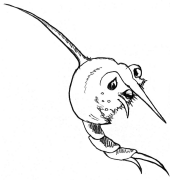
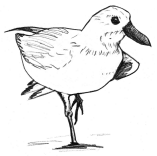
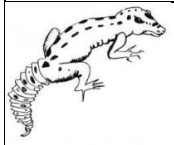
Supplementary materials

Stimuli used in the main explanation evaluation task in Experiments 1, 2 and 3 (artifacts only).

Living things

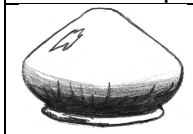
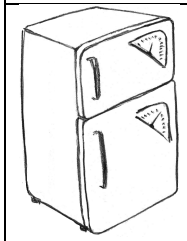
Item description		Formal	Causal	Teleological	Circular
	Glenta are microorganisms in the ocean. Their motion is controlled by a set of light-seeking photoreceptors, which makes them rise towards the ocean's surface during the day. Spending some time at the ocean's surface helps them replenish their oxygen reserves.	Why does this specimen *rise to the ocean's surface during the day*?			
		Because it's a glenta, and glentas rise to the ocean's surface during the day.	Because its motion is controlled by a set of light-seeking photoreceptors, which makes it rise to the ocean surface during the day.	Because rising to the ocean surface during the day helps it replenish oxygen reserves.	Because some things rise to the ocean's surface.
	Garns are a kind of animal found in Australia. They have long muscles in their hind legs, which enable them to jump high.	Why is this specimen *able to jump high*?			
		Because it's a garn, and garns can jump high.	Because it has long muscles in its hind legs, which enable it to jump high.	Because jumping high helps it reach nutritious young leaves on the top branches of plants.	Because some things can jump high.
	Fluntes are a kind of plant found in the Scottish Highlands. They contain a chemical compound called bartelium, which makes their seeds sticky. The seeds stick to the coats of local animals, which help distribute the seeds to new territories.	Why does this specimen *have sticky seeds*?			
		Because it's a flunte, and fluntes have sticky seeds.	Because it contains bartelium, which makes its seeds sticky.	Because having sticky seeds facilitates seed distribution to new territories.	Because some things are sticky.
	Polnos are birds in remote coastal regions. Their body fat contains tarpes, a substance that makes their wings shiny. Shiny wings attract potential mates.	Why does this specimen *have shiny wings*?			
		Because it's a polno, and polnos have shiny wings.	Because its body fat contains tarpes, which makes its wings shiny.	Because having shiny wings helps attract mates.	Because some things are shiny.

CONTEXTUAL UTILITY AFFECTS EXPLANATION EVALUATION

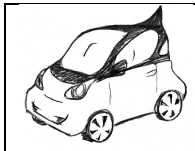
	Wantas are birds in Scandinavia. They have blanteras, special organs that produce a white chemical that makes their feathers white. Being white helps them evade predators.	Why is this specimen *white*?			
		Because it's a wanta, and wantas are white.	Because it has blanteras, which produce the chemical that makes it white.	Because being white helps it evade predators.	Because some things are white.
	Lusichkas are a kind of perennial plant that's found in Siberia. Their roots contain a special enzyme called zypozin. Zypozin triggers the formation of extra thick shells that cover the root bulbs of the plant. When the soil freezes, the thick shells prevent the root bulbs from freezing and help the plant survive harsh winters.	Why does this specimen *have roots with thick-shelled bulbs*?			
		Because it's a lusichka, and lusichkas have roots with thick-shelled bulbs.	Because it contains zypozin, which triggers the formation of thick shells covering its root bulbs.	Because having roots with thick-shelled bulbs helps it survive harsh winters.	Because some things have roots with thick-shelled bulbs.
	Grebgas are reptiles in Central Mongolia. They have tiny eye muscles called fontas, which improve their eyesight. Excellent eyesight lets grebgas spot small prey hiding in moving grass.	Why does this specimen *have excellent eye sight*?			
		Because it's a grebga, and grebgas have excellent eyesight.	Because it has tiny eye muscles called fontas, which improve eyesight.	Because excellent eyesight helps it spot small prey hiding in moving grass.	Because some things have excellent eyesight.
	Zie'ags are insects in the Western Sahara. They have an organ called a bunto, which emits a distinct high-pitched sound that helps other zie'ags locate them.	Why does this specimen *emit a high-pitched sound*?			
		Because it's a zie'ag, and zie'ags emit high-pitched sounds.	Because it has an organ called a bunto, which emits a high-pitched sound.	Because emitting high-pitched sounds help other zie'ags to locate it.	Because some things emit high-pitched sounds.

