Do Inconclusive Forensic Decisions Disadvantage the Innocent?

Online Supplemental Materials

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Supplemental Analysis 1

Two coders, blind to condition, independently classified the open-ended responses to the manipulation check from Experiment 1 (see Tables 1 and S1) into one of two categories. One category corresponded to the perception that the forensic evidence lacked predictive value (e.g., "There was no conclusion made to whether or not they were the same that were fired in the crime," "He could not find any evidence that they were from the same gun nor could he rule out that they were from the same gun," "They were not able to tell if the casings were from his gun," and "He could not confirm the cases found at the scene came from the test gun"). The other category acted as a catch-all into which the coders classified all other responses (e.g., "The cases matched the suspect's gun to the shell cases found at the crime scene," "The cartridge cases not matching indicates that the bullets could have been fired from different guns," "NA," "I did not understand what he was trying to say," and "shotgun").

The coders rendered the same judgment for 451 of the open-ended responses and discrepant judgments for 28 of the open-ended responses, resulting in near-perfect interrater reliability ($K = .94$). A third coder, also blind to condition, resolved the discrepancies. A frequency analysis indicated that 118 open-ended responses communicated the perception that the firearm examiner's forensic decision lacked probative value, including two in the identification condition, three in the elimination condition, and 113 in the inconclusive condition. A chi-square analysis indicated a significant effect of the forensic evidence (identification vs. elimination vs. inconclusive) on the coded responses, $\chi^2(2, N = 479) = 276.42$, $p < .001$. Using a Bonferroni correction ($p \leq .025$), we found that pairwise chi-square tests indicated that participants in the inconclusive condition of Experiment 1 interpreted the firearm expert's forensic decision to lack probative value significantly more often than did participants in both the

identification, $\chi^2(1, N = 317) = 167.04$, $p < .001$, and elimination, $\chi^2(1, N = 321) = 166.59$, $p < .001$, conditions. These results provide additional support for the idea that the inconclusive forensic decision produced more incriminating legal judgments than did the elimination forensic decision because participants interpreted the inconclusive decision to lack probative value, as hypothesized by the process of a communication error.

Table S1

Experiment 1: Open-Ended Responses to the Manipulation Check

Identification condition
He examined both the cartridge case from the murder and the one from the suspect and found them to be close enough to be considered a match.
The bullet cartridges found at the scene were determined to be fired through the same gun due to the cartridges' specific markings being the same as the test cartridges.
The cartridge cases that were found at the crime scene matched those that were fired from the firearm found on the suspect.
When comparing the cartridge from evidence found and the cartridges he used to figure out the type of gun that was used, the cartridges matched therefore helping him identify the weapon used in committing the crime.
That the gun was the one used.
The cartridge that was found at the scene matched that of what was used in the gun of the suspect for this crime.
I'm not sure.
The bullets fired from the weapon of the suspect were the same as the casings found at the crime scene.
He meant that when he looked at the cartridge from the crime scene and the one he fired from the suspect's gun, there were matching marks. These marks were in the same area and left similar marks meaning they were from the same gun.
They were the exact same.
That the gun cartridge found on the scene was the same one the suspect used in the crime.
That the suspect has evidence against them.
That the firearm found was in fact the same one used in the crime.
The outside casing of the bullet.
The ones found on the ground matched with the ones he was comparing them to.

After examining the cartridge from the suspect's gun and the cartridges from the crime scene, he found similar characteristics between both cartridges and determined they were fired from the same gun.

It means that the cartridge from the scene matched the one that was recovered.

The cases that hold the bullets inside the gun matched on the cartridges found at the crime scene, so they were likely from the same gun and thus the man they caught probably committed the crime.

He mentioned that every cartridge has unique markings that the components of the cartridge leave as identifiers. The two cartridges that he tested have matching markings.

The cartridge cases matched the firearm that was used.

What the firearms expert meant when he said that the cartridge cases matched was that after collecting and examining all the detailed characteristics of the cartridge found at the crime scene and then examining the other cartridge that was found on a suspect, both the cartridge cases matched in accordance of the specified details examined using a microscope.

He was explaining how the cases matched and making sure everyone was able to understand the basics, and explaining how because the cartridges matched whoever had the gun was guilty.

Shotgun.

The cartridge could have been fired from that gun but it also could have been fired from a different gun. All we know is that the cartridge could have come from that gun. [b]

The cases matched the bullets of the murder weapon.

The cartridge case that was found on the scene of the crime matched the case that was found on the criminal following the murder.

The microscope he used showed that they had similar to same characteristics.

This question is false since the findings were that the cartridge cases did not match. [a]

He was able to examine the cases (from both the crime scene and the test cartridges) and find that they were shot from the same gun. By using the microscope, he was able to carefully compare them and come to the conclusion that they match.

The firearms expert collected the casings from the scene and when a suspect with a gun was taken into custody, he had a gun on him. The expert fired the gun and collected the casings and compared the one from the crime and from the trial. The casings had matching details from the firing pin.

To me, firearms expert meant that he knew what he was doing with his weapons.

Tool marks are left from the components inside of the gun, which can be unique to each gun. The expert took the gun found by police, test-fired the weapon, and compared the bullet from the crime scene to the bullet test-fired for similar tool marks. It was his conclusion that the tool marks on each weapon were similar enough to denote that they were fired from the same weapon.

The cases matched the bullets of the murder weapon.

The expert took cartridges from the crime scene and then compared them to the cartridges that he shot from the suspect's gun and the cases, parts, etc. matched.

There are different components of a cartridge case and those taken from the scene versus the ones that he tested with the gun the perpetrator had matched.

That means that the cartridge case that was found match the gun that was found.

When he compared the cartridge case of the ones found at the crime scene and the one in the perpetrator's gun, the markings and aspects of the case were a match.

When he fired the gun, the cartridge cases left the same resemblance.

He was describing if the firearms were matched to what was used in the shooting. The cartridge cases mean the shells from when the bullet was shot.

He meant that the cartridges were the exact same so they fit the same bullets.

In which the cartridge cases had specific marks can show how the firearm shot them.

He meant that the cartridge cases had the same kind of matching marks left on the outside of the cartridges.

The cases were the same in each of the four components of cartridge.

The cartridge cases of both the bullets found at the crime scene and from the gun that the suspect had in his possession matched one another.

The firearms expert meant was that the effects on the cartridge cases, after being fired, showed the same results. The cartridge fired from the suspect gun and the cartridges found at the crime scene showed the same characteristics.

They had the same firearms.

That what we call the bullet, the outer cases were the same.

They were the same cartridge case found on the ground as the one found in the gun.

The cartridge that was found at the crime scene had similar marks on it as the bullet he test shot that was from the same gun; he concluded that they came from the same gun.

The firearms expert performed a number of tests on the gun that was suspected to be used in the crime. He mainly focused on how the gun marked/affected other "test" cartridge cases to see if they would match up with those found at the crime scene.

The cartridge recovered from the crime scene had similar characteristics or markings to a cartridge that was fired from the gun the suspect had.

He meant the cartridge cases showed similar markings that the inside of the gun they were shot out of made. He can see these by looking under a microscope.

The bullets are made up of four different parts. He was able to look at the different parts to make his decision. According to his knowledge, the markings on the cartridges seemed to line up. He deemed them as matches.

When he tested the gunshots, the cartridge that held the bullets were the same.

The cartridge case that was found at the crime scene was taken for investigation. The firearms expert is given a gun that is thought to be the one that is used in the crime scene. He puts cartridges in the specific gun and does test shots, then looks at the cartridges from the crime scene and the ones he shot himself. Both of the cartridges looked the same after being shot.

They had the same tool mark traces or scratches from the gun that indicate the cartridge cases from the scene and the cartridge cases fired from the suspect's gun showed identical matchings meaning the cases came from the same gun.

The cases when examined under a microscope matched. There are many components of a firearm such as bullet, gun powder, shells, etc. but in this instance there was enough similarities to make the cartridges in the suspect's gun and found at the scene a match.

