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Time Bomb: How the Western Conception of Intelligence Is Taking Down Humanity

Robert J. Sternberg

The Western conception of intelligence is a time bomb. It is taking down humanity. In this chapter, I will present evidence for why I believe this is the case, why we ended up with such a destructive conception, and what we can do about it. Let's start with a scene from a movie from the 1950s.

White Wilderness, an otherwise forgettable 1958 Walt Disney movie, appears to be truly famous for one and only one scene—a scene in which lemmings commit mass suicide by jumping off a cliff into the ocean. The whole scene was faked, from top to bottom (Woodford, 2003). The lemmings supposedly committing mass suicide did not jump. They were thrown off the cliff by Walt Disney filmmakers. Oddly, a movie famous

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R. J. Sternberg (✉)
Department of Psychology, College of Human Ecology, Cornell University,
Ithaca, NY, USA
e-mail: robert.sternberg@cornell.edu

for propagating a myth won an Academy Award for Best Documentary Feature (https://disney.fandom.com/wiki/White_Wilderness). The truth is that lemmings do not commit mass suicide and never have, to anyone's knowledge.

What's Wrong?

There is only one species in the history of the Earth for which a case could be made that it has committed mass suicide, and that species is not the lemming. Rather, that species is humans, of the genus/species *Homo sapiens*. They are engaged in mass-suicidal behavior now and in the past, recent and not so recent.

Antonio Guterres, Secretary-General of the United Nations, has stated: "To put it simply, the state of the planet is broken. Dear friends, humanity is waging war on nature. This is suicidal. Nature always strikes back—and it is already doing so with growing force and fury. Biodiversity is collapsing. One million species are at risk of extinction."

—United Nations Secretary-General, 2020, December 2.

Thus, not only is humanity killing off itself. It is taking a million other species with it. That is, well, insane!

How is humanity killing itself off? It has found innumerable ways (Sternberg, 2021).

- **Weapons of mass destruction.** A conservative estimate of casualties from Hiroshima and Nagasaki is 200,000, with 105,000 dead (Atomicarchive.com, n.d.). As I write (May 19, 2021), there are mass casualties in wars around the world. Myanmar is enduring brutal repression, as are the Uighurs in China. In countries around the world, especially in Syria but also in Iraq and elsewhere, there also have been casualties of poison-gas attacks (Sly et al., 2018). Agent Orange is estimated to have caused almost five million deaths during the Vietnam War, according to the Vietnamese Red Cross (Baldino, 2013).
- **Air pollution.** According to the World Health Organization (WHO), nine out of ten people breathe polluted air (World Health Organization, n.d.). WHO estimates that around seven million people die annually

from the effects of air pollution. That is more than the population of all U.S. cities except for New York City, and it closes in even on that.

- **Water pollution.** At least eight million metric tons of plastics are released into the oceans of the world every year, with the total currently at more than 150 million metric tons. Various forms of plastic have been discovered in more than 60% of seabirds that have been examined and in 100% of all sea turtles (Ocean Conservancy, [n.d.](#)). Some fish, some such as shark, tilefish, swordfish, and even much tuna, is only dubiously safe to eat because of mercury contamination (WebMD, [n.d.](#)).
- **Human-induced climate change.** Probably most catastrophic of all these human-created messes is global climate change. More than 95% of scientists studying climate believe that humans are causing worsening of global climate (“The 97% consensus on global warming,” [n.d.](#)). Carbon dioxide levels keep reaching record highs. The changes are resulting in massive extinctions, with one million species either going or gone (Fears, [2019](#); Rettner, [2019](#)). In the not-too-distant future, in excess of a quarter-million people may die each year as a result of global climate change. But already, there are massive changes in weather, such as warming of temperatures and increased hurricane and other storm activities.
- **Disease.** As I write, a pandemic has been sweeping the globe, COVID-19. As of May 19, 2021, it has killed roughly 3½ million people. The true figures are undoubtedly much higher, and almost certainly have exceeded the population of Los Angeles, CA, which is about four million. The estimated number of cases is 164 million. This is probably a gross underestimate. Many of these people will end up with long-COVID, resulting in months and possibly years of serious illness (<https://www.google.com/search?client=firefox-b-1-d&q=how+many+people+in+the+world+of+died+of+covid-19>). No one knows the origin of COVID-19, but whether it originated in a laboratory or because of too close contact between wild animals and humans, humans end up carrying much of the blame. In addition, many people are dying of bacteria that have become antibiotic-resistant. Almost three million antibiotic-resistant infections occur in the United States each year, with an estimated 35,000 U.S. deaths per year (CDC, [n.d.](#)).