CONTEXTUAL UTILITY AFFECTS EXPLANATION EVALUATION

Artifacts

Item description		Formal	Causal	Teleological	Circular
	The banzo is a new kind of naval paperweight. It has an equanot, which is a device that shifts weight around when the ship tilts on a wave. The shifting weight ensures that it keeps papers still in high winds.	Why does this item *shift its weight in high winds*?			
		Because it's a banzo, and banzos shift their weight in high winds.	Because it has an equanot, which shifts the weight in high winds.	Because shifting the weight helps it keep papers still in high winds.	Because it's a banzo, and banzos shift their weight in high winds.
	The uniory is a new type of refrigerator. It has a martion sensor, which automatically lowers the temperature when it senses that any food is about to go bad. The lowered temperature keeps the food fresh longer.	Why does this item *lower its temperature when food is about to go bad*?			
		Because it's a uniory, and uniories lower their temperature when food is about to go bad.	Because it has a martion sensor, which lowers the temperature when food is about to go bad.	Because lowering the temperature when food is about to go bad keeps the food fresh longer.	Because it's a uniory, and uniories lower their temperature when food is about to go bad.
	Blatos are a limited edition of a computer system produced by a videogame manufacturer. They have junma chips, which enable faster floating-point calculations. The faster floating-point calculations let games run faster.	Why does this item *perform fast floating-point calculations*?			
		Because it's a blato, and blatos perform fast floating-point calculations.	Because it has a junma chip, which enables fast floating-point calculations.	Because fast floating-point calculations allow it to run games faster.	Because some devices perform fast floating-point calculations.
	Barndos is a new brand of antiperspirant. Its applicator roll cools down instantly before application. When the cooled roll contacts the skin, the sweat pores in the skin close up and the antiperspirant liquid seals them tight. This effectively halts perspiration for several hours.	Why does this item *seal sweat pores*?			
		Because it's a barndo, and barndos seal sweat pores.	Because it has a cooled roll applicator, which closes up and seals sweat pores on contact.	Because sealing the sweat pores helps halt perspiration for several hours.	Because some things seal sweat pores.

CONTEXTUAL UTILITY AFFECTS EXPLANATION EVALUATION

	The Kouki is a new car. It has a part called a paraler, which generates electricity whenever the car brakes. The generated electricity leads to greater fuel efficiency.	Why does this item *generate electricity when it brakes*?			
		Because it's a Kouki, and Koukis generate electricity when they brake.	Because it has a paraler, which generates electricity when the car brakes.	Because generating electricity while braking improves fuel efficiency.	Because some things generate electricity when they brake.
	The hintame is a new brand of golf club. It has a pluonsyj in the head, which is a device that makes it extra springy when it contacts a ball. The extra springiness makes the ball go farther.	Why is this item *extra springy when it hits the ball*?			
		Because it's a hintame, and hintames are extra springy when they hit the ball.	Because it has a pluonsyi, which makes it extra springy when it hits the ball.	Because extra springiness helps make the ball go farther.	Because some things are extra springy.
	The dondar is a new type of portable speaker. It has a nordrum, which is a device that enhances the quality of the bass track. The enhanced bass produces optimal balance for hip-hop music.	Why does this item *have enhanced bass*?			
		Because it's a dondar, and dondars have enhanced bass.	Because it has a nordrum, which enhances the quality of the bass.	Because enhanced bass optimizes how hip-hop sounds.	Because some things have enhanced bass.
	Glarkons are a new type of corkscrew. They contain a self-sharpener, called a blidget, which keeps the screw sharp. The sharp blade makes it possible to open wine-bottles with minimal effort.	Why does this item *have a sharp screw*?			
		Because it's a glarkon, and glarkons have a sharp screw.	Because it has a self-sharpener called a blidget, which keeps its screw sharp.	Because the sharp screw minimizes the effort required to open a wine-bottle.	Because it's a glarkon, and glarkons have a sharp screw.