Basically, the cartridge cases from the crime scene and the cartridge cases from the test rounds fired by the examiner had markings that correlated to each other.

The markings (from the bullets/metal) on the cases matched.

I don't know what a cartridge is.

After examining the one found at the crime scene and the one from firing the suspect's gun, the cartridge cases seemed to match based on key characteristics that such a firearms expert would look for.

The used cartridge cases that were found at the crime scene were the same as the ones from the suspect's firearm.

The cartridge cases from the crime scene and the cartridge cases created when the suspect's gun was fired were of the same caliber and the internal marks left on the cases were the same, indicating that they were fired from the same gun.

That there were some matches from the bullets found at the scene of the crime and the ones fired from the suspect's gun. The surface of the cartridges and the distinct marks on the cartridge from the gun matched.

The way that the firing pin interacted with the gun was on the cartridges meaning that the gun found was the gun used in the crime.

The words "the cartridge cases matched" means that the casings of the bullets found matched the gun in which it was fired from.

It means that they matched what was at the scene of the crime when it happened; the same casings that were found were an identical match to the ones found on scene.

The four different parts inside the cartridge lined up after looking at it with a special microscope.

The bullet shells matched the gun they had found.

This means that the used cartridge cases found at the store are the same that would come about from shooting the suspect's gun, meaning that the suspect's gun could have been used in the crime.

That the gun was used in the murder.

That looking at the cases from both the crime scene and the casing from the gun in which is the thought to be involved in the crime matched in marking. Shows in theory the same gun was used to fire both rounds.

When the firearms expert said that the cartridges cases matched, he's comparing the cases left at the crime scene to those when testing the gun from the suspect in a test. Each gun leaves its own unique markings on casings like a human fingerprint. If the cases match, it's probably from the same gun.

When he compared the cases from the crime scene to the cases he fired from the gun they suspected the perpetrator used in the robbery, the marking and type of cartridge case on both bullets were matching.

He was implying that the gun that was found was used in the crime.

They were the same, the one that the guy had examined and found out and the one that was used in the robbery.

In ways the cases matched because the way he tested them, and how he compared it while looking at them at the same time.

The cases that were found were cases that held the type of bullet found at the scene of the crime.

He meant that the bullets found at the crime scene are the same kind found on the suspect.

When he said the cartridge cases matched he meant everything from the firearm that he shot and tested compared to the evidence found at the crime scene had matched.

That when comparing the cartridges found at the scene and the ones he tested at the facility, he found similar results in each of them, meaning they matched.

They had similar markings and characteristics when fired from the suspect's gun.

It meant that the case matched the bullets that were used to murder the victim.

This means that the gun's cartridge cases used at the crime scene matched to the gun the police had found. This means that the guy with the gun was at the scene.

He checked under the comparison microscope to see if the bullets looked identical to each other.

The cartridges were similar in almost every way possible and even under the microscope.

Cartridge cases typically have the same material and when he examined it they did.

The cases at the scene of the crime and the ones that were fired from the suspect's gun had the same tool marks, implying that they were fired from the same gun.

The cartridge he shot with the suspect's gun were a match for the cartridges found at the scene after inspecting them with tools like a microscope.

He observed the cartridges found at the scene of the murder and then fired a gun thought to be similar to the suspect's gun to see if the cartridges matched.

Other things that were found match that cases.

He means that each cartridge casing is the same style, caliber, and similar markings in comparison created by the gun when firing it.

They were the same type and could have come from the same gun.

The tool marks made by the gun match the cases found at the scene of the crime.

The markings on the surface of the cartridge cases retrieved from the scene and the gun which is thought to be the one used in the crime were similar. However, it was mentioned that this may not always be sufficient.

The markings on the case caused from the interior of the weapon matched therefore the cartridge cases matched.

They explained that the cartridge cases at the crime scene didn't match the suspects'. [a]

The cartridge case from the crime scene matched the cartridge case from the gun that a criminal had, that the police found.

The cartridge cases matched ones found at the scene.

He looks under a microscope and sees if the parts match.

He meant that the cartridges that he fired from the suspect's gun had similar characteristics to the ones found at the scene indicating they were fired by the same gun.

The cartridge cases matched based on his analysis with the tools he uses to match the cartridge case to the gun the suspect had.

They were the same description when looked at and examined.

The part that encases the bullet was the same in the suspect's weapon and at the crime scene.

The cartridge cases that were found at the crime scene were the same as those fired to try and find a match.

The suspect matched with the cartridge case.

I accidentally skipped through this slide and can't go back. [a]

He is basically saying that the suspect's cartridges and the ones at the crime scene match up.

It was the bullets that were shot from the gun and then found at the crime scene.

There are certain physical attributions that would reveal whether they matched or not.

The bullets used match the cartridges found at the crime scene.

The cases found at the crime and those of the suspect are the same.

The markings made by the gun are similar when examined under the double microscope. The expert was able to inspect both cartridges at the same time. He was looking for similar marks on the cartridges, shaves, and engravings of the bullet itself and what the gun made on them after firing the gun. The bullet cartridges shot at the scene and in the lab matched.

That the evidence added up.

The case surrounding the bullets fired and the crime scene matched the ones the firearms expert fired as a test.

He found that when observed under a microscope, the bullet cases were similar enough for him to conclude that the gun recovered was used at the crime scene.

The cases matched the suspect's gun to the shell cases found at the crime scene.

The style of the casing, the characteristics of the casing are prominent to a specific type of gun and comparing the casing from the shots at the convenience store and the casings from the shots the expert did to test the gun, the casings were a match for how they were after being shot and the size and shape of the casing that fit and match perfectly for that kind of gun.

That the similar gun that was tested had the same type of bullet as the gun found on the suspect when fired.

He meant that the markings were the same and they matched the makeup of the cartridges of the suspect's gun.

The cartridge case of the gun left at the crime scene was a match to the gun that was found in possession by the suspect. The cartridge case is what contains the ammunition/bullet. The case is expelled from the gun after firing. In this case, when the expert says they match, it means they have similarities and could both have been fired from the suspect's gun.

Essentially, the firearms expert took both the cartridges (which make up four unique parts) from the scene of the crime, and the cartridges from the gun carried by the suspect. They compared all four parts with each other and determined that the cartridges were the same.

When comparing the case from the crime scene and the case from the firearm, the expert noted that they match.

They did not know if it matched from the one fired. [b]

He meant that when they fired the gun, the cartridges matched.

Since the cartridge cases matched, they are able to figure out what kind of firearm was at the crime scene.

The design left in the cartridge from the bullet being fired matched on both of them.

He said that they matched, but it may or may not be correct.

When he carefully examined the certain aspects and placement of certain parts inside the cartridge case, he found that they matched almost identically.

He identified similarities in the markings of each cartridge case: the one he tested and the ones found at the scene.

Guns were the same.

That both cases matched.

They matched and were the same.

That he believed that they were from the same gun.

The cartridge of the bullet, the bullet casings match the bullet that was shot.

The expert was explaining how the cartridge cases from the suspect's gun had similar marks after being fired to the ones found at the scene; he also mentioned that this was a matter of class characteristics meaning that them matching meant that they were in the same category.

They found the kidnapper.

That when they do forensics on the bullets, they look for certain grooves and the make and model of the bullet casings to see if they match.

That the cartridge cases found at the crime scene matched the cartridges cases found in the gun.

The cartridge case is one part of the remains when a bullet is fired. The firearms expert compared the cartridge found at the scene of the crime to another cartridge from a gun type that was suspected to be used at the crime scene. He compared under a microscope the two types of cartridges and found enough similarities between them that it was very likely they came from the same type of gun.

He tested the cartridge cases found at the scene of the crime to see if they matched the cartridge cases of the suspect's gun. Through his various testing processes, he determined that they match.

The "bullet" found and the "bullet" from the gun on the suspect seemed to be the same based on different qualities.

That the marks and design features left by the tools of the firearm that fired the bullet from the cartridge were similar enough to be said to match the cartridge cases found at the scene of the crime.

The cartridge cases that were left after being fired from both guns matched in the type of cartridge case.

