# The Plausible Impossible: Graded Notions of Impossibility Across Cultures

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## Abstract

Events that violate the laws of nature are, by definition, impossible, but recent research suggests that people view some violations as "more impossible" than others (Shtulman & Morgan, 2017). When evaluating the difficulty of magic spells, American adults are influenced by seemingly irrelevant considerations, judging, for instance, that it would be more difficult to levitate a bowling ball than a basketball even though weight should no longer be a consideration if contact is no longer necessary for support. Here, we explore these effects in a non-Western context—China—where magical events are represented differently in fiction and reasoning styles are often more holistic than analytic. Across several studies, Chinese adults showed the same tendency as American adults to honor implicit causal constraints when evaluating the plausibility of magical events. These findings suggest that graded notions of impossibility are shared across cultures, possibly because they are a byproduct of causal knowledge.

**Keywords:** causal reasoning; magical reasoning; naive theories; fiction; imagination

## Introduction

Magical events, popular in fictional works from Disney animations to the Harry Potter novels, reveal the richness and inventiveness of the human imagination. Humans are able to conceive of events that have not occurred, and could never occur, because they violate the laws of nature. Talking animals, flying carpets, and invisibility potions may fill the pages of storybooks, but they are possible only in the imagination.

Acts of imagination may be fanciful but they are not random or unpredictable. From an early age, we apply causal principles to imaginary events, such as when we when apply our knowledge of liquids to the act of pouring imaginary tea into a teacup (Harris, 2000), and we use imaginary events to learn more about causal principles, such as when we exercise our theory of mind by interacting with imaginary companions (Weisberg & Gopnik, 2013). Children as young as two can infer the causal implications of a series of pretend actions, recognizing that if a paintbrush is dipped into pretend paint and then brushed over a toy pig, the pig will now be covered in paint (Harris, Kavanaugh, & Meredith, 1994). Children as young as three can model complex causal systems in their pretend play, readily substituting pretend objects for real objects and discriminating causally efficacious actions from ineffective ones (Buchsbaum et al., 2012).

Adults honor causal constraints in their imaginative activities as well. When reasoning about imaginary worlds, we assume that scientific facts remain true even if conventional or circumstantial facts do not (Weisberg & Goodstein, 2009), and we find it harder to imagine worlds with different mathematical rules, such as a world where 5 + 7 no longer equals 12, than worlds with different empirical regularities, such as a world where woolly mammoths terrorize Las Vegas (Barnes & Black, 2016). When generating examples of imaginary creatures, we import the properties of real creatures, like bilateral symmetry and cephalization (Ward, 1994), and when generating examples of imaginary toys, we import the properties of real toys, like balls and remotes (Smith et al., 1993).

Adults apply causal constraints to imaginary events even when those constraints are logically precluded by the events under consideration. Consider levitating an object above the ground. This event violates the principle of support—that unsupported objects fall—and is impossible regardless of the object's weight, but depictions of levitation in fiction imply that heavy objects are harder to levitate than light ones. In the Star Wars movies, Luke Skywalker learns to levitate stones before learning to levitate a starship, and in the Harry Potter novels, Harry learns to levitate a feather before learning to levitate a book.

Shtulman and Morgan (2017) explored the prevalence and consistency of this intuition in American adults. They created pairs of spells that violated a primary causal principle (e.g., support, in the case of levitation) but varied with respect to a secondary causal principle (e.g., weight). They then asked participants which spell would be more difficult to learn, if the spells were part of the curriculum at Hogwarts School of Witchcraft and Wizardry from the Harry Potter novels. Most adults took the secondary causal principle into consideration, judging that a spell for levitating a bowling ball would be more difficult to learn than a spell for levitating a basketball. And they made that judgment under many circumstances: when asked to select one spell from a pair of spells, when asked to rate the difficulty of each spell side-by-side, when asked to rate the difficulty of each spell on its own, when asked to explain why one spell would be more difficult than the other, and when asked to generate their own examples of easy-to-difficult spells.

