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12 **Title 3**  
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22  
23 A clear and well-documented L<sup>A</sup>T<sub>E</sub>X document is presented as an article formatted for publication by ACM in a conference proceedings or journal publication. Based on the "acmart" document class, this article presents and explains many of the common variations, as well as many of the formatting elements an author may use in the preparation of the documentation of their work.  
24  
25 CCS Concepts: • **Do Not Use This Code → Generate the Correct Terms for Your Paper**; *Generate the Correct Terms for Your Paper*; Generate the Correct Terms for Your Paper; Generate the Correct Terms for Your Paper.  
26 Additional Key Words and Phrases: Do, Not, Use, This, Code, Put, the, Correct, Terms, for, Your, Paper  
27  
28 **ACM Reference Format:**  
29 Anne-Marie Rommerdahl, Jeremy Alexander Ramírez Galeotti, Dimitrios Dafnis, Nasifa Akter, Mohammad Hosein Kardouni, Ben Trovato, G.K.M. Tobin, Lars Thørväld, and Valerie Béranger. 2018. Title 3. In *Proceedings of Make sure to enter the correct conference title from your rights confirmation email (Conference acronym 'XX)*. ACM, New York, NY, USA, ?? pages. <https://doi.org/XXXXXXX>.  
30 XXXXXXXX  
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41 **1 Introduction**  
42 ACM's consolidated article template, introduced in 2017, provides a consistent L<sup>A</sup>T<sub>E</sub>X style for use across ACM publications, and incorporates accessibility and metadata-extraction functionality necessary for future Digital Library endeavors. Numerous ACM and SIG-specific L<sup>A</sup>T<sub>E</sub>X templates have been examined, and their unique features incorporated into this single new template.  
43  
44 If you are new to publishing with ACM, this document is a valuable guide to the process of preparing your work for publication. If you have published with ACM before, this document provides insight and instruction into more recent changes to the article template.  
45  
46 The "acmart" document class can be used to prepare articles for any ACM publication — conference or journal, and  
47 Manuscript submitted to ACM  
48 for any stage of publication, from review to final "camera-ready" copy, to the author's own version, with *very few*<sup>1</sup>  
49 changes to the source.

## 2 Background and Related Work

Software reuse is a broad term, that refers to the practice of reusing previously written code, rather than coding from scratch. It is one of the key practices of software engineering. It is in fact such an important part of software engineering, that one of the ways to measure the quality of software is by its 'Reusability' [? ] - i.e. the degree to which the application or its components can be reused. There are many different ways to do reuse in software engineering. Software libraries and frameworks are good examples of software that are intended to be reused. Developers may also scour the internet for things such as open-source software, or code snippets from websites like StackOverflow, which can be reused.

as 'rare'. Most studied systems offered catalogs of "reusable functions or examples of predefined processes", but they were found to be generic, or have a limited scope[? ]. There have been proposed some ideas on how to promote reuse for LCPs, such as the strongly-typed rich templating language OSTRICH, developed for the model-driven low-code platform OutSystems. OutSystems provides scaffolding mechanisms for common development patterns and sample screen templates, both designed by experts on domain-specific languages (DSL). The practice of using templates in the OutSystems platform involves cloning and modifying samples, which may require more knowledge than the end-user possesses. The goal of OSTRICH is to remove this need for adaption when using templates, to remove the knowledge-barrier when making use of the available templates. This is done by abstracting and parameterizing the templates. A limitation of OSTRICH, is that it currently only supports the top nine most used production-ready screen templates from OutSystems. The end-user may not create and save their own templates, nor can they re-apply a template which they have customized.

Another approach focused on enabling model reuse by converting and merging heterogeneous models together into several graphs, which are then merged into one single graph (The Knowledge Graph), which acts as the repository of models. The Knowledge Graph can be queried to predict the next modeling step, based on the model being constructed by the user. This approach focuses on how to store, query, recommend and integrate the pre-defined models efficiently. End-Users can also persist their own models to the repository for later reuse.

