

**Text 1**

Dominique Potvin and colleagues captured five Australian magpies (*Gymnorhina tibicen*) to test a new design for attaching tracking devices to birds. As the researchers fitted each magpie with a tracker attached by a small harness, they noticed some magpies without trackers pecking at another magpie's tracker until it broke off. The researchers suggest that this behavior could be evidence of magpies attempting to help another magpie without benefiting themselves.

**Text 2**

It can be tempting to think that animals are deliberately providing help when we see them removing trackers and other equipment from one another, especially when a species is known to exhibit other cooperative behaviors. At the same time, it can be difficult to exclude the possibility that individuals are simply interested in the equipment because of its novelty, curiously pawing or pecking at it until it detaches.

Based on the texts, how would the author of Text 2 most likely respond to the researchers' perspective in Text 1 on the behavior of the magpies without trackers?

- A. That behavior might have been due to the novelty of the magpies' captive setting rather than to the novelty of the tracker.
- B. That behavior likely indicates that the magpies were deliberately attempting to benefit themselves by obtaining the tracker.
- C. That behavior may not be evidence of selflessness in *Gymnorhina tibicen* because not all the captured magpies demonstrated it.
- D. That behavior might be adequately explained without suggesting that the magpies were attempting to assist the other magpie.

## Text 1

The fossil record suggests that mammoths went extinct around 11 thousand years (kyr) ago. In a 2021 study of environmental DNA (eDNA)—genetic material shed into the environment by organisms—in the Arctic, Yucheng Wang and colleagues found mammoth eDNA in sedimentary layers formed millennia later, around 4 kyr ago. To account for this discrepancy, Joshua H. Miller and Carl Simpson proposed that arctic temperatures could preserve a mammoth carcass on the surface, allowing it to leach DNA into the environment, for several thousand years.

## Text 2

Wang and colleagues concede that eDNA contains DNA from both living organisms and carcasses, but for DNA to leach from remains over several millennia requires that the remains be perpetually on the surface. Scavengers and weathering in the Arctic, however, are likely to break down surface remains well before a thousand years have passed.

Which choice best describes how Text 1 and Text 2 relate to each other?

- A. Text 1 discusses two approaches to studying mammoth extinction without advocating for either, whereas Text 2 advocates for one approach over the other.
- B. Text 1 presents findings by Wang and colleagues and gives another research team's attempt to explain those findings, whereas Text 2 provides additional detail that calls that explanation into question.
- C. Text 1 describes Wang and colleagues' study and a critique of their methodology, whereas Text 2 offers additional details showing that methodology to be sound.
- D. Text 1 argues that new research has undermined the standard view of when mammoths went extinct, whereas Text 2 suggests a way to reconcile the standard view with that new research.

**Text 1**

Despite its beautiful prose, *The Guns of August*, Barbara Tuchman's 1962 analysis of the start of World War I, has certain weaknesses as a work of history. It fails to address events in Eastern Europe just before the outbreak of hostilities, thereby giving the impression that Germany was the war's principal instigator. Had Tuchman consulted secondary works available to her by scholars such as Luigi Albertini, she would not have neglected the influence of events in Eastern Europe on Germany's actions.

**Text 2**

Barbara Tuchman's *The Guns of August* is an engrossing if dated introduction to World War I. Tuchman's analysis of primary documents is laudable, but her main thesis that European powers committed themselves to a catastrophic outcome by refusing to deviate from military plans developed prior to the conflict is implausibly reductive.

Which choice best describes a difference in how the authors of Text 1 and Text 2 view Barbara Tuchman's *The Guns of August*?

- A. The author of Text 1 argues that Tuchman should have relied more on the work of other historians, while the author of Text 2 implies that Tuchman's most interesting claims result from her original research.
- B. The author of Text 1 believes that the scope of Tuchman's research led her to an incorrect interpretation, while the author of Text 2 believes that Tuchman's central argument is overly simplistic.
- C. The author of Text 1 asserts that the writing style of *The Guns of August* makes it worthwhile to read despite any perceived deficiency in Tuchman's research, while the author of Text 2 focuses exclusively on the weakness of Tuchman's interpretation of events.
- D. The author of Text 1 claims that Tuchman would agree that World War I was largely due to events in Eastern Europe, while the author of Text 2 maintains that Tuchman would say that Eastern European leaders were not committed to military plans in the same way that other leaders were.

