**Scales and Inferences – Supplementary materials**

Shirly Orr1,2, Mira Ariel1, and Einat Shetreet1,2

1 Department of Linguistics, Tel Aviv University, Tel Aviv

2 Sagol School of Neuroscience, Tel Aviv University, Tel Aviv

**S1. Item-based discussion of the modifications in Experiment 1**

Our first modification of the original materials in van Tiel et al., (2016) concerned changing the scales <*participate*, *win*> and <*start*, *finish*>. These changes led to an increase in SI rates, from 18% to 46% (*χ2*(1) = 4.9, *p* < 0.05) for <*participate*, *win*>; and even more so for <*start*, *finish*> – from 21% to 86% (*χ2*(1) = 24.2, *p* < 0.001). Although we do not develop this issue here, this finding may shed light on the psychological reality of the competence assumption (Sauerland, 2004; Geurts, 2010), and its importance to the derivation of scalar inferences (also see Bergen & Grodner, 2012; Hochstein et al., 2014; Papafragou et al., 2018 inter alia).

Our second modification of van Tiel et al. (2016) concerned the scale *<possible, certain>*. SI rates, we note, did not differ significantly for <*possible, certain*>-a, and <*possible, certain*>-b. The original <*possible, certain*>-a received “Yes” responses 90% of the time, and <*possible, certain*>-b received “Yes” responses 96.7% of the time (*χ2*(1) = 1.07, *p* < 0.3).

**S2. Ordered tables for Boundedness (Experiment 2) and Distance (Experiment 3) scores**

Table S-1: Boundedness (BNDS) scores ordered by quartiles

|  |  |  |  |
| --- | --- | --- | --- |
| **1st Quartile** | **2nd Quartile** | **3rd Quartile** | **4th Quartile** |
| **Scale** | **BNDS score** | **Scale** | **BNDS score** | **Scale** | **BNDS score** | **Scale** | **BNDS score** |
| *none* | 92.97 | *obligatory* | 66.52 | *starving* | 34.24 | *stunning* | 11.28 |
| *free* | 92.74 | *certain-b* | 63.13 | *loathe* | 27.72 | *tight* | 9.98 |
| *extinct* | 92.6 | *perfect* | 62.61 | *ancient* | 23.22 | *good* | 9.89 |
| *will* | 86.74 | *know* | 56.51 | *love* | 21.95 | *hilarious* | 9.73 |
| *all* | 83.98 | *always* | 54.42 | *enormous* | 21.75 | *horrific* | 9.56 |
| *finish* | 83.39 | *certain-a* | 54.02 | *ridiculous* | 14.51 | *scared* | 9.22 |
| *win* | 83.27 | *have to* | 50.4 | *tiny* | 14.3 | *hideous* | 8.8 |
| *unsolvable* | 82.22 | *black* | 46.86 | *delicious* | 14.07 | *happy* | 8.01 |
| *unavailable* | 79.07 | *unforgettable* | 44.47 | *beautiful* | 12.7 | *exhausted* | 7.09 |
| *depleted* | 72.78 | *succeed* | 44.14 | *excellent* | 12.45 | *hot* | 6.42 |
| *impossible* | 70.14 | *unique* | 38.14 | *brilliant* | 11.32 | *cold* | 4.32 |
|  |  |  |  |  |  |  |  |

Table S-2: Distance (DIST) scores (calculated based on interchangeability scores) ordered by quartiles