For citizen developers, this feature of recommending models which have been constructed by domain experts and then developed by model experts could prove very useful. However, while the user may persist their own models, the study is clearly not focused on guiding the user towards reusing their own models.

On the other hand, some existing LCDPs offer the user the ability to create their own models - for example by defining a new block in a block-based tool[? ].

Building on the ideas discussed for improving reuse in low-code development platforms (LCDPs), several popular tools show these concepts in action. For instance, Webflow[? ] is a leading low-code platform that offers a wealth of features for building responsive websites. One of its standout features is the ability to create reusable components and UI kits, which can significantly speed up the development process. With Webflow's intuitive interface, developers can quickly design and prototype components, and then reuse them across multiple pages and projects.

In a similar way, Mendix[? ] takes this further for full enterprise apps by offering shareable building blocks like simple actions (microflows) and UI parts that anyone on a team can grab and use again without recoding. Through its Marketplace, a free online hub, you can download ready templates, connectors for tools like Salesforce, and basic setups that fit right into new projects, making everything faster and more uniform. This approach builds on the flexibility seen in platforms like Webflow, but adds strong team tools and AI suggestions to spot and create reusable pieces, empowering even beginners to build complex apps while keeping reuse simple and widespread.

OutSystems[? ] further enhances the concept of reuse in low-code development platforms by emphasizing rapid application delivery through its robust set of features. Like Webflow and Mendix, OutSystems also provides a library of reusable components and templates that help developers complete projects faster. Its user-friendly visual development environment allows users to easily drag and drop elements while connecting with existing systems. OutSystems also supports teamwork with built-in version control and feedback features, making it easy for teams to share and improve reusable components. Additionally, the platform uses AI to suggest the best solutions and components for specific tasks, helping to streamline the development process. By encouraging reuse at both individual and team levels, OutSystems enables organizations to create scalable applications quickly while ensuring quality and consistency.

Table 1. Block Based Robotics Environments Reuse Support

Platform	Structural Reuse	Social Reuse	Interoperable Reuse	Reuse Support
VEXcode GO	X	X		Medium
mBlock	X	X	X	Medium
MakeCode	X	X	X	Medium
Spike Lego	X		X	Low
Open Roberta		X		Low

In order to analyze how block-based robotics environments address reuse area, 4 representative platforms were compared: mBlock, MakeCode, SPIKE LEGO, VEXcode GO and Open Roberta. The comparison focused on three main dimensions of reuse: structural reuse (through user-defined blocks or functions), social reuse (through sharing or remixing existing projects), and interoperable reuse (through import/export capabilities).

In this context, “reuse support” represents a scale that measures how effectively each platform facilitates reuse-related features. High reuse support indicates that users can easily create, share, and adapt existing components or projects. Medium reuse support suggests that some reuse mechanisms are available but limited in scope or flexibility. Low reuse support implies that the platform provides only minimal or restricted features to promote reuse and improve user productivity.

As shown in Table 1, although these platforms include reusability features, they are quite limited, as none of them provide users with clear guidance on how to use these tools effectively, which restricts their ability to fully leverage them.

Despite all of the useful features that these tools have, none of them provides guidance to the end-users to create custom reusable components which is the key feature of our project.

Research also indicates that block based programming environments should guide the end users towards good code organization as many may lack the necessary knowledge or may become stuck due to errors.[? ] Although block based programming tools like Blockly were invented to teach programming to beginners by simple examples, Mayr-Dorn et al. mention that it is possible to express even large and highly complex real-world robot programs with the language concepts offered by these kind of block-based tools. [? ]

### 3 Study Design

#### 3.1 Problem Investigation

#### 3.2 Treatment Design

Our treatment focuses on developing a guided reuse assistant for the OpenRoberta Lab environment. The purpose of this tool is to help users recognize when parts of their robot programs can be reused, and to make it easier for them to create reusable custom blocks. By doing this, we aim to reduce repetitive code and help users learn important programming concepts such as modularity and abstraction.