- **Decreased sperm counts.** Over the past four decades, men's sperm levels, at least in Western nations, have decreased by more than 50% (Swan, 2021). The decrease appears to be due to industrial chemicals in the environment or toxins in foods. This is about as close as one can get to mass suicide.

Obviously, the world faces far more challenges than those listed above. But what do these challenges have to do with the Western conception of intelligence, anyway? All of them are a result, directly or indirectly, of “intelligence” in the Western sense of the word. Of course, intelligence is not solely responsible for any of them. But, I would argue, it is responsible in part for all of them.

Weapons of mass destruction can be designed only by people who have the high level of intelligence in the Western sense—I will call it “IQ” for short—needed to design such technologically complex weapons. Pollution, whether of air or water, results from industrial products (e.g., plastics) and wastes (e.g., sulfur dioxide) that represent the byproducts of IQ applied in industrial uses. Human-induced climate change results in large part from the emission of gasses, such as carbon dioxide and methane, that result from human industrialization. The COVID-19 pandemic was probably caused by human carelessness and the catastrophic response to it, resulting in millions of deaths; it was also a result of human stupidity, as is the overuse of antibiotics, allowing bacteria to gain resistance to them. And the slow extinction of the species by decreased sperm counts also is due to human negligence with chemicals allowed to enter into the environment and, eventually, into human bodies.

High IQ has its obvious advantages. It enables some people to create complex cell phones and many more people to benefit from them. It enables some people to create complex computers and others to operate them, as I am operating the computer on which I am writing this chapter. It enables some people to design cars, others to build them, and still others to drive them so that they do not have frequent crashes.

All of these advantages notwithstanding, high IQ also has brought humanity a lot of grief. Perhaps not only humanity. One hypothesis for why the Earth has not had extraterrestrial visitors is that any civilization advanced enough to create interstellar space travel would have destroyed

itself before it even got to doing the travel (Hart, 1975; Howell, 2018; Spektor, 2018). Moreover, IQ predicts many different kinds of long-term individual successes (Deary et al., 2009).

The founders of the IQ- and, more generally, the ability-testing movement had positive intentions. Binet and Simon (1916) wanted to ensure that students who had intellectual challenges were properly educated, and moreover, that those who had behavioral issues, but not mental challenges, were kept out of special-education classes, which would provide them with insufficient challenge and publicly mark them as intellectually subpar.

How Environmental Context Can Make Us Smarter or Stupider

There are many factors in the environmental context that make us smarter. For example, information is far easier to acquire today than it was in the past. A few pushes of buttons on a computer or cell phone can yield information that used to be difficult or even impossible to obtain. Is it any wonder that crystallized intelligence has risen so greatly since the beginning of the twentieth century (Flynn, 1987, 2012, 2016)? No more visits to obscure stacks in the library or to specialized libraries that exist only in a few places in the world. Moreover, education is much more widely available than it once was, and resources are available today to disseminate knowledge that once could hardly be dreamed of.

Yet, the same environment that generates so much information comes at a price with regard to the effective deployment of that information. The price is that, in the desire to pursue profits above all else, social-media companies as well as other companies have employed artificial-intelligence techniques to tailor messages to deceive users of the Internet. Their goal is to shape the way people think without the people knowing they are being persuaded, much in the manner that Packard warned about many years ago in his book, *The Hidden Persuaders* (Packard, 1957, 2007). For whatever power the techniques of 1957 may have had, they were child's play compared with the subtle manipulations that are

employed today through the Internet. What one sees on the Internet, how it is presented, and specifically how it is tailored to one's demographic and known background and preferences are probably unique in history. People are manipulated without knowing it. Moreover, given the chance to rise up against the manipulation, they generally have failed to do so. They would rather have the tailored messages, even at the expense of losing privacy and being propagandized.

