
Description: The Curry-Howard isomorphism states an amazing correspondence between systems of formal logic as encountered in proof theory and computational calculi as found in type theory. For instance, minimal propositional logic corresponds to simply typed lambda-calculus, first-order logic corresponds to dependent types, second-order logic corresponds to polymorphic types, sequent calculus is related to explicit substitution, etc.

The isomorphism has many aspects, even at the syntactic level: formulas correspond to types, proofs correspond to terms, provability corresponds to inhabitation, proof normalization corresponds to term reduction, etc.

But there is more to the isomorphism than this. For instance, it is an old idea—due to Brouwer, Kolmogorov, and Heyting—that a constructive proof of an implication is a procedure that transforms proofs of the antecedent into proofs of the succedent; the Curry-Howard isomorphism gives syntactic representations of such procedures. The Curry-Howard isomorphism also provides theoretical foundations for many modern proof-assistant systems (e.g. Coq).

This book gives an introduction to parts of proof theory and related aspects of type theory relevant for the Curry-Howard isomorphism. It can serve as an introduction to any or both of typed lambda-calculus and intuitionistic logic.

Key features
- The Curry-Howard Isomorphism treated as common theme
- Reader-friendly introduction to two complementary subjects: Lambda-calculus and constructive logics
- Thorough study of the connection between calculi and logics
- Elaborate study of classical logics and control operators
- Account of dialogue games for classical and intuitionistic logic
- Theoretical foundations of computer-assisted reasoning

Contents:
- Preface
- Acknowledgements
- 1. Typefree lambda-calculus
- 2. Intuitionistic logic
- 3. Simply typed lambda-calculus
- 4. The Curry-Howard isomorphism
- 5. Proofs as combinators
- 6. Classical logic and control operators
- 7. Sequent calculus
- 8. First-order logic
- 9. First-order arithmetic
- 10. Gödel's system T
- 11. Second-order logic and polymorphism
- 12. Second-order arithmetic
- 13. Dependent types
- 14. Pure type systems and the lambda-cube
- A Mathematical Background
- B Solutions and hints to selected exercises
Ordering:

Order Online - http://www.researchandmarkets.com/reports/1767352/

Order by Fax - using the form below

Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct.

Web Address: http://www.researchandmarkets.com/reports/1767352/
Office Code: SCPL9O92

Product Format
Please select the product format and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Hard Copy (Hard Back):</th>
<th>USD 155 + USD 28 Shipping/Handling</th>
</tr>
</thead>
</table>

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

Title: [ ] Mr [ ] Mrs [ ] Dr [ ] Miss [ ] Ms [ ] Prof
First Name: ___________________________ Last Name: ___________________________
Email Address: * ___________________________
Job Title: ___________________________
Organisation: ___________________________
Address: ___________________________
City: ___________________________
Postal / Zip Code: ___________________________
Country: ___________________________
Phone Number: ___________________________
Fax Number: ___________________________

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:
Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: ________________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World