Stimuli used in Experiment 2, Explanation probability rating task

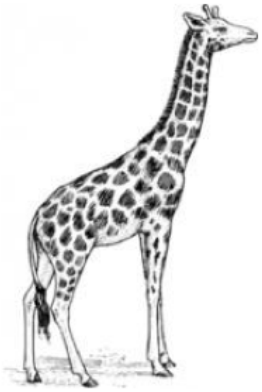
Living things

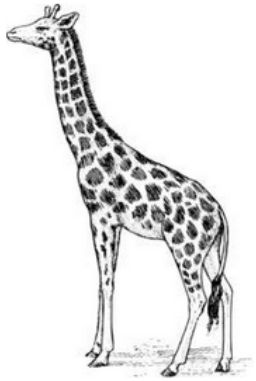
	In your opinion, how likely is it that the following explanation is *true*?			
Item description	Formal	Causal	Teleological	Circular
Your museum has just received a fish that has slow digestion. Why does it have slow digestion?	Because it's a lud, and luds have slow digestion.	Because cold water temperatures slows down its digestive processes.	Because slow digestion helps it survive when food supplies are short.	Because some things have slow digestion.
Your museum has just received a rodent that has an oily belly. Why does it have an oily belly?	Because it's a drummont, and drummonts have oily bellies.	Because its belly brushes against grasses rich with plant oils, which leave oily residue on its belly.	Because oil on the belly helps repel dew and rain drops, keeping it dry and warm.	Because some things have oily bellies.
Your museum has just received a plant that has a speckled pattern. Why does it have a speckled pattern?	Because it's a narp, and narps have a speckled pattern.	Because it has gene XP2 which is responsible for the speckled pattern.	Because having a speckled pattern attracts butterflies, which play a role in pollination.	Because some things have a speckled pattern.
Your museum has just received a mammal with greenish fur. Why does it have greenish fur?	Because it's a slive, and slives have greenish fur.	Because its diet contains plants containing green pigment, which gives a greenish tint to its fur.	Because greenish fur helps provide camouflage in the foliage.	Because some things have greenish fur.
Your museum has just received a reptile that has thick blood. Why does it have thick blood?	Because it's a brollig, and brolligs have thick blood.	Because minerals in its diet thicken its blood.	Because thick blood helps it cope with parasites, as it bleeds less from parasite bites.	Because some things have thick blood.
Your museum has just received an insect that has sticky antennae. Why does it have sticky antennae?	Because it's a hemiptera, and hemipteras have sticky antennae.	Because its body excretes excess glucose in the form of a sticky liquid that accumulates on the antennae, making them sticky.	Because having sticky antennae helps it to navigate successfully by ensuring the antenna sensors do not dry out.	Because some things have sticky antennae.
Your museum has just received a plant that bends over to the ground. Why does it bend over to the ground?	Because it's a jolin, and jolins bend over to the ground.	Because it accumulates heavy brom compunds in its stem as it grows, making it bend down as it grows.	Because when it bends over, its pollen can brush against the fur of field mice and spread to neighboring areas.	Because some things bend down to the ground.
Your museum has just received an animal with a spiky shell. Why does it have a spiky shell?	Because it's a joijoi, and joijois have spiky shells.	Because its diet is rich in keratin, a structural protein that accumulates in its shell and forms spikes.	Because the spikes help repel predators.	Because some things have spiky shells.