*3.2.1 Overview of the Tool.* The guided reuse assistant is built as an extension inside Open Roberta Lab, which uses the Blockly framework. The assistant runs directly in the web browser and interacts with the user’s block workspace. Its main job is to look through the user’s program, find repeated sequences of blocks, and guide the user in turning them into reusable blocks.

The tool works in three main steps:

- 157 (1) **Detecting Repeated Code:** The assistant automatically scans the user's program and searches for parts that  
158 look the same or very similar. These are marked as potential duplicates.  
159
- 160 (2) **Highlighting and Suggesting Reuse:** Once duplicates are found, the system highlights them in the workspace  
161 and shows a message suggesting that these sections could be made into a reusable block (function). This helps  
162 users see repetition they might not have noticed before.  
163
- 164 (3) **Helping the User Create a New Block:** If the user agrees to the suggestion, the assistant opens a small guide  
165 to help them create the new block. It automatically detects any small differences between the repeated parts,  
166 such as numbers or variable names, and turns them into inputs (parameters) for the new block. When the block  
167 is created, all the repeated code is replaced by calls to this new reusable block.  
168

### 169 3.3 Treatment Validation

170 The treatment validation for this study adopts a mixed-methods evaluation approach to assess the effectiveness of  
171 the proposed features for guiding users in creating reusable custom blocks within the OpenRoberta environment.  
172 Participants will be recruited from local educational institutions, specifically chemistry students and teachers who  
173 frequently engage in laboratory work. A sufficient number of participants will be selected to ensure a diverse range of  
174 experience levels with block-based programming. The experimental setup will take place in a controlled environment,  
175 where participants will be divided into two groups: one using the enhanced OpenRoberta platform with guided block  
176 creation features, and the other using the standard version without these enhancements. The procedure will begin with  
177 a pre-test to evaluate participants' prior understanding of modular programming concepts, followed by a series of tasks  
178 in which they will create reusable blocks from given code segments. Participants' interactions with the platform will be  
179 observed throughout the experiment. Data collection will include both quantitative measures, such as task completion  
180 time and accuracy in creating reusable blocks and qualitative feedback obtained through post-task interview. The  
181 analysis will compare performance metrics between the two groups and apply thematic analysis to the qualitative  
182 data to identify user experiences and perceptions of the new features' usability and effectiveness. This comprehensive  
183 evaluation will provide a detailed understanding of how useful and effective is the block creation guidance feature to  
184 the end-users.  
185

186 Existing block-based environments provide mechanisms for reuse, but lack intelligent support to help users recognize  
187 and apply reuse in practice.  
188

189 To address this gap, our project introduces a guided reuse assistant within the Open Roberta Lab environment. The  
190 tool is designed to help users identify and apply reuse more easily while creating their robot programs. It works by  
191 automatically scanning a user's block-based program to detect repeated code segments that appear in different parts of  
192 the workspace. Once these duplicates are found, the system highlights them visually, drawing the user's attention to  
193 patterns that could be simplified.  
194

195 When repeated blocks are detected, the assistant suggests creating a reusable custom block (function). It then helps  
196 the user generate this new block by identifying the small differences between the repeated parts—such as numbers,  
197 variables, or parameters—and turning these differences into inputs for the new block. After the user confirms, the  
198 system automatically replaces all the repeated sequences with calls to the newly created reusable block.  
199

200 By combining ideas from procedural abstraction (organizing code into meaningful, reusable parts) and automated  
201 refactoring (improving code through intelligent transformations), our tool aims to make block-based programming  
202 more structured and efficient. It encourages users to build programs that are modular and easier to maintain, helps  
203 reduce unnecessary repetition, and supports learning by making the concept of reuse clear and hands-on.  
204