Worse, the relentless pursuit of clicks—of keeping users of social media and other Internet sites on the sites—drives companies to reward bad behavior. False news is spread more than real news (Dizikes, 2018; Vosoughi et al., 2018), and emotionally sensational material spreads more quickly and widely than material that is rational but emotionally cool. If clicks are designed to keep people on a site, then news that is sensationalistic, emotionally arousing, and likely false will generate more engagement to users, simply because those posts are the ones on which people spend more time and the ones people retweet or recirculate more. The reward system is devised to reward not only bad behavior, but even anti-intellectual behavior.

The situation is worsened by the reward systems promoted by schools in the United States and abroad. These reward systems favor students who do what they are told, do it well, and do it consistently. Multiple-choice and short-answer examinations, for example, do not allow a great deal of latitude to students to show creative, practical, or wisdom-based skills. What they do allow students to know is their knowledge base and analytical skills operating on that knowledge base. At best, creativity is not rewarded; at worst, it is punished.

Because societies have created systems that employ an educational funnel to determine who gets the most rewards and who gets on in the systems, those whose intellectual bent is to do whatever society rewards—such as accumulate knowledge and analyze that knowledge—reap the most rewards. As they go through the educational system, their need to think creatively, practically, and wisely is minimized, and they either never fully develop these skills or, if they have developed them, start to lose them through disuse. The result is students who excel because they are, in the words of one scholar, intellectual sheep (Deresiewicz, 2015).

If schools overemphasize the development of knowledge and analytical skills, then what they get is experts at knowledge base, or at least, retrieval of knowledge base, who can analyze it and perhaps poke holes or craters in it, but who may not be able as well to creatively go beyond that knowledge base, apply it in a practical way, or think wisely about it, seeking a common good. The result may be a generation of leaders who have degrees from prestigious colleges and universities, who are IQ-smart in that they have large knowledge bases and can analyze problems well, but who are lacking in creativity, common sense, and wisdom and thus prove to be inept leaders. Moreover, even as people become more sophisticated, the means for manipulating them become more sophisticated, and it appears that, so far, people are losing to the AI that seeks to make money for the corporations that control social media and related sites.

What people need most from schooling today is not preparation for tests that, however relevant they may have been in the early twentieth century, today are a relic and a sad commentary on the utter fecklessness of the assessment industry. We need tests, as well as education, that help students arise to today's challenges (Sternberg, 2021). And those challenges include our involving ourselves in creative, practical, and wise thinking; our not being taken in by social-media and related manipulation; and our not falling for authoritarian appeals to stop thinking and to have the authoritarians to think for us. The last is probably the greatest challenge of all, in that despite rising IQs, many people today seem more taken in by the lure of authoritarianism than at any time since World War II (Albright, 2018; Applebaum, 2020; Levitsky & Ziblatt, 2018; Mounk, 2018).

The Law of Unintended Consequences

The Law of Unintended Consequences seems to have occurred with full force in the case of intelligence tests and proxies that measure the same knowledge and skills under a different name. What were originally intended as tests to separate those with learning challenges from those with behavioral issues have become tests that are used for an astonishing array of purposes, including identification of persons with intellectual

challenges, persons with intellectual gifts, admissions decisions for universities, financial-aid decisions for universities, employment decisions, profiles of intellectual strengths and weaknesses, and beyond. These broad uses would not have been a problem were the tests used as advisory among large numbers of other criteria. But decisions, such as about identification of the gifted and about university admissions, started to be made solely on the basis of test scores, and still are. Admission today can be gained or denied to many universities solely on the basis of scores on standardized tests, and such scores can lead younger students to be placed into dead-end low-achievement tracks in schools from which it will be difficult to exit, as they fall further and further behind their peers placed into higher tracks.

The early testers—Alfred Binet, inventor of the first modern intelligence test; Henry Chauncey, first president of the Educational Testing Service; James Bryant Conant, President of Harvard University; E. F. Lindquist, creator of the ACT (American College Test)—would not have realized that scores on their tests would be highly correlated with socioeconomic status (SES). If one looks at SES groups and compares average SATs (formerly known as the Scholastic Aptitude Test), for example, the correlation for SES groups with SATs (critical reading, mathematics, writing) are over 0.95 (Rampell, 2009).