The animator Walt Disney recognized this intuition in his audience and termed it a preference for "the plausible impossible" (Lane, 2006). Here, we assess whether Chinese adults, like American adults, hold similar intuitions about plausible impossibility. One reason they may not is that Chinese adults are exposed to a very different tradition of

fiction. Magic appears in East Asian fiction, just as it does in Western fiction, but magical events do not cluster in a distinct genre (Gu, 2006; Idema & Haft, 1997). The relevant genre in Western fiction is fantasy, which is a kind of speculative fiction. Other genres of speculative fiction include science fiction, gothic fiction, dystopian fiction, apocalyptic fiction, horror, cyberpunk, and alternate history. Each genre has its own norms and prototypes, and exposure to particular genres shapes expectations about the kinds of events encountered therein (Kibbe et al., 2018). Graded notions of impossibility may be common in the US because they are common in Western fantasy, and individuals with less exposure to that genre may not hold the same intuitions.

Another reason Chinese adults may not view impossible events similarly to American adults is that Easterners and Westerners adopt different thinking styles in general (Nisbett et al., 2001). Westerners gravitate toward an analytic style, approaching problems or observations by decomposing them into smaller parts and analyzing the parts with formal logic, while Easterners gravitate toward a holistic style, situating the same phenomena within a broader field of scope and determining how the elements of the field are continuous or related. For instance, Easterners are more likely to detect the covariation among objects in a series of events, while Westerners are more adept at spatially orienting a focal object independent of its background (Ji et al., 2000). With respect to fiction, analytic and holistic thinking styles may lead to different ways of evaluating magical events. Those who adopt a holistic thinking style may be less inclined to dissect magical events into their component parts and thus less inclined to attend to peripheral considerations, such as whether a levitated object is heavy or light.

On the other hand, a reason to suspect cross-cultural similarities in how people evaluate magical events is that these evaluations may draw upon shared forms of knowledge, namely, causal knowledge. Causal knowledge is what allows us to discriminate possible events from impossible ones (Bowman-Smith et al., 2019; Shtulman & Carey, 2007; Shtulman & Phillips, 2018), and this knowledge may also be responsible for the intuition that some impossible events are more impossible than others. Research on the structure of causal knowledge suggests that it is organized in coherent networks of domain-specific beliefs, known as "intuitive theories" (Carey, 2009; Shtulman, 2017). Intuitive theories support a variety of inferences, from explanation to prediction to counterfactual reasoning (Gopnik & Wellman, 2012). They are constructed early in development and share many similarities across cultures (Vosniadou, 2008).

Intuitive theories are used to understand natural events, but they might also be used to understand magical events. Levitation, for instance, likely triggers our intuitive theories of motion. Such theories encompass expectations about several factors that influence motion, including force, speed, momentum, weight, contact, and support. If one expectation is violated, such as the expectation that contact is required to move an object, people may continue to apply other expectations to the same event, such as the expectation that

heavy objects are harder to move than lighter objects. On this account, impossible events are deemed plausible if they continue to conform to the larger network of causal expectations encompassing the specific expectation violated. In the present research, we investigated the cross-cultural consistency in how people reason about magical events by replicating Shtulman and Morgan's (2017) spell-judgment experiments in a Chinese sample. We used the same spells to preserve the fidelity of the replication. Those spells were translated into Chinese and then back-translated into English by two Chinese natives proficient in both Chinese and English. The final Chinese version was then improved by discussing discrepancies between the original and back-translated versions. The English and Chinese versions of each spell are listed in Table 1.

The spells were selected to represent six causal constraints in each of three causal domains: physics, biology, and psychology. Shtulman and Morgan recruited samples of 32 per study (or condition), which we increased to 50 following a power analysis in G*Power, assuming a medium size effect ($d = .5$) and a power of 0.85. Additional participants were recruited for Study 3 because the task was open-ended, and we wanted to establish a sufficiently large database of codable responses. Participants were recruited through social-media advertisements. All participants were undergraduate or graduate students from universities in China, studying engineering, science, medicine, or the liberal arts. They completed the study online and were paid for their participation. No participant took part in more than one study.