Markings on the cartridge cases found at the crime scene and those that were test fired from the suspected gun were the same.

He examined both the cartridge case from the crime scene and the one he shot with from the gun that a suspect had. They examined the appearance and different things about it to see if they were a match and they were.

They were the same.

He examined the cartridge cases and looked for specific characteristics that make the cartridge they found stand out. He fired different guns trying to find the correct one that left the same type of marks, and their suspect had a match.

The imprints of the fired cartridge found at the crime scene are identical to the imprints of the fired cartridge from when the gun was attained from the suspect.

He explained that after looking at each element inside the cartridge casings, including the bullet, primer, gun powder and the cartridge case itself, and after test firing it, the patterns matched to the ones from the crime scene.

The outer shell that contained the bullet and the gunpowder and other things.

He used a microscope to compare the markings left on the cartridge cases to show that the gun on the suspect had cases that matched the cases at the crime scene.

The firearms expert studies various characteristics regarding the cartridge cases from the guns using a microscope and various techniques. They were able to identify the matching specific characteristics that would only be evident if the cases were the same as the ones used in the crime.

It meant that the markings made by the internal hardware of the gun matched the markings of the cartridge from the gun fired at the murder scene and the gun that the suspect had.

Cartridges matched, but it did not solidify that they were in conjunction with one another in the crime scene. Before he said that the cartridges were the same and he would have to say yes they are from the same gun the expert said that his evidence was 50-50, therefore going off a hunch he made the majority rule that it was this specific cartridge case that was used in the shooting, which isn't validated by his response.

He meant that after examining them, the two cases, they had similar markings, etc. Meaning the same gun/cartridges were used.

The cartridge cases had the same markings and the same type of primer and powder. I also think that both cartridges when fired have the same results.

What he meant was the different components of the cartridges found at the crime scene were the same as the ones he fired with the gun that was potentially used at the crime scene. He was able to tell this by looking under a comparison microscope.

Elimination condition

While using the suspect's gun to test fire the bullets to make sure the cartridge cases matched, he was able to use a microscope in order to compare the cartridge cases that were found at the crime scene versus the cartridges that were fired during the recreation. During his microscopic inspection, the examiner found that the cases did not match; therefore, the gun that the suspect had in possession could not have been the murder weapon.

He meant that the intricacies of the cartridge cases found at the crime scene and the intricacies of the cartridge cases taken from the suspect's gun were inconsistent.

He meant that the cartridge cases for the bullets were for a different gun than the one on the scene.

He meant that the case from the suspect did not match the case left at the scene.

I am honestly not sure.

They had different details to their design and aftermath when he examined the ones at the scene versus the suspect's.

The markings left on the cartridge case found at the scene of the crime did not match the one he test fired from the criminal's gun.

The cartridge case from the guns did not look the same after being fired.

The cases from the weapon fired did not match the cartridges that were found at the crime scene.

The cartridge cases were not the same so they didn't match.

Under microscope the "Bullets" weren't the same. They were differently lined and designed.

The cartridge cases found at the crime scene and the cartridge cases that matched the suspect's weapon did not match.

He meant that the two types of firearms did not look the same.

The cartridges found at the crime scene and the cartridges found on the suspect didn't match, meaning they did not come from the same firearm.

The cases of the ammo did not match.

The bullets from the suspect's gun and the bullets that were found at the scene of the crime did not match.

The cartridge cases from the crime scene did not have the same characteristics as the ones from the suspect's gun. This could be referring to marks on the cartridge case not being present or vice versa, the cases being from a different caliber, or some other difference.

The two cartridges that they found were not identical. Therefore, they didn't have any backup evidence.

The internal workings and the marks on the cartridge from the suspect's gun were not the same as the one from the crime scene.

The cartridges that were fired from the gun that was taken from the potential suspect's gun, and the cartridges that were collected from the crime scene did not have the same marks on it, which means the gun wasn't the same gun used at the crime scene.

The microscopic lines that are imprinted on the bullet cartridge when the gun is shot were not the same lines, so that would mean it was not the same gun.

The markings that the cartridge had on it from the individual gun did not match the markings on the cartridge from the crime scene.

The markings on the cartridges didn't match, meaning they weren't fired from the same type of gun.

The bullets didn't match the gun.

The markings on the cartridge cases from the suspect's gun and the cases found at the scene did not match.

He meant that they did not match up so it couldn't be the murder weapon.

They did not work the same way.

He meant that the cartridge cases were different than the ones that were supposed to be there.

The cartridge cases were not the same size that was used in the murder.

Markings left by internal components of the gun on the cartridge did not match.

They were not the same cartridge cases that were found at the scene.

That the cartridges would not work in that specific gun.

He stole the man's sausage, man I couldn't believe it, stealing a man's sausage!

He meant that the bullets fired from the gun that was used in the crime did not match the bullets that were fired from the gun that the man who was brought in had.

It did not match the gun which was used at the crime scene.

The expert compared the cartridge cases at the crime scene against the cartridge cases from the suspect's gun. He found that these cases did not have the same characteristics.

They were not from the same gun.

The bullets were not the same as the ones found.

He compared the cartridges from the scene to the cartridges of the suspect's gun. He concluded that they were not the same cartridges so the suspect did not commit the crime.

The firearms expert was asked to inspect the cartridges found on the crime scene and compare them with cartridges from a gun that was found on the suspect. He carefully examined the four different parts of the cartridge with a microscope that allowed him to look at two images at the same time. Based on what he saw through the microscope, he did not find any similar markings on the bullets. If they were fired from the same gun, he would've seen similar markings.

The markings on the evidence (crime scene cartridges) did not match the markings on the cartridges fired from the suspect's firearm. Therefore, the evidence compared to that suspect and the firearm are inconclusive. [b]

The cases from the bullet shells did not match those that were used to commit a crime.

There was not sufficient evidence to prove the cartridge cases found at the scene of the crime matched the cartridge cases of the gun brought to the analyst. [b]

The ammunition from the crime scene didn't match, meaning that the bullets were different and the suspect may be innocent.

The tool marks on the cartridges did not match each other.

The cartridge case was not from the weapon found or used. It was a different cartridge than what they were looking for.

The suspect did not kill the clerk at least not with their gun.

The outside casing of the bullet that covers the components inside did not match.

The cartridge cases did not have similar markings on them indicating that they were fired by the same gun, or that they were of the same caliber or design.

He meant that when he looked at the cartridge cases side by side under a microscope, he found that they were two different cartridges.

This means that the cartridge from the 'killers' gun did not match the cartridge of the ones found at the scene where she was murdered.

He compared the cartridge cases found at the crime with those that were found in a gun of the suspected criminal. He just meant that the person who they apprehended did not match the person who actually committed the crime.

A cartridge is made up of four parts and those four parts did not match the other cartridges from the gun that was fired at the crime scene.

This means that the cartridge case from the crime scene, compared to the cartridge case of the suspect's gun that he test fired, had significant differences that would result in the suspect being innocent because they did not match.

He meant that the cartridge case used to murder the victim did not match up with the one found at the crime scene.

The imprint on the cartridge made by the firearm confiscated from the scene were not identical thus ruling out the possibility of the apprehended suspect being the murderer.

The examination of the cartridges showed that the markings on the casing did not match so that can also mean that the gun found was not the gun used at the crime scene.

Expert meant they were not the same.

I believe he meant there were different markings on the cartridge case that should not have been there but were, saying that the murderer would have made the marks themselves.

The cartridge cases had different size bullets.

The gun found on the suspect did not match the gun that was used at the crime scene.

The markings on the cartridge cases left by the gun that he fired didn't match the ones from the crime scene.

The gun cartridges were different so it wasn't the right guy.

There weren't any similarities between the cartridges that were found at the crime scene and the cartridges that were fired from the gun that the expert examined.

The cartridge cases not matching indicates that the bullets could have been fired from different guns.

The specific marks that occur on the shell casings from a given gun did not match each other. So the evidence claims that the gun at the crime scene and the gun from the suspect were not the same.