|  |  |  |  |
| --- | --- | --- | --- |
| 1st quartile | 2nd quartile | 3rd quartile | 4th quartile |
| Scale | **DIST score** | **Scale** | **DIST score** | **Scale** | **DIST score** | **Scale** | **DIST score** |
| <*start*, *finish*> | 95.61 | <*cheap*, *free*> | 67.7 | <*good*, *excellent*> | 36.3 | <*old*, *ancient*> | 23.83 |
| <*few*, *none*> | 88.97 | <*palatable*, *delicious*> | 64.3 | <*low*, *depleted*> | 35.97 | <*intelligent*, *brilliant*> | 21.35 |
| <*try*, *succeed*> | 81.7 | <*may*, *will*> | 64.2 | <*like*, *love*> | 34.33 | <*tired*, *exhausted*> | 18.07 |
| <*may*, *have* *to*> | 79.63 | <*believe*, *know*> | 59.11 | <*unsettling*, *horrific*> | 33.99 | <*big*, *enormous*> | 17.77 |
| <*rare*, *extinct*> | 78.12 | <*hard*, *unsolvable*> | 52.84 | <*hungry*, *starving*> | 33.3 | <*pretty*, *beautiful*> | 17.54 |
| <*allowed*, *obligatory*> | 75.86 | <*difficult*, *impossible*> | 51.06 | <*content*, *happy*> | 31.4 | <*attractive*, *stunning*> | 17.3 |
| <*participate*, *win*> | 75.8 | <*scarce*, *unavailable*> | 48.36 | <*memorable*, *unforgettable*> | 28.28 | <*dislike*, *loathe*> | 16.25 |
| <*some*, *all*> | 74.45 | <*adequate*, *good*> | 48.17 | <*cool*, *cold*> | 27.97 | <*small*, *tiny*> | 15.34 |
| <*possible*, *certain*>-b | 73.6 | <*good*, *perfect*> | 46.87 | <*silly*, *ridiculous*> | 26.48 | <*funny*, *hilarious*> | 13.9 |
| <*sometimes*, *always*> | 68.94 | <*warm*, *hot*> | 42.3 | <*wary*, *scared*> | 25.72 | <*ugly*, *hideous*> | 13.31 |
| <*possible*, *certain*>-a | 68.44 | <*dark*, *black*> | 38.18 | <*special*, *unique*> | 23.91 | <*snug*, *tight*> | 10.11 |
|  |  |  |  |  |  |  |  |

**S-3: Statements used in the experiment**

The statements in the experiment generally followed those in van Tiel et al. (2016). In cases where our stimuli diverge from those there, we mark this in “\*”/“\*\*” and provide alternative statements and reasoning.

