LaTeX Class for *Association for Computing Machinery**

Boris Veytsman†

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Abstract

This package provides a class for typesetting publications of Association for Computing Machinery.

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1 Introduction

Association for Computing Machinery is the world's largest educational and scientific computing society, which delivers resources that advance computing as a science and a profession[1]. It was one of the early adopters of TeX for its typesetting.

It provided several different classes for a number of journal and conference proceedings. Unfortunately during the years since these classes were written, the code was patched many times, and the support of the different versions of the classes became difficult.

This package provides the uniform interface for all ACM publications. It is intended to replace all different classes and packages and provide an up to date LaTeX package.

The package uses only free TeX packages and fonts included in TeXLive, MikTeX and other popular TeX distributions. It is intended to be published in these distributions itself, which minimizes users' efforts in the installation and support of the package.

I am grateful to Matthew Fluet, John Owens, Craig Rodkin, Bernard Rous, David Shamma, Stephen Spencer and many others for their invaluable help.

The development version of the package is available at https://github.com/borisveytsman/acmart.

2 User's guide

2.1 Installation

Most probably, you already have this package installed in your favorite TeX distribution; if not, you may want to upgrade. You may need to upgrade it anyway since the package uses a number of relatively recent packages, especially the ones related to the fonts.

The latest released version of the package can be found on CTAN: https://www.ctan.org/pkg/acmart. The development version can be found on GitHub: https://github.com/borisveytsman/acmart. At this address you can file a bug report—or even contribute your own enhancement making a pull request.

If you decide to install the package yourself, follow the standard rules:

1. Run latex on `acmart.ins`. This will produce the file `acmart.cls`.

2. Put the file `acmart.cls` and the bibligoraphy files `*.bst` to the places where LaTeX can find them (see [1] or the documentation for your TeX system).

3. Update the database of file names. Again, see [1] or the documentation for your TeX system for the system-specific details.

4. The file `acmart.pdf` provides the documentation for the package (this is the file you are probably reading now).

As an alternative to items 2 and 3 you can just put the files in the working directory where your `.tex` file is.

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[1]http://www.acm.org/

The class uses a number of other packages. They are included in all major TeX distributions (TeXLive, MacTeX, MikTeX) of 2015 and later, so you probably have them installed. Just in case here is the list of these packages:

- *amscls*, http://www.ctan.org/pkg/amscls
- *amsfonts*, http://www.ctan.org/pkg/amsfonts
- *amsmath*, http://www.ctan.org/pkg/amsmath
- *binhex*, http://www.ctan.org/pkg/binhex
- *caption*, http://www.ctan.org/pkg/caption
- *comment*, http://www.ctan.org/pkg/comment
- *environ*, http://www.ctan.org/pkg/environ
- *fancyhdr*, http://www.ctan.org/pkg/fancyhdr
- *float*, http://www.ctan.org/pkg/float
- *fontaxes*, http://www.ctan.org/pkg/fontaxes
- *geometry*, http://www.ctan.org/pkg/geometry
- *graphics*, http://www.ctan.org/pkg/graphics
- *hyperref*, http://www.ctan.org/pkg/hyperref
- *ifluatex*, http://www.ctan.org/pkg/ifluatex
- *ifxetex*, http://www.ctan.org/pkg/ifxetex
- *inconsolata*, http://www.ctan.org/pkg/inconsolata
- *latex-tools*, http://www.ctan.org/pkg/latex-tools
- *libertine*, http://www.ctan.org/pkg/libertine
- *manyfoot*, http://www.ctan.org/pkg/manyfoot
- *microtype*, http://www.ctan.org/pkg/microtype
- *ms*, http://www.ctan.org/pkg/ms
- *mweights*, http://www.ctan.org/pkg/mweights
- *natbib*, http://www.ctan.org/pkg/natbib
- *nccfoots*, http://www.ctan.org/pkg/nccfoots
- *newtx*, http://www.ctan.org/pkg/newtx
- *oberdiek*, http://www.ctan.org/pkg/oberdiek

- *pdftex-def*, http://www.ctan.org/pkg/pdftex-def

- *setspace*, http://www.ctan.org/pkg/setspace

- *totpages*, http://www.ctan.org/pkg/totpages

- *trimspaces*, http://www.ctan.org/pkg/trimspaces

- *upquote*, http://www.ctan.org/pkg/upquote

- *url*, http://www.ctan.org/pkg/url

- *xcolor*, http://www.ctan.org/pkg/xcolor

- *xkeyval*, http://www.ctan.org/pkg/xkeyval

2.2 Invocation and options

To use the class put in the preamble of your document

> \documentclass[⟨*options*⟩]{acmart}

There are several options corresponding to the type of the document and its general appearance. They are described below. Generally speaking, the options have key=value forms, for example

```
\documentclass[format=acmsmall, screen=true, review=false]{acmart}
```

The option format describes the format of the output. There are several possible values for this option, for example,

```
\documentclass[format=acmtog]{acmart}
```

Actually the words format= can be omitted, e.g.,

```
\documentclass[acmtog, review=false]{acmart}
```

The possible formats are listed in Table 1. Note that formats starting with acm are intended for journals and transactions, while formats starting with sig are intended for proceedings published as books.

There are several Boolean options which can take true or false values. They are listed in Table 2. The words =true can be omitted when setting the Boolean option, so instead of screen=true one can write just screen, for example,

```
\documentclass[acmsmall, screen, review]{acmart}
```

Table 1: The possible values for the `format` option

Value	Meaning
manuscript	A manuscript. This is the default
acmsmall	Small single column format, used for CIE, CSUR, JACM, JDIQ, JEA, JERIC, JETC, TAAS, TACCESS, TACO, TALG, TALLIP (formerly TALIP), TCPS, TEAC, TECS, TIIS, TISSEC, TIST, TKDD, TMIS, TOCE, TOCHI, TOCL, TOCS, TOCT, TODAES, TODS, TOIS, TOIT, TOMACS, TOMM (formerly TOMCCAP), TOMPECS, TOMS, TOPC, TOPLAS, TOPS, TOS, TOSEM, TOSN, TRETS, TSAS, TSC, TSLP, TWEB.
acmlarge	Large single column format, used for IMWUT, JOCCH, PACMPL, PO-MACS, TAP
acmtog	Large double column format, used for TOG
sigconf	Proceedings format for most of ACM conferences (with the exceptions listed below) and all ICPS volumes
siggraph	As of March 2017, this format is no longer used. Please use sigconf for SIGGRAPH conferences.
sigplan	Proceedings format for SIGPLAN conferences
sigchi	Proceedings format for SIGCHI conferences
sigchi-a	Format for SIGCHI extended abstract

The option `review` is useful when combined with the `manuscript` format option: it provides a version suitable for reviewers and copyeditors.

The option `screen` may in the future involve additional features suitable for on-screen versions of the articles.

The option `natbib` is used when the corresponding BibTeX style is based on `natbib`. In most cases you do not need to set it. See Section 2.10.

The option `anonymous` is used for anonymous review process: all author information becomes obscured.

Table 2: Boolean options

Option	Default	Meaning
review	false	A review version: lines are numbered, hyperlinks are colored
screen	false	A screen version: hyperlinks are colored
natbib	true	Whether to use `natbib` package (see Section 2.10)
anonymous	false	Whether to make author(s) anonymous
authorversion	false	Whether to generate a special version for authors' personal use or posting (see Section 2.3)

2.3   Topmatter commands

A number of commands set up *top matter* information, or, in the computer science jargon, *metadata* for the article. They establish the publication name, article title, authors, doi and other data. Some of these commands, like \title or \author, should be put by the authors. Others, like \acmVolume or \acmDOI—by the editors. Below we describe these commands and mention who should issue them. These macros should be used *before* the \maketitle command. Note that in the previous versions of ACM classes some of these commands should be used before \maketitle, and some after it. Now they all must be used before \maketitle.

The class internally loads amsart class, so many top matter commands are inherited from amsart [2].

\acmJournal   The macro \acmJournal{⟨*shortName*⟩} sets the name of the journal or transaction for journals and transactions. The argument is the short name of the publication *in uppercase*, for example,

```
\acmJournal{TOMS}
```

The currently recognized journals are listed in Table 3. Note that conference proceedings published in *book* form do not set this macro.

It is expected that this command is inserted by the author of the manuscript when she decides to which journal to submit the manuscript.

\acmConference   The macro \acmConference[⟨*short name*⟩]{⟨*name*⟩}{⟨*date*⟩}{⟨*venue*⟩} is used for conference proceedings published in the book form. The arguments are the following:

short name: the abbreviated name of the conference (optional).

name: the name of the conference *or* the name of the book as set by the editor.

date: the date(s) of the conference.

venue: the place of the conference.

Examples:

```
\acmConference[TD'15]{Technical Data Conference}{November
12--16}{Dallas, TX, USA}
\acmConference{SA'15 Art Papers}{November 02--06, 2015}{Kobe, Japan}
```

Normally this command is entered either by the editor or by the typesetter.

\title   The command \title, as in amsart class, has two arguments: one optional, and one mandatory:

\title[⟨*ShortTitle*⟩]{⟨*FullTitle*⟩}

The mandatory argument is the full title of the article. The optional argument, if present, defines the shorter version of the title for running heads. If the optional argument is absent, the full title is used instead.

It is expected that this command is inserted by the author of the manuscript.