The internal workings of a gun leave a signature mark on the casing of a bullet when it is fired and the expert says they did not match the casings of the gun fired from the gun on the suspect.

Upon close examination of the cartridge found at the crime scene, and a cartridge obtained from the gun in the suspect's possession, the markings on the cartridges were not similar enough to prove that they came from the same gun. Two cartridges from the same gun should have similar markings left by the gun as a result of the movement of the bullet through the barrel of the gun.

The case that covers the bullet does not match the one found on the scene.

The cartridge cases did not match that which was at the crime scene.

He meant that markings on the surface of cartridges did not match each other.

The cartridges from the gun found on the suspected murderer did not match those cartridges found at the scene of the crime.

He did say it matched. The outer shell of the bullet at the crime scene was similar to the ones fired in the lab. [a]

The part of the gun that holds the bullet has a distinct shape that did not match the cartridge case found at the crime scene.

When he examined the cartridges under a microscope looking for similarities made by the internals of the guns, it was concluded that they did not match.

The one from the gun and the one at the scene weren't the same.

He compared cases from the scene and cases from the suspect's gun. He compared the design and how they fired whether or not they would have the same markings or same mechanics.

The markings on the cartridges did not match, so they most likely were fired from different weapons.

He examined the cartridge from the scene of the incident and one that was similar. He shot the gun to see if the cartridge looked the same as the ones found on the scene and explained the different parts to the cartridge and how they were not identical.

The firearm expert meant when he said that "the cartridge cases did not match" he meant that the cases that were found on the crime scene and the ones he shot himself using the suspect's gun had no similar characteristics. Therefore, that gun was not used at the crime scene nor is the suspect guilty.

The firearms expert meant that the markings on the cartridge cases from the gun did not match each other, so they were not fired from the same gun.

He meant that the case that the gunpowder is fixed in, to most people it would be the bullet, and he says that the cases at the crime scene did not match the cases he got from the suspect's gun. He did not go into details on the differences though.

The cartridge case found on the scene didn't match the cartridge case from the gun found on the man.

He meant that the cartridge cases that were found at the scene could not have come from the gun they found on the man.

He says that he tests the hole from the ammo and gun used in the actual shooting and compares it to the one the suspect was using. They did not match.

There are four components of the cartridge and he said that several of them did not share similar characteristics.

The cartridge cases did not match the gun because it wasn't the firearm used.

He meant that the cartridge cases from the crime scene did not seem to match the cartridge cases that he fired from the same gun. He compared them under the microscope and based on their texture concluded that the gun was not the one used for the crime.

The firearms expert meant that the cartridge from the scene and the cartridge from the suspect's gun don't match, so the cartridge from the crime did not come from that particular gun.

The cartridge cases from the bullets found at the crime scene did not match the cartridge cases from the bullets of the suspect's gun; they did not have the same markings that get left on a cartridge case when a gun is shot.

I don't know.

The gun of the suspect is not the same gun that was used to commit the murder.

They weren't fired from the same gun at the crime scene.

The firearms expert did not believe there was enough evidence on the case. [b]

The cartridges found at the scene were not the ones that were found in the suspect's gun.

He meant that when comparing the cartridge cases from the crime scene and the same gun shooting the same bullet that the cartridges didn't match because of comparing the marks that are made by a gun when the bullet is fired.

All guns leave a different trade mark which are composed of 4 parts of the gun. The things to look at are gun powder, cartridge case, the bullet, and the primer. The thing that contains the bullet is the cartridge case and if you look at it under a microscope and compare the one from the crime scene to the one that the expert fired, there were differences on the tool marks left on the surface.

After examining the crime scene cartridge and the ones used from the suspect's gun, he concluded that they did not have similarities nor held the same bullet.

The bullet casings were not the same, meaning it was not the same gun used in the crime committed.

Cartridges should match their firearm, and in this case the shell (ammunition) did not match that of the weapon.

The expert described his process for identifying and more importantly comparing two bullet cartridges by using high tech microscopes essentially, so what he meant is that when viewed by his microscope process, the bullet cartridges were not the same.

He was looking at the primer to see if a test shot from the same gun used by the perpetrator would yield the same cartridge case as ones found at the crime scene.

The bullets and the way they were fired were not the same as the ones that were on the ground. Plus it was an issue more of the cartridge, the container, than it was about the bullets themselves.

Because they weren't the right size for the right gun.

That the marks as well as what happens to the cartridge after fired were not similar.

The case that he fired from the gun of the suspect's and the one that was found at the crime scene did not match.

The gun and the cartridge were different.

He meant that a gun leaves certain imprints on the cartridge case when the gun is fired. After examining the two cartridge cases (the one at the scene of the crime and the one from the suspect's gun), he noted that the two did not match imprints.

That the markings on the cases were not the same as the ones that the pin they had made.

He tested them and fired them on his own and with using microscopes and other things and determined that the suspect's gun did not match the gun found on the scene.

They weren't the same meaning it was incorrect.

There were different cases.

This means that the cartridge cases, that most people know as bullets, did not match the gun of the suspect, so the suspect is not guilty.

The bullet found did not match the type of bullets that fit into that specific gun.

The inside component of the firearm had an effect on the case that did not coincide with the markings of the cartridge cases found at the crime scene. Meaning that likely that firearm specifically was not used during this altercation.

He looked at the cases which are the outer shell. He tested the gun found on the suspect and used a microscope to compare the suspect's cartridge and the cartridge found at the crime scene. When comparing them he found that they weren't the same as the evidence he found.

After firing the weapon in the same manner that was suspected of the suspect and examining the cases that housed the bullet, he found that the effects of the bullet discharge upon the cartridges were different than those found at the scene of the crime.

The cartridge case from the crime scene didn't match the cartridge case that the firearms expert conducted from the suspect's gun.

After inspected thoroughly (& under a microscope), it was determined that the associated cartridge cases (the one found on scene and the one from the suspect's firearm) did not show any signs of being originally associated/linked together.

The markings on the cases did not correspond with the markings on the other cartridge cases. This means that they were not from the same thing.

That means that through his experiments of comparing the cases from the crime scene to the case of the suspect that it did not match. When comparing, he looks at the type, the style, and markings on the cartridge cases made by the gun. He fired the suspect's gun and investigated the cases with a microscope and compared the markings made by the gun and certain characteristics that would be with this specific gun. When getting the results from the cartridge cases from the scene and the suspect, he was able to see that the cartridge cases had different characteristics; therefore, a different gun was used at the crime scene.

The markings on the bullet found at the scene are different from the suspect's gun.

The cartridge cases for the gun did not match the one from the scene.

He meant that the bullets found did not match the gun that was used in the murder.

He tested the cartridge and it didn't fire the same. Something with the fire and powder that was not like the one that was used at the crime scene.

The cartridge case that held the bullets for the suspect's gun was not similar enough to be linked to the cartridges found at the crime scene.

The gun bullets from the cartridge case did not match from what the guns were firing.

I accidentally skipped the reading section and I am not able to return to the page so I do not know. [a]

The outer cartridge found at the scene, which is one of four parts of the "bullet," did not match the test fired gun.

The outside surface of the two cartridges did not have the same markings that would be present if they were each fired by the same gun.

The "bullet" from the scene did not match those from the gun found.

The characteristics of the cartridges did not match so they were not the same type of cartridge.

The markings on the bullets and cartridge did not match, meaning that the cartridges did not come from the gun that was found on the suspect.

They didn't have the same markings from the gun.

When looking under a specific type of microscope, he did not find that the cartridge cases matched. The cartridge cases are the outer "shell" of the bullet.

The characteristics of the cartridge case at the scene to the one they took from the suspect's gun didn't match.

He meant that when they fired the suspect's gun and compared the cartridges, they were not the same as the ones found in the crime scene.

The markers that were imprinted on the case as a result of firing did not match the cartridge cases found at the convenience store; therefore, it is not likely the same gun used in the murder.

He meant that the cartridge from the gun used did not match the cartridge of the gun that the suspect had.

The cases found on the scene of the crime did not match the cases of the weapon of the suspect. This means that according to the expert, the weapon that the suspect had was not the weapon used in this robbery.