Artifacts

	In your opinion, how likely is it that the following explanation is *true*?			
Item description	Formal	Causal	Teleological	Circular
Your museum just received an ancient oven with small holes in the top. Why does it have small holes in the top?	Because it's a moflanto oven, and moflanto ovens have small holes in the top.	Because the top is made of porous material, and with time seeping smoke produces holes in it.	Because they let smoke get out.	Because some things have holes in the top.
Your museum has just received a kind of garment made from thick cloth. Why is it made from thick cloth?	Because it's a draharm, and draharms are made from thick cloth.	Because it has been woven on a special double loom, which produces a thick cloth.	Because the thickness serves an important purpose: it protects the wearer from rough underbrush.	Because some things are made of thick cloth.
Your museum has just received a kind of tool with a long, twisted head. Why does it have a long, twisted head?	Because it's an ardant, and ardants have long, twisted heads.	Because it was stretched and twisted during the cooling process when it was made.	Because a long, twisted head makes it useful for tapping trees for sap.	Because some things have long, twisted heads.
Your museum has just received a piece of pottery with a very broad base. Why does it have a very broad base?	Because it's a lomora, and lomora's have very broad bases.	Because as the ceramic settled, the weight pushed the base outward.	Because having a broad base makes it more stable on tilted surfaces.	Because some things have broad bases.
Your museum has just received a box with an intricate lock. Why does it have an intricate lock?	Because it's a sashita, and sashitas have intricate locks.	Because it's made from the components of broken watches.	Because it's used for storing clever pets that can escape simple cages.	Because some things have intricate locks.
Your museum just received a ceramic piece with a curved spout. Why does it have a curved spout?	Because it's a yutra, and yutras have curved spouts.	Because the spout was shaped while the clay was still wet and droopy.	Because it makes it easier to use the piece for pouring water without dripping.	Because some things have curved spouts.
Your museum just received an ancient log boat with a long, hollowed-out center. Why does it have a long, hollowed-out center?	Because it's a polomorian, and polomorians have long, hollowed-out centers.	Because the crafters used the trunks of trees that had been hollowed by rodents.	Because it makes room for more people to sit in it.	Because some things have long, hollowed-out centers.
Your museum just received a vehicle that runs using carbon dioxide. Why does it run using carbon dioxide?	Because it's a flikfor, and flikfors use carbon dioxide to run.	Because this vehicle uses a plant-like, photosynthetic process.	Because this vehicle reduces excess carbon dioxide levels in the atmosphere.	Because some things run using carbon dioxide.

Sample practice trial with feedback from Experiment 1 (practice trials in Experiments 2 and 3 were similar with minimal changes to the wording).

Screen 1:	**Giraffes are spotted animals with long necks. The vertebrae in the giraffe's neck are bound together by ball-and-socket joints (the same kind of joint that links the human arm to the shoulder, permitting a 360-degree range of motion). The ball-and-socket joints make the giraffe's neck very flexible. Having a flexible neck helps the giraffe reach the leaves of tangled trees in the savannah.** 

Screen 2:	**Below is a picture of one particular specimen, with a unique identification number ID-XZ2763, from a research facility.** **Why does this specimen *have a flexible neck*?**  *Specimen ID-XZ2763* **Because it's spotted.** Very bad explanation 1 2 3 4 5 6 7 8 Very good explanation 9
Screen 3:	**Please note that some answers to questions can be based on TRUE facts, but that does not automatically make them GOOD explanations.** **For example, if you ask:** **"*Why does this specimen have a flexible neck*?"** **and someone responds "*Because it's spotted*",** **you would probably feel like they gave you a pretty bad explanation of why this specimen has a flexible neck, EVEN THOUGH it's true that the specimen is spotted.** **All explanations that you will see will be true, but some of them will be better than others. We want you to judge how GOOD each explanation seems to YOU.**

Experiment 1. Sample explanation evaluation trial followed by a task-reinforcer (living thing, functional generalization goal, teleological explanation):

<table>
<tr><td>Screen 1:</td><td>Glenta are microorganisms in the ocean. Their motion is controlled by a set of light-seeking photoreceptors, which makes them rise towards the ocean's surface during the day. Spending some time at the ocean's surface helps them replenish their oxygen reserves.

  </td></tr>
<tr><td>Screen 2:</td><td>Below is a picture of one particular specimen, ID-Zd89u0002, from a research facility.

Why does this specimen rise to the ocean's surface during the day?

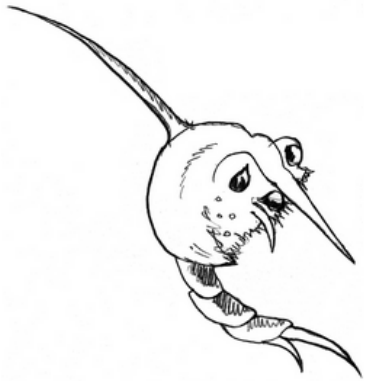
 
specimen ID-Zd89u002

Because rising to the ocean surface during the day helps it replenish oxygen reserves.