It would be easy to blame the early testers for the overuse of testing today, but such blame would be misplaced. Too much time has passed, and the earlier testers had no reasonable way of foreseeing where things would go. One also could place the blame on contemporary testing companies—Educational Testing Service (ETS), the College Board, ACT, Pearson, or whichever—but that would miss the point that testing companies only provide products and services if there are purchasers. The blame belongs not just on them, but on all of us.

All kinds of groups profit from the current emphasis on narrow tests of IQ and its proxies, for example:

- College and universities get data for free that they hope will raise their prestige ratings
- Wealthy and well-connected parents can afford to buy books and courses for their children that will assist the children in test prepara-

- tion; they also can afford to send their children to public or private schools that better prepare the children for the tests. In extreme cases, parents illegally have hired professional test-takers to take the tests for their children, in some cases, resulting in prison terms (Taylor, 2020).
- School administrators often like the tests because the tests provide them a way of demonstrating “accountability,” although in a very narrow sense. Sometimes, the administrators purposely exclude from the testing students whose scores might bring down their averages.
 - Certain magazines and websites like the tests because they use the ratings to evaluate colleges and universities, which parents then can use to help their children decide on where to apply; the websites make money through subscriptions and advertising.
 - Some book publishers, websites, and course publishers make money by offering preparation for the tests.

In general, enough different powerful stakeholders stand to profit from the tests that there is not a lot of incentive to change the situation. Ironically, the strongest incentive for change was offered not by researchers questioning the validity of the tests for the purposes for which they are used, but rather, by the collateral effects of the COVID-19 pandemic. It became much harder to administer the tests and for examinees to take them, with the result that some colleges and universities made the tests optional, and others dispensed with them altogether.

How Do We Set What Is Wrong, Right?

If humanity is to avoid setting off the time bomb, we all need to conceive of intelligence in a broader, more inclusive, more contextually relevant, and more positive way in terms of setting the world on a better course.

I have proposed that we need to return to the original definition of intelligence as adaptation to the environment (Binet & Simon, 1916; “Intelligence and its Measurement,” 1921; Wechsler, 1940). This means that instead of defining IQ and its proxies in terms of the knowledge and abstract-reasoning skills directly needed for academic problem solving, we look at intelligence more broadly, in terms of the adaptive skills we

need as individuals and as humanity collectively, to ensure not only our own future but also that of all interacting species that share this planet (Sternberg, 2021). The path humanity is on is a destructive one. It takes only a minimal IQ to see that. Rather, humanity has allowed short-term greed and other economic interests to take priority over the long-term well-being not only of humanity and other species today, but also of humanity and other species in the long term. We are mortgaging their future interests for our own present, short-term ones. If our ancestors had done that, we might not be here, or if we were, we might be living in the severely damaged world that we are leaving for our descendants.

Elements of a Theory of Adaptive Intelligence

Adaptive intelligence serves to make the world better—it operates to make a positive, meaningful, and possibly enduring difference to the world. It does so by people finding their role in the world and then using that role to make a positive difference. They do so by creatively generating ideas that are novel, useful, and positive in the difference they make; analyzing these ideas to ensure that they are of high quality; effectively implementing and promoting the ideas in a practical way; and ensuring that the ideas wisely help to achieve a common good.

This conception of adaptive intelligence is quite distant from that of general-intelligence theorists, who view intelligence as a hierarchical set of abilities with general intelligence (g) at the top, and then successively more narrow levels of abilities beneath the most general one (e.g., Carroll, 1993; McGrew, 2005). Admittedly, adaptive intelligence seems broad by the standards of g -based theories. The adaptive-intelligence notion, however, fits quite well with indigenous conceptions of intelligence in many parts of the world. For example, in rural Kenya, we found four words that characterized intelligence: *rieko*, *luoro*, *paro*, and *winjo* (Grigorenko et al., 2001). *Rieko* involves knowledge, ability, and cognitive skills in general; it is close to g but also involves domain-specific skills. *Luoro* involves respect and other aspects of practical intelligence. *Paro* involves initiative and other aspects of creativity. And *winjo* involves comprehension of the complexities of a problem situation and other aspects of

wisdom. Thus, the adaptive-intelligence notion has a strong precedent, just not in contemporary Western theories.

Consider now the elements of creativity, analytical thinking, practical thinking, and wisdom.