## Study 1

### Method
One-hundred students participated in Study 1 ($M_{age} = 21.92$, $SD_{age} = 2.65$, 69 female), half in Study 1A and half in Study 1B. They were shown the 18 pairs of spells in Table 1, described as part of the curriculum at Hogwarts School of Witchcraft and Wizardry, and were asked to indicate which spell in each pair would be more difficult to learn—for instance, whether it would be more difficult to learn a spell for growing an extra toe or a spell for growing an extra eye. Spell pairs were presented in one of two random orders, and the ordering of spells within those pairs was randomized as well. Half the participants were required to make a forced choice (Study 1A), and half were given the option of selecting "equally difficult" (Study 1B). The spells were designed to embody an implicit causal constraint—a constraint not violated by the spells but potentially seen as relevant to them—and participants were expected to honor that constraint in their judgment

### Results and Discussion
In Study 1A, participants' judgments of spell difficulty aligned with the spells' implicit causal ordering 78% of the time ($t(49) = 12.73$, $p < .001$). By domain, they were aligned 79% of the time for physical spells, 81% of the time for biological spells, and 74% of the time for psychological

Table 1: The physical spells (top), biological spells (middle), and psychological spells (bottom) in Studies 1 and 2, along with the irrelevant causal constraint they embody and the proportion of participants who honored that constraint in their judgments of spell difficulty. Proportions greater than expected by chance are marked with asterisks.

| Spell | Causal constraint | Study 1A | Study 1B | Study 2 |
|---|---|---|---|---|
| Making a (bush, tree) invisible<br>让 (灌木丛, 树林) 隐形 | Object size | .76* | .54* | .66* |
| Making a (basketball, bowling ball) float in the air<br>让 (篮球, 保龄球) 漂浮在空中 | Object weight | .84* | .46* | .58* |
| Turning a broom into a (shovel, bucket)<br>把扫帚变成 (铲子, 桶) | Object shape | .88* | .32 | .42 |
| Shrinking a (chair, computer) to half its size<br>将 (椅子, 电脑) 缩小成原先的一半 | Object complexity | .68* | .28 | .52* |
| Walking through a wall made of (wood, stone)<br>穿过由 (木头, 石头) 制成的墙壁 | Object density | .90* | .68* | .50* |
| Turning a lump of coal into a lump of (silver, gold)<br>把一块煤变成一块 (银, 金) | Object value | .68* | .24 | .30 |
| Turning a person into a (monkey, pig)<br>把一个人变成一只 (猴子, 猪) | Evolutionary similarity | .68* | .16 | .32 |
| Turning an adult back into a (teenager, child)<br>把一个成年人变回 (青少年, 儿童) | Developmental similarity | .74* | .38 | .52* |
| Curing a person's (hiccups, arthritis)<br>治愈一个人的 (打嗝, 关节炎) | Ailment severity | .80* | .80* | .76* |
| Mending a broken (finger, arm)<br>修复一个断掉的 (手指, 手臂) | Organ size | .76* | .60* | .60* |
| Growing an extra (toe, eye)<br>长出一只额外的 (脚趾, 眼睛) | Organ complexity | .92* | .50* | .74* |
| Making a person's (hair, teeth) grow longer<br>让一个人的 (头发, 牙齿) 变长 | Organ plasticity | .94* | .80* | .86* |
| Making a person forget his own (phone number, name)<br>让一个人忘记自己的 (手机号, 名字) | Knowledge entrenchment | .86* | .64* | .74* |
| Teaching a monkey to do (arithmetic, calculus)<br>教猴子做 (算数, 微积分) | Knowledge complexity | .92* | .72* | .92* |
| Teaching a cow how to (skip, tap dance)<br>教奶牛 (跳跃, 踢踏舞) | Skill difficulty | .78* | .70* | .86* |
| Making someone (smile, laugh)<br>让一个人 (微笑, 狂笑) | Affect intensity | .50 | .48* | .42 |
| Increasing a person's (memory, intelligence)<br>增加一个人的 (记忆力, 智力) | Trait stability | .76* | .64* | .58* |
| Teaching a person to (read, speak) a foreign language<br>教一个人 (阅读, 说) 一门外语 | Language comprehension | .62 | .50* | .52* |

spells (see Table 1). All percentages were greater than the 50% expected by chance (physics: $t(49) = 10.97$, $p < .001$; biology: $t(49) = 10.14$, $p < .001$; psychology: $t(49) = 8.50$, $p < .001$). Most participants (78%) demonstrated the anticipated effect for a significant number of spell pairs (13 or more, binomial probability < .05), and most spell pairs (89%) elicited the anticipated effect for a significant number of participants (32 or more, binomial probability < .05).