Very bad explanation 1 2 3 4 5 6 7 8 Very good explanation 9</td></tr>
</table>

Screen 3:	**Behind this box there is a microorganism:**  **Click HERE to find out if it needs to replenish oxygen reserves.** Provided feedback (same page): **Yes, it needs to replenish oxygen reserves.**
Screen 4:	**Behind this box there is a microorganism:**  **Click HERE to find out if it needs to replenish oxygen reserves.** **Yes, it needs to replenish oxygen reserves.** **Do you think it rises to the ocean's surface during the day?** Definitely no ○ ○ ○ ○ ○ ○ ○ ○ ○ Definitely yes

Experiment 2. Sample explanation evaluation trial followed by a task-reinforcer

Screen 1:	**Glenta are microorganisms in the ocean. Their motion is controlled by a set of light-seeking photoreceptors, which makes them rise towards the ocean's surface during the day. Spending some time at the ocean's surface helps them replenish their oxygen reserves.** 

Screen 2:

Below is a picture of one particular specimen, ID-Zd89u0002, from the museum.

Why does this specimen *rise to the ocean's surface during the day*?
(as opposed to not rising to the ocean's surface during the day)

specimen ID-Zd89u002

Because it's a glenta, and glentas rise to the ocean's surface during the day.

Very bad explanation								Very good explanation
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

Screen 3:

Now you receive two completely new animal specimens: specimen A and specimen B.
Each one may or may not be a glenta. Both of them rise to the ocean's surface during the day.

Specimen	A	B
Rises to the ocean's surface during the day?	Yes	Yes

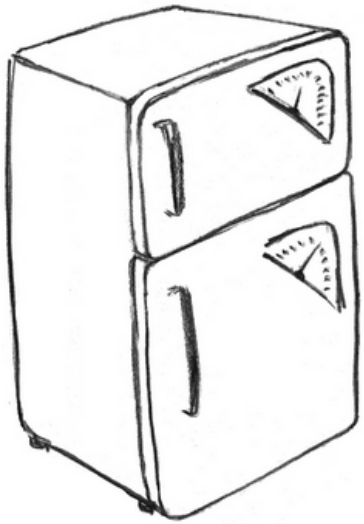
Do you think this characteristic serves the same function for specimen A and specimen B?

Definitely same								Definitely different
○	○	○	○	○	○	○	○	○

Experiment 2. Sample trial from explanation probability rating task.

Screen 1:	**Your museum just received an ancient oven with small holes in the top. Why does it have small holes in the top?** **In your opinion, how likely is it that the following explanation is *true*?** **Because the top is made of porous material, and with time seeping smoke produces holes in it.** Definitely not true ○ ○ ○ ○ ○ ○ ○ ○ ○ Definitely true

Experiment 3. Sample trial from the priming block (Inductive utility condition; Target feature: causal)

Screen 1:	**READ DESCRIPTION:** **The uniory is a new type of refrigerator. It has a martion sensor, which automatically lowers the temperature when it senses that any food is about to go bad. The lowered temperature keeps the food fresh longer.** 

Screens 2 and 3:

SELECT A HINT:

Behind this box there is a refrigerator.
You need to guess if it lowers its temperature when food is about to go bad.

Choose to reveal one piece of information:

Does it keep food fresh longer?

reveal

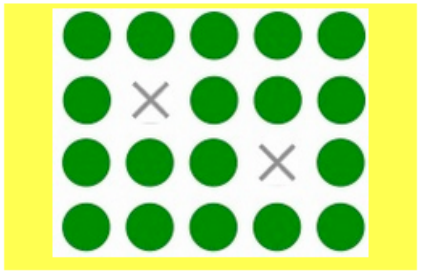
Does it have a martion sensor?

reveal

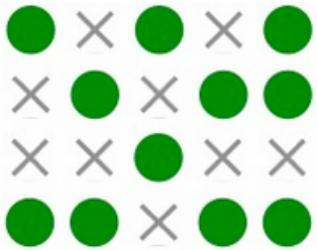
Provided feedback (on the same screen; Yes/No response selected randomly):

-- Yes --

Rate of successful guesses after picking this hint:



Rate of successful guesses after picking this hint:

