Stimuli

Full stimulus set for Study 1. Note that the neuroscience information is bolded here, but subjects did not see such marking.

Item 1

Phenomenon: Babies were seated on their mothers' laps in front of a stage. Researchers used a camera to track where the babies were looking. The babies saw a hand reach out and place one doll on the stage. Then a screen was raised, hiding the doll. A hand reached out again and placed a second doll on the stage, out of sight behind the screen. Then the screen dropped. In some cases, there were two dolls on the stage, as there should be, and in some cases there was only one doll. The researchers found that the babies looked much longer at the stage when there was only one doll than when there were two dolls. This looking-time difference between one doll and two dolls lead the researchers to conclude that babies can calculate 1 + 1 = 2.

	Good	Bad
Without Neuroscience (Short)	The researchers claim this happens because the babies had formed an expectation about how many dolls there should be on the stage. The babies knew there should be two dolls, and their surprise at seeing only one led to their looking longer.	The researchers claim this happens because the amount of time the babies spent looking at the stage is directly proportional to how much they liked the display. The researchers used this timing data to calculate babies' preference for the single doll.
Without Neuroscience (Long)	The researchers claim that an analysis of the data shows that this happens because babies' understanding of numbers and mathematics, which starts to emerge early in life, governed the babies' expectations about how many dolls there should have been on the stage. The babies knew there should be two dolls, and their surprise at seeing only one led to their looking longer.	The researchers claim that an analysis of the data shows that this happens because babies' understanding of numbers and mathematics, which starts to emerge early in life, governed the amount of time the babies spent looking at the stage. This time is directly proportional to how much they liked the display, and the researchers used this timing data to calculate babies' preference for the single doll.
With Neuroscience (Short)	**Scans of the babies' brains show that the parietal lobe, known to be involved in math, governed** the babies' expectations about how many dolls there should be. They expected two, so they were	**Scans of the babies' brains show that the parietal lobe, known to be involved in math, governed** how long babies looked at the stage. Researchers used this timing data, which is proportional to

	surprised to see one, so they looked longer.	babies' liking of the display, to calculate their preferences.
With Neuroscience (Long)	The researchers claim that **scans of the babies' brains show that** this happens because **the part of babies' brains known to be involved in math, the parietal lobe, governed** the babies' expectations about how many dolls there should be on the stage. The babies knew there should be two dolls, and their surprise at seeing only one led to their looking longer.	The researchers claim **scans of the babies' brains show that** this happens because **the part of babies' brains known to be involved in math, the parietal lobe, governed** the amount of time the babies spent looking at the stage. This time is directly proportional to how much they liked the display, and the researchers used this timing data to calculate babies' preference for the single doll.

Full Stimulus Set for Study 1

Item 2

Phenomenon: Subjects sat at a computer screen. They saw a rapidly flashing series of pictures of faces. Somewhere in this series of faces there were two pictures of houses. Subjects had to press a button each time they saw a house. When the two houses were far apart in the sequence, the subjects were very good at this task. But when the houses were presented close together in the sequence, subjects failed to press the button for the second house. The researchers call this phenomenon "attentional blink."

	Good Explanation	Bad Explanation
Without Neuroscience (Short)	The researchers claim that this phenomenon occurs because the subjects were still processing the first house and missed seeing the second house because they did not have enough attentional resources left.	The researchers claim that this phenomenon occurs because the second house appeared later in the sequence than the first house, and this temporal relationship between the two houses caused the attentional blink.
Without Neuroscience (Long)	Researchers examined subjects' pattern of button presses after they performed this task. They concluded that this phenomenon occurs because of how subjects' perceptual abilities and their decision-making abilities functioned in response to the stimuli. The subjects were still processing the first house and missed seeing the second house because they did not have enough attentional resources left.	Researchers examined subjects' pattern of button presses after they performed this task. They concluded that this phenomenon occurs because of how subjects' perceptual abilities and their decision-making abilities functioned in response to the stimuli. The second house appeared later in the sequence than the first house, and this temporal relationship between the two houses caused the attentional blink.
With Neuroscience (Short)	**Researchers concluded that** this occurs because **of frontal lobe areas, previously shown to mediate attention.** Subjects were still processing the first house and missed the second because they had insufficient attentional resources.	**Researchers concluded that** this occurs because **of frontal lobe areas, previously shown to mediate attention.** The second house appeared later in the sequence. This temporal relationship between the two houses caused the attentional blink.
With Neuroscience (Long)	**Researchers examined subjects' brain activation as they performed this task. They concluded that** this phenomenon occurs because	**Researchers examined subjects' brain activation as they performed this task. They concluded that** this phenomenon occurs because

	of how areas in the frontal lobe, previously shown to mediate attention, functioned in response to the stimuli. The subjects were still processing the first house and missed seeing the second house because they did not have enough attentional resources left.	**of how areas in the frontal lobe, previously shown to mediate attention, functioned in response to the stimuli.** The second house appeared later in the sequence than the first house, and this temporal relationship between the two houses caused the attentional blink.

