



Functions

Nick Ulle





Default Arguments

Nick Ulle





Function Example

Nick Ulle





Variables: Scope & Lookup

Nick Ulle



Summary

- Function definitions create a new scope
- *Local variables*
 - Are private
 - Get reset for each call
 - Mask non-local variables (exception: function calls)
- *Lexical scoping*
 - Where a function is **defined** determines non-local variables in scope
- *Dynamic lookup*
 - When a function is **called** determines values of non-local variables



Lazy Evaluation

Nick Ulle





The Dots Parameter

Nick Ulle





Using Functions

Nick Ulle



Using Functions

- Functions are the building blocks for solving problems.
- Divide and conquer! Break problems into small steps.
- Use a short function for each step. Then you can:
 - Test each step separately
 - Modify, reuse, or repurpose a step

Writing Functions

Before you write a function:

1. Write down the goal. What should the function do?
 - Draw a picture if it helps clarify the goal.
2. Check whether the function already exists.
 - Check base R, packages, and code you've already written.
3. Write down the inputs and outputs.
4. Write code to handle a simple case.
 - For data science problems, use a tiny data set (a subset).