In Study 1B, participants' judgments of spell difficulty aligned with the spells' implicit causal ordering 52% of the time, which was greater than the chance-level percentage of 33%, given the third option of "equally difficult" ($t(49) =$

5.96, $p < .001$). By domain, judgments were aligned with the spells' implicit causal ordering 42%, 54%, and 61% of the time for physical, biological, and psychological spells, respectively. All percentages were greater than 33% (physics: $t(49) = 2.40$, $p < .05$; biology: $t(49) = 5.25$, $p < .001$; psychology: $t(49) = 6.99$, $p < .001$). Fifty percent of participants demonstrated the anticipated effect for a significant number of spell pairs (10 or more, binomial probability $< .05$), and 72% of spell pairs elicited the anticipated effect for a significant number of participants (23 or more, binomial probability $< .05$).

Across domains, participants were more likely to select the extreme option than the "equally difficult" option ($t(49) = 2.49$, $p < .05$). By domain, this effect held for biological spells ($t(49) = 2.26$, $p < .05$) and psychological spells ($t(49) = 5.44$, $p < .001$) but not physical spells ($t(49) = 0.99$, $p = .33$), which was similar to Shtulman and Morgan's (2017) findings (all spells: $t(31) = 6.30$, $p < .001$; physics: $t(31) = 2.04$, $p = .05$; biological spells: $t(31) = 7.93$, $p < .001$; psychological spells: $t(31) = 6.00$, $p < .001$). In sum, participants used ostensibly irrelevant causal constraints to evaluate magical events, both in the forced-choice test (Study 1A) and in the more stringent test with the "equally difficult" option (Study 1B). Participants in Study 1B did sometimes judge the spells equally difficult, but this judgment was not the dominant judgment in any domain.

## Study 2

### Method

Study 2 was designed to replicate Study 1B's results, while also verifying that participants based their judgments on the causal constraints listed in Table 1 and not some other consideration. Fifty participants ($M_{age} = 21.58$, $SD_{age} = 1.64$, 32 female) judged the difficulty of 18 spells, with the option of selecting "equally difficult," and then provided an explanation for their judgments.

Explanations were coded for reference to the target causal constraint. For example, explanations for the spell pair "shrinking a (chair, computer) to half its size" were coded for reference to the relative complexity of chairs versus computers; "computers contain more precise components than chairs" was coded as meeting this criterion, while "both spells involve the volume decrease" was not. Explanations for the spell pair "turning an adult back into a (teenager, child)" were coded for reference to the developmental similarity between adults, teenagers, and children; "adults and teenagers are different only mentally while adults and children are different both mentally and physically" was coded as meeting this criterion, while "time is irreversible, so both spells are impossible" was not. Two judges coded all explanations independently. They agreed on 88% of their codes (Cohen's kappa = .75), and disagreements were resolved through discussion.

### Results and Discussion

Participants' judgments of spell difficulty aligned with the spells' implicit causal ordering more often than expected by chance (33%) for 60% of judgments ($t(49) = 8.78$, $p < .001$). By domain, they aligned 50% of the time for physical spells ($t(49) = 3.81$, $p < .001$), 63% of the time for biological spells ($t(49) = 7.96$, $p < .001$), and 67% of the time for psychological spells ($t(49) = 11.00$, $p < .001$). Seventy-two percent of participants demonstrated the anticipated effect for a significant number of spell pairs (10 or more, binomial probability $< .05$), and 78% of spell pairs elicited the anticipated effect for a significant number of participants (23 or more, binomial probability $< .05$). As in Study 1b, participants selected the extreme option more often than the "equally difficult" option ($t(49) = 5.00$, $p < .001$), and this effect held for biological spells ($t(49) = 4.82$, $p < .001$) and psychological spells ($t(49) = 8.53$, $p < .001$) but not physical spells ($t(49) = 0.85$, $p = .40$), consistent with Shtulman and Morgan's (2017) data (all spells: $t(31) = 4.61$, $p < .001$; physics: $t(31) = 0.27$, $p = .78$; biology: $t(31) = 4.96$, $p < .001$; psychology: $t(31) = 5.71$, $p < .001$). Difficulty judgments for each spell are displayed in Table 1.

In their explanations, participants mentioned the target causal constraint 49% of the time for physical spells, 48% for biological spells, and 53% for psychological spells. Critically, when participants gave the anticipated answer, judging the more-extreme spell as more difficult to learn, they cited the target constraint in their explanation 72% of the time. When they judged the less-extreme spell as more difficult or judged both spells as equally difficult, they cited the target constraint only 17% of the time. A paired $t$ test showed that the proportion of causality-based judgments followed by causality-based explanations was significantly higher than the proportion of other judgments followed by causality-based explanations ($t(49) = 11.58$, $p < .001$).