Table 3: ACM publications and arguments of the \acmJournal command

Abbreviation	Publication
CIE	ACM Computers in Entertainment
CSUR	ACM Computing Surveys
IMWUT	PACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
JACM	Journal of the ACM
JDIQ	ACM Journal of Data and Information Quality
JEA	ACM Journal of Experimental Algorithmics
JERIC	ACM Journal of Educational Resources in Computing
JETC	ACM Journal on Emerging Technologies in Computing Systems
JOCCH	ACM Journal on Computing and Cultural Heritage
PACMPL	PACM on Programming Languages
POMACS	PACM on Measurement and Analysis of Computing Systems
TAAS	ACM Transactions on Autonomous and Adaptive Systems
TACCESS	ACM Transactions on Accessible Computing
TACO	ACM Transactions on Architecture and Code Optimization
TALG	ACM Transactions on Algorithms
TALLIP	ACM Transactions on Asian and Low-Resource Language Information Processing
TAP	ACM Transactions on Applied Perception
TCPS	ACM Transactions on Cyber-Physical Systems
TEAC	ACM Transactions on Economics and Computation
TECS	ACM Transactions on Embedded Computing Systems
TIIS	ACM Transactions on Interactive Intelligent Systems
TISSEC	ACM Transactions on Information and System Security
TIST	ACM Transactions on Intelligent Systems and Technology
TKDD	ACM Transactions on Knowledge Discovery from Data
TMIS	ACM Transactions on Management Information Systems
TOCE	ACM Transactions on Computing Education
TOCHI	ACM Transactions on Computer-Human Interaction
TOCL	ACM Transactions on Computational Logic
TOCS	ACM Transactions on Computer Systems
TOCT	ACM Transactions on Computation Theory
TODAES	ACM Transactions on Design Automation of Electronic Systems
TODS	ACM Transactions on Database Systems
TOG	ACM Transactions on Graphics
TOIS	ACM Transactions on Information Systems
TOIT	ACM Transactions on Internet Technology
TOMACS	ACM Transactions on Modeling and Computer Simulation
TOMM	ACM Transactions on Multimedia Computing, Communications and Applications
TOMPECS	ACM Transactions on Modeling and Performance Evaluation of Computing Systems
TOMS	ACM Transactions on Mathematical Software
TOPC	ACM Transactions on Parallel Computing
TOPLAS	ACM Transactions on Programming Languages and Systems
TOPS	ACM Transactions on Privacy and Security
TOS	ACM Transactions on Storage
TOSEM	ACM Transactions on Software Engineering and Methodology
TOSN	ACM Transactions on Sensor Networks
TRETS	ACM Transactions on Reconfigurable Technology and Systems
TSAS	ACM Transactions on Spatial Algorithms and Systems
TSC	ACM Transactions on Social Computing
TSLP	ACM Transactions on Speech and Language Processing
TWEB	ACM Transactions on the Web

\subtitle Besides title, ACM classes allow subtitle, set with the \subtitle{⟨*subtitle*⟩} macro.

The commands for specification of authors are highly structured. The reason is, they serve double duty: the authors' information is typeset in the manuscript, *and* is used by the metadata extraction tools for indexing and cataloguing. Therefore it is very important to follow the guidelines exactly.

\author The basic commands are \author, \orcid (for the researchers registered with OR-
\orcid CID, http://www.orcid.org/), \affiliation and \email. In the simplest case you
\affiliation enter them in this order:
\email

```
\author{...}
\orcid{...}
\affiliation{...}
\email{...}
```

Do *not* use LaTeX \and macro! Each author deserves his or her own \author command.

Note that some formats do not typset e-mails of ORCID identifiers. Do not worry: metadata tools will get them.

Sometimes an author has several affiliations. In this case the \affiliation command should be repeated:

```
\author{...}
\orcid{...}
\affiliation{...}
\affiliation{...}
\email{...}
```

Similarly you can repeat \email command.

You may have several authors with the same afifliation, different affiliations or overlapping affiliations (author A_1 is affiliated with institutions I_1 and I_2, while author A_2 is affiliated with I_2 only, and author A_3 is affiliated with I_1 and I_3, …). The recommended solution is to put the \affiliation commands after each author, possibly repeating them:

```
\author{...}
\orcid{...}
\affiliation{...}
\affiliation{...}
\email{...}
\author{...}
\orcid{...}
\affiliation{...}
\email{...}
\author{...}
\orcid{...}
\affiliation{...}
\affiliation{...}
\email{...}
```

In some cases when several authors share the same affiliation you may try to save the space using the format

```
\author{...}
\email{...}
\author{...}
\email{...}
\affiliation{...}
```

However, this format is not generally recommended.

\additionalaffiliation In some cases too many affiliations take too much space. The command \additionalaffiliation{⟨*affiliation*⟩} creates a footnote after author's name with the words "Also with {⟨*affiliation*⟩}". You should use this command only as the last resort. An example of usage is:

```
\author{G. Tobin}
\author{Ben Trovato}
\additionalaffiliation{%
  \institution{The Th{\o}rv{\"a}ld Group}
  \streetaddress{1 Th{\o}rv{\"a}ld Circle}
  \city{Hekla}
  \country{Iceland}}
\affiliation{%
  \institution{Institute for Clarity in Documentation}
  \streetaddress{P.O. Box 1212}
  \city{Dublin}
  \state{Ohio}
  \postcode{43017-6221}
}
```

Here Trovato and Tobin share their affiliation with the Institute for Clarity in Documentation, but only Ben Trovato is affiliated with The Thørväld Group.

\position The \affiliation and \additionalaffiliation commands are further structured
\institution to interact with the metadata extraction tools. Inside the this command you should use
\department \position, \institution, \department, \city, \streetaddress, \state, \postcode
\streetaddress and \country macros to indicate the corresponding parts of the affiliation. Note that in
\city some cases (for example, journals) these parts are not printed in the resulting copy, but
\state they *are* necessary since they are used by the XML metadata extraction programs. Do
\postcode *not* put commas or \\ between the elements of \affiliation: they will be provided
\country automatically.

An example of the author block:

```
\author{A. U. Thor}
\orcid{1234-4564-1234-4565}
\affiliation{%
  \institution{University of New South Wales}
  \department{School of Biomedical Engineering}
  \streetaddress{Samuels Building (F25), Kensington Campus}
  \city{Sidney}
```

```
    \state{NSW}
    \postcode{2052}
    \country{Australia}}
\email{author@nsw.au.edu}
\author{A. N. Other}
\affiliation{%
  \institution{University of New South Wales}
  \city{Sidney}
  \state{NSW}
  \country{Australia}}
\author{C. O. Respondent}
\orcid{1234-4565-4564-1234}
\affiliation{%
  \institution{University of Pennsylvania}
  \city{Philadelphia}
  \state{PA}
  \country{USA}}
\affiliation{%
  \institution{University of New South Wales}
  \city{Sidney}
  \state{NSW}
  \country{Australia}}
```

Note that old ACM conference formats did not allow for more than six authors and required some efforts from the authors to achieve alignment. The new format is much better in this.

Sometimes an author works in several departments within the same insitution. There could be two situations: the departments are independent, or one department is within another. In the first case just repeat the command \department several times. To handle the second case the command has an optional numerical parameter. The departments with higher numbers are higher in the organizational chart. Compare

```
  \affiliation{%
\department[0]{Department of Lunar Studies} % 0 is the default
\department[1]{John Doe Institute} % higher than 0
\institution{University of San Serriffe}
\country{San Serriffe}}
```

and

```
  \affiliation{%
\department{Department of Lunar Studies} % Not within JD Inst!
\department{John Doe Institute}
\institution{University of San Serriffe}
\country{San Serriffe}}
```

It is expected that these commands are inserted by the author of the manuscript. \thanks Like amsart (and unlike standard LaTeX), we allow \thanks only *outside* of commands

`\title` and `\author`. Example:

```
\thanks{This work is supported by the Widget Corporation Grant
\#312-001.\\
Author's address: D. Pineo, Kingsbury Hall, 33 Academic Way, Durham,
N.H. 03824; email: dspineo@comcast.net; Colin Ware, Jere A. Chase
Ocean Engineering Lab, 24 Colovos Road, Durham, NH 03824; email:
cware@ccom.unh.edu;
Sean Fogarty, (Current address) NASA Ames Research Center, Moffett
Field, California 94035.}
```

It is expected that this command is inserted by the author of the manuscript.

`\titlenote`
`\subtitlenote`
`\authornote`

While the command `\thanks` generates a note without footnote mark, sometimes the authors might need notes more tightly connected to the title, subtitle or author. The commands `\titlenote`, `\subtitlenote` and `\authornote` that follow the corresponding commands (`\title`, `\subtitle` and `\author`) generate such notes, for example

```
\title{This is a title}
\titlenote{This is a titlenote}
\author{A. U. Thor}
\authornote{This is an authornote}
```

Please never use `\footnotes` inside `\author` or `\title` commands, since this confuses metadata extraction software (actually these commands now produce errors).

`\acmVolume`
`\acmNumber`
`\acmArticle`
`\acmYear`
`\acmMonth`

The macros `\acmVolume`, `\acmNumber`, `\acmArticle`, `\acmYear` and `\acmMonth` are inserted by the editor and set the journal volume, issue, article number, year and month corrspondingly. The arguments of all these commands, including `\acmMonth` is numerical, including `\acmMonth`, for example,

```
\acmVolume{9}
\acmNumber{4}
\acmArticle{39}
\acmYear{2010}
\acmMonth{3}
```

`\acmArticleSeq`

The articles in the same issue of a journal have a *sequential number*. It is used to vertically position the black blob in some formats. By default it is the same as article number, but the command `\acmArticleSeq{⟨n⟩}` can be used to change it:

```
\acmArticle{39}   % The sequence number will be 39 by default
\acmArticleSeq{5} % We redefine it to 5
```

`\acmPrice`

The macro `\acmPrice{⟨price⟩}` sets the price for the article (by default 15.00), for example,

```
\acmPrice{25.00}
```

\acmISBN Book-like volumes have ISBN numbers attached to them. The macro \acmISBN{⟨*ISBN*⟩} sets it. Normally it is set by the typesetter, for example,

```
\acmISBN{978-1-4503-3916-2}
```

\acmDOI The macro \acmDOI{⟨*DOI*⟩} sets the DOI number of the article, for example,

```
\acmDOI{10.1145/9999997.9999999}
```

It is normally set by the typesetter.

