)		1.9 (1.12)
violin				
violin1-photo-colour	4 (0.89)	3.7 (1.17)	4.2 (0.95)	4.69 (0.71)
violin1-photo-grey	3.33 (1.49)	3.1 (0.91)		4 (1.12)
violin2-photo-colour	3.6 (1.54)	3.4 (1.14)	4.05 (1.1)	4.62 (0.74)
violin2-photo-grey	3.7 (1.53)	3.25 (0.85)		4.2 (0.89)
violin3-photo-colour	2.9 (1.55)	3.4 (1.19)	3.95 (1.15)	4.05 (1)
violin3-photo-grey	3.7 (1.08)	3.45 (1.32)		3.43 (1.08)
watch				
watch1-photo-colour	4.6 (0.5)	3.05 (1.05)	2.85 (1.5)	3.52 (1.17)
watch1-photo-grey	4.8 (0.7)	2.9 (1.01)	2.45 (1.63)	3.19 (1.08)
watch2-photo-colour	4.85 (0.37)	3.3 (0.98)	1.8 (1.2)	3.8 (1.06)
watch2-photo-grey	4.7 (0.66)	3.48 (1.03)		3.15 (1.31)
watch3-photo-colour	4.4 (0.82)	3.05 (1.16)	2.05 (1.2)	3.4 (1.14)
watch3-photo-grey	4.4 (0.88)	3.15 (0.99)		3.65 (1.23)
well				
well1-photo-colour	3.71 (1.1)	3.9 (1.25)	3.45 (1.36)	4.38 (0.98)
well1-photo-grey	2.95 (1.47)	3.65 (0.75)		4.1 (1.02)
well2-photo-colour	3.25 (1.52)	3.65 (1.23)	3 (1.69)	4.14 (1.01)
well2-photo-grey	3.95 (1.1)	3.45 (0.94)		4 (1.08)
well3-photo-colour	2.7 (1.3)	3.95 (0.76)	3.1 (1.02)	3.95 (1.05)
well3-photo-grey	3.1 (1.33)	3.7 (1.13)		3.62 (1.12)
whistle				
whistle1-photo-colour	4.05 (1.15)	2.75 (1.33)	2.9 (1.21)	4.29 (0.85)
whistle1-photo-grey	4.25 (1.21)	2.14 (1.16)	3 (1)	4.24 (0.94)
whistle2-photo-colour	4.3 (1.13)	2 (0.79)	3 (1.12)	4.35 (0.99)
whistle2-photo-grey	4 (1.08)	2.9 (1)		4.25 (1.02)
whistle3-photo-colour	3.35 (1.27)	2.19 (1.03)	3.33 (1.35)	4.3 (1.08)
whistle3-photo-grey	3.5 (1.36)	2.6 (0.99)		4.35 (1.23)
window				
window1-photo-colour	4.7 (0.57)	2.75 (1.25)	2.3 (1.22)	2.71 (1.19)
window1-photo-grey	4.9 (0.45)	2.97 (1.05)	1.91 (1.3)	2.81 (1.17)
window2-photo-colour	4.75 (0.79)	3.65 (0.99)	1.95 (1.15)	4 (1.12)
window2-photo-grey	4.55 (0.69)	3.52 (1.29)		3.4 (1.19)
window3-photo-colour	4.55 (0.6)	2.62 (0.92)	2.24 (1.22)	3.15 (1.27)
window3-photo-grey	4.8 (0.41)	2.65 (0.93)		3.8 (0.7)
zebra				
zebra1-photo-colour	3.38 (1.6)	3.8 (1.11)	4.75 (0.44)	4.6 (0.6)
zebra1-photo-grey	4.29 (1.06)	3.25 (1.12)		4.34 (0.94)

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Photograph	Familiarity	Visual Complexity	Colour Diagnosticity	Mental Imagery
zebra2-photo-colour	3.9 (1.37)	3.8 (1.01)	4.55 (0.89)	4.55 (0.83)
zebra2-photo-grey	3.45 (1.5)	3.9 (1.33)		4.76 (0.54)
zebra3-photo-colour	4.15 (1.27)	3.6 (1.1)	4.8 (0.41)	4.38 (0.86)
zebra3-photo-grey	3.35 (1.6)	3.25 (1.12)		4.75 (0.55)