Variable names and use in Scratch

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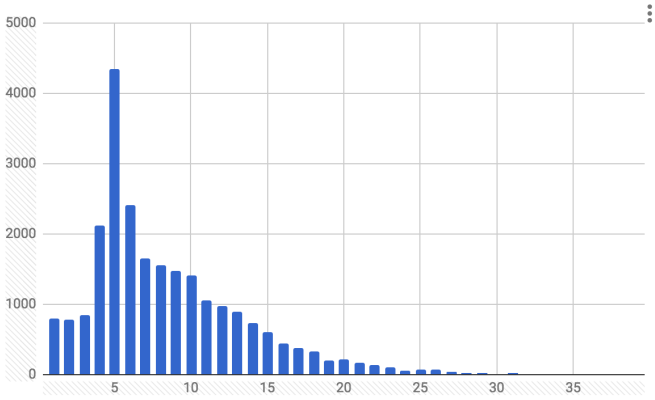

Fig. 1. Total occurrence of variables of different lengths

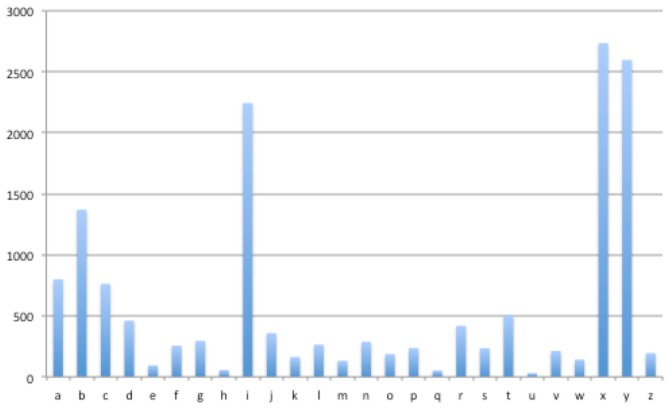

Fig. 2. Total occurrence of variables of one letter

***Abstract*—The abstract goes here.**

I. Introduction

Do we want to do just variables or also functions and signals?

II. Results - replication ICPC

A. Distribution of lengths

Figure 1 shows the distribution of lengths in the corpus.

we could sample some 5 letter identifiers here to see what they usually look like since they are an interesting peak?

in the ICPC paper the diagram goes to 20 and then just has 20+ we could do that too?

B. One letters

Figure 2 shows the distribution of variables of one letter in the corpus.

Scratch is not a typed language, variables can contain strings or numbers without declarations or casting. However, we can infer the types by attempting to cast them to a float or an int. As such we did obtain types, allowing us to compare to the ICPC paper.

Figure 3 shows the distribution of variables of one letter in the corpus.

here we can reflect on the differences with "real" languages and the prevalence of ints.

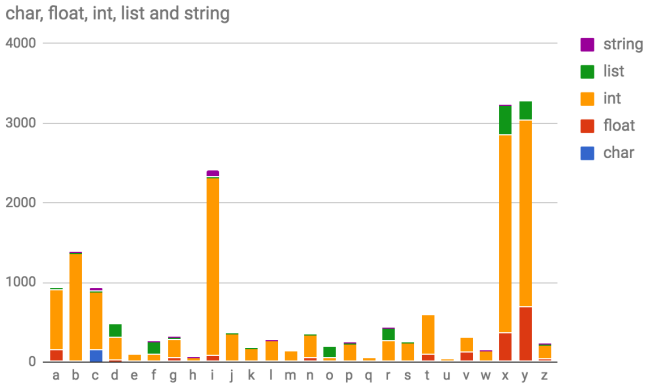

Fig. 3. Inferred types for variables of one letter

III. Results - Scratch specific

A. Use of spaces in variable names

Contrary to most textual programming languages, Scratch allows users to use spaces in variable names. This is quite commonly used, about 30.000 projects use one or more variables with a space in it, versus 60.000 that use only space-free variable names. Figure 4 shows the distribution of spaces in variable names. We have found that many introductory Scratch programming materials demonstrate the use of space free

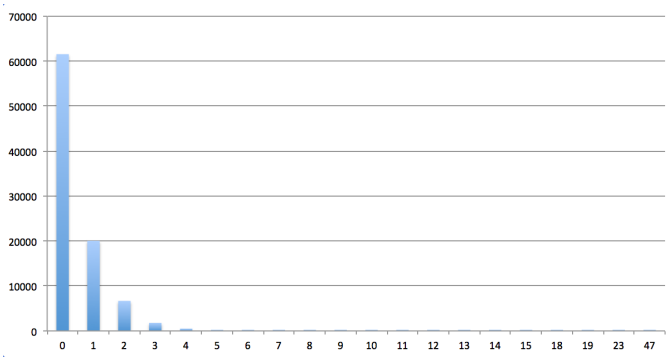

Fig. 4. Number of spaces in variable names

variables, and that children—and adults—that already have programming experience deem the use of spaces in variables as non-natural, even though arguable 'number of apples' is more natural that 'nApples'.

B. Use of non-letter variable names

In addition to spaces in variable names, Scratch even allows the use of numbers and even floating point numbers as variables. We found 718 projects with integer variable names and 19 with floating point names. While their use is rare, we manually examined some projects and numbers are used in interesting and clever ways.

here we can show the tic tac toe example

IV. Conclusion

The conclusion goes here.

Acknowledgment

The authors would like to thank...

References

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.