**Text 1**

Virginia Woolf's 1928 novel *Orlando* is an oddity within her body of work. Her other major novels consist mainly of scenes of everyday life and describe their characters' interior states in great detail, whereas *Orlando* propels itself through a series of fantastical events and considers its characters' psychology more superficially. Woolf herself sometimes regarded the novel as a minor work, even admitting once that she "began it as a joke."

**Text 2**

Like Woolf's other great novels, *Orlando* portrays how people's memories inform their experience of the present. Like those works, it examines how people navigate social interactions shaped by gender and social class. Though it is lighter in tone—more entertaining, even—this literary "joke" nonetheless engages seriously with the themes that motivated the four or five other novels by Woolf that have achieved the status of literary classics.

Based on the texts, how would the author of Text 2 most likely respond to the assessment of *Orlando* presented in Text 1?

- A. By conceding that Woolf's talents were best suited to serious novels but asserting that the humor in *Orlando* is often effective
- B. By agreeing that *Orlando* is less impressive than certain other novels by Woolf but arguing that it should still be regarded as a classic
- C. By acknowledging that *Orlando* clearly differs from Woolf's other major novels but insisting on its centrality to her body of work nonetheless
- D. By concurring that the reputation of *Orlando* as a minor work has led readers to overlook this novel but maintaining that the reputation is unearned

## Text 1

Like the work of Ralph Ellison before her, Toni Morrison's novels feature scenes in which characters deliver sermons of such length and verbal dexterity that for a time, the text exchanges the formal parameters of fiction for those of oral literature. Given the many other echoes of Ellison in Morrison's novels, both in structure and prose style, these scenes suggest Ellison's direct influence on Morrison.

## Text 2

In their destabilizing effect on literary form, the sermons in Morrison's works recall those in Ellison's. Yet literature by Black Americans abounds in moments where interpolated speech erodes the division between oral and written forms that literature in English has traditionally observed. Morrison's use of the sermon is attributable not only to the influence of Ellison but also to a community-wide strategy of resistance to externally imposed literary conventions.

Based on the texts, how would the author of Text 2 most likely characterize the underlined claim in Text 1?

- A. As failing to consider Ellison's and Morrison's equivalent uses of the sermon within the wider cultural context in which they wrote
- B. As misunderstanding the function of sermons in novels by Black American writers other than Ellison and Morrison
- C. As disregarding points of structural and stylistic divergence between the works of Ellison and those of Morrison
- D. As being indebted to the tradition of resisting literary conventions that privilege written forms, such as novels, over sermons and other oral forms

**Text 1**

The Cretaceous-Paleogene (K-Pg) mass extinction event is usually attributed solely to an asteroid impact near Chicxulub, Mexico. Some scientists argue that volcanic activity was the true cause, as the K-Pg event occurred relatively early in a long period of eruption of the Deccan Traps range that initially produced huge amounts of climate-altering gases. These dissenters note that other mass extinctions have coincided with large volcanic eruptions, while only the K-Pg event lines up with an asteroid strike.

**Text 2**

In a 2020 study, Pincelli Hull and her colleagues analyzed ocean core samples and modeled climate changes around the K-Pg event. The team concluded that Deccan Traps gases did affect global conditions prior to the event, but that the climate returned to normal well before the extinctions began—extinctions that instead closely align with the Chicxulub impact.

Based on the texts, how would Hull's team (Text 2) most likely respond to the argument in the underlined portion of Text 1?

- A. By agreeing that the Chicxulub impact changed the climate and that the Deccan Traps eruption caused the K-Pg event
- B. By declaring that the changes in climate caused by the Deccan Traps eruption weren't the main cause of the K-Pg event
- C. By questioning why those scientists assume that the Chicxulub impact caused the Deccan Traps eruption
- D. By asserting that the Deccan Traps eruption had a more significant effect on global conditions than those scientists claim

**Text 1**

Films and television shows commonly include a long list of credits naming the people involved in a production. Credit sequences may not be exciting, but they generally ensure that everyone's contributions are duly acknowledged. Because they are highly standardized, film and television credits are also valuable to anyone researching the careers of pioneering cast and crew members who have worked in the mediums.

**Text 2**

Video game scholars face a major challenge in the industry's failure to consistently credit the artists, designers, and other contributors involved in making video games. Without a reliable record of which people worked on which games, questions about the medium's development can be difficult to answer, and the accomplishments of all but its best-known innovators can be difficult to trace.

Based on the texts, how would the author of Text 1 most likely respond to the discussion in Text 2?