Creativity

Creativity is the production of ideas that are both novel and useful. From the standpoint of adaptive intelligence, the ideas also need to be positive—that is, they help to make the world a better place. Our work on creativity is based on a so-called *triangular theory of creativity*, according to which creativity involves defiance of three kinds: defiance of oneself, defiance of the crowd, and defiance of the Zeitgeist (Sternberg, 2018). Defiance of oneself refers to one's willingness to give up on ideas that one has accepted for some length of time. People often are uncreative because they simply cannot give up on their own ideas that they have become convinced are true or, at the very least, the best ideas. These people metaphorically are stuck in place. Defiance of the crowd refers to defiance of ideas that many other people, especially people with whom one identifies, accept. One even may know that the ideas are wrong but be afraid to go against the current groupthink of others of one's profession, religious or ideological group, or self-perceived tribe. Defiance of the Zeitgeist refers to willingness to defy entrenched beliefs within a sociocultural context, often beliefs one scarcely is aware of or may be unaware of entirely. They may be the foundations upon which one's thought and behavior are based. For example, during the times of COVID-19, many people have had trouble with masks or social distancing simply because they were unable to give up on the idea that they should be able to go around maskless and get close to whomever they wished. They reconceived the idea as one of "personal freedom" in order to avoid conceiving of the problem as one of dogmatic entrenchment: they simply were too rigid to think differently from the way they had thought before, even, in many cases, at the cost of their own and others' lives. The phenomenon was so breathtaking because it has shown how even the Darwinian impulse toward survival can be trumped by rigidity in thought and behavior.

Natural selection rewards those gene pools that have the flexibility to adapt to current circumstances, not past ones. My colleagues and I have measured creativity in a variety of ways (see, e.g., Sternberg, 2017).

Measuring creative thinking made a difference in the various projects we did. For example, in one project, the Rainbow Project, we tested high school and college students around the United States for their analytical, creative, and practical skills (Sternberg & the Rainbow Project Collaborators, 2006). We found that including a test of creative thinking in a best battery doubled prediction over the SAT alone of academic success (grade-point-average—GPA) in the first year of college. We further found that including a test of practical abilities increased prediction by about 25%.

Analytical Thinking

Analytical thinking is largely what conventional tests of intelligence and proxy tests of intelligence (SAT, ACT, GRE) measure (Sternberg, 2020). For much of my career, I believed that these tests are reasonable, if sometimes biased measures of abstract-analytical thinking. I say “sometimes biased,” because what they measure will depend to some extent on examinees’ background and education and life socialization up to the point of testing. However, in recent years, I have come to question just how well the conventional tests even measure analytical reasoning, at least as it generalizes to one particular kind of situation, namely, STEM (scientific/technological/engineering/mathematical) thinking.

In a series of studies (Sternberg & Sternberg, 2017; Sternberg et al., 2017, 2019, 2020), my colleagues and I investigated STEM reasoning of three kinds: Generating Alternative Hypotheses, Generating Experiments, and Drawing Conclusions. The results of the research were consistent. First, scores on these kinds of STEM reasoning tests and other related STEM reasoning tests tended to correlate significantly with, and to factor with, each other. Second, scores on tests of fluid-reasoning ability (which is almost the same as general intelligence—Kvist & Gustafsson, 2008) tended to correlate significantly with each other and also to factor with each other. But the STEM reasoning tests did not show consistently

positive correlations with the tests of fluid intelligence and sometimes even showed significant negative correlations in our samples.

These results suggest that whatever it is that the intelligence-test proxies measure, it is potentially not central to STEM reasoning as it exists in scientific research and teaching (the latter of which we also studied). General intelligence may affect performance in many cognitive domains, but if one wishes to select or train scientists for research, general intelligence as measured by current tests may be a non-optimal place to start.

Practical Thinking

Practical thinking is the application of one's cognitive processing to the solution of everyday, practical problems. It is used to adapt to, shape, and select environments.

Generally, scores on tests of these kinds have shown minimal correlations with general intelligence (Sternberg & Hedlund, 2002). These tests are important because they measure real-world adaptive skills, not just academic analytical skills. We found that practical tests, like creative tests, significantly and substantially improved prediction of undergraduate college/university success.