Full Stimulus Set for Study 1

Item 3

Phenomenon: Researchers recruited equal numbers of male and female participants. The participants took a series of spatial reasoning tasks and were interviewed. The researchers determined that men are better at spatial reasoning in general. From the interviews, they discovered that the men had played more sports in their childhood on average than the women.

	Good Explanation	Bad Explanation
Without Neuroscience (Short)	The researchers conclude that the difference in involvement in sports explains the gender difference in spatial reasoning abilities.	The researchers conclude that women's poor performance relative to men's explains the gender difference in spatial reasoning abilities.
Without Neuroscience (Long)	Detailed examinations of the subjects' reported backgrounds and of their performance on the task indicate that the difference in involvement in sports causes different types of spatial reasoning responses. This explains the gender difference in spatial reasoning abilities.	Detailed examinations of the subjects' reported backgrounds and of their performance on the task indicate that women's poor performance relative men's causes different types of spatial reasoning responses. This explains the gender difference in spatial reasoning abilities.
With Neuroscience (Short)	**Brain scans of the right premotor area, known to be involved in spatial tasks, indicate** that the difference in sports involvement explains this gender difference.	**Brain scans of the right premotor area, known to be involved in spatial tasks, indicate** that women's poor performance relative to men's explains this gender difference.
With Neuroscience (Long)	**Brain scans of the right premotor area, known to be involved in spatial relational tasks, indicate** that the difference in involvement in sports **causes different types of brain responses. This** explains the gender difference in spatial reasoning abilities.	**Brain scans of the right premotor area, known to be involved in spatial relational tasks indicate** that women's poor performance relative to men's **causes different types of brain responses. This** explains the gender difference in spatial reasoning abilities.

Full Stimulus Set for Study 1

Item 4

Phenomenon: Subjects were asked to imagine a series of objects that were make-believe (for example, a unicorn) or that were real but not present in the room (for example, a mountain). As the subjects created mental images of the various objects, they were asked questions about their images and told to respond as quickly as possible, without reflecting on their answers. They were also asked the same questions about objects they could actually see in the room (for example, a pen). From an analysis of the responses to these questions and of the times it took subjects to respond, the researchers found a similar pattern of responses and response times for all three types of objects.

	Good Explanation	Bad Explanation
Without Neuroscience (Short)	The researchers claim that this happens because imagining an object, whether real or make-believe, uses the same process as seeing a real object.	The researchers claim that this happens because imagining an object, whether real or make-believe, results in the same array of responses as seeing a real object.
Without Neuroscience (Long)	Patterns of verbal descriptions of the mental images lead researchers to conclude this happens because imagining an object, whether real or make-believe, uses the same process as seeing a real object.	Patterns of verbal descriptions of the mental images lead researchers to conclude that this happens because imagining an object, whether real or make-believe, results in the same array of responses as seeing a real object.
With Neuroscience (Short)	**Patterns of brain activation in the visual cortex led researchers to conclude** this happens because imagining objects uses the same process as seeing objects.	**Patterns of brain activation in the visual cortex led researchers to conclude** this happens because imagining objects results in the same array of responses as seeing objects.
With Neuroscience (Long)	**Patterns of brain activation in the visual cortex lead researchers to conclude** this happens because imagining an object, whether real or make-believe, uses the same process as seeing a real object.	**Patterns of brain activation in the visual cortex lead researchers to conclude that** this happens because imagining an object, whether real or make-believe, results in the same array of responses as seeing a real object.

Full Stimulus Set for Study 2

Full stimulus set for Study 2. Participants were presented with the good and bad explanations side by side. Note that the neuroscience information is bolded here, but subjects did not see such marking.

Item 1

Phenomenon: Babies were seated on their mothers' laps in front of a stage. Researchers used a camera to track where the babies were looking. The babies saw a hand reach out and place one doll on the stage. Then a screen was raised, hiding the doll. A hand reached out again and placed a second doll on the stage, out of sight behind the screen. Then the screen dropped. In some cases, there were two dolls on the stage, as there should be, and in some cases there was only one doll. The researchers found that the babies looked much longer at the stage when there was only one doll than when there were two dolls. This looking-time difference between one doll and two dolls lead the researchers to conclude that babies can calculate 1 + 1 = 2.