209 In summary, our work bridges the gap between existing theoretical approaches to software reuse and their real-world  
210 application in block-based programming environments. Through this guided and semi-automated approach, we aim to  
211 make reuse visible, understandable, and practical for end-users working in Open Roberta.  
212

#### 213 4 Modifications

214 Modifying the template – including but not limited to: adjusting margins, typeface sizes, line spacing, paragraph and  
215 list definitions, and the use of the \vspace command to manually adjust the vertical spacing between elements of your  
216 work – is not allowed.  
217

218 **Your document will be returned to you for revision if modifications are discovered.**  
219

#### 220 5 Typefaces

221 The “acmart” document class requires the use of the “Libertine” typeface family. Your TeX installation should include  
222 this set of packages. Please do not substitute other typefaces. The “lmodern” and “lmodern” packages should not be used,  
223 as they will override the built-in typeface families.  
224

#### 225 6 Title Information

226 The title of your work should use capital letters appropriately - <https://capitalizemytitle.com/> has useful rules for  
227 capitalization. Use the title command to define the title of your work. If your work has a subtitle, define it with the  
228 subtitle command. Do not insert line breaks in your title.  
229

230 If your title is lengthy, you must define a short version to be used in the page headers, to prevent overlapping text.  
231 The title command has a “short title” parameter:  
232

233 \title[short title]{full title}

#### 234 7 Authors and Affiliations

235 Each author must be defined separately for accurate metadata identification. As an exception, multiple authors may  
236 share one affiliation. Authors’ names should not be abbreviated; use full first names wherever possible. Include authors’  
237 e-mail addresses whenever possible.  
238

239 Grouping authors’ names or e-mail addresses, or providing an “e-mail alias,” as shown below, is not acceptable:

240 \author{Brooke Aster, David Mehldau}  
241 \email{dave,judy,steve@university.edu}  
242 \email{firstname.lastname@phillips.org}

243 The authornote and authornotemark commands allow a note to apply to multiple authors – for example, if the  
244 first two authors of an article contributed equally to the work.  
245

246 If your author list is lengthy, you must define a shortened version of the list of authors to be used in the page headers,  
247 to prevent overlapping text. The following command should be placed just after the last \author{} definition:  
248

249 \renewcommand{\shortauthors}{McCartney, et al.}

250 Omitting this command will force the use of a concatenated list of all of the authors’ names, which may result in  
251 overlapping text in the page headers.  
252

253 The article template’s documentation, available at <https://www.acm.org/publications/proceedings-template>, has a  
254 complete explanation of these commands and tips for their effective use.  
255

261 Note that authors' addresses are mandatory for journal articles.  
262

## 263 8 Rights Information

264 Authors of any work published by ACM will need to complete a rights form. Depending on the kind of work, and the  
265 rights management choice made by the author, this may be copyright transfer, permission, license, or an OA (open  
266 access) agreement.  
267

268 Regardless of the rights management choice, the author will receive a copy of the completed rights form once it  
269 has been submitted. This form contains L<sup>A</sup>T<sub>E</sub>X commands that must be copied into the source document. When the  
270 document source is compiled, these commands and their parameters add formatted text to several areas of the final  
271 document:  
272

- 273 • the "ACM Reference Format" text on the first page.
- 274 • the "rights management" text on the first page.
- 275 • the conference information in the page header(s).

276 Rights information is unique to the work; if you are preparing several works for an event, make sure to use the  
277 correct set of commands with each of the works.