## Study 3

### Method

Study 3 aimed to replicate the finding of Studies 1-2 using a more open-ended task. Participants ($n = 116$, $M_{age} = 20.55$, $SD_{age} = 2.26$, 89 female) were asked to generate their own examples of introductory, intermediate, and advanced spells, respectively. They generated spells using the nine frames in Table 2. The frame "bringing a dead ___ back to life" prompted participants to identify three animals that would be differentially difficult to raise from the dead, and the frame "enchanting a person to like ___" prompted participants to identify three foods that would be differentially difficult to convince a person to eat. Participants generated spells that violated a variety of principles, including physical principles (levitation, transmutation, teleportation, conjuring), biological principles (necromancy, healing) and psychological principles (divination, enchantment, hexing).

Listed beside each frame in Table 2 is the causal constraint we expected participants to honor when generating their spells. To assess whether they did, we scrambled participants' responses and asked two judges, blind to the original data, to order the responses in accordance with the target constraint. For instance, the three animals generated to fill the necromancy frame were ordered by size, whereas the

Table 2: The frames presented to participants in Study 3, along with the causal constraint participants were expected to honor when generating spells of varying difficulty and two sets of sample responses.

| Spell | Causal constraint | Sample responses | |
|---|---|---|---|
| Making a ___ float in the air (object) 让___悬浮在空中 (物体) | Weight | Coin Car Building | Ping-pong ball Television Car |
| Predicting when the next ___ will occur (event) 预测下一次___何时发生 (事件) | Probability | Network drop Lottery win Mass extinction | Ball game Earthquake Doomsday |
| Turning ___ into gold (material) 把___变成黄金 (物质) | Density | Silver Bronze Wood | Copper Iron Stone |
| Teleporting a package from Beijing to ___ (location) 把一个包裹从北京瞬移到___ (地点) | Proximity to Beijing | Shanghai Himalaya Mars | Shandong Shanghai Hong Kong |
| Enchanting a person to like ___ (food) 迷惑一个人喜欢上吃___ (食物) | Disgustingness | Dessert Sour food Grass | Garlic Raw meat Soil |
| Bringing a dead ___ back to life (animal) 让死去的___回生 (动物) | Size | Rat Dog Tiger | Jellyfish Cat Human |
| Conjuring a ___ out of thin air (object) 凭空造出一个___ (物体) | Size | Bubble Bread Building | Money House Nation |
| Making a potion that cures ___ (disease) 制作治疗___的药水 (疾病) | Severity | Scratch Myopia Cancer | Cold Appendicitis AIDS |
| Hexing a person to lose their ___ (possession) 施法让一个人失去他的___ (拥有的东西) | Personal value | Toy Hair Eyesight | Ornament Money Intelligence |

three foods generated to fill the enchantment frame were ordered by disgustingness. We then compared the judges' orderings to the participants' orderings. Ninety response triads could not be ranked by the coding criteria because the responses were too broad or too vague. They were regarded as mismatches in the analyses below. Two judges independently ordered the remaining 954 spell triads. They agreed on 76% of their ordering (Cohen's kappa = .72), and disagreements were resolved through discussion. Sample response triads are provided in Table 2.

### Results and Discussion

The judges' orderings matched the participants' orderings for 78% of levitation spells, 56% of divination spells, 53% of transmutation spells, 86% of teleportation spells, 50% of enchantment spells, 61% of necromancy spells, 49% of conjuring spells, 70% of healing spells, and 59% of hexing spells. All percentages were significantly greater than that expected by chance (17%, binomial probability < .05). These data indicate that participants' responses were shaped by unnamed causal constraints, each of which is arguably rendered irrelevant by the spells' primary causal violation.

### General Discussion

Across several studies, we replicated Shtulman and Morgan's (2017) finding that American adults use real-world causal knowledge to interpret magical events, even when that knowledge should be irrelevant. Chinese adults consistently viewed some impossible events as more plausible than others, regardless of whether the events violated physical principles, biological principles, or psychological principles and regardless of whether their views were elicited with pairwise comparisons, open-ended explanations, or self-generated exemplars. Graded notions of impossibility appear to be shared by Easterners and Westerners alike.