	Good	Bad
Without Neuroscience condition	The researchers claim this happens because the babies had formed an expectation about how many dolls there should be on the stage. The babies knew there should be two dolls, and their surprise at seeing only one led to their looking longer.	The researchers claim this happens because the amount of time the babies spent looking at the stage is directly proportional to how much they liked the display. The researchers used this timing data to calculate babies' preference for the single doll.
With Neuroscience condition	**Scans of the babies' brains show that the parietal lobe, known to be involved in math, governed** the babies' expectations about how many dolls there should be. They expected two, so they were surprised to see one, so they looked longer.	**Scans of the babies' brains show that the parietal lobe, known to be involved in math, governed** how long babies looked at the stage. Researchers used this timing data, which is proportional to babies' liking of the display, to calculate their preferences.
Mixed condition	The researchers claim this happens because the babies had formed an expectation about how many dolls there should be on the stage. The babies knew there should be two dolls, and their surprise at seeing only one led to their looking longer.	**Scans of the babies' brains show that the parietal lobe, known to be involved in math, governed** how long babies looked at the stage. Researchers used this timing data, which is proportional to babies' liking of the display, to calculate their preferences.

Full Stimulus Set for Study 2

Item 2

Phenomenon: Subjects sat at a computer screen. They saw a rapidly flashing series of pictures of faces. Somewhere in this series of faces there were two pictures of houses. Subjects had to press a button each time they saw a house. When the two houses were far apart in the sequence, the subjects were very good at this task. But when the houses were presented close together in the sequence, subjects failed to press the button for the second house. The researchers call this phenomenon "attentional blink."

	Good Explanation	Bad Explanation
Without Neuroscience condition	The researchers claim that this phenomenon occurs because the subjects were still processing the first house and missed seeing the second house because they did not have enough attentional resources left.	The researchers claim that this phenomenon occurs because the second house appeared later in the sequence than the first house, and this temporal relationship between the two houses caused the attentional blink.
With Neuroscience condition	**Researchers concluded that** this occurs because **of frontal lobe areas, previously shown to mediate attention.** Subjects were still processing the first house and missed the second because they had insufficient attentional resources.	**Researchers concluded that** this occurs because **of frontal lobe areas, previously shown to mediate attention.** The second house appeared later in the sequence. This temporal relationship between the two houses caused the attentional blink.
Mixed condition	The researchers claim that this phenomenon occurs because the subjects were still processing the first house and missed seeing the second house because they did not have enough attentional resources left.	**Researchers concluded that** this occurs because **of frontal lobe areas, previously shown to mediate attention.** The second house appeared later in the sequence. This temporal relationship between the two houses caused the attentional blink.

Full Stimulus Set for Study 2

Item 3

Phenomenon: Researchers recruited equal numbers of male and female participants. The participants took a series of spatial reasoning tasks and were interviewed. The researchers determined that men are better at spatial reasoning in general. From the interviews, they discovered that the men had played more sports in their childhood on average than the women.

	Good Explanation	Bad Explanation
Without Neuroscience condition	The researchers conclude that the difference in involvement in sports explains the gender difference in spatial reasoning abilities.	The researchers conclude that women's poor performance relative to men's explains the gender difference in spatial reasoning abilities.
With Neuroscience condition	**Brain scans of the right premotor area, known to be involved in spatial tasks, indicate** that the difference in sports involvement explains this gender difference.	**Brain scans of the right premotor area, known to be involved in spatial tasks, indicate** that women's poor performance relative to men's explains this gender difference.
Mixed condition	The researchers conclude that the difference in involvement in sports explains the gender difference in spatial reasoning abilities.	**Brain scans of the right premotor area, known to be involved in spatial tasks, indicate** that women's poor performance relative to men's explains this gender difference.

Full Stimulus Set for Study 2

Item 4

Phenomenon: Subjects were asked to imagine a series of objects that were make-believe (for example, a unicorn) or that were real but not present in the room (for example, a mountain). As the subjects created mental images of the various objects, they were asked questions about their images and told to respond as quickly as possible, without reflecting on their answers. They were also asked the same questions about objects they could actually see in the room (for example, a pen). From an analysis of the responses to these questions and of the times it took subjects to respond, the researchers found a similar pattern of responses and response times for all three types of objects.

	Good Explanation	Bad Explanation
Without Neuroscience condition	The researchers claim that this happens because imagining an object, whether real or make-believe, uses the same process as seeing a real object.	The researchers claim that this happens because imagining an object, whether real or make-believe, results in the same array of responses as seeing a real object.
With Neuroscience condition	**Patterns of brain activation in the visual cortex led researchers to conclude** this happens because imagining objects uses the same process as seeing objects.	**Patterns of brain activation in the visual cortex led researchers to conclude** this happens because imagining objects results in the same array of responses as seeing objects.
Mixed condition	The researchers claim that this happens because imagining an object, whether real or make-believe, uses the same process as seeing a real object.	**Patterns of brain activation in the visual cortex led researchers to conclude** this happens because imagining objects results in the same array of responses as seeing objects.