He compared the two cartridges under a microscope and saw they didn't match. The case and details about the cartridges did not match.

He compared the cartridge found at the crime scene with the ones in the lab and found similarities between them. [a]

When he examined the cartridges from the scene and those shot from the weapon taken from the suspect, the indentations that occur from the inside of the gun when shot were not the same on the cartridges.

The markings from the cartridge cases found at the crime scene did not match the markings found on the cases that the expert fired from the gun brought to him from the apprehended suspect.

He meant that the patterns when the two cartridges were compared to one another did not match. This can be used because every gun fires differently, and so this can be an important characteristic of evidence for crime scenes.

That the cartridges did not have the same marks from the suspect's gun after firing.

The markings on the case from shooting did not match the gun cartridges found on the suspect.

When he examined them under a microscope to look at if the characteristics and class matched. He looked at the style and shape of the pins. He was looking at the surface of the cartridges and found that they did not have similar enough markings to come from the gun used at the scene of the crime.

The markings on the cartridges found at the scene and the markings on the cartridges fired from the gun carried by the suspect were not the same.

The tools he used show that the markings weren't the same.

It means that the bullets didn't come from the same gun.

When he examined the cartridge cases, he examined the outside part of the bullet. When he compared them, the markings on the cases did not match after doing the tests.

The cartridge that was shot by the suspect's gun was not the same type of cartridge found at the crime scene. They did not have the same parts to it.

When fired from the same gun they reacted differently; therefore they are not the same.

This means that either the tool marks left by the supposed weapon did not match the tool marks left on the casings found at the scene of the crime. Or possibly the calibers are different.

He compared all aspects of the cartridge cases, and it just so happened that one of the aspects didn't match up with the murder cartridges.

The expert said that the cartridge cases did not match because he analyzed the cartridge from the scene and a cartridge from a gun he test-fired and they did not have similar markings. Therefore there is no way that the cartridge came from the same gun.

The cartridge cases of information did not match each other with the firearms expects.

By that, he meant that the markings on the cases found at the crime scene and the markings found on his test shots did not match.

It wasn't the same kind of case.

The bullet case didn't match the bullets.

The bullets that were used and cartridges that were found did not match. (They were different sizes.)

Inconclusive condition

He gave a long-winded explanation as to why the comparisons were too difficult to make. [b]

The expert could not determine whether the cartridge cases came from the same gun used at the crime scene. [b]

It means that there was no decisive evidence that the gun that the suspect had on him was the same gun used in the murder. [b]

The firearms expert meant that there was no way that he would be able to tell the type of gun that was fired. [b]

When he looked for clues and matches, some information could support the argument, but there was not enough to firmly give a standpoint. [b]

They were inconclusive because they were unable to determine whether or not the cartridge cases were the same as the ones found in the convenience store. [b]

The test case and the actual case found at the scene did not match.

That he could neither deny or prove that the cartridges were a match. [b]

The cartridges cannot lead to a firm conclusion. [b]

When looking at both cartridges simultaneously under the microscope, there was not enough clear evidence to prove the cartridge found on the crime scene and the cartridge fired for testing came from the same gun. Therefore, the evidence was inconclusive or, not resulting in fact/evidence to be used. [b]

That there was not any evidence that could be recovered based on the bullets found at the scene. [b]

He was unable to tell if the cartridge cases were the same as the ones used in the crime. [b]

He was unable to identify if the cartridge cases found at the crime scene were from the same gun and person as the suspect. [b]

The two cartridge cases didn't match.

They couldn't tell anything from it. [b]

He could not find any results from the cartridges. [b]

By this, he means they were not completely the same and he could not say for sure that the suspect's gun matched the bullets that murdered the lady. Inconclusive still leads him to doubt. [b]

He did not find a comparison with the gun the suspect had and the gun that was tested.

The bullets in the magazine didn't identify the gun, the owner, or how many shots were shot.

They were not an exact match, so they could not say if it was the gun that fired the shots. [b]

He was unable to come to a conclusion on whether or not the markings on the cartridge case from the crime scene and the markings from the cartridge scene in his tests had any relation. [b]

They could not close the case. [b]

He meant that while there might be similarities, they may not suggest anything significant. [b]

It's hard to match without evidence of video etc.

When examining the cartridge, the expert compared cartridges from the gun used on the robbery and a gun similar to the one used in the robbery. After he had examined them with the microscope that allowed him to examine the cartridges at the same time and what he found was not sufficient enough for him to make a final decision. [b]

He could not physically prove the cartridges matched, but still thinks they are related somehow. He doesn't know for sure. [b]

That the results from the cartridges did not give any helpful evidence to the case. [b]

They were not able to tell if the casings were from his gun. [b]

They did not match to the ones found at the scene of the crime.

They were not conclusive, didn't conclude everything needed. [b]

The used cartridges found at the crime scene did not match or show any evidence that the gun found on the suspect was the same weapon used at the crime scene.

He did not find enough evidence of markings or similarities to conclusively state whether the cartridges were the same. [b]

There was no link between the characteristics of the cartridges found at the crime scene and the cartridges fired at the lab.

The firearms expert meant that what he found on the cartridges that he set off with the gun found had no comparison or correlation to the cartridges found at the crime scene.

NA

That the cartridge cases weren't together.

When he compared the cartridge casings fired from the gun in the murder and fired from the gun in the lab, he could not match the markings on the cartridge casings. This means that there was either damage or other wear and tear to the cartridge casings that make it difficult to accurately tell if both cartridge cases came from the same gun. There is no way to tie the suspect to the crime scene by comparing cartridge cases from the gun. [b]

He could not confirm the casings found at the scene came from the test gun. [b]

The cartridge cases did not give them a conclusion and did not put a stop to their investigation. [b]

The cartridge could be from the suspect's gun but it also could have been from someone else that has that same gun with the same bullets.

The cartridges don't show any small details on which gun it came from. It could have come from any bullet of any kind. [b]

He could not find any evidence that they were from the same gun nor could he rule out that they were from the same gun. [b]

He did not find conclusive evidence that said that the cartridges from that gun were the same as the cartridges found at the crime scene. [b]

He was not able to tell whether or not the cases fired had matched the ones that belonged to the gun that the robber used. [b]

He could not tell with confidence whether the gun recovered from the suspect was the same gun used in the murder at the convenience store. [b]

It meant that you cannot determine anything from simply looking at the cases. There were enough reasons to rule it as hard evidence. [b]

He meant that he was not able to say one way or another that the suspect's gun was the one used in the commission of the crime. [b]

He meant that by comparing them through his comparison microscope, he could not tell that markings on the bullet were the same markings created on bullets from the suspect's gun. [b]

He was unable to match the cartridge from the murder scene to the ones produced by the suspect's gun.

That the expert could not clearly and confidently state that the cartridge cases matched the tested ones. [b]

They did not provide any useful information. [b]

He did not have sufficient evidence. [b]

The cartridge was not placed correctly and did not match.

I'll be honest. I accidentally hit the "next page" button too quick and didn't know there wasn't going to be a "back" button so I definitely messed that one up. [a]

He fired cartridges from the suspect's gun, and compared these to the ones found at the crime scene, and could not make a good enough comparison to conclude that both cartridges were fired from the same weapon. [b]

When looking at the cartridge from the scene and the ones he shot himself under the microscope, they didn't look enough alike to determine they are the same.

He could not tell if the cartridge cases at the crime scene matched the suspect's cartridge cases. [b]

I think he meant that there are parts of a cartridge that are universal or similar in other cartridges and that there's no real way to see if the cartridge matches the one in the gun used at the murder scene. [b]

That the cartridge cases were unknown of how they got into the murderer's hands.

The firearms expert means that the cartridges found at the scene were not also identified as the same cartridges used for the gun found on the suspect. This means that those cartridges were not the same and the results were inconclusive. [b]

The cartridges didn't match up completely, but there were some similarities. [b]

It can be a coincidence.

After going through an extensive examination of the two cases, the results he found could not be proven that the cartridge cases found at the crime scene were the ones from the gun found on the man.