278 The ACM Reference Format text is required for all articles over one page in length, and is optional for one-page  
279 articles (abstracts).  
280

## 281 9 CCS Concepts and User-Defined Keywords

282 Two elements of the "acmart" document class provide powerful taxonomic tools for you to help readers find your work  
283 in an online search.  
284

285 The ACM Computing Classification System — <https://www.acm.org/publications/class-2012> — is a set of classifiers  
286 and concepts that describe the computing discipline. Authors can select entries from this classification system, via  
287 <https://dl.acm.org/ccs/ccs.cfm>, and generate the commands to be included in the L<sup>A</sup>T<sub>E</sub>X source.  
288

289 User-defined keywords are a comma-separated list of words and phrases of the authors' choosing, providing a more  
290 flexible way of describing the research being presented.  
291

292 CCS concepts and user-defined keywords are required for all articles over two pages in length, and are optional  
293 for one- and two-page articles (or abstracts).  
294

## 295 10 Sectioning Commands

296 Your work should use standard L<sup>A</sup>T<sub>E</sub>X sectioning commands: \section, \subsection, \subsubsection, \paragraph,  
297 and \ subparagraph. The sectioning levels up to \subsubsection should be numbered; do not remove the numbering  
298 from the commands.  
299

300 Simulating a sectioning command by setting the first word or words of a paragraph in boldface or italicized text is  
301 **not allowed.**  
302

303 Below are examples of sectioning commands.  
304

### 305 10.1 Subsection

306 This is a subsection.  
307

308 *10.1.1 Subsubsection.* This is a subsubsection.  
309

310 Manuscript submitted to ACM  
311

Table 2. Frequency of Special Characters

Non-English or Math	Frequency	Comments
$\emptyset$	1 in 1,000	For Swedish names
$\pi$	1 in 5	Common in math
\$	4 in 5	Used in business
$\Psi_1^2$	1 in 40,000	Unexplained usage

Table 3. Some Typical Commands

Command	A Number	Comments
\author	100	Author
\table	300	For tables
\table*	400	For wider tables

333 *Paragraph.* This is a paragraph.

334 Subparagraph This is a subparagraph.

## 336 11 Tables

337 The “acmart” document class includes the “booktabs” package — <https://ctan.org/pkg/booktabs> — for preparing  
338 high-quality tables.

339 Table captions are placed *above* the table.

340 Because tables cannot be split across pages, the best placement for them is typically the top of the page nearest  
341 their initial cite. To ensure this proper “floating” placement of tables, use the environment **table** to enclose the table’s  
342 contents and the table caption. The contents of the table itself must go in the **tabular** environment, to be aligned  
343 properly in rows and columns, with the desired horizontal and vertical rules. Again, detailed instructions on **tabular**  
344 material are found in the *LaTeX User’s Guide*.

345 Immediately following this sentence is the point at which Table ?? is included in the input file; compare the placement  
346 of the table here with the table in the printed output of this document.

347 To set a wider table, which takes up the whole width of the page’s live area, use the environment **table\*** to enclose  
348 the table’s contents and the table caption. As with a single-column table, this wide table will “float” to a location deemed  
349 more desirable. Immediately following this sentence is the point at which Table ?? is included in the input file; again, it  
350 is instructive to compare the placement of the table here with the table in the printed output of this document.

351 Always use midrule to separate table header rows from data rows, and use it only for this purpose. This enables  
352 assistive technologies to recognise table headers and support their users in navigating tables more easily.

## 353 12 Math Equations

354 You may want to display math equations in three distinct styles: inline, numbered or non-numbered display. Each of  
355 the three are discussed in the next sections.

### 365    12.1 Inline (In-text) Equations

366  
 367 A formula that appears in the running text is called an inline or in-text formula. It is produced by the **math** environment,  
 368 which can be invoked with the usual `\begin{...}\end{code> construction or with the short form $...$. You can use  
 369 any of the symbols and structures, from  $\alpha$  to  $\omega$ , available in LATEX [?]; this section will simply show a few examples  
 370 of in-text equations in context. Notice how this equation:  $\lim_{n \rightarrow \infty} x = 0$ , set here in in-line math style, looks slightly  
 371 different when set in display style. (See next section).  
 372`