\acmBadgeR Some conference articles get special distinction, for example, the artifact evaluation
\acmBadgeL for PPoPP 2016 (see http://ctuning.org/ae/ppopp2016.html). These articles display special badges supplied by the conference organizers. The class provides commands to add these badges: \acmBadgeR[⟨*url*⟩]{⟨*graphics*⟩} and \acmBadgeL[⟨*url*⟩]{⟨*graphics*⟩}. The first command puts the badge to the right of the title, and the second one—to the left. The exception is the sigchi-a mode for SIGCHI Extended abstract, which puts the badges on the left margin. The argument have the following meaning: [⟨*url*⟩], if provided, sets the link to the badge authority in the screen version, while {⟨*graphics*⟩} sets the graphics file with the badge image. The file must be a cropped square, which is scaled to a standard size in the output. For example, if the badge image is ae-logo.pdf, the command is

```
\acmBadgeR[http://ctuning.org/ae/ppopp2016.html]{ae-logo}
```

\startPage The macro \startPage{⟨*page*⟩} sets the first page of the article in the journal or book. It is used by the typesetter.

\terms The macros \terms{⟨*term, term,…*⟩} and \keywords{⟨*keyword, keyword,…*⟩} set
\keywords the main terms and the additional keywords for the article. Term and keywords must be separated by commas, for example,

```
\terms{wireless, interference}
\keywords{wireless sensor networks, media access control,
multi-channel, radio interference, time synchronization}
```

CCSXML ACM publications are classified according to the ACM Computing Classification
\ccsdesc Scheme (CCS). CCS codes are used both in the typeset version of the publications *and* in the metadata in the various databases. Therefore you need to provide both TeX commands and XML metadata with the paper.

The tool at http://dl.acm.org/ccs.cfm can be used to generate CCS codes. After you select the topics, click on "Generate CCS codes" to get the result like the following:

```
\begin{CCSXML}
<ccs2012>
 <concept>
  <concept_id>10010520.10010553.10010562</concept_id>
  <concept_desc>Computer systems organization~Embedded systems</concept_desc>
```

```
  <concept_significance>500</concept_significance>
 </concept>
 <concept>
  <concept_id>10010520.10010575.10010755</concept_id>
  <concept_desc>Computer systems organization˜Redundancy</concept_desc>
  <concept_significance>300</concept_significance>
 </concept>
 <concept>
  <concept_id>10010520.10010553.10010554</concept_id>
  <concept_desc>Computer systems organization˜Robotics</concept_desc>
  <concept_significance>100</concept_significance>
 </concept>
 <concept>
  <concept_id>10003033.10003083.10003095</concept_id>
  <concept_desc>Networks˜Network reliability</concept_desc>
  <concept_significance>100</concept_significance>
 </concept>
</ccs2012>
\end{CCSXML}

\ccsdesc[500]{Computer systems organization˜Embedded systems}
\ccsdesc[300]{Computer systems organization˜Redundancy}
\ccsdesc{Computer systems organization˜Robotics}
\ccsdesc[100]{Networks˜Network reliability}
```

You need to just copy this code and paste it in your paper anywhere before \maketitle.

\setcopyright   There are several possibilities for the copyright of the papers published by ACM: the authors may transfer the rights to ACM, license them to ACM, some or all authors might be employees of the US or Canada Government, etc. Accordingly the command \setcopyright{...} is introduced. Its argument is the copyright status of the paper, for example, \setcopyright{acmcopyright}. The possible values for this command are listed in Table 4.

The ACM submission software should generate the right command for you to paste into your file.

\copyrightyear   Each copyright statement must have the year of copyright. By default it is the same as \acmYear, but you can override this decision using the macro \copyrightyear, e.g.,

```
\acmYear{2016}
\copyrightyear{2015}
```

There is a special case for a personal copy that the authors may be allowed to generate for their use or a posting on a personal site (check the instructions for the specific journal or conference for the details). The document option authorversion=true produces the special form of the copyright statement for this case. Note that you still need the \setcopyright command and (optionally) \copyrightyear command to tell TEX about the copyright owner and year. Also, you should be aware that due to the different sizes

Table 4: Parameters for \setcopyright command

Parameter	Meaning
none	The copyright and permission information is not typeset (this is the option for some ACM conferences).
acmcopyright	The authors transfer the copyright to ACM (the "traditional" choice).
acmlicensed	The authors retain the copyright but license the publication rights to ACM.
rightsretained	The authors retain the copyright and publication rights to themselves or somebody else.
usgov	All the authors are employees of the US Government.
usgovmixed	Some authors are employees of the US Government.
cagov	All the authors are employees of the Canadian Government.
cagovmixed	Some authors are employees of the Canadian Government.

of the permssion blocks for the printed version and authors' version the page breaks might be different between them.

abstract   The environment abstract must *precede* \maketitle command. Again, this is different from the standard LaTeX.

teaserfigure   A special kind of figure is used for many two-column conference proceedings. This figure is placed just after the authors, but before the main text. The environment teaserfigure is used for these figures. This environment must be used *before* \maketitle, for example,

```
\begin{teaserfigure}
  \includegraphics[width=\textwidth]{sampleteaser}
  \caption{This is a teaser}
  \label{fig:teaser}
\end{teaserfigure}
```

\settopmatter   Some information in the top matter is printed for certain journals or proceedings and suppressed for others. You may override these defaults using the command \settopmatter{⟨*settings*⟩}. The settings and their meanings are listed in Table 5. For example,

```
\settopmatter{printacmref=false, printccs=true, printfolios=true}
```

\received   The command \received[⟨*stage*⟩]{⟨*date*⟩} sets the history of the publication. The [⟨*stage*⟩] argument is optional; the default is Received for the first date and revised for the subsequent ones. For example

```
\received{February 2007}
\received[revised]{March 2009}
\received[accepted]{June 2009}
```

Table 5: Settings for `\settopmatter` command

Parameter	Values	Meaning
printccs	true/false	Whether to print CCS categories
printacmref	true/false	Whether to print ACM bibliographic entry
printfolios	true/false	Whether to print page numbers (folios)

`\maketitle` The macro `\maketitle` must be the last command in the top matter group: i.e., it must follow the commands defined in this section.

`\shortauthors` *After* the command `\maketitle` the macro `\shortauthors` stores the names of the authors for the running head. You may redefine it if the list of author's name is too long, e.g.,

```
\maketitle
\renewcommand{\shortauthors}{Zhou et al.}
```

2.4 Algorithms

There now several good packages for typesetting algorithms [3, 4, 5], and the authors are now free to choose their favorite one.

2.5 Figures and tables

New ACM styles use the standard LaTeX interface for figures and tables. There are some important items to be aware of, however.

1. The captions for figures must be entered *after* the figure bodies, and for the tables *before* the table bodies.

2. ACM uses the standard types for figures and types and adds several new ones. In total there are the following types:

   figure, table: a standard figure or table, taking full text width in one-column formats and one column in two-column formats.

   figure*, table* in two-column formats, a special figure or table taking full text width.

   teaserfigure: a special figure before `\maketitle`.

   sidebar, marginfigure, margintable: in the sigchi-a format, special sidebars, tables and figures on the margin.

3. Accordingly, when scaling the images, one should use the following sizes:

   (a) For `figure` in one-column mode, `figure*` in two-column mode or `teaserfigure`— `\textwidth` (in the one-column you can also use `\columnwidth`, which coincides with `\textwidth` in this case).

(b) For `figure` in two-column mode—\columnwidth.

(c) For `marginfigure`–\marginparwidth.

(d) For `figure*` in SIGCHI Extended abstracts—\fulltextwidth.

It is strongly recommended to use the package booktabs [6] and follow its main principles of typography with respect to tables:

1. Never, ever use vertical rules.

2. Never use double rules.

It is also a good idea not to overuse horizontal rules.

For table *footnotes* you have several options described in TeX FAQ [1]. The simplest one is to use \minipage environment:

```
\begin{table}
\caption{Simulation Configuration}
\label{tab:conf}
\begin{minipage}{\columnwidth}
\begin{center}
\begin{tabular}{ll}
  \toprule
  TERRAIN\footnote{This is a table footnote. This is a
    table footnote. This is a table footnote.}   &
    (200\,m$\times$200\,m) Square\\
  Node Number     & 289\\
  Node Placement  & Uniform\\
  Application     & Many-to-Many/Gossip CBR Streams\\
  Payload Size    & 32 bytes\\
  Routing Layer   & GF\\
  MAC Layer       & CSMA/MMSN\\
  Radio Layer     & RADIO-ACCNOISE\\
  Radio Bandwidth & 250Kbps\\
  Radio Range     & 20m--45m\\
  \bottomrule
\end{tabular}
\end{center}
\bigskip
\footnotesize\emph{Source:} This is a table
 sourcenote. This is a table sourcenote. This is a table
 sourcenote.

 \emph{Note:} This is a table footnote.
\end{minipage}
\end{table}
```

sidebar
marginfigure
margintable

SIGCHI extended abstract extensively uses margin space. The package provides three environments for this with option captions:

sidebar: textual information on the margin

marginfigure: a figure on the margin

margintable: a table on the margin

Tables and figures (including margin tables and margin figures) are by default centered. However, in some cases (for example, when you use several subimages per figure) you may need to override this decision. A good way to do so is to put the contents into a \minipage of the width \columnwidth.

2.6 Theorems

ACM classes define two theorem styles and several pre-defined theorem environments:

acmplain: this is the style used for `theorem`, `conjecture`, `proposition`, `lemma`, `corollary`, and

acmdefinition: this is the style used for `example` and `definition`.

2.7 Online-only and offline-only material

printonly
screenonly
Some supplementary material in ACM publication is put online, but not in the printed version. The text inside the environment screenonly will be typeset only when the option screen (see Section 2.2) is set to true. Conversely, the text inside the environment printonly is typset only when this option is set to false. For example

```
\section{Supplementary materials}

\begin{printonly}
  This section is included in the online version of the paper.
\end{printonly}

\begin{screenonly}
  (The actual section).
\end{screenonly}
```

We use *comment* package for typesetting this code, so \begin and \end should start at the first positions of the lines of their own (no initial spaces etc.).