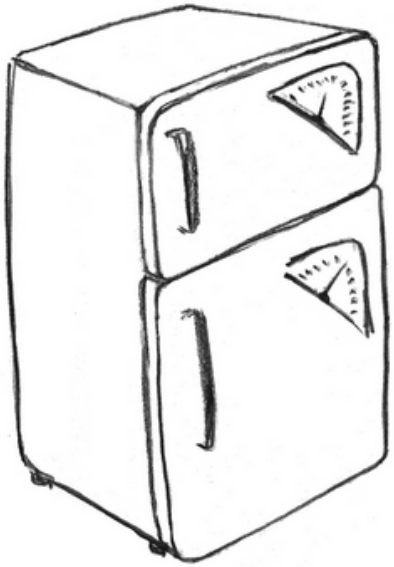


Screen 4:	**GUESS:**  **Does the refrigerator behind the box** **lower its temperature when food is about to go bad?** No ○ Yes ○ Provided feedback (on the same screen): **Thank you for your guess. You won't be told whether you were right or wrong.**

Experiment 3. Sample trial from the priming block (Salience prime condition, Target feature: causal)

<table>
<tr><td>Screen 1:</td><td>READ DESCRIPTION:

The uniory is a new type of refrigerator. It has a martion sensor, which automatically lowers the temperature when it senses that any food is about to go bad. The lowered temperature keeps the food fresh longer.

  </td></tr>
<tr><td>Screen 2:</td><td>What do you think the average cost of a new uniory is?

$1100 or less ○ More than $1100 ○

Provided feedback (on the same screen):

Thank you for your guess. You won't be told whether you were right or wrong.</td></tr>
</table>

Screens 3 and 4:

Imagine you are buying a refrigerator.
An online seller describes the product with several features, including the two features below.
Select the feature that you think is easier to remember.

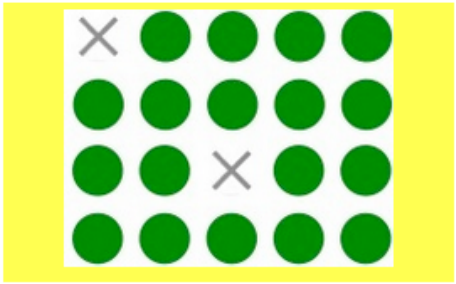
keeps food fresh longer — Select

has a martion sensor — Select

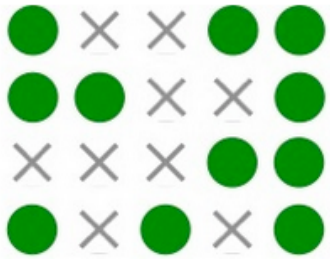
Provided feedback (on the same screen):

Thank you for your choice.

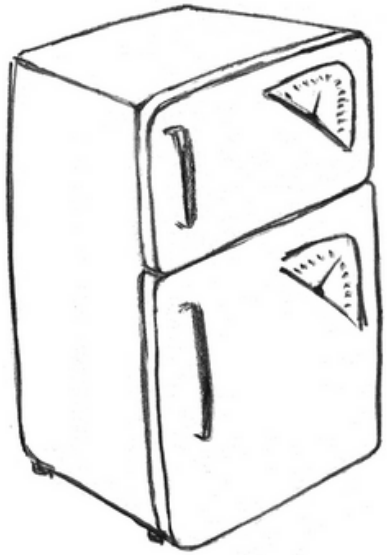
Proportion of shoppers who chose this option when it was offered:



Proportion of shoppers who chose this option when it was offered:



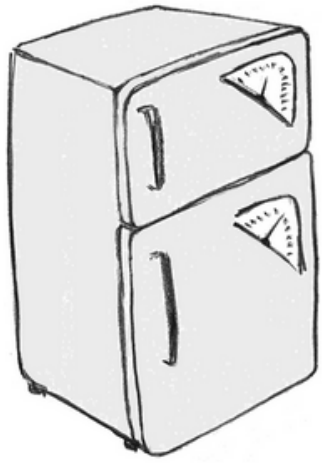
Experiment 3. Sample explanation evaluation trial (mechanistic explanation)

Screen 1:	**The uniory is a new type of refrigerator. It has a martion sensor, which automatically lowers the temperature when it senses that any food is about to go bad. The lowered temperature keeps the food fresh longer.** 

Screen 2:

Below is a picture of one particular item, #JX8Y-d9921, from a retail facility.

Why does this item *lower its temperature when food is about to go bad*?



item #JX8Y-d9921

Because it has a martion sensor, which lowers the temperature when food is about to go bad.