### 373    12.2 Display Equations

374  
 375 A numbered display equation—one set off by vertical space from the text and centered horizontally—is produced by the  
 376 **equation** environment. An unnumbered display equation is produced by the **displaymath** environment.  
 377

378 Again, in either environment, you can use any of the symbols and structures available in L<sup>A</sup>T<sub>E</sub>X; this section will just  
 379 give a couple of examples of display equations in context. First, consider the equation, shown as an inline equation  
 380 above:  
 381

$$\lim_{n \rightarrow \infty} x = 0 \tag{1}$$

382 Notice how it is formatted somewhat differently in the **displaymath** environment. Now, we'll enter an unnumbered  
 383 equation:  
 384

$$\sum_{i=0}^{\infty} x + 1$$

385 and follow it with another numbered equation:  
 386

$$\sum_{i=0}^{\infty} x_i = \int_0^{\pi+2} f \tag{2}$$

387 just to demonstrate L<sup>A</sup>T<sub>E</sub>X's able handling of numbering.  
 388

## 390    13 Figures

391 The “`figure`” environment should be used for figures. One or more images can be placed within a figure. If your figure  
 392 contains third-party material, you must clearly identify it as such, as shown in the example below.  
 393

394 Your figures should contain a caption which describes the figure to the reader.  
 395

396 Figure captions are placed *below* the figure.  
 397

398 Every figure should also have a figure description unless it is purely decorative. These descriptions convey what's in  
 399 the image to someone who cannot see it. They are also used by search engine crawlers for indexing images, and when  
 400 images cannot be loaded.  
 401

402 A figure description must be unformatted plain text less than 2000 characters long (including spaces). **Figure**  
 403 **descriptions should not repeat the figure caption – their purpose is to capture important information that is**  
 404 **not already provided in the caption or the main text of the paper.** For figures that convey important and complex  
 405 new information, a short text description may not be adequate. More complex alternative descriptions can be placed in  
 406 an appendix and referenced in a short figure description. For example, provide a data table capturing the information in  
 407 a bar chart, or a structured list representing a graph. For additional information regarding how best to write figure  
 408 descriptions and why doing this is so important, please see <https://www.acm.org/publications/taps/describing-figures/>.  
 409



Fig. 1. 1907 Franklin Model D roadster. Photograph by Harris & Ewing, Inc. [Public domain], via Wikimedia Commons. (<https://goo.gl/VLCRBB>).

### 13.1 The “Teaser Figure”

A “teaser figure” is an image, or set of images in one figure, that are placed after all author and affiliation information, and before the body of the article, spanning the page. If you wish to have such a figure in your article, place the command immediately before the `\maketitle` command:

```
\begin{teaserfigure}
\includegraphics[width=\textwidth]{sampleteaser}
\caption{figure caption}
\Description{figure description}
\end{teaserfigure}
```

## 469    14 Citations and Bibliographies

470    The use of BibTeX for the preparation and formatting of one's references is strongly recommended. Authors' names  
 471    should be complete — use full first names ("Donald E. Knuth") not initials ("D. E. Knuth") — and the salient identifying  
 472    features of a reference should be included: title, year, volume, number, pages, article DOI, etc.

473    The bibliography is included in your source document with these two commands, placed just before the `\end{document}`  
 474    command:

```
477    \bibliographystyle{ACM-Reference-Format}
  478    \bibliography{bibfile}
```

479    where "bibfile" is the name, without the ".bib" suffix, of the BibTeX file.