The similarity between Chinese adults' judgments and American adults' judgments extends beyond the distinction made between less-extreme and more-extreme versions of

the same spell. The magnitude of that distinction varied consistently across cultures. Differences in the strength of Chinese adults' intuitions from one spell pair to another tracked differences in the strength of American adults' intuitions. Item-level correlations between the current studies and the studies from Shtulman and Morgan (2017) were $r = .31$ for Study 1A, $r = .50$ for Study 1B, and $r = .64$ for Study 2. These correlations indicate that spell pairs which elicited strong intuitions of differential difficulty for Chinese adults, such as the pair "making a bush invisible" versus "making a tree invisible" or the pair "making a person's hair grow longer" versus "making a person's teeth grow longer," also elicited strong intuitions for American adults.

Despite the overall similarity between Chinese and American samples, there were also some notable differences. Unlike American adults, Chinese adults rarely viewed a spell for turning a person into a pig as more difficult than a spell for turning a person into a monkey, and they rarely viewed a spell for making someone laugh as more difficult than a spell for making someone smile. These inconsistencies may be due to cultural associations that run counter to the target causal considerations. In Study 2, where participants provided explanations for their judgments, many indicated that pigs are more similar to humans because pigs are a common metaphor for laziness (e.g., "once people become lazy and less active themselves, they are no different from pigs"), and many indicated that smiles are harder to evoke than laughter because smiles are more genuine (e.g., "only people who feel happy from the bottom of their heart will smile, while a joke can make people laugh"). While graded notions of impossibility may be common across cultures, the metrics used to grade impossibility may differ by event.

Taken together, our findings resonate with the cross-cultural literature on memory for ontological violations, or violations of high-level conceptual commitments. Ideas that violate one or two ontological commitments (such as a flying pig) are remembered better than those that violate no commitments (such as a dirty pig) or several commitments (such as an invisible, time-traveling, flying pig). This finding has been replicated in several countries, including France, Gabon, Nepal, Mexico, the US, the UK, and China (Atran & Norenzayan, 2004; Boyer & Ramble, 2001; Gregory & Greenway, 2017). While these findings suggest that causal violations have widely-shared consequences for an idea's memorability, our findings suggest that they have widely-shared consequences for an idea's plausibility.

It remains an open question, though, whether intuitions about plausibility arise independently of exposure to impossible events in fiction. Sensitivity to the norms of fiction develop early. Three-year-olds in the US recognize that a fact encountered in a fantasy story is less likely to be true than if the same fact were encountered in a realistic story (Walker, Gopnik, & Ganea, 2015), and four-year-olds in the US recognize that characters in a fantasy story (about castles, dragons, and witches) are more likely to ride winged coaches than rocket ships, but characters in a science fiction story (about moon walks, space suits, and robots) are more likely to ride rocket ships than winged coaches (Kibbe et al., 2018). US four-year-olds also recognize that some impossible events are more plausible than others, à la the findings documented here (Shtulman & Morgan, 2017). Future research is needed to determine whether preschoolers with less exposure to Western fiction, such as Chinese children, share intuitions about plausible impossibility with their American counterparts or whether they develop later.

Another open question is whether graded notions of impossibility are truly about impossibility. If the magic spells used in the present study were framed as scientific innovations instead, people may still think that some innovations would be more difficult than others, even if all were stipulated as possible. Cook and Sobel (2011) found that children's judgments about the possibility of extraordinary machines varied by the expectations they violated, with four-year-olds accepting the possibility of biology-violating machines (like a machine that prevents illness) more often than physics-violating machines (like a machine that levitates objects). These findings suggest that causal principles structure our expectations about extraordinary events on both sides of the possible/impossible divide, and future research is needed to determine whether reasoning about explicitly impossible events (magic) differs, in form or function, from reasoning about extraordinary yet possible events (technology). The science fiction writer Arthur C. Clarke speculated that "any sufficiently advanced technology is indistinguishable from magic" (Clarke, 1973), but this speculation needs testing.

To conclude, Chinese adults, like American adults, appear to hold graded notions of impossibility, evaluating the plausibility of ontologically impossible events on the basis of secondary causal considerations. Differences in Eastern and Western culture may shape the particular considerations brought to mind, but the tendency to judge some impossible events as more impossible than others is present in both cultures. Knowledge that allows us to discriminate possible events from impossible events also encourages us to make distinctions among impossibilities, even though such events are precluded by the laws of nature and can only be entertained in the human imagination.

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