2.8 Note about anonymous mode

anonsuppress
When the option anonymous is selected, TeX suppresses author information (including number of authors) for a blind review. However, sometimes the information identifying the authors may be present in the body of the paper

```
\begin{anonsuppress}
  This is the continuation of the previous work by the author
  \cite{prev1, prev2}.
\end{anonsuppress}
```

As for `printonly` and `screenonly` environments, `\begin{anonsuppress}` and `\end{anonsuppress}` should start the line of their own (no leading or trailing spaces).

2.9 Acknowledgments

The traditional "Acknowledgments" section is conventionally used to thank persons and granting agencies for their help and support. However, there are several important considerations about this section.

First, in the anonymous mode this section must be omitted: it gives too much information to the reviewers. Second, the data about the grants is extracted and stored separately by the postprocessing software. ACM classes provide facilities for both these tasks.

acks   The environment `acks` starts an unnumbered section "Acknowledgments" unless the anonymous mode is chosen. Put all thanks inside this environment.

As for `printonly` and `screenonly` environments, `\begin{acks}` and `\end{acls}` should start the line of their own (no leading or trailing spaces).

\grantsponsor   All the financial support *must* be listed using the commands `\grantsponsor` and
\grantnum   `\grantnum`. These commands tell the postprocessing software about the granting organization and the grant. The format of the command is the following:

> `\grantsponsor{`⟨*sponsorID*⟩`}{`⟨*name*⟩`}{`⟨*url*⟩`}`
> `\grantnum[`⟨*url*⟩`]{`⟨*sponsorID*⟩`}{`⟨*number*⟩`}`.

Here `{`⟨*sponsorID*⟩`}` is the unique ID used to match grants to sponsors, `{`⟨*name*⟩`}` is the name of the sponsor, `{`⟨*url*⟩`}` is its URL, and `{`⟨*number*⟩`}` is the grant number. The `{`⟨*sponsorID*⟩`}` of the `\grantnum` command must correspond to `\sponsorID` of a `\grantsponsor` command. Some awards have their own web pages, which you can include using the optional argument of `\grantnum` command.

At present `{`⟨*sponsorID*⟩`}` is chosen by the authors and can be an arbitrary key, in the same way the label of `\cite` is arbitrarily chosen. There might be a change to this policy if ACM decides to create a global database of sponsoring organizations.

Example:

```
\begin{acks}
  The authors would like to thank Dr. Yuhua Li for providing the
  matlab code of  the \textit{BEPS} method.

  The authors would also like to thank the anonymous referees for
  their valuable comments and helpful suggestions. The work is
  supported by the \grantsponsor{GS501100001809}{National Natural
  Science Foundation of
  China}{https://doi.org/10.13039/501100001809} under Grant
  No.:~\grantnum{GS501100001809}{61273304}
  and~\grantnum[http://www.nnsf.cn/youngscientsts]{GS501100001809}{Young
  Scientsts' Support Program}.
\end{acks}
```

2.10 Bibliography

ACM uses the *natbib* package for formatting references and the style ACM-Reference-Format.bst for BibTEX processing. You may disable loading of *natbib* by using the option natbib=false in \documentclass. However, it is not recommended, as well as the use of BibTEX styles other than ACM-Reference-Format.bst, and may delay the processing of the manuscript.

\citestyle   If you use natbib, you can select one of two predefined sitation styles: the author-year format acmauthoryear or the numeric format acmnumeric using the command \citestyle, for example,

```
\citestyle{acmauthoryear}
```

Note that numeric citations are the default mode for most formats.

\setcitestyle   You may further customize *natbib* using \setcitestyle command, for example,

```
\setcitestyle{numbers,sort&compress}
```

If you use natbib, then commands like \citep and \citeauthor are automatically supported. The command \shortcite is the same as \cite in numerical mode, and cites the year in the author-date mode.

There are several customized BibTEX entries and fields in ACM style ACM-Reference-Format.bst you may want to be aware of.

The style supports fields doi and url, for example,

```
doi = "10.1145/1188913.1188915",
url = "http://ccrma.stanford.edu/~jos/bayes/bayes.pdf",
```

The style supports arXiv recommended fields eprint and (optionally) primaryclass, for example,

```
eprint      = "960935712",
primaryclass = "cs",
```

See the examples at http://arxiv.org/hypertex/bibstyles/.

There are special entries online and game for Web pages and games, for example,

```
@online{Thornburg01,
 author = "Harry Thornburg",
 year =   "2001",
 title =  "Introduction to Bayesian Statistics",
 url =    "http://ccrma.stanford.edu/~jos/bayes/bayes.html",
 month =  mar,
 lastaccessed = "March 2, 2005",
}
```

For these entries you can use the `lastaccessed` field to add the access date to the URL.

There are two ways to enter video and audio sources in the bibliograpy corresponding to two different possibilities. For standalone sources available on WWW you can use an `online` entry, setting there `howpublished` field, for example,

```
@online{Obama08,
 author = "Barack Obama",
 year   = "2008",
 title  = "A more perfect union",
 howpublished  = "Video",
 day    = "5",
 url    = "http://video.google.com/videoplay?docid=6528042696351994555",
 month  = mar,
 lastaccessed = "March 21, 2008",
}
```

For the sources available as attachments to conference proceedings and similar documents, you can use the usual `inproceedings` entry, again setting the `howpublished` field:

```
@Inproceedings{Novak03,
 author =        "Dave Novak",
 title =         "Solder man",
 booktitle =     {ACM SIGGRAPH 2003 Video Review on Animation theater
                  Program},
 year =          "2003",
 publisher =    "ACM Press",
 address =    "New York, NY",
 pages =          "4",
 month =    "March 21, 2008",
 doi =    "99.9999/woot07-S422",
 howpublished = "Video"
}
```

Sometimes you need to cite a complete issue of a journal. The entry `periodical` is intended for this:

```
@periodical{JCohen96,
 key =    "Cohen",
 editor =        "Jacques Cohen",
 title =         "Special issue: Digital Libraries",
 journal =       CACM,
 volume =        "39",
 number =    "11",
 month =  nov,
 year =    "1996",
}
```

2.11   Colors

While printed ACM publications are usually black and white, screen mode allows the use of colors. The ACM classes pre-define several colors according to [7]: `ACMBlue`, `ACMYellow`, `ACMOrange`, `ACMRed`, `ACMLightBlue`, `ACMGreen`, `ACMPurple`, `ACMDarkBlue`. You can use them in the color assignments.

ACM provides the following recommendation on color use.

The most accessible approach would be to ensure that your article is still readable when printed in greyscale. The most notable reasons for this are:

1. The most common type of inherited Color Vision Deficiency (CVD) is red-green (in which similar-brightness colors that only differ in their amounts of red or green are often confused), and it affects up to 8% of males and 0.5% of females of Northern European descent.

2. The most common type of acquired Color Vision Deficiency (CVD) is blue-yellow (including mild cases for many older adults).

3. Most printing is in Black & White.

4. Situational impairments (e.g., bright sunlight shining on a mobile screen) tend to reduce the entire color gamut, reducing color discriminability.

Note: It is *not* safe to encode information using only variations in color (i.e., only differences in hue and/or saturation), as there is bound to be someone affected!

To ensure that you are using the most accessible colors, ACM recommends that you choose sets of colors to help ensure suitable variations in Black & White using either of the following tools:

1. ColourBrewer: http://colorbrewer2.org/

2. ACE: The Accessible Colour Evaluator: http://daprlab.com/ace/ for designing WCAG 2.0 compliant palettes.

2.12   Other notable packages and typographic remarks

Several other packages are recommended for specialized tasks.

The package *subcaption* [8] is recommended for complex figures with several subplots or subfigures that require separate subcaptioning. The packages *nomencl* [9] and *glossaries* [10] can be used for the automatic creation of the lists of symbols and concepts used.

By default `acmart` prevents all widows and orphans (i.e. lonely lines at the beginning and the end of the page) and hyphenation at the end of the page. This is done by rather strict settings

```
\widowpenalty=10000
\clubpenalty=10000
\brokenpenalty=10000
```

However, this may lead to frustrating results when the authors must obey a page limit. Setting these penalties to smaller values may help if you absolutely need to.

Another problem might be the too strict line breaking rules. Again, a strategically placed `\sloppy` command or putting the problematic paragraph inside `sloppypar` environment might help—but beware the results might be, well, sloppy.

3 Implementation

3.1 Identification

We start with the declaration who we are. Most `.dtx` files put driver code in a separate driver file `.drv`. We roll this code into the main file, and use the pseudo-guard <gobble> for it.

```
1 ⟨class⟩\NeedsTeXFormat{LaTeX2e}
2 ⟨*gobble⟩
3 \ProvidesFile{acmart.dtx}
4 ⟨/gobble⟩
5 ⟨class⟩\ProvidesClass{acmart}
6 [2017/03/07 v1.32 Typesetting articles for Association of
7 Computing Machinery]
```

And the driver code:

```
8 ⟨*gobble⟩
9 \documentclass{ltxdoc}
10 \usepackage{array,booktabs,amsmath,graphicx,fancyvrb,tabularx}
11 \usepackage[tt=false]{libertine}
12 \usepackage[varqu]{zi4}
13 \usepackage[libertine]{newtxmath}
14 \usepackage[tableposition=top]{caption}
15 \usepackage{hypdoc}
16 \PageIndex
17 \CodelineIndex
18 \RecordChanges
19 \EnableCrossrefs
20 \begin{document}
21   \DocInput{acmart.dtx}
22 \end{document}
23 ⟨/gobble⟩
24 ⟨*class⟩
25 \def\@classname{acmart}
```