- A. By recommending that the scholars mentioned in Text 2 consider employing the methods regularly used by film and television researchers
- B. By pointing out that credits have a different intended purpose in film and television than in the medium addressed by the scholars mentioned in Text 2
- C. By suggesting that the scholars mentioned in Text 2 rely more heavily on credits as a source of information than film and television researchers do
- D. By observing that a widespread practice in film and television largely prevents the kind of problem faced by the scholars mentioned in Text 2

**Text 1**

Fossils of the hominin *Australopithecus africanus* have been found in the Sterkfontein Caves of South Africa, but assigning an age to the fossils is challenging because of the unreliability of dating methods in this context. The geology of Sterkfontein has caused soil layers from different periods to mix, impeding stratigraphic dating, and dates cannot be reliably imputed from those of nearby animal bones since the bones may have been relocated by flooding.

**Text 2**

Archaeologists used new cosmogenic nuclide dating techniques to reevaluate the ages of *A. africanus* fossils found in the Sterkfontein Caves. This technique involves analyzing the cosmogenic nucleotides in the breccia—the matrix of rock fragments immediately surrounding the fossils. The researchers assert that this approach avoids the potential for misdating associated with assigning ages based on Sterkfontein’s soil layers or animal bones.

Based on the texts, how would the researchers in Text 2 most likely respond to the underlined portion in Text 1?

- A. They would emphasize the fact that the *A. africanus* fossils found in the Sterkfontein Caves may have been corrupted in some way over the years.
- B. They would contend that if analyses of surrounding layers and bones in the Sterkfontein Caves were combined, then the dating of the fossils there would be more accurate.
- C. They would argue that their techniques are better suited than other methods to the unique challenges posed by the Sterkfontein Caves.
- D. They would claim that cosmogenic nuclide dating is reliable in the context of the Sterkfontein Caves because it is applied to the fossils directly.



**Text 1**

Astronomer Mark Holland and colleagues examined four white dwarfs—small, dense remnants of past stars—in order to determine the composition of exoplanets that used to orbit those stars. Studying wavelengths of light in the white dwarf atmospheres, the team reported that traces of elements such as lithium and sodium support the presence of exoplanets with continental crusts similar to Earth's.

**Text 2**

Past studies of white dwarf atmospheres have concluded that certain exoplanets had continental crusts. Geologist Keith Putirka and astronomer Siyi Xu argue that those studies unduly emphasize atmospheric traces of lithium and other individual elements as signifiers of the types of rock found on Earth. The studies don't adequately account for different minerals made up of various ratios of those elements, and the possibility of rock types not found on Earth that contain those minerals.

Based on the texts, how would Putirka and Xu (Text 2) most likely characterize the conclusion presented in Text 1?

- A. As unexpected, because it was widely believed at the time that white dwarf exoplanets lack continental crusts
- B. As premature, because researchers have only just begun trying to determine what kinds of crusts white dwarf exoplanets had
- C. As questionable, because it rests on an incomplete consideration of potential sources of the elements detected in white dwarf atmospheres
- D. As puzzling, because it's unusual to successfully detect lithium and sodium when analyzing wavelengths of light in white dwarf atmospheres

**Text 1**

Soy sauce, made from fermented soybeans, is noted for its umami flavor. Umami—one of the five basic tastes along with sweet, bitter, salty, and sour—was formally classified when its taste receptors were discovered in the 2000s. In 2007, to define the pure umami flavor scientists Rie Ishii and Michael O’Mahony used broths made from shiitake mushrooms and kombu seaweed, and two panels of Japanese and US judges closely agreed on a description of the taste.

**Text 2**

A 2022 experiment by Manon Jünger et al. led to a greater understanding of soy sauce’s flavor profile. The team initially presented a mixture of compounds with low molecular weights to taste testers who found it was not as salty or bitter as real soy sauce. Further analysis of soy sauce identified proteins, including dipeptides, that enhanced umami flavor and also contributed to saltiness. The team then made a mix of 50 chemical compounds that re-created soy sauce’s flavor.

Based on the texts, if Ishii and O’Mahony (Text 1) and Jünger et al. (Text 2) were aware of the findings of both experiments, they would most likely agree with which statement?

- A. On average, the diets of people in the United States tend to have fewer foods that contain certain dipeptides than the diets of people in Japan have.
- B. Chemical compounds that activate both the umami and salty taste receptors tend to have a higher molecular weight than those that only activate umami taste receptors.
- C. Fermentation introduces proteins responsible for the increase of umami flavor in soy sauce, and those proteins also increase the perception of saltiness.
- D. The broths in the 2007 experiment most likely did not have a substantial amount of the dipeptides that played a key part in the 2022 experiment.

