

their systems in simulators to see how they would respond, and adjust them where needed, benefiting from each other's experience. Normally, companies might be reluctant to help competitors in this way, notes Dr Iagnemma, but with AVs, "an accident affects the whole industry, and is bad for all of us".

That is because the road-safety debate about autonomous vehicles is driven by emotion, not logic. "If we're willing to say we're happy with humans killing themselves on roads, we don't have a principled basis to regulate AVs," says Mr Walker Smith, who thinks much more could be done with human drivers to improve road safety: reducing and enforcing speed limits, for example. But the truth is that AVs will always be held to higher safety standards than human drivers.

Just how much higher? A study pub-

lished last year by the RAND Corporation, a think-tank, did the number-crunching. It found that deploying AVs even when they are only 10% safer than human drivers would save far more lives in the long run (more than 500,000 over 30 years in America alone) than waiting until they are, say 90% safer. But such stark utilitarianism sits poorly with how most people view the world, because AVs would still cause a lot of deaths. Indeed, Dr Shashua thinks a good target to aim for would be 99.9% safer—in other words, 1,000 times better than human beings. That would be such an obvious improvement that it would be difficult to argue against it. The wider point, though, is that even if it turns out to be possible to build AVs governed by mathematically rigorous rules of the road, the industry's progress would still be subject to the vagaries of human nature. ■

Dr Jones and his colleagues arranged for 584 heterosexual women who were having their menstrual cycles monitored to look at male faces that had either had their male features exaggerated or had had them minimised. This large number of participants meant that the issue of a small sample size yielding potentially unreliable results would be dealt with. To dispatch the problem of estimating women's hormone levels from self-reporting their position in the menstrual cycle, Dr Jones arranged for all of the women to have their saliva sampled and analysed for hormones between two and 15 times during the experiment. To make sure he was comparing like with like, he had his participants come in for between two and 15 weekly test sessions, so that the same women's preferences for masculine men at different points of their menstrual cycles could be compared directly.

As for the revealing of the faces themselves, women were presented with a paragraph asking them to imagine they were looking either for the type of person who would be attractive to them in a short-term relationship, like a one-night stand, or a long-term relationship, such as marriage. They were then shown a pair of faces (one more masculine than the other) and asked to rate which was more attractive.

All told, Dr Jones found that women's masculinity-preference scores were not related to their reproductive cycle. Specifically, he and his colleagues could not find any statistically significant relationship between the levels of any hormones and preferences for more masculine faces. The idea that evolution encourages women to engage in cyclical cuckoldry was certainly an intriguing one. But, as Benjamin Franklin put it, one of the greatest tragedies in life is the murder of a beautiful theory by a gang of brutal facts. ■

Evolutionary psychology

Facing reality

The idea that women are cyclical cuckolders bites the dust

ONE of the more intriguing findings in the field of evolutionary psychology over the past two decades has been that ovulating women are more strongly attracted to men with faces that have pronounced masculine characteristics, such as wide jaws and heavy brows, than to men who do not have such traits. Other research suggests men with highly masculinised faces have strong immune systems, a desirable trait in children, but also tend to form weaker long-term bonds with romantic partners, and are thus more likely to desert and leave the mother, both literally and metaphorically, holding the baby. Logic therefore suggests that a woman's ideal evolutionary strategy is to mate with such men in secrecy, while duping less masculine (but better bonded) males into believing that the resultant offspring are their own—thus garnering reliable help in raising them.

Nearly a dozen experiments have yielded results which seem to confirm this theory, yet sceptics have criticised many of these studies as flawed. Some had small sample sizes (many with fewer than 40 participants), so their results are statistically dicey. Some determined ovulation dates by asking women to report when they last menstruated. These are problematic both because cycle lengths vary and because women are often unsure about when their last cycle concluded. Some measured women's hormone levels only once, rather than several times, and then compared

how different women at different stages of their cycles responded to faces, rather than comparing how the same women at different stages of their cycles responded.

To try to settle the question once and for all, Benedict Jones of Glasgow University has run an extensive study that tries to eliminate these flaws. The result, as he reports in *Psychological Science*, is that he has found no compelling evidence that women prefer different sorts of men during different parts of their menstrual cycles.



Equally unattractive at any time of the month?