Full Stimulus Set for Study 3

Full Stimulus Set for Study 3. Note that the neuroscience information is bolded here and the added jargon is underlined, but subjects did not see such marking.

Item 1

Phenomenon: Babies were seated on their mothers' laps in front of a stage. Researchers used a camera to track where the babies were looking. The babies saw a hand reach out and place one doll on the stage. Then a screen was raised, hiding the doll. A hand reached out again and placed a second doll on the stage, out of sight behind the screen. Then the screen dropped. In some cases, there were two dolls on the stage, as there should be, and in some cases there was only one doll. The researchers found that the babies looked much longer at the stage when there was only one doll than when there were two dolls. This looking-time difference between one doll and two dolls lead the researchers to conclude that babies can calculate 1 + 1 = 2.

	Good Explanation	Bad Explanation
Simple Neuroscience	**Scans of the babies' brains show that the brain region known to be involved in math** governed the babies' expectations about how many dolls there should be. They expected two, so they were surprised to see one, so they looked longer.	**Scans of the babies' brains show that the brain region known to be involved in math** governed how long babies looked at the stage. Researchers used this timing data, which is proportional to babies' liking of the display, to calculate their preferences.
Neuroscience Plus Jargon	**fMRI scans of the babies' brains show that the parietal lobe, known to be involved in math**, governed the babies' expectations about how many dolls there should be. They expected two, so they were surprised to see one, so they looked longer.	**fMRI scans of the babies' brains show that the parietal lobe, known to be involved in math**, governed how long babies looked at the stage. Researchers used this timing data, which is proportional to babies' liking of the display, to calculate their preferences.

Full Stimulus Set for Study 3

Item 2

Phenomenon: Subjects sat at a computer screen. They saw a rapidly flashing series of pictures of faces. Somewhere in this series of faces there were two pictures of houses. Subjects had to press a button each time they saw a house. When the two houses were far apart in the sequence, the subjects were very good at this task. But when the houses were presented close together in the sequence, subjects failed to press the button for the second house. The researchers call this phenomenon "attentional blink."

	Good Explanation	Bad Explanation
Simple Neuroscience	Researchers concluded that this occurs because of **areas of the brain involved in attention**. Subjects were still processing the first house and missed the second because they did not have enough attentional resources left.	Researchers concluded that this occurs because of **areas of the brain involved in attention**. The second house appeared later in the sequence. This temporal relationship between the two houses caused the attentional blink.
Neuroscience Plus Jargon	Researchers concluded that this occurs because of **frontal lobe areas, shown to mediate attention**. Subjects were still processing the first house and missed the second because they did not have enough attentional resources left.	Researchers concluded that this occurs because of **frontal lobe areas, shown to mediate attention**. The second house appeared later in the sequence. This temporal relationship between the two houses caused the attentional blink.

Full Stimulus Set for Study 3

Item 3

Phenomenon: Researchers recruited equal numbers of male and female participants. The participants took a series of spatial reasoning tasks and were interviewed. The researchers determined that men are better at spatial reasoning in general. From the interviews, they discovered that the men had played more sports in their childhood on average than the women.

	Good Explanation	Bad Explanation
Simple Neuroscience	**Brain scans of the region known to be involved in spatial tasks** indicate that the difference in sports involvement explains this gender difference.	**Brain scans of the region known to be involved in spatial tasks** indicate that women's poor performance relative to men's explains this gender difference.
Neuroscience Plus Jargon	**fMRI scans of the right premotor area, known to be involved in spatial tasks**, indicate that the difference in sports involvement explains this gender difference.	**fMRI scans of the right premotor area, known to be involved in spatial tasks**, indicate that women's poor performance relative to men's explains this gender difference.

Full Stimulus Set for Study 3

Item 4

Phenomenon: Subjects were asked to imagine a series of objects that were make-believe (for example, a unicorn) or that were real but not present in the room (for example, a mountain). As the subjects created mental images of the various objects, they were asked questions about their images and told to respond as quickly as possible, without reflecting on their answers. They were also asked the same questions about objects they could actually see in the room (for example, a pen). From an analysis of the responses to these questions and of the times it took subjects to respond, the researchers found a similar pattern of responses and response times for all three types of objects.

	Good Explanation	Bad Explanation
Simple Neuroscience	**Patterns of activation in the vision area of the brain** led researchers to conclude this happens because imagining objects uses the same process as seeing objects.	**Patterns of activation in the vision area of the brain** led researchers to conclude this happens because imagining objects results in the same array of responses as seeing objects.
Neuroscience Plus Jargon	**Patterns of neural activation in the primary visual cortex** led researchers to conclude this happens because imagining objects uses the same process as seeing objects.	**Patterns of neural activation in the primary visual cortex** led researchers to conclude this happens because imagining objects results in the same array of responses as seeing objects.