3.2 Options

We need xkeyval since some of our options may have values:

```
26 \RequirePackage{xkeyval}
```

format   The possible formats

```
27 \define@choicekey*+{acmart.cls}{format}[\ACM@format\ACM@format@nr]{%
28   manuscript, acmsmall, acmlarge, acmtog, sigconf, siggraph,
29   sigplan, sigchi, sigchi-a][manuscript]{}{%
30   \ClassError{\@classname}{The option format must be manuscript,
31     acmsmall, acmlarge, acmtog, sigconf, siggraph,
32     sigplan, sigchi or sigchi-a}}
33 \def\@DeclareACMFormat#1{\DeclareOptionX{#1}{\setkeys{acmart.cls}{format=#1}}}
34 \@DeclareACMFormat{manuscript}
```

```
35 \@DeclareACMFormat{acmsmall}
36 \@DeclareACMFormat{acmlarge}
37 \@DeclareACMFormat{acmtog}
38 \@DeclareACMFormat{sigconf}
39 \@DeclareACMFormat{siggraph}
40 \@DeclareACMFormat{sigplan}
41 \@DeclareACMFormat{sigchi}
42 \@DeclareACMFormat{sigchi-a}
43 \ExecuteOptionsX{format}
```

\if@ACM@screen   Whether we use screen mode

```
44 \define@boolkey+{acmart.cls}[@ACM@]{screen}[true]{%
45   \if@ACM@screen
46     \PackageInfo{\@classname}{Using screen mode}%
47   \else
48     \PackageInfo{\@classname}{Not using screen mode}%
49   \fi}{\PackageError{\@classname}{Option screen can be either true or
50     false}}
51 \ExecuteOptionsX{screen=false}
```

\if@ACM@review   Whether we use review mode

```
52 \define@boolkey+{acmart.cls}[@ACM@]{review}[true]{%
53   \if@ACM@review
54     \PackageInfo{\@classname}{Using review mode}%
55   \else
56     \PackageInfo{\@classname}{Not using review mode}%
57   \fi}{\PackageError{\@classname}{Option review can be either true or
58     false}}
59 \ExecuteOptionsX{review=false}
```

\if@ACM@authorversion   Whether we use author's version

```
60 \define@boolkey+{acmart.cls}[@ACM@]{authorversion}[true]{%
61   \if@ACM@authorversion
62     \PackageInfo{\@classname}{Using authorversion mode}%
63   \else
64     \PackageInfo{\@classname}{Not using authorversion mode}%
65   \fi}{\PackageError{\@classname}{Option authorversion can be either true or
66     false}}
67 \ExecuteOptionsX{authorversion=false}
```

\if@ACM@natbib@override   Whether to override the format decision about *natbib*

```
68 \newif\if@ACM@natbib@override
69 \@ACM@natbib@overridefalse
```

\if@ACM@natbib   Whether we use natbib mode

```
70 \define@boolkey+{acmart.cls}[@ACM@]{natbib}[true]{%
71   \@ACM@natbib@overridetrue
72   \if@ACM@natbib
73     \PackageInfo{\@classname}{Explicitly selecting natbib mode}%
```

```
74    \else
75        \PackageInfo{\@classname}{Explicitly deselecting natbib mode}%
76    \fi}{\PackageError{\@classname}{Option natbib can be either true or
77        false}}
```

\if@ACM@anonymous   Whether we use anonymous mode

```
78 \define@boolkey+{acmart.cls}[@ACM@]{anonymous}[true]{%
79    \if@ACM@anonymous
80        \PackageInfo{\@classname}{Using anonymous mode}%
81    \else
82        \PackageInfo{\@classname}{Not using anonymous mode}%
83    \fi}{\PackageError{\@classname}{Option anonymous can be either true or
84        false}}
85 \ExecuteOptionsX{anonymous=false}
```

\ACM@fontsize   The font size to pass to the base class

```
86 \def\ACM@fontsize{}
87 \DeclareOptionX{9pt}{\edef\ACM@fontsize{\CurrentOption}}
88 \DeclareOptionX{10pt}{\edef\ACM@fontsize{\CurrentOption}}
89 \DeclareOptionX{11pt}{\edef\ACM@fontsize{\CurrentOption}}
90 \DeclareOptionX{12pt}{\edef\ACM@fontsize{\CurrentOption}}

91 \DeclareOptionX{draft}{\PassOptionsToClass{\CurrentOption}{amsart}}
92 \DeclareOptionX{*}{\PassOptionsToClass{\CurrentOption}{amsart}}
93 \ProcessOptionsX
94 \ClassInfo{\@classname}{Using format \ACM@format, number \ACM@format@nr}
```

3.3   Setting switches

\if@ACM@manuscript   Whether we use manuscript mode

```
95 \newif\if@ACM@manuscript
```

\if@ACM@journal   There are two kinds of publications: journals and books

```
96 \newif\if@ACM@journal
```

\if@ACM@sigchiamode   The formatting of SIGCHI abstracts is quite unusual. We have a special switch for them.

```
97 \newif\if@ACM@sigchiamode
```

   Setting up switches

```
98 \ifnum\ACM@format@nr=5\relax % siggraph
99    \ClassWarning{\@classname}{The format 'siggraph' is now obsolete.
100       I am switching to sigconf.}
101   \setkeys{acmart.cls}{format=sigconf}
102 \fi
103 \ifnum\ACM@format@nr=0\relax
104   \@ACM@manuscripttrue
105 \else
106   \@ACM@manuscriptfalse
```

```
107 \fi
108 \@ACM@sigchiamodefalse
109 \ifcase\ACM@format@nr
110 \relax % manuscript
111   \@ACM@journaltrue
112 \or % acmsmall
113   \@ACM@journaltrue
114 \or % acmlarge
115   \@ACM@journaltrue
116 \or % acmtog
117   \@ACM@journaltrue
118 \or % sigconf
119   \@ACM@journalfalse
120 \or % siggraph
121   \@ACM@journalfalse
122 \or % sigplan
123   \@ACM@journalfalse
124 \or % sigchi
125   \@ACM@journalfalse
126 \or % sigchi-a
127   \@ACM@journalfalse
128   \@ACM@sigchiamodetrue
129 \fi
```

A format sets up \if@ACM@natbib only if \@ACM@natbib@override is false (i.e. user did *not* overrode format's selection):

```
130 \if@ACM@natbib@override\else
131     \@ACM@natbibtrue
132 \fi
```

3.4   Loading base class and package

At this point we either have \ACM@fontsize, or use defaults

```
133 \ifx\ACM@fontsize\@empty
134   \ifcase\ACM@format@nr
135   \relax % manuscript
136     \def\ACM@fontsize{9pt}%
137   \or % acmsmall
138     \def\ACM@fontsize{10pt}%
139   \or % acmlarge
140     \def\ACM@fontsize{10pt}%
141   \or % acmtog
142     \def\ACM@fontsize{9pt}%
143   \or % sigconf
144     \def\ACM@fontsize{9pt}%
145   \or % siggraph
146     \def\ACM@fontsize{9pt}%
147   \or % sigplan
148     \def\ACM@fontsize{9pt}%
149   \or % sigchi
```

```
150     \def\ACM@fontsize{10pt}%
151   \or % sigchi-a
152     \def\ACM@fontsize{10pt}%
153   \fi
154 \fi
155 \ClassInfo{\@classname}{Using fontsize \ACM@fontsize}
156 \LoadClass[\ACM@fontsize, reqno]{amsart}
157 \RequirePackage{microtype}
```

We need `totpages` package to calculate the number of pages

```
158 \RequirePackage{totpages}
```

The amsmath `\collect@body` is defined using `\def`. We load `environ` to access the `\long` version of the command

```
159 \RequirePackage{environ}
```

We use `setspace` for doublespacing

```
160 \if@ACM@manuscript
161 \RequirePackage{setspace}
162 \onehalfspacing
163 \fi
```

Citations. We patch `\setcitestyle` to allow, e.g., `\setcitestyle{sort}` and `\setcitestyle{nosort}`. We patch `\citestyle` to warn about undefined citation styles.

```
164 \if@ACM@natbib
165   \RequirePackage{natbib}
166   \renewcommand{\bibsection}{%
167     \section*{\refname}%
168     \phantomsection\addcontentsline{toc}{section}{\refname}%
169   }
170   \renewcommand{\bibfont}{\bibliofont}
171   \renewcommand\setcitestyle[1]{
172   \@for\@tempa:=#1\do
173   {\def\@tempb{round}\ifx\@tempa\@tempb
174     \renewcommand\NAT@open{(}\renewcommand\NAT@close{)}\fi
175   \def\@tempb{square}\ifx\@tempa\@tempb
176     \renewcommand\NAT@open{[}\renewcommand\NAT@close{]}\fi
177   \def\@tempb{angle}\ifx\@tempa\@tempb
178     \renewcommand\NAT@open{$<$}\renewcommand\NAT@close{$>$}\fi
179   \def\@tempb{curly}\ifx\@tempa\@tempb
180     \renewcommand\NAT@open{\{}\renewcommand\NAT@close{\}}\fi
181   \def\@tempb{semicolon}\ifx\@tempa\@tempb
182     \renewcommand\NAT@sep{;}\fi
183   \def\@tempb{colon}\ifx\@tempa\@tempb
184     \renewcommand\NAT@sep{;}\fi
185   \def\@tempb{comma}\ifx\@tempa\@tempb
186     \renewcommand\NAT@sep{,}\fi
187   \def\@tempb{authoryear}\ifx\@tempa\@tempb
188     \NAT@numbersfalse\fi
189   \def\@tempb{numbers}\ifx\@tempa\@tempb
```

```
190      \NAT@numberstrue\NAT@superfalse\fi
191    \def\@tempb{super}\ifx\@tempa\@tempb
192      \NAT@numberstrue\NAT@supertrue\fi
193    \def\@tempb{nobibstyle}\ifx\@tempa\@tempb
194      \let\bibstyle=\@gobble\fi
195    \def\@tempb{bibstyle}\ifx\@tempa\@tempb
196      \let\bibstyle=\@citestyle\fi
197    \def\@tempb{sort}\ifx\@tempa\@tempb
198      \def\NAT@sort{\@ne}\fi
199    \def\@tempb{nosort}\ifx\@tempa\@tempb
200      \def\NAT@sort{\z@}\fi
201    \def\@tempb{compress}\ifx\@tempa\@tempb
202      \def\NAT@cmprs{\@ne}\fi
203    \def\@tempb{nocompress}\ifx\@tempa\@tempb
204      \def\NAT@cmprs{\@z}\fi
205    \def\@tempb{sort&compress}\ifx\@tempa\@tempb
206      \def\NAT@sort{\@ne}\def\NAT@cmprs{\@ne}\fi
207    \def\@tempb{mcite}\ifx\@tempa\@tempb
208      \let\NAT@merge\@ne\fi
209    \def\@tempb{merge}\ifx\@tempa\@tempb
210      \@ifnum{\NAT@merge<\tw@}{\let\NAT@merge\tw@}{}\fi
211    \def\@tempb{elide}\ifx\@tempa\@tempb
212      \@ifnum{\NAT@merge<\thr@@}{\let\NAT@merge\thr@@}{}\fi
213    \def\@tempb{longnamesfirst}\ifx\@tempa\@tempb
214      \NAT@longnamestrue\fi
215    \def\@tempb{nonamebreak}\ifx\@tempa\@tempb
216      \def\NAT@nmfmt#1{\mbox{\NAT@up#1}}\fi
217    \expandafter\NAT@find@eq\@tempa=\relax\@nil
218    \if\@tempc\relax\else
219      \expandafter\NAT@rem@eq\@tempc
220      \def\@tempb{open}\ifx\@tempa\@tempb
221       \xdef\NAT@open{\@tempc}\fi
222      \def\@tempb{close}\ifx\@tempa\@tempb
223       \xdef\NAT@close{\@tempc}\fi
224      \def\@tempb{aysep}\ifx\@tempa\@tempb
225       \xdef\NAT@aysep{\@tempc}\fi
226      \def\@tempb{yysep}\ifx\@tempa\@tempb
227       \xdef\NAT@yrsep{\@tempc}\fi
228      \def\@tempb{notesep}\ifx\@tempa\@tempb
229       \xdef\NAT@cmt{\@tempc}\fi
230      \def\@tempb{citesep}\ifx\@tempa\@tempb
231       \xdef\NAT@sep{\@tempc}\fi
232    \fi
233  }%
234  \NAT@@setcites
235  }
236  \renewcommand\citestyle[1]{%
237    \ifcsname bibstyle@#1\endcsname%
238    \csname bibstyle@#1\endcsname\let\bibstyle\@gobble%
239    \else%
```

```
240     \@latex@error{Undefined '#1' citestyle}%
241     \fi
242   }%
243 \fi
```

