# CORRECTIONS
# to Category Theory for Computing Science
# Second Edition

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The text **Category Theory for Computing Science**, by Michael Barr and Charles Wells, was published in 1995 by Prentice Hall, ISBN 0-13-323809-1. This document is a cumulative list of corrections and additions which will be updated as needed. It can be obtained from
`http://www.cwru.edu/artsci/math/wells/pub/papers.html`

## Corrections

The publisher reset the Preface and in the process introduced several errors.

**p. viii** The correct name of Section 6.3 is "Typed $\lambda$-calculus", and the correct name of Section 6.4 is "$\lambda$-calculus to category and back".

**p. xv** "Judgment" is spelled in the British style.

**p. xvi** "Acknowledgment" is spelled in the British style.

**p. xvii** The correct name for Chapter 10 (in the Chapter Dependency Chart) is "Algebras for endofunctors".

**p. 70** Section 3.3.11, Proposition 3.3.12 and Corollary 3.3.13 should be replaced by the following (which eliminates discussion of the concept of creates):

A full and faithful functor reflects isomorphisms, but in fact it does a bit more than that, as described by the following proposition.

**3.3.12 Proposition** Let $F : \mathscr{C} \to \mathscr{D}$ be full and faithful, and suppose $A$ and $B$ are objects of $\mathscr{C}$ and $u : F(A) \to F(B)$ is an isomorphism in $\mathscr{D}$. Then there is a unique isomorphism $f : A \to B$ for which $F(f) = u$.

Proof. By fullness, there are arrows $f : A \to B$ and $g : B \to A$ for which $F(f) = u$ and $F(g) = u^{-1}$. Then

$$F(g \circ f) = F(g) \circ F(f) = u^{-1} \circ u = \mathrm{id}_{F(A)} = F(\mathrm{id}_A)$$

But $F$ is faithful, so $g \circ f = \mathrm{id}_A$. A similar argument shows that $f \circ g = \mathrm{id}_B$, so that $g$ is the inverse of $f$.

**3.3.13 Corollary** A full and faithful functor reflects isomorphisms.

**3.3.14 Corollary** Let $F : \mathscr{C} \to \mathscr{D}$ be a full and faithful functor. If $F(A) = F(B)$ for objects $A$ and $B$ of $\mathscr{C}$, then $A$ and $B$ are isomorphic.

Proof. Apply Proposition 3.3.12 to the identity arrow from $F(A)$ to $F(A) = F(B)$.

**p. 71** In Problem 10, the phrase "preserve, reflect or create" should be changed to "preserve or reflect".

**p. 83** Just before Diagram 4.6, "and" should be "and any".

**p. 99** "Reduce" is also called "fold".

**p. 147** In the formula after Proposition 5.2.14, $V$ should be $C$.

**Back Cover** Michael Barr is Professor of Mathematics at McGill University.

Errors in the Electronic Supplement:

**page 6** In rule FD-1 of section 1.3.4, $[u^i x]$ is an element of $I(a)$ (not $a$).