Very bad explanation								Very good explanation
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

Additional analyses of the baseline condition (Experiments 1 and 2) and the no-prime condition (Experiment 3)

The baseline condition was included in Experiments 1 and 2 to evaluate whether the perceived quality of explanations of a given type was improved, relative to baseline, in the context of a congruent task, or instead depressed, relative to baseline, in the context of an incongruent task. However, the experiments did not, as a whole, support a clear and consistent story.

In Experiment 1, one-way ANOVAs on ratings of each explanation type as a function of task showed both kinds of effects. Supporting improvement: formal explanation ratings were higher under the categorical task (M_{cat}=4.03) than in the baseline condition ($M_{baseline}$=3.04, Tukey HSD p<.001) and mechanistic explanation ratings were higher under the causal task (M_{caus}=7.44) than in the baseline condition ($M_{baseline}$=6.76, Tukey HSD p=.012). Supporting depression: teleological explanation ratings were lower under the causal task (M_{caus}=6.57) than in the baseline condition ($M_{baseline}$=7.22, Tukey HSD p=.016). Unexpectedly, the categorical generalization task also boosted mechanistic explanation ratings over baseline (M_{cat}=7.46 vs. $M_{baseline}$=6.76, Tukey HSD p=.007) and marginally boosted ratings of circular explanations (M_{cat}=2.04 vs. $M_{baseline}$=1.63, Tukey HSD p=.055). The causal generalization task marginally boosted formal explanations over baseline (M_{caus}=3.64 vs. $M_{baseline}$=3.04, Tukey HSD p=.081). The mutual facilitation between the categorical generalization task and mechanistic explanations, and between the causal generalization task and formal explanation, may reflect previously documented connections between category membership and the causal structure of categories (e.g., Ahn, Kim, Lassaline, & Dennis, 2000; Rehder & Burnett, 2005; Sloman, Love & Ahn, 1998). All other comparisons were not significant (p's ≥ .143).

In Experiment 2, comparisons of explanation ratings in each generalization vs. baseline condition showed that the teleological task suppressed ratings of mechanistic explanations (M_{caus}=6.19) relative to the baseline condition ($M_{baseline}$=6.95, Tukey HSD p=.013). No other comparisons were significant (p's≥.178).

In Experiment 3, univariate ANOVAs on each explanation type showed that, relative to the no prime condition, the causal prime boosted mechanistic explanation ratings ($M_{noprime}$=6.81 vs M_{caus}=7.97, Tukey HSD p=.025) and formal explanation ratings ($M_{noprime}$=3.72 vs. M_{caus}=5.03, Tukey HSD p=.025), but suppressed teleological explanation ratings ($M_{noprime}$=7.17 vs. M_{caus}=5.95, Tukey HSD p=.029). Surprisingly, the function prime also marginally suppressed teleological explanation ratings ($M_{noprime}$=7.17 vs. M_{func}=6.13, Tukey HSD p=.080).

Experiment 2: Results from the explanation probability rating task

Experiment 2 ended with an additional exploratory task that examined whether the effect of task extends to judgments of an explanation's *probability* in addition to its quality, as might be anticipated if an explanation's "loveliness" is used as a cue to its "likeliness" (Lipton, 2004). For example, if in the context of a causal generalization task participants come to value *abstract causal regularities,* which in turn boosts the perceived quality of explanations that invoke such regularities, on Lipton's account that should make mechanistic explanations seem more likely to be true. However, empirical evidence suggests that judgments of explanatory goodness and relevance do not always go hand in hand with judgments of explanation probability (Hilton & Erb, 1996), and judgments of explanatory value can similarly diverge from those for probability (Preston & Epley, 2005). To examine whether the effects of contextual utility extend to probability ratings, we introduced a transfer task in which participants were asked to rate the probability of novel explanations. (We could not simply ask for the probability of the explanations provided in our primary task, as the information they contained was stipulated as true.) Participants were shown 16 additional living things and artifacts, each described by one feature, and were asked to evaluate the probability of a formal, mechanistic, teleological, or circular explanation for that feature (see above for the full list of stimuli and a sample trial). We found no evidence of an effect of our contextual utility manipulation on evaluations of explanation probability, $F(9,1440)=1.04$, $p=.407$, $\eta_p^2=.006$. However, given that this task occurred at the end of the experiment, it is possible that the effects of the contextual utility manipulation were too weak; we therefore hesitate to draw conclusions from this null result.