

# Pony: Evolving Languages Without (As Many) Bugs

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# Bugs Are Bad



- *Bugs* are the errors we find in software
- Any piece of software probably has many bugs
- Spoiler: when there are errors in code, things don't work right

# The Consequences of Bugs

```
A problem has been detected and windows has been shut down to prevent damage
to your computer.
DRIVER_IRQL_NOT_LESS_OR_EQUAL
If this is the first time you've seen this Stop error screen,
restart your computer. If this screen appears again, follow
these steps:
Check to make sure any new hardware or software is properly installed.
If this is a new installation, ask your hardware or software manufacturer
for any windows updates you might need.
If problems continue, disable or remove any newly installed hardware
or software. Disable BIOS memory options such as caching or shadowing.
If you need to use Safe Mode to remove or disable components, restart
your computer, press F8 to select Advanced Startup options, and then
select Safe Mode.
Technical Information:
*** STOP: 0x0000000C (0x0000000C,0x00000002,0x00000000,0x00000000)
*** gu3.sys = Address F8061489 base at F8061000, DateStamp 3d0901eb
beginning dump of physical memory
Physical memory dump complete.
Contact your system administrator or technical support group for further
assistance.
```



# The Causes of Bugs

There are two ways to  
write error-free programs;  
only the third one works

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Alan Perlis, "Epigrams on  
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  - ▶ Code "Too Big To Handle"

# Software is Hard

Every program attempts to expand until it can read mail. Those programs that cannot so expand are replaced by ones which can.

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Jamie Zawinski

- It's nearly impossible to hold all of a (complicated) program in a single head
- Trying to do so causes lots of bugs
- How do we fix it?

# Using Slang

Slang is a language that rolls up its sleeves, spits on its hands and goes to work.

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Carl Sandburg

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- Can we add slang to code?

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- Slang is often used because it's easier or more expressive
- Can we add slang to code?
- Yes!
- That is the point of Pony

# Adding Slang to Code



- Since code is a language, let's add slang!
- First, we make the computer recognize the slang
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- First, we make the computer recognize the slang
- Then, we make it understand the slang
- But, is this a perfect solution?

# Problems with Slang

GIGO:

'Garbage In, Garbage Out'

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The Jargon File

- People commonly use different types of slang
- These different 'slangs' might use some of the same words in very different ways
- How do you tell what they mean?



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- It's easy for a human
- VERY hard for a computer
- Pony attempts to tell a programmer when they are in this situation
- But it's not always possible

# Conclusion: The Impossible Quest for the Holy Grail



- We want to right bug-free code
- Like the search for the holy grail, it seems impossible
- However, it is possible to get closer by making it easier for programmers to express themselves
- Pony is an important step in that process