**Text 1**

In 1916, H. Dugdale Sykes disputed claims that *The Two Noble Kinsmen* was coauthored by William Shakespeare and John Fletcher. Sykes felt Fletcher's contributions to the play were obvious—Fletcher had a distinct style in his other plays, so much so that lines with that style were considered sufficient evidence of Fletcher's authorship. But for the lines not deemed to be by Fletcher, Sykes felt that their depiction of women indicated that their author was not Shakespeare but Philip Massinger.

**Text 2**

Scholars have accepted *The Two Noble Kinsmen* as coauthored by Shakespeare since the 1970s: it appears in all major one-volume editions of Shakespeare's complete works. Though scholars disagree about who wrote what exactly, it is generally held that on the basis of style, Shakespeare wrote all of the first act and most of the last, while John Fletcher authored most of the three middle acts.

Based on the texts, both Sykes in Text 1 and the scholars in Text 2 would most likely agree with which statement?

- A. John Fletcher's writing has a unique, readily identifiable style.
- B. The women characters in John Fletcher's plays are similar to the women characters in Philip Massinger's plays.
- C. *The Two Noble Kinsmen* belongs in one-volume compilations of Shakespeare's complete plays.
- D. Philip Massinger's style in the first and last acts of *The Two Noble Kinsmen* is an homage to Shakespeare's style.

## Text 1

Growth in the use of novel nanohybrids—materials created from the conjugation of multiple distinct nanomaterials, such as iron oxide and gold nanomaterials conjugated for use in magnetic imaging—has outpaced studies of nanohybrids’ environmental risks. Unfortunately, risk evaluations based on nanohybrids’ constituents are not reliable: conjugation may alter constituents’ physiochemical properties such that innocuous nanomaterials form a nanohybrid that is anything but.

## Text 2

The potential for enhanced toxicity of nanohybrids relative to the toxicity of constituent nanomaterials has drawn deserved attention, but the effects of nanomaterial conjugation vary by case. For instance, it was recently shown that a nanohybrid of silicon dioxide and zinc oxide preserved the desired optical transparency of zinc oxide nanoparticles while mitigating the nanoparticles’ potential to damage DNA.

Based on the texts, how would the author of Text 2 most likely respond to the assertion in the underlined portion of Text 1?

- A. By concurring that the risk described in Text 1 should be evaluated but emphasizing that the risk is more than offset by the potential benefits of nanomaterial conjugation
- B. By arguing that the situation described in Text 1 may not be representative but conceding that the effects of nanomaterial conjugation are harder to predict than researchers had expected
- C. By denying that the circumstance described in Text 1 is likely to occur but acknowledging that many aspects of nanomaterial conjugation are still poorly understood
- D. By agreeing that the possibility described in Text 1 is a cause for concern but pointing out that nanomaterial conjugation does not inevitably produce that result

**Text 1**

Africa's Sahara region—once a lush ecosystem—began to dry out about 8,000 years ago. A change in Earth's orbit that affected climate has been posited as a cause of desertification, but archaeologist David Wright also attributes the shift to Neolithic peoples. He cites their adoption of pastoralism as a factor in the region drying out: the pastoralists' livestock depleted vegetation, prompting the events that created the Sahara Desert.

**Text 2**

Research by Chris Brierley et al. challenges the idea that Neolithic peoples contributed to the Sahara's desertification. Using a climate-vegetation model, the team concluded that the end of the region's humid period occurred 500 years earlier than previously assumed. The timing suggests that Neolithic peoples didn't exacerbate aridity in the region but, in fact, may have helped delay environmental changes with practices (e.g., selective grazing) that preserved vegetation.

Based on the texts, how would Chris Brierley (Text 2) most likely respond to the discussion in Text 1?

- A. By pointing out that given the revised timeline for the end of the Sahara's humid period, the Neolithic peoples' mode of subsistence likely didn't cause the region's desertification
- B. By claiming that pastoralism was only one of many behaviors the Neolithic peoples took part in that may have contributed to the Sahara's changing climate
- C. By insisting that pastoralism can have both beneficial and deleterious effects on a region's vegetation and climate
- D. By asserting that more research needs to be conducted into factors that likely contributed to the desertification of the Sahara region