\bibstyle@acmauthoryear The default author-year format:

```
244 \newcommand{\bibstyle@acmauthoryear}{%
245   \setcitestyle{%
246     authoryear,%
247     open={(},close={)},citesep={;},%
248     aysep={},yysep={,},%
249     notesep={, }}}
```

\bibstyle@acmnumeric The default numeric format:

```
250 \newcommand{\bibstyle@acmnumeric}{%
251   \setcitestyle{%
252     numbers,sort&compress,%
253     open={[},close={]},citesep={,},%
254     notesep={, }}}
```

The default is numeric:

```
255 \if@ACM@natbib
256 \citestyle{acmnumeric}
257 \fi
```

\@startsection Before we call hyperref, we redefine \startsection commands to their LaTeX de-
faults, since amsart ones are too AMS-specific. We need to do this early since we want
hyperref to have a chance to redefine them again:

```
258 \def\@startsection#1#2#3#4#5#6{%
259   \if@noskipsec \leavevmode \fi
260   \par
261   \@tempskipa #4\relax
262   \@afterindenttrue
263   \ifdim \@tempskipa <\z@
264     \@tempskipa -\@tempskipa \@afterindentfalse
265   \fi
266   \if@nobreak
267     \everypar{}%
268   \else
269     \addpenalty\@secpenalty\addvspace\@tempskipa
270   \fi
271   \@ifstar
272     {\@ssect{#3}{#4}{#5}{#6}}%
273     {\@dblarg{\@sect{#1}{#2}{#3}{#4}{#5}{#6}}}}
274 \def\@sect#1#2#3#4#5#6[#7]#8{%
275   \edef\@toclevel{\ifnum#2=\@m 0\else\number#2\fi}%
276   \ifnum #2>\c@secnumdepth
277     \let\@svsec\@empty
278   \else
```

```
279     \refstepcounter{#1}%
280     \protected@edef\@svsec{\@seccntformat{#1}\relax}%
281   \fi
282   \@tempskipa #5\relax
283   \ifdim \@tempskipa>\z@
284     \begingroup
285       #6{%
286         \@hangfrom{\hskip #3\relax\@svsec}%
287           \interlinepenalty \@M #8\@@par}%
288     \endgroup
289     \csname #1mark\endcsname{#7}%
290     \ifnum #2>\c@secnumdepth \else
291         \@tochangmeasure{\csname the#1\endcsname}%
292     \fi
293     \addcontentsline{toc}{#1}{%
294       \ifnum #2>\c@secnumdepth \else
295         \protect\numberline{\csname the#1\endcsname}%
296       \fi
297       #7}%
298   \else
299     \def\@svsechd{%
300       #6{\hskip #3\relax
301       \@svsec #8}%
302       \csname #1mark\endcsname{#7}%
303       \ifnum #2>\c@secnumdepth \else
304         \@tochangmeasure{\csname the#1\endcsname\space}%
305       \fi
306       \addcontentsline{toc}{#1}{%
307         \ifnum #2>\c@secnumdepth \else
308           \protect\numberline{\csname the#1\endcsname}%
309         \fi
310       #7}}%
311   \fi
312   \@xsect{#5}}
313 \def\@xsect#1{%
314   \@tempskipa #1\relax
315   \ifdim \@tempskipa>\z@
316     \par \nobreak
317     \vskip \@tempskipa
318     \@afterheading
319   \else
320     \@nobreakfalse
321     \global\@noskipsectrue
322     \everypar{%
323       \if@noskipsec
324         \global\@noskipsecfalse
325       {\setbox\z@\lastbox}%
326         \clubpenalty\@M
327         \begingroup \@svsechd \endgroup
328         \unskip
```

```
329        \@tempskipa #1\relax
330        \hskip -\@tempskipa
331      \else
332        \clubpenalty \@clubpenalty
333        \everypar{}%
334      \fi}%
335   \fi
336   \ignorespaces}
337 \def\@seccntformat#1{\csname the#1\endcsname\quad}
338 \def\@ssect#1#2#3#4#5{%
339   \@tempskipa #3\relax
340   \ifdim \@tempskipa>\z@
341     \begingroup
342       #4{%
343         \@hangfrom{\hskip #1}%
344           \interlinepenalty \@M #5\@@par}%
345     \endgroup
346   \else
347     \def\@svsechd{#4{\hskip #1\relax #5}}%
348   \fi
349   \@xsect{#3}}
```

\@startsection   Amsart redefines \startsection. Here we redefine it again to make TOC working

```
350 \def\@starttoc#1#2{\begingroup
351   \setTrue{#1}%
352   \par\removelastskip\vskip\z@skip
353   \@startsection{section}\@M\z@{\linespacing\@plus\linespacing}%
354     {.5\linespacing}{\centering\contentsnamefont}{#2}%
355   \@input{\jobname.#1}%
356   \if@filesw
357     \@xp\newwrite\csname tf@#1\endcsname
358     \immediate\@xp\openout\csname tf@#1\endcsname \jobname.#1\relax
359   \fi
360   \global\@nobreakfalse \endgroup
361   \addvspace{32\p@\@plus14\p@}%
362 }
```

\l@subsection   Amsart has too large spacing

```
363 \def\l@subsection{\@tocline{2}{0pt}{1pc}{3pc}{}}
```

\l@subsubsection   Amsart has too large spacing

```
364 \def\l@subsubsection{\@tocline{2}{0pt}{1pc}{5pc}{}}
```

And hyperref

```
365 \let\@footnotemark@nolink\@footnotemark
366 \let\@footnotetext@nolink\@footnotetext
367 \RequirePackage[bookmarksnumbered,unicode]{hyperref}
368 \pdfstringdefDisableCommands{%
369   \def\unskip{}%
```

```
370   \def\textbullet{- }%
371   \def\textrightarrow{ -> }%
372   \def\footnotemark{}%
373 }
374 \urlstyle{rm}
375 \ifcase\ACM@format@nr
376 \relax % manuscript
377 \or % acmsmall
378 \or % acmlarge
379 \or % acmtog
380 \or % sigconf
381 \or % siggraph
382 \or % sigplan
383   \urlstyle{sf}
384 \or % sigchi
385 \or % sigchi-a
386   \urlstyle{sf}
387 \fi
388 \if@ACM@screen
389   \hypersetup{colorlinks,
390     linkcolor=ACMRed,
391     citecolor=ACMPurple,
392     urlcolor=ACMDarkBlue,
393     filecolor=ACMDarkBlue}
394 \else
395   \hypersetup{hidelinks}
396 \fi
```

Bibliography mangling.

```
397 \if@ACM@natbib
398   \let\citeN\cite
399   \let\cite\citep
400   \let\citeANP\citeauthor
401   \let\citeNN\citeyearpar
402   \let\citeyearNP\citeyear
403   \let\citeyear\citeyearpar
404   \let\citeNP\citealt
405   \DeclareRobustCommand\citeA
406     {\begingroup\NAT@swafalse
407       \let\NAT@ctype\@ne\NAT@partrue\NAT@fullfalse\NAT@open\NAT@citetp}%
408   \providecommand\newblock{}%
409 \else
410   \providecommand\citename[1]{#1}
411 \fi
412 \def\shortcite#1{\ifNAT@numbers\cite{#1}\else\citeyear{#1}\fi}
```

\bibliographystyle   Amsart redefines \bibliographystyle since it prefers AMS bibliography. We turn it
back to LaTeX definition:

```
413 \def\bibliographystyle#1{%
414   \ifx\@begindocumenthook\@undefined\else
```

```
415     \expandafter\AtBeginDocument
416   \fi
417   {\if@filesw
418       \immediate\write\@auxout{\string\bibstyle{#1}}%
419     \fi}}
```