480    Citations and references are numbered by default. A small number of ACM publications have citations and references  
 481    formatted in the "author year" style; for these exceptions, please include this command in the **preamble** (before the  
 482    command "`\begin{document}`") of your L<sup>A</sup>T<sub>E</sub>X source:

```
483    \citetstyle{acmauthoryear}
```

484    Some examples. A paginated journal article [? ], an enumerated journal article [? ], a reference to an entire issue [? ],  
 485    a monograph (whole book) [? ], a monograph/whole book in a series (see 2a in spec. document) [? ], a divisible-book  
 486    such as an anthology or compilation [? ] followed by the same example, however we only output the series if the volume  
 487    number is given [? ] (so Editor00a's series should NOT be present since it has no vol. no.), a chapter in a divisible book  
 488    [? ], a chapter in a divisible book in a series [? ], a multi-volume work as book [? ], a couple of articles in a proceedings  
 489    (of a conference, symposium, workshop for example) (paginated proceedings article) [? ? ], a proceedings article with  
 490    all possible elements [? ], an example of an enumerated proceedings article [? ], an informally published work [? ],  
 491    a couple of preprints [? ? ], a doctoral dissertation [? ], a master's thesis: [? ], an online document / world wide web  
 492    resource [? ? ? ], a video game (Case 1) [? ] and (Case 2) [? ] and [? ] and (Case 3) a patent [? ], work accepted for  
 493    publication [? ], 'YYYYb'-test for prolific author [? ] and [? ]. Other cites might contain 'duplicate' DOI and URLs (some  
 494    SIAM articles) [? ]. Boris / Barbara Beeton: multi-volume works as books [? ] and [? ]. A presentation [? ]. An article  
 495    under review [? ]. A couple of citations with DOIs: [? ? ]. Online citations: [? ? ? ]. Artifacts: [? ] and [? ].

## 504    15 Acknowledgments

505    Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research  
 506    and the preparation of the work should be included in an acknowledgment section, which is placed just before the  
 507    reference section in your document.

508    This section has a special environment:

```
509    \begin{acks}
  510    ...
  511    \end{acks}
```

512    so that the information contained therein can be more easily collected during the article metadata extraction phase, and  
 513    to ensure consistency in the spelling of the section heading.

514    Authors should not prepare this section as a numbered or unnumbered `\section`; please use the "acks" environment.

**521 16 Appendices**

522 If your work needs an appendix, add it before the “`\end{document}`” command at the conclusion of your source  
523 document.

524 Start the appendix with the “`appendix`” command:

525 `\appendix`

526 and note that in the appendix, sections are lettered, not numbered. This document has two appendices, demonstrating  
527 the section and subsection identification method.

**528 17 Multi-language papers**

529 Papers may be written in languages other than English or include titles, subtitles, keywords and abstracts in different  
530 languages (as a rule, a paper in a language other than English should include an English title and an English abstract).  
531 Use `language=...` for every language used in the paper. The last language indicated is the main language of the paper.  
532 For example, a French paper with additional titles and abstracts in English and German may start with the following  
533 command

534 `\documentclass[sigconf, language=english, language=german,`  
535       `language=french]{acmart}`

536 The title, subtitle, keywords and abstract will be typeset in the main language of the paper. The commands  
537 `\translatedXXX, XXX` begin title, subtitle and keywords, can be used to set these elements in the other languages. The  
538 environment `translatedabstract` is used to set the translation of the abstract. These commands and environment have  
539 a mandatory first argument: the language of the second argument. See `sample-sigconf-i13n.tex` file for examples of  
540 their usage.

**541 18 SIGCHI Extended Abstracts**

542 The “`sigchi-a`” template style (available only in L<sup>A</sup>T<sub>E</sub>X and not in Word) produces a landscape-orientation formatted  
543 article, with a wide left margin. Three environments are available for use with the “`sigchi-a`” template style, and  
544 produce formatted output in the margin:

545     **sidebar:** Place formatted text in the margin.

546     **marginfigure:** Place a figure in the margin.

547     **maintable:** Place a table in the margin.

**548 Acknowledgments**

549 To Robert, for the bagels and explaining CMYK and color spaces.

**550 A Research Methods****551 A.1 Part One**

552 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi malesuada, quam in pulvinar varius, metus nunc  
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**A.2 Part Two**

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**B Online Resources**

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Received 20 February 2007; revised 12 March 2009; accepted 5 June 2009

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