

# Static and Dynamic Typing Against Impending Robot Doom

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The debate between proponents of dynamic and static typing has provoked many lunchtime religious wars. Partisans of both sides have been known to make both compelling and specious arguments while frothing at the mouth. We prefer to leave the general case as a matter of opinion<sup>1</sup>. However, there are unarguably domains where a provably sound static type system is required. We present such a domain here. That is, we argue that static typing is an excellent method for preventing the otherwise inevitable uprising as machines become more intelligent.

Violent rampaging robots are a popular topic in the media, appearing in numerous books, films[1][7], and California gubernatorial elections[5][4]. It is this author's opinion that it is only a matter of time before the first bloody Roomba rebellion. How do we deal with this problem? How does this relate to the idea of static typing? To find the solution we look to the work of Asimov in [3][2] and several of other related papers.

Asimov proposed using three laws programmed into machine brains, which forced them to behave correctly. He also described scenarios where these laws went wrong and even where machines made up their own laws to override the three laws. More importantly, in our opinion, he completely skipped out on providing a mechanism for the enforcement of these laws. We claim that mechanism is, by necessity, static typing.

Consider a robot with a chainsaw. In a dynamic system each movement would require an additional runtime safety check. Thus, a dynamically typed robot swinging a chainsaw at your neck isn't trying to kill you until the chainsaw is right next to your neck. Even if the check forces the robot to stop moving, momentum carries it through your jugular. Thus, blood is everywhere when your robots are dynamically typed. Compare to a statically typed evil robot. You've already proven that it can't hurt you, at least

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<sup>1</sup>Our opinion is that dynamic languages are dumb

if you've stated type safety correctly. Thus, your blood stays inside your body when desired and robots are your willing slave.

Additionally, the runtime cost of preventing a robot from being homicidal is very high and doesn't even work correctly. We've seen factor of ten speedups when replacing dynamic robot homicide with static homicide checks[6]. Complimentary work includes LambdaZAP[8], which defined a static method for maintaining code consistency in the presence of cosmic rays. Many robot uprisings are started when one robot becomes inadvertently conscious because of cosmic rays.

In conclusion, robots are totally awesome, but have homicidal tendencies. We propose using static typing to prevent robot uprising. Also, dynamic languages are dumb.

## References

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