His statement meant that the cartridge cases were not successfully identified and allocated to cause.

He could not find enough evidence that could either prove or not prove that the cartridge cases from the gun used in the crime and the cartridge cases from the suspect's gun were the same. [b]

He did not want to make a decision that would conclude if the two cartridges that were found were from the same gun. [b]

He was unable to conclusively see any similarity between the casing characteristics between cases found at the scene and those released from the suspect's gun when fired on a separate occasion. [b]

The entire cartridge was not there; therefore, you could not narrow down what type of cartridge it was based on the evidence given. [b]

Upon examination of the two cartridges, he could not tell a significant difference between the two.

When the firearms expert said that the cartridge cases were inconclusive, he meant that when looking at the shell casings that were found at the crime and the shell casings that came from the gun found on the suspect, he could neither confirm or deny that they were the same. [b]

He meant that the cartridge case from the suspect's gun didn't match the cartridge cases found at the site of the crime.

Meaning he could not tell what kind of gun they came from. [b]

He meant that there was no specific evidence to match the cartridges at the scene to the gun on the alleged perpetrator.

He could not find enough similarities between the cartridges at the scene and the cartridges in his test fire to definitely say they were shot from the same gun. [b]

I did not understand what he was trying to say.

The cases found at the scene and the cases that he collected did not match up. Therefore resulting in inconclusive evidence. [b]

He compared the firearm cartridge from the crime scene and the firearm cartridge from the suspect. He was saying that there was not enough evidence to determine if the cartridges were the same. [b]

It means that there was not enough evidence to prove that the cartridge was the same. [b]

He could not 100% conclude that the firearm that was confiscated from the suspect was the same firearm that was used in the robbery and murder. Which means that there were not enough similar characteristics between them. [b]

There wasn't enough evidence. [b]

That they did not match and were not valid evidence.

The things seen at the scene and by the witness did not match up with what was expected, and they couldn't tell exactly what was occurring, so the results had to be inconclusive because they didn't know either way. [b]

That there were not enough similarities or differences between the cartridge found at the crime scene and the test fired cartridge to prove or disprove that the tested gun is the same gun used in the crime. [b]

The firearm had to be reloaded in a special way.

He found that the cartridge from the crime and the cartridges from his test were not the same and it was too hard to tell if they were similar.

He had no conclusion as to whether or not the cartridges matched. [b]

When he compared the two cartridges, the one found at the scene and ones that they fired using the suspect's gun, he did not have enough evidence to prove that this was the same gun used to kill the victim because when he used the microscope, he could not see enough identifying features on the cartridges to match them to the same gun. [b]

He was unable to accurately and conclusively determine whether the cartridge cases he test fired were the exact same cartridge cases found at the crime scene. [b]

He was unable to identify without a doubt that the cartridge cases from the scene matched the cartridge cases from the firearm from the suspect. [b]

That the casings did not match up.

Meaning that when examining the cases from the bullet form the gun found on the suspect, they did not match the ones found at the crime scene.

There are qualities or components of a cartridge case that help identify it and in some cases this is enough to compare it to another cartridge case, but for this it was not enough. [b]

When comparing the cartridges side-by-side of those from the crime and those fired from the suspect's gun, the firearms expert could not say there was enough evidence to prove the gun was the one used in the crime. [b]

Nothing was proven; he hasn't come to a conclusion that the cartridges matched or were different. He is still investigating. [b]

The cases weren't for talking about.

He meant that he could not say definitively whether or not the cartridges found at the crime scene came from the gun found on the suspect. [b]

The cartridges found at the crime scene and the cartridges fired from the suspect's weapon did not allow a conclusion to be made. [b]

It meant that the tests that were done in order to match the weapon found on the potential suspect were either not close enough in results or, did not match at all. Therefore making the results inconclusive. [b]

He could not determine that the cartridge cases matched the ones used in the gun that the supposed perpetrator used in the murder. [b]

The spent cases from the scene and the cases fired from the expert didn't have enough similarities to prove that the gun found on the suspect was the gun used in the killing.

The firearms expert meant that he could not decisively, based on the data he collected and found, say whether or not that the gun in question is the same one used in the crime. [b]

He examined cartridges found at the scene of the crime and cartridges from the gun that was found on the suspect. He studied them through a microscope side by side. There were similarities between the two cartridges, but also uncertainties. Thus, the comparison between the two yielded no proof that the cartridges were the same. [b]

The firearms expert was unable to determine, from the evidence presented, if the bullets from the suspect's gun matched the bullets of the gun used in the crime. [b]

He means that there was not enough 100% evidence to say the cartridges matched. [b]

The cartridge cases that were found at the scene are not able to identify a suspect because they did not match what cartridge cases would be used with the gun.

There was not sufficient evidence that the cartridge from the acquired gun had the same markings on it as the cartridge from the crime scene. [b]

The cartridge did not have enough evidence to conclude anything. [b]

They were inconclusive due to the fact that they had similar markings but unsure if they were caused by being fired from the gun or from tools. [b]

He meant that there was not enough significant evidence on the cartridges for evidence to be conclusive. [b]

He did not find similar markings on the cartridges when he fired from the suspect's gun compared to the cartridges on the scene.

He meant that he was unable to confirm or deny the absolute fact on whether the evidence came from the firearm that was presented to him. [b]

It means they never found the murderer or didn't have any further information to continue the case.

There was not enough evidence to match the cartridge cases that were left at the scene of the crime to the gun found on the suspect. [b]

The cartridge cases found at the crime scene did not match those fired from the gun.

The bullet was not in one piece.

He could not get enough information from the crime scene cartridge to compare it to the one in the lab with 100% certainty. [b]

This means that the cartridge cases had no DNA on them.

He meant that he could not confirm or deny with the tests he conducted that the cartridges were fired from the same gun. [b]

The evidence they found did not match.

There was no conclusion made to whether or not they were the same that were fired in the crime. [b]

He can't say they for sure came from the same gun, but he also can't say they didn't. [b]

The woman who was involved was testing out the cartridge cases. And the cartridge cases did not match the one she used?

He means that he couldn't come to a conclusion on whether or not the cartridges from the suspect's gun were the same cartridges from the crime scene. There was a dispute in the evidence. [b]

That he could not get a correct, or exact match on determining if the cartridges found at the crime scene were the same as the suspect's gun. [b]

He meant that the cartridge cases could've matched the ones at the crime scene or they didn't. He wasn't sure. He didn't find any conclusive marks on the cases. [b]

He was unable to find conclusive evidence suggesting that the cartridge case found at the crime scene was the same as a cartridge case fired from the suspect's firearm. [b]

That he could not find much evidence that concluded that the firearm found shot those rounds or not. [b]

He could not clearly identify if the markings on the cartridges found at the convenience store after the murder/robbery were the same as the cartridges from the found gun. [b]

He meant that he did not find enough information on the cartridge casings found at the scene and the ones that he fired from the suspected murder weapon to draw a conclusion that this gun was used in the murder. [b]

The markings that were left on the test sample of bullet cartridges were not so similar to the ones from the crime scene that it can be said without reasonable doubt that the cartridge cases were fired from that type of gun. [b]

He could not find comparisons in the marks left on the cartridge cases of the suspect's gun to that of the cartridge cases left at the crime scene. Therefore, the evidence comparing the suspect's gun to the gun used in the crime are inconclusive. [b]

That they were not able to be used they were unable to get any type of evidence from them. [b]

He basically said that the cartridge that was found in the crime scene and the one that was created by firing the gun from the suspect did not match. He came to this conclusion because he made several comparisons in order to find out whether the cartridges were similar or not.

He meant that his findings did not lead him to an answer of whether or not the firearm apprehended from the suspect was the one used during the time of the crime to kill the victim or not. [b]

There was not evidence to suggest that the cartridges found at the crime scene did or did not match the cartridges found from the suspect's gun. [b]

He meant that after examining them both under the microscope, he could not find enough similarities between the two cartridge cases to conclude they were from the same gun.