**Experimental items**

| **scale** | **Statement 1** | **Statement 2** | **Statement 3** |
| --- | --- | --- | --- |
| *<some, all>* | The bartender saw some of the cars. | The nurse saw some of the signs. | The mathematician saw some of the issues. |
| *<few, none>* | The biologist saw few of the birds. | The cop saw few of the children. | The observer saw few of the stars. |
| *<sometimes, always>* | The assistant is sometimes angry. | The director is sometimes late. | The doctor is sometimes irritable. |
| *<may, have to>* | The child may eat an apple. | The boy may watch television. | The dog may sleep on the bed. |
| *<may, will>* | This lawyer may appear in person. | The teacher may come. | The student may pass. |
| *<believe, know>* | The student believes it will work out. | The mother believes it will happen. | The teacher believes it is true. |
| *<dislike, loathe>* | The boy dislikes broccoli. | The teacher dislikes fighting. | The doctor dislikes coffee. |
| *<like, love>* | The princess likes dancing. | The actress likes the movie. | The manager likes spaghetti. |
| *<participate, win>\** | My cousin participated in the Olympic games. | My child participated in the state spelling contest. | This gentleman participated in an international chess competition. |
| *<start, finish>\** | The war started. | The trial started. | The negotiation started. |
| *<try, succeed>* | The candidate tried. | The athlete tried. | The scientist tried. |
| *<adequate, good>* | The food is adequate. | The salary is adequate. | The solution is adequate. |
| *<allowed, obligatory>* | Copying is allowed. | Drinking is allowed. | Talking is allowed. |
| *<attractive, stunning>* | That nurse is attractive. | This model is attractive. | The singer is attractive. |
| *<big, enormous>*  | That elephant is big. | The house is big. | That tree is big. |
| *<cheap, free>* | The water is cheap. | The electricity is cheap. | The food is cheap. |
| *<content, happy>* | This child is content. | The homemaker is content. | The musician is content. |
| *<cool, cold>* | The air is cool. | The weather is cool. | The room is cool. |
| *<dark, black>* | That fabric is dark. | The sky is dark. | The shirt is dark. |
| *<difficult, impossible>* | The task is difficult. | The journey is difficult. | The problem is difficult. |
| *<funny, hilarious>* | This joke is funny. | The play is funny. | This movie is funny. |
| *<good, excellent>* | The food is good. | That movie is good. | This sandwich is good. |
| *<good, perfect>* | The layout is good. | This solution is good. | That answer is good. |
| *<hard, unsolvable>* | That problem is hard. | The issue is hard. | The puzzle is hard. |
| *<hungry, starving>* | The boy is hungry. | The dog is hungry. | The elephant is hungry. |
| *<intelligent, brilliant>* | The assistant is intelligent. | That professor is intelligent. | This student is intelligent. |
| *<low, depleted>*  | The energy is low. | This battery is low. | The gas is low. |
| *<memorable, unforgettable>* | This party is memorable. | The view is memorable. | This movie is memorable. |
| *<old, ancient>* | That house is old. | That mirror is old. | That table is old. |
| *<palatable, delicious>* | The food is palatable. | That wine is palatable. | The dessert is palatable. |
| *<possible, certain>* | Happiness is possible. | Failing is possible. | Success is possible. |
| *<pretty, beautiful>* | This model is pretty. | That lady is pretty. | The girl is pretty. |
| *<rare, extinct>* | That plant is rare. | This bird is rare. | This fish is rare. |
| *<scarce, unavailable>* | This recording is scarce. | This resource is scarce. | This mineral is scarce. |
| *<silly, ridiculous>* | That song is silly. | That joke is silly. | That question is silly. |
| *<small, tiny>* | The room is small. | The car is small. | This fish is small. |
| *<snug, tight>* | The shirt is snug. | That dress is snug. | This glove is snug. |
| *<special, unique>* | That dress is special. | That painting is special. | This necklace is special. |
| *<tired, exhausted>* | The quarterback is tired. | The runner is tired. | The worker is tired. |
| *<ugly, hideous>* | The wallpaper is ugly. | That sweater is ugly. | That painting is ugly. |
| *<unsettling, horrific>* | The movie is unsettling. | This picture is unsettling. | The news is unsettling. |
| *<warm, hot>* | The weather is warm. | The sand is warm. | The soup is warm. |
| *<wary, scared>* | The dog is wary. | The victim is wary. | The rabbit is wary. |
| *<possible, certain>\*\** | The execution is possible. | The punishment is possible. | The embargo is possible. |

\* Modification 1: We reworded the statement to make it clear that the speaker has the relevant knowledge to know that the stronger scalar expression does not hold. For <*participate*, *win*> we changed the statements from: “The freshman/runner/skier participated” (as in van Tiel et al.) – where it is not clear whether the speaker has the appropriate knowledge about the strong alternative – to the following statements: “My cousin/My child/This gentleman participated in the Olympic games/ the state spelling contest/an international chess competition” – in which the likelihood of possessing this knowledge increases. For <*start, finish*> we changed the statements from: “The athlete/dancer/runner started” (as in van Tiel et al.), to the following statements: “The war/trial/negotiation started” – following the same reasoning.

\*\* Modification 2: we added to the statements: “Happiness/Failing/Success is possible” (as in van Tiel et al.), which according to world-knowledge are never certain, the following statements: “The execution/punishment/embargo is possible.”. We mark the original scale in van Tiel et al.’s study as <*possible*, *certain*>-a, and ours as <*possible*, *certain*>-b.

**Control items**

|  |  |  |  |
| --- | --- | --- | --- |
| **scale** | **Statement 1** | **Statement 2** | **Statement 3** |
| *<clean, dirty>* | The table is clean. | The table is clean. | The table is clean. |
| *<dangerous, harmless>* | The soldier is dangerous. | The soldier is dangerous. | The soldier is dangerous. |
| *<drunk, sober>* | The man is drunk. | The man is drunk. | The man is drunk. |
| *<sleepy, rich>* | The neighbor is sleepy. | The neighbor is sleepy. | The neighbor is sleepy. |
| *<tall, single>* | The gymnast is tall. | The gymnast is tall. | The gymnast is tall. |
| *<ugly, old>* | The doll is ugly. | The doll is ugly. | The doll is ugly. |
| *<wide, narrow>* | The street is wide. | The street is wide. | The street is wide. |

**References**

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