Graphics and color

```
420 \RequirePackage{graphicx, xcolor}
```

We define ACM colors according to [7]:

```
421 \definecolor[named]{ACMBlue}{cmyk}{1,0.1,0,0.1}
422 \definecolor[named]{ACMYellow}{cmyk}{0,0.16,1,0}
423 \definecolor[named]{ACMOrange}{cmyk}{0,0.42,1,0.01}
424 \definecolor[named]{ACMRed}{cmyk}{0,0.90,0.86,0}
425 \definecolor[named]{ACMLightBlue}{cmyk}{0.49,0.01,0,0}
426 \definecolor[named]{ACMGreen}{cmyk}{0.20,0,1,0.19}
427 \definecolor[named]{ACMPurple}{cmyk}{0.55,1,0,0.15}
428 \definecolor[named]{ACMDarkBlue}{cmyk}{1,0.58,0,0.21}
```

3.5   Paper size and paragraphing

We use geometry for dimensions. Note the presently margins do not depend on the font size option - maybe we will need to change this. See https://github.com/borisveytsman/acmart/issues/5#issuecomment-272881329.

```
429 \RequirePackage{geometry}
430 \ifcase\ACM@format@nr
431 \relax % manuscript
432   \geometry{letterpaper,head=13pt,
433     marginparwidth=6pc}%
434 \or % acmsmall
435   \geometry{twoside=true,
436     includeheadfoot, head=13pt, foot=2pc,
437     paperwidth=6.75in, paperheight=10in,
438     top=58pt, bottom=44pt, inner=46pt, outer=46pt,
439     marginparwidth=2pc
440   }%
441 \or % acmlarge
442   \geometry{twoside=true, head=13pt, foot=2pc,
443     paperwidth=8.5in, paperheight=11in,
444     includeheadfoot,
445     top=78pt, bottom=114pt, inner=81pt, outer=81pt,
446     marginparwidth=4pc
447   }%
448 \or % acmtog
449   \geometry{twoside=true, head=13pt, foot=2pc,
450     paperwidth=8.5in, paperheight=11in,
451     includeheadfoot, columnsep=24pt,
452     top=52pt, bottom=75pt, inner=52pt, outer=52pt,
453     marginparwidth=2pc
```

```
454        }%
455 \or % sigconf
456    \geometry{twoside=true, head=13pt,
457       paperwidth=8.5in, paperheight=11in,
458       includeheadfoot, columnsep=2pc,
459       top=57pt, bottom=73pt, inner=54pt, outer=54pt,
460       marginparwidth=2pc
461       }%
462 \or % siggraph
463    \geometry{twoside=true, head=13pt,
464       paperwidth=8.5in, paperheight=11in,
465       includeheadfoot, columnsep=2pc,
466       top=57pt, bottom=73pt, inner=54pt, outer=54pt,
467       marginparwidth=2pc
468       }%
469 \or % sigplan
470    \geometry{twoside=true, head=13pt,
471       paperwidth=8.5in, paperheight=11in,
472       includeheadfoot=false, columnsep=2pc,
473       top=1in, bottom=1in, inner=0.75in, outer=0.75in,
474       marginparwidth=2pc
475       }%
476 \or % sigchi
477    \geometry{twoside=true, head=13pt,
478       paperwidth=8.5in, paperheight=11in,
479       includeheadfoot, columnsep=2pc,
480       top=66pt, bottom=73pt, inner=54pt, outer=54pt,
481       marginparwidth=2pc
482       }%
483 \or % sigchi-a
484    \geometry{twoside=false, head=13pt,
485       paperwidth=11in, paperheight=8.5in,
486       includeheadfoot, marginparsep=72pt,
487       marginparwidth=170pt, columnsep=20pt,
488       top=72pt, bottom=72pt, left=314pt, right=72pt
489       }%
490    \@mparswitchfalse
491    \reversemarginpar
492 \fi
```

\parindent Paragraphing
  \parskip

```
493 \setlength\parindent{10\p@}
494 \setlength\parskip{\z@}
495 \ifcase\ACM@format@nr
496 \relax % manuscript
497 \or % acmsmall
498 \or % acmlarge
499 \or % acmtog
500    \setlength\parindent{9\p@}%
501 \or % sigconf
```

```
502 \or % siggraph
503 \or % sigplan
504 \or % sigchi
505 \or % sigchi-a
506 \fi
```

Footnotes require some consideration. We have several layers of footnotes: front-matter footnotes, "regular" footnotes and the special insert for bibstrip. In the old ACM classes bibstrip was a `\@float`. The problem with floats is that they tend to, well, float—and we want the guarantee they stay.

We use *manyfoot* for layered footnotes instead.

`\copyrightpermissionfootnoterule` This is the footnote rule that separates bibstrip from the rest of the paper. It is a full width rule.

```
507 \def\copyrightpermissionfootnoterule{\kern-3\p@
508   \hrule \@width \columnwidth \kern 2.6\p@}

509 \RequirePackage{manyfoot}
510 \SelectFootnoteRule[2]{copyrightpermission}
511 \DeclareNewFootnote{copyrightpermission}
```

`\footnoterule` Tschichold's rules:

```
512 \def\footnoterule{\kern-3\p@
513   \hrule \@width 4pc \kern 2.6\p@}
```

`\endminipage` We do not use footnote rules in minipages

```
514 \def\endminipage{%
515     \par
516     \unskip
517     \ifvoid\@mpfootins\else
518       \vskip\skip\@mpfootins
519       \normalcolor
520       \unvbox\@mpfootins
521     \fi
522     \@minipagefalse    %% added 24 May 89
523   \color@endgroup
524   \egroup
525   \expandafter\@iiiparbox\@mpargs{\unvbox\@tempboxa}}
```

`\@makefntext` We do note use indentation for footnotes

```
526 \def\@makefntext{\noindent\@makefnmark}
```

`\@footnotetext` In sigchi-a mode our footnotes are on the margins!

```
527 \if@ACM@sigchiamode
528 \long\def\@footnotetext#1{\marginpar{%
529     \reset@font\small
530     \interlinepenalty\interfootnotelinepenalty
531     \protected@edef\@currentlabel{%
532       \csname p@footnote\endcsname\@thefnmark
```

```
533        }%
534        \color@begingroup
535          \@makefntext{%
536            \rule\z@\footnotesep\ignorespaces#1\@finalstrut\strutbox}%
537        \color@endgroup}}%
538 \fi
```

\@mpfootnotetext   We want the footnotes in minipages centered:

```
539 \long\def\@mpfootnotetext#1{%
540   \global\setbox\@mpfootins\vbox{%
541     \unvbox\@mpfootins
542     \reset@font\footnotesize
543     \hsize\columnwidth
544     \@parboxrestore
545     \protected@edef\@currentlabel
546          {\csname p@mpfootnote\endcsname\@thefnmark}%
547     \color@begingroup\centering
548       \@makefntext{%
549         \rule\z@\footnotesep\ignorespaces#1\@finalstrut\strutbox}%
550     \color@endgroup}}
```

\@makefnmark   AMS classes use a buggy definition of \makefnmark. We revert to the standard one.

```
551 \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}
```

\@textbottom   Added some stretch according to David Carlisle's advice at http://tex.stackexchange.com/a/62318/5522

```
552 \def\@textbottom{\vskip \z@ \@plus 1pt}
553 \let\@texttop\relax
```

3.6   Fonts

\if@ACM@newfonts   Whether we load the new fonts

```
554 \newif\if@ACM@newfonts
555 \@ACM@newfontstrue
556 \IfFileExists{libertine.sty}{}{\ClassWarning{\@classname}{You do not
557    have libertine package installed.  Please upgrade your
558    TeX}\@ACM@newfontsfalse}
559 \IfFileExists{zi4.sty}{}{\ClassWarning{\@classname}{You do not
560    have zi4 package installed.  Please upgrade your TeX}\@ACM@newfontsfalse}
561 \IfFileExists{newtxmath.sty}{}{\ClassWarning{\@classname}{You do not
562    have newtxmath package installed.  Please upgrade your
563    TeX}\@ACM@newfontsfalse}
```

   We use Libertine throughout.

```
564 \if@ACM@newfonts
565 \RequirePackage[tt=false]{libertine}
566 \RequirePackage[varqu]{zi4}
567 \RequirePackage[libertine]{newtxmath}
568 \RequirePackage[T1]{fontenc}
569 \fi
```

The SIGCHI extended abstracts are sans serif:

```
570 \if@ACM@sigchiamode
571   \renewcommand{\familydefault}{\sfdefault}
572 \fi
```

3.7   Floats

We use caption package

```
573 \RequirePackage{caption, float}
574 \captionsetup[table]{position=top}
575 \if@ACM@journal
576   \captionsetup{labelfont={sf, small},
577     textfont={sf, small},  margin=\z@}
578   \captionsetup[figure]{name={Fig.}}
579 \else
580   \captionsetup{labelfont={bf},
581     textfont={bf}, labelsep=colon, margin=\z@}
582   \ifcase\ACM@format@nr
583   \relax % manuscript
584   \or % acmsmall
585   \or % acmlarge
586   \or % acmtog
587   \or % sigconf
588   \or % siggraph
589     \captionsetup{textfont={it}}
590   \or % sigplan
591     \captionsetup{labelfont={bf},
592       textfont={normalfont}, labelsep=period, margin=\z@}
593   \or % sigchi
594     \captionsetup[figure]{labelfont={bf, small},
595       textfont={bf, small}}
596   \or % sigchi-a
597     \captionsetup[figure]{labelfont={bf, small},
598       textfont={bf, small}}
599   \fi
600 \fi
```

sidebar   The sidebar environment:

```
601 \newfloat{sidebar}{}{sbar}
602 \floatname{sidebar}{Sidebar}
603 \renewenvironment{sidebar}{\Collect@Body\@sidebar}{}
```

\@sidebar   The processing of the saved text

```
604 \long\def\@sidebar#1{\bgroup\captionsetup{type=sidebar}%
605   \marginpar{\small#1}\egroup}
```

marginfigure   The marginfigure environment:

```
606 \newenvironment{marginfigure}{\Collect@Body\@marginfigure}{}
```

\@marginfigure The processing of the saved text

```
607 \long\def\@marginfigure#1{\bgroup\captionsetup{type=figure}%
608   \marginpar{\centering\small#1}\egroup}
```

margintable The margintable environment:

```
609 \newenvironment{margintable}{\Collect@Body\@margintable}{}
```

\@margintable The processing of the saved text

```
610 \long\def\@margintable#1{\bgroup\captionsetup{type=table}%
611   \marginpar{\centering\small#1}\egroup}
```

SIGCHI extended abstract provides an interesting possibility to push into the margin.
Here we use figure* and table* for this.