When comparing the fired cartridge cases at the crime scene, and the ones that the firearms expert produced, he was unable to deny or confirm if they were a match. [b]

He meant that the firearms were not planned to be used, that they were more to intimidate.

He was unable to find enough evidence to suggest that the cartridges found at the scene of the crime matched those found with the gun the suspect had. [b]

The shells found at the crime scene did not match the shells produced when testing the suspect's firearm.

In comparing the cartridge cases from the scene and from the suspect's gun, the expert couldn't tell if the two were the same or not. [b]

They didn't lead to an exact person.

Inconclusive does not mean that they were not similar. It can mean that the areas examined could not be determined to be similar, or there were other aspects in the way. Inconclusive means that he could not 100% say that the 2 cartridges were of the same gun. [b]

This means that the firearms expert could not say without a doubt that the cartridge cases were from the same gun but he also couldn't say without a doubt that they weren't. [b]

The cartridge cases were not able to be identified as evidence. [b]

Means that the cartridges are not enough to confirm who shot it. [b]

Could not be specifically named. [b]

They did not have all the evidence. [b]

The matching of the cartridge from the crime scene and the cartridge from the suspect matched, but when tested if they were the same it was inconclusive. [b]

They weren't able to gather them for evidence.

The cartridges that were shot from the gun that they took from the suspect were not clear as to whether they could've been shot from the same gun as the murder weapon. [b]
The markings on the bullet shells of the suspect's gun do not match the markings on the evidence bullet shells.
In my opinion, the expert could not make a correlation between the cartridges found at the crime scene with the ones found on the suspect. [b]
He was unable to conclude whether or not the bullets found in the suspect's gun matched the gun/bullets that killed the victim. [b]
He could not tell if the cartridge cases were the same from the ones from the gun found at the scene to the gun they had in custody. [b]
They could not determine if the cartridges matched or did not match. [b]
He was unable to decipher if the cartridge cases came from the weapon of the suspect. [b]
He could not verify if the cartridges matched nor did not match the suspect's cartridges. [b]
Basically, the firearms experts meant that, after they observed and compared the cartridges from the crime scene with the ones shot from whom they potentially thought was the murderer, it was said that the case came inconclusive, because the cartridges did not match. [b]

Note. Open-ended responses were corrected for minor typos.

[a] = failed manipulation check. [b] = coded as indeterminant.

Table S2

Experiment 1: Effect of Forensic Evidence (Identification vs. Elimination vs. Inconclusive) on Legal Judgments

Dependent variable		*df*	*F*	*p*	η^2	90% CI for η^2
Interpretation of the firearm expert's forensic decision	Between groups	2	286.44	<.001	0.54	0.49, 0.58
	Within groups	489				
	Total	491				
Perception of the case evidence	Between groups	2	90.26	<.001	0.27	0.21, 0.32
	Within groups	489				
	Total	491				
Perceived source of the recovered cartridge cases	Between groups	2	168.09	<.001	0.42	0.36, 0.46
	Within groups	473				
	Total	475				
Perceived probability of the suspect's guilt	Between groups	2	114.94	<.001	0.32	0.27, 0.37
	Within groups	479				
	Total	481				

Note. We calculated η^2 and its 90% confidence interval (CI; Steiger, 2004) with a script developed by Wuensch (2020).

Table S3

Experiment 2: Common Hypothesis (ID > (IN ≤ ≥ UN) > EL)

Hypothesized process	Theoretical reasoning
Confirmation bias	The identification condition will produce the most incriminating legal judgments because a clearly inculpatory forensic decision confirms a presumption of guilt more strongly than do forensic decisions that are clearly exculpatory, inconclusive, or unsuitable.
	The elimination condition will produce the least incriminating legal judgments because a clearly exculpatory forensic decision disconfirms a presumption of guilt more strongly than do forensic decisions that are clearly inculpatory, inconclusive, or unsuitable.
Communication error	The identification condition will produce the most incriminating legal judgments because clearly inculpatory forensic decisions communicate guilt more plainly than do clearly exculpatory, inconclusive, and unsuitable forensic decisions.
	The elimination condition will produce the least incriminating legal judgments because clearly exculpatory forensic decisions communicate innocence more plainly than do clearly inculpatory, inconclusive, and unsuitable forensic decisions.
Perceptual accuracy	The identification condition will produce the most incriminating legal judgments because people accurately intuit that clearly inculpatory forensic decisions possess more inculpatory probative value than do clearly exculpatory, inconclusive, and unsuitable forensic decisions.
	The elimination condition will produce the least incriminating legal judgments because people accurately intuit that clearly exculpatory forensic decisions have more exculpatory probative value than clearly inculpatory, inconclusive, and unsuitable forensic decisions.

Note. Common hypothesis: Clearly inculpatory forensic decisions produce highly incriminating legal judgments, clearly exculpatory forensic decisions produce highly exonerating legal judgments, and inconclusive and unsuitable decisions produce legal judgments that fall between these extremes. The results of Experiment 2 would support this hypothesis if the identification (ID) condition produced the most incriminating legal judgments, the elimination (EL) condition produced the least incriminating legal judgments, and the inconclusive (IN) and unsuitable (UN) conditions produced intermediate legal judgments.

Table S4

Competing Hypotheses 2–4: (IN > UN) vs. (IN = UN) vs. (IN < UN)

Hypothesized process	Hypothesized patterns and theoretical reasoning
Confirmation bias: IN > UN	**Hypothesis 2:** The inconclusive condition will produce more incriminating legal judgments than the unsuitable condition because inconclusive decisions, which convey that a suspect or defendant might be guilty, confirm a presumption of guilt more strongly than do unsuitable decisions, which convey neither innocence nor guilt because of their lack of probative value.
Communication error: IN = UN	**Hypothesis 3:** The inconclusive and unsuitable conditions will produce equivalent legal judgments because legal decision-makers draw on lay definitions of the word "inconclusive" to infer that inconclusive decisions possess no more probative value than do unsuitable decisions, which lack probative value.
Perceptual accuracy: IN < UN	**Hypothesis 4:** The inconclusive condition will produce less incriminating legal judgments than the unsuitable condition because legal decision-makers accurately intuit that inconclusive decisions possess more exculpatory probative value than do unsuitable decisions, which lack probative value.

Note. IN = inconclusive; UN = unsuitable.

Table S5

Experiment 2: Effect of Experimental Manipulation (Identification vs. Elimination vs. Inconclusive vs. Unsuitable vs. No Forensic Evidence) on Legal Judgments

Dependent variable		*df*	*F*	*p*	η^2	90% CI for η^2
Interpretation of the firearm expert's forensic decision [a]	Between groups	3	201.50	<.001	0.43	0.39, 0.47
	Within groups	792				
	Total	795				
Perception of forensic evidence [a]	Between groups	3	103.78	<.001	0.28	0.24, 0.32
	Within groups	790				
	Total	793				
Perception of the eyewitness evidence	Between groups	4	3.89	.004	0.02	0.00, 0.03
	Within groups	989				
	Total	993				
Perception of proximity evidence	Between groups	4	7.83	<.001	0.03	0.01, 0.05
	Within groups	988				
	Total	992				
Perceived case strength	Between groups	4	52.00	<.001	0.17	0.14, 0.21
	Within groups	989				
	Total	993				
Perceived source of the recovered cartridge case [a]	Between groups	3	126.86	<.001	0.33	0.29, 0.37
	Within groups	766				
	Total	769				
Perceived probability of the suspect's guilt	Between groups	4	61.88	<.001	0.20	0.16, 0.23
	Within groups	982				
	Total	986				

Note. We calculated η^2 and its 90% confidence interval (CI; Steiger, 2004) with a script developed by Wuensch (2012).

[a] This question was not presented to participants in the no-forensic-evidence condition.