Consider the following problem (Sternberg et al., 2001): "A small child in your family has homa. She has a sore throat, headache, and fever. She has been sick for 3 days. Which of the following five Yadh nyaluo (Luo herbal medicines) can treat homa? i. Chamama. Take the leaf and fito (sniff medicine up the nose to sneeze out illness).*ii. Kaladali. Take the leaves, drink, and fito.*iii. Obuo. Take the leaves and fito.*iv. Ogaka. Take the roots, pound, and drink.v. Ahundo. Take the leaves and fito."(Correct answers are starred.) Children in the United States and most of the world would have trouble solving this problem. Most of the children we tested were able to solve problems like this one quite well. Why? Because practical, tacit-knowledge-based skills are quite domain-specific. This problem is relevant to practical adaptation in the rural Kenyan context because the children are continually having to stave off or combat parasitic illnesses of various kinds. Children in, say, the United States and Western Europe do not have to do this. But their children

should not be expected to do the practical tasks our children are expected to do.

When we first submitted this article for review, a reviewer criticized the task as too culturally specific—as one that might fit less-developed countries but that would be far away from the demands of more developed cultures. But today’s cultural demands have changed. Western children and adults alike could have used these skills when it came to preparing for and handling the COVID-epidemic!

In the Kenya study, scores on the test of tacit knowledge of natural herbal medicines yielded negative correlations with traditional measures of general intelligence. The reason appears to be that, in this society, the brighter children are removed from academic schooling earlier in order to become apprentices to master craftsmen and to others; the less able are not selected and stay in school. So, the students appearing to be less competent are left to develop the kinds of academic skills measured by IQ tests, while the ones appearing to be more competent are taken out to develop practical skills that can lead to a successful career.

Wisdom

Wisdom is the use of one’s abilities and knowledge to achieve a common good, by balancing intrapersonal, interpersonal, and extrapersonal interests, over the long- as well as the short-term, by infusing positive ethical values in order to adapt to, shape, and select environments. Schools need to develop in students not only knowledge and analytical skills in the evaluation of that knowledge, but skills in the deployment of knowledge toward a common good (Sternberg, 2019).

Conclusion

Standardized tests, based on modern Western notions of intelligence, are seriously limited and narrow because modern Western notions of intelligence are seriously limited and narrow. There are available at least

prototypes of tests that could expand our conceptions and our measurements. Why don't we use them? There are a number of reasons, I believe:

- Entrenchment: People keep doing what they are used to doing.
- Intellectual laziness: People don't want to bother to change what they are thinking or doing.
- Short-term thinking: People think about short-term outcomes, such as academic success, rather than long-term outcomes, such as success in societal leadership positions.
- Desire to preserve the existing socioeconomic hierarchy: The tests essentially launder existing socioeconomic status and keep in power the children of those already in power.
- Quantitative precision fallacy: The numbers yielded by tests sound exact and thus meaningful.
- Similarity fallacy: People look for others like themselves to lead.
- Public relations: It helps promote the image of an educational institution if it has high test scores.
- Financial and other benefits: Schools do not pay for the students to take tests—the students pay.
- Superstition: People rarely try to disconfirm what they are already doing, and come to believe it must be the right way of doing things.

The Western conception of intelligence values people who are very good at doing what they are told to do and fitting into an existing cognitive/social/economic structure. Even creative professions often value those who are creative working within entrenched paradigms and who do not challenge the existing structure of the field. People who are highly creative or wise do not fit well into this structure and are challenged at every turn to stay in their place. So little changes because the existing power structure (which often is hidden) does not allow it to change. And that spells a dismal future.

The problems facing the world are enormous and psychologists and other behavioral scientists often have reacted as though these problems are not *their* problem. They have persisted, especially in the field of intelligence and related fields, in defining problems narrowly, failing to realize that if the world falls apart, there won't be a next generation to continue

small or self-satisfied approaches to small problems, much less, small approaches to big problems.

We are worried about standardized test scores while the world has serious problems to address. Our time is running out. By the time we get around to solving some of our problems, global climate change may have rendered much of our land mass unlivable, while large parts of this land mass may be overrun by water. We need to do better. Our time is running out. Lemmings do not commit suicide, but humans do. It is not too late to reverse the trend but it is not clear how much time we have, as a species, to reverse the change. If ever there was a time, it is now. We have set a time bomb. We need to defuse it now.

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