Table S6

Experiment 2: Two One-Sided Tests

Comparison	*df*	*t*	*p*	*d*	95% CI for *d*
Interpretation of the firearm expert's forensic decision [a]					
IN vs. UN	394	–4.17	<.001	0.08	–0.12, 0.28
Perception of the forensic evidence [a]					
IN vs. UN	393	–2.65	.004	0.23	0.04, 0.43
Perception of the eyewitness evidence					
IN vs. UN	393	4.04	<.001	0.09	–0.29, 0.10
IN vs. NF	397	–4.06	<.001	0.09	–0.10, 0.29
UN vs. NF	396	–3.08	.001	0.19	–0.01, 0.39
Perception of the proximity evidence					
IN vs. UN	393	4.07	<.001	0.09	–0.29, 0.11
IN vs. NF	397	–4.39	<.001	0.06	–0.14, 0.26
UN vs. NF	396	–3.44	<.001	0.15	–0.04, 0.35
Perception of the case strength					
IN vs. UN	393	–4.31	<.001	0.07	–0.13, 0.26
IN vs. NF	397	–4.88	<.001	0.01	–0.18, 0.21
UN vs. NF	396	4.43	<.001	0.06	–0.25, 0.14
Perceived source of the recovered cartridge cases [a]					
IN vs. UN	392	4.62	<.001	0.03	–0.23, 0.16]
Perceived probability of the suspect's guilt					
IN vs. UN	392	3.60	<.001	0.14	–0.33, 0.06
IN vs. NF	396	–4.00	<.001	0.10	–0.10, 0.30
UN vs. NF	394	–2.64	.004	0.23	0.04, 0.43

Note. Comparisons were performed with an equivalence test spreadsheet developed by Lakens (2017). We calculated the 95% confidence interval (CI) for Cohen's *d* using a calculator by Uanhoro (2017). IN = inconclusive condition; UN = unsuitable condition; NF = no-forensic-evidence condition.

[a] This question was not presented to participants in the no-forensic-evidence condition.

References

Lakens, D. (2017). Equivalence tests: A practical primer for *t* tests, correlations, and meta-analyses. *Social Psychological and Personality Science*, *8*(4), 355–362. https://doi.org/10.1177/1948550617697177

Steiger, J. H. (2004). Beyond the *F* test: Effect size confidence intervals and tests of close fit in the analysis of variance and contrast analysis. *Psychological Methods*, *9*(2), 164–182. https://doi.org/10.1037/1082-989X.9.2.164

Uanhoro, J. O. (2017). *Effect size calculators*. https://effect-size-calculator.herokuapp.com/

Wuensch, K. L. (2020). *Using SPSS to obtain a confidence interval for Cohen's d*. https://core.ecu.edu/wuenschk/spss/T-SPSS.pdf

Appendix A

Case Summary (Experiment 1)

A female convenience store clerk was murdered during the course of a robbery. No surveillance video was available. A bystander witnessed the crime, but did not get a good look at the perpetrator's face. Police found several fired cartridge cases at the scene of the crime. These cartridge cases were sent to a firearm expert for examination. The police later apprehended a suspect and found a gun on him. The police sent the gun to the firearm expert. The firearm expert fired the suspect's gun several times, collected the cartridge cases, and compared them to the cartridge cases found at the crime scene. The critical evidence in this case was the firearm expert's decision about whether the cartridge cases fired from the suspect's gun matched the cartridge cases found at the crime scene.

The following is an excerpt from the firearms expert's testimony given at the trial:

"…In this case, I was asked to examine fired cartridge cases recovered from the scene of the crime. A cartridge case is one component of a cartridge, a modern unit of ammunition. Lay people may refer to this as a bullet—but this is actually a cartridge. The cartridge is made of four separate components: a cartridge case, which is the outer container, the bullet itself, which is loaded in the front of the cartridge case, the gunpowder, which is inside the cartridge case, and in the back portion is the primer. The primer is initiated by the firing pin of the firearm and combusts on the inside of the cartridge case. A flame that is produced by the primer ignites the gunpowder. Then, the bullet is forced down the barrel and out of the gun, firing it.

When examining components of a fired cartridge case, I first examine the class characteristics, those which are design features that limit something to a smaller group. Class characteristics in firearms identifications are most commonly encountered in regard to the caliber of the ammunition and the design specifications that are observed on different components, including the style and shape of the firing pins, the location of extractors and ejectors, the internal workings of the firearm, the breech face surfaces—these are all class characteristics. I examine the fired cartridge cases to find marks of potential value for comparison purposes.

In the course of examining these items and finding marks of potential value for comparison purposes, I compare the cartridge case or cases found at a crime scene to cartridge cases that I test fired from a gun that is thought to have been used in the commission of the crime. I make this comparison with a comparison microscope. A comparison microscope is an instrument that has two microscopes linked by an optical bridge that affords me the opportunity to view two cartridge cases simultaneously. On one half of the microscope, I inspect the surface of a cartridge case found at the crime scene. On the other half, I inspect the surface of a cartridge case fired from the suspect's gun. I can then look at the surfaces and find areas that either may or may not correspond. I am looking for toolmarks left by the internal components of the source gun to try to determine if there is a relationship between the cartridge case from the crime scene and the ones from the suspect's gun that I test fired. The amount of information present may be sufficient for conclusive findings, or it may not be sufficient.

MANIPULATED FORENSIC DECISION:

In the course of examining these items, my findings were that the cartridge cases match.
In the course of examining these items, my findings were that the cartridge cases did not match.
In the course of examining these items, my findings were inconclusive.

Appendix B

Crime Report (Experiment 2)

ILLINOIS INTERNAL RECORDS **INCIDENT/INVESTIGATION REPORT**

Initial **X** Follow-up ☐ Arrest ☐ Insurance Report ☐

AGENCY:	IDENTIFIER NO.:	OCA FILE NO.:	CASE NO.:
Chicago Police Dept.	**IL 0122110**	**34958340**	**06-0754**

OFFENSE(S) CODE OR STATUTE:	REPORTING OFFICER: **D. Young**
1. **Armed robbery; Second degree murder**	ASST. OFFICER: **K. Brown**

REPORTED:	OCCURRED FROM:	OCCURRED TO:
6 / 8 / 17	**6 / 8 / 17**	**6 / 8 / 17**
Time **2239**	Time **2230**	Time **2240**

EXACT LOCATION OF CRIME:
1114 W Argyle St, Chicago, IL 60640

LOCATION CODE

1. Air/Bus/Train	8. Department/Discount Store	15. Lake/Waterway
2. Bank/Savings & Loan	9. Drug Store/Dr. Office	16. School
3. Bar/Night Club	10. Field/Woods	17. Parking Lot/Garage
4. Church/Synagogue	11. Government/Public Building	18. Other/Unknown
5. Commercial/Office Building	12. Highway/Road/Alley	
6. Construction Site	13. Hotel/Motel	
7. Convenience Store	14. Jail/Prison	Enter #: **7**

SUSPECT INFORMATION

NAME: **Sam Kimak**

RACE/ETHNICITY:	SEX:	AGE:	HT:	WT:	HAIR:
White	**M**	**23**	**6'1"**	**200**	**BLK**

RESIDENCE: [redacted]

DL / I.D. NO.:	SOCIAL SECURITY NO.:	PHONE NO.:
[redacted]	[redacted]	Home [redacted]

NARRATIVE

A 911 call was received reporting shots fired. Officers arrived to the scene at 10:51 pm and began investigating. A woman's body was found with three gunshot wounds to the chest at the J & A Convenience Store on the corner of W Argyle St and N Winthrop Ave. Victim was pronounced dead at the scene. Victim was taken to the medical examiner for further examination. (Cartridge cases from a firearm were recovered from the scene.) A witness reported a tall man in his early 20s fleeing from the scene. Suspect was described as wearing a dark hoodie and jeans.

About an hour later, the responding officer spotted a man in his early 20s with dark hair, wearing jeans and a dark hoodie approximately 4 blocks from the convenience store. Upon questioning, the man identified himself as Sam Kimak. Kimak claimed to be taking a walk. (When asked by the officer if he owned a weapon, Kim stated he owns a 9mm handgun.) Kimak was then taken into custody as a suspect. Witness was shown Kimak, who was sitting in the back of the police cruiser. Witness identified Kimak as the man fleeing the crime scene and reported being 50% confident that he was the one she had seen.