\fulltextwidth We define the width of the boxes as

```
612 \newdimen\fulltextwidth
613 \fulltextwidth=\dimexpr(\textwidth+\marginparwidth+\marginparsep)
```

\@dblfloat We redefine the double float command. First, we make the size bigger. Second, our
default position is going to be tp (to give marginalia a chance)

```
614 \if@ACM@sigchiamode
615 \def\@dblfloat{\bgroup\columnwidth=\fulltextwidth
616   \let\@endfloatbox\@endwidefloatbox
617   \def\@fpsadddefault{\def\@fps{tp}}%
618   \@float}
619 \fi
```

\end@dblfloat And the end. Just adding a \bgroup.

```
620 \if@ACM@sigchiamode
621 \def\end@dblfloat{%
622     \end@float\egroup}
623 \fi
```

\@endwidefloatbox This is the end of a wide box - we basically move everything to the left

```
624 \def\@endwidefloatbox{%
625   \par\vskip\z@skip
626   \@minipagefalse
627   \outer@nobreak
628   \egroup
629   \color@endbox
630   \global\setbox\@currbox=\vbox{\moveleft
631     \dimexpr(\fulltextwidth-\textwidth)\box\@currbox}%
632   \wd\@currbox=\textwidth
633 }
```

3.8 Lists

```
634 \ifcase\ACM@format@nr
635 \relax % manuscript
636 \or % acmsmall
637 \or % acmlarge
638 \or % acmtog
639 \or % sigconf
640 \or % siggraph
641 \or % sigplan
642 \def\labelenumi{\theenumi.}
643 \def\labelenumii{\theenumii.}
644 \def\labelenumiii{\theenumiii.}
645 \def\labelenumiv{\theenumiv.}
646 \or % sigchi
647 \or % sigchi-a
648 \fi
```

\descriptionlabel We do not use default colon as \amsart does:

```
649 \renewcommand{\descriptionlabel}[1]{\hspace\labelsep \upshape\bfseries #1}
```

\description AMS uses additional indent of 6pt. Frank recommends dropping it.

```
650 \renewenvironment{description}{\list{}{%
651     \itemindent-12\p@
652     \labelwidth\z@ \let\makelabel\descriptionlabel}%
653 }{
654   \endlist
655 }
656 \let\enddescription=\endlist % for efficiency
```

3.9 Top matter data

We use keyval interface to define journal title and relevant information

```
657 \define@choicekey*+{ACM}{acmJournal}[\@journalCode\@journalCode@nr]{%
658   CIE,%
659   CSUR,%
660   IMWUT,%
661   JACM,%
662   JDIQ,%
663   JEA,%
664   JERIC,%
665   JETC,%
666   JOCCH,%
667   PACMPL,%
668   POMACS,%
669   TAAS,%
670   TACCESS,%
671   TACO,%
672   TALG,%
673   TALLIP,%
```

```
674  TAP,%
675  TCPS,%
676  TEAC,%
677  TECS,%
678  TIIS,%
679  TISSEC,%
680  TIST,%
681  TKDD,%
682  TMIS,%
683  TOCE,%
684  TOCHI,%
685  TOCL,%
686  TOCS,%
687  TOCT,%
688  TODAES,%
689  TODS,%
690  TOG,%
691  TOIS,%
692  TOIT,%
693  TOMACS,%
694  TOMM,%
695  TOMPECS,%
696  TOMS,%
697  TOPC,%
698  TOPS,%
699  TOPLAS,%
700  TOS,%
701  TOSEM,%
702  TOSN,%
703  TRETS,%
704  TSAS,%
705  TSC,%
706  TSLP,%
707  TWEB%
708 }{%
709 \ifcase\@journalCode@nr
710 \relax % CIE
711   \def\@journalName{ACM Computers in Entertainment}%
712   \def\@journalNameShort{ACM Comput. Entertain.}%
713   \def\@permissionCodeOne{1544-3574}%
714 \or % CSUR
715   \def\@journalName{ACM Computing Surveys}%
716   \def\@journalNameShort{ACM Comput. Surv.}%
717   \def\@permissionCodeOne{0360-0300}%
718 \or % IMWUT
719   \def\@journalName{Proceedings of the ACM on Interactive, Mobile,
720     Wearable and Ubiquitous Technologies}%
721   \def\@journalNameShort{Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.}%
722   \def\@permissionCodeOne{2474-9567}%
723 \or % JACM
```

```
724  \def\@journalName{Journal of the ACM}%
725  \def\@journalNameShort{J. ACM}%
726  \def\@permissionCodeOne{0004-5411}%
727 \or % JDIQ
728  \def\@journalName{ACM Journal of Data and Information Quality}%
729  \def\@journalNameShort{ACM J. Data Inform. Quality}%
730  \def\@permissionCodeOne{1936-1955}%
731 \or % JEA
732  \def\@journalName{ACM Journal of Experimental Algorithmics}%
733  \def\@journalNameShort{ACM J. Exp. Algor.}%
734  \def\@permissionCodeOne{1084-6654}%
735 \or % JERIC
736  \def\@journalName{ACM Journal of Educational Resources in Computing}%
737  \def\@journalNameShort{ACM J. Edu. Resources in Comput.}%
738  \def\@permissionCodeOne{1073-0516}%
739 \or % JETC
740  \def\@journalName{ACM Journal on Emerging Technologies in Computing Systems}%
741  \def\@journalNameShort{ACM J. Emerg. Technol. Comput. Syst.}%
742  \def\@permissionCodeOne{1550-4832}%
743 \or % JOCCH
744  \def\@journalName{ACM Journal on Computing and Cultural Heritage}%
745  \def\@journalName{ACM J. Comput. Cult. Herit.}%
746 \or % PACMPL
747  \def\@journalName{Proceedings of the ACM on Programming Languages}%
748  \def\@journalName{Proc. ACM Program. Lang.}%
749  \def\@permissionCodeOne{2475-1421}%
750 \or % POMACS
751  \def\@journalName{Proceedings of the ACM on Measurement and Analysis of Computing Systems}%
752  \def\@journalName{Proc. ACM Meas. Anal. Comput. Syst.}%
753  \def\@permissionCodeOne{2476-1249}%
754 \or % TAAS
755  \def\@journalName{ACM Transactions on Autonomous and Adaptive Systems}%
756  \def\@journalNameShort{ACM Trans. Autonom. Adapt. Syst.}%
757  \def\@permissionCodeOne{1556-4665}%
758 \or % TACCESS
759  \def\@journalName{ACM Transactions on Accessible Computing}%
760  \def\@journalNameShort{ACM Trans. Access. Comput.}%
761  \def\@permissionCodeOne{1936-7228}%
762 \or % TACO
763  \def\@journalName{ACM Transactions on Architecture and Code Optimization}%
764 \or % TALG
765  \def\@journalName{ACM Transactions on Algorithms}%
766  \def\@journalNameShort{ACM Trans. Algor.}%
767  \def\@permissionCodeOne{1549-6325}%
768 \or % TALLIP
769  \def\@journalName{ACM Transactions on Asian and Low-Resource Language Information Processing}%
770  \def\@journalNameShort{ACM Trans. Asian Low-Resour. Lang. Inf. Process.}%
771  \def\@permissionCodeOne{2375-4699}%
772 \or % TAP
773  \def\@journalName{ACM Transactions on Applied Perception}%
```

```latex
774 \or % TCPS
775   \def\@journalName{ACM Transactions on Cyber-Physical Systems}%
776 \or % TEAC
777   \def\@journalName{ACM Transactions on Economics and Computation}%
778 \or % TECS
779   \def\@journalName{ACM Transactions on Embedded Computing Systems}%
780   \def\@journalNameShort{ACM Trans. Embedd. Comput. Syst.}%
781   \def\@permissionCodeOne{1539-9087}%
782 \or % TIIS
783   \def\@journalName{ACM Transactions on Interactive Intelligent Systems}%
784   \def\@journalNameShort{ACM Trans. Interact. Intell. Syst.}%
785   \def\@permissionCodeOne{2160-6455}%
786 \or % TISSEC
787   \def\@journalName{ACM Transactions on Information and System Security}%
788   \def\@journalNameShort{ACM Trans. Info. Syst. Sec.}%
789   \def\@permissionCodeOne{1094-9224}%
790 \or % TIST
791   \def\@journalName{ACM Transactions on Intelligent Systems and Technology}%
792   \def\@journalNameShort{ACM Trans. Intell. Syst. Technol.}%
793   \def\@permissionCodeOne{2157-6904}%
794 \or % TKDD
795   \def\@journalName{ACM Transactions on Knowledge Discovery from Data}%
796   \def\@journalNameShort{ACM Trans. Knowl. Discov. Data.}%
797   \def\@permissionCodeOne{1556-4681}%
798 \or % TMIS
799   \def\@journalName{ACM Transactions on Management Information Systems}%
800   \def\@journalNameShort{ACM Trans. Manag. Inform. Syst.}%
801   \def\@permissionCodeOne{2158-656X}%
802 \or % TOCE
803   \def\@journalName{ACM Transactions on Computing Education}%
804   \def\@journalNameShort{ACM Trans. Comput. Educ.}%
805   \def\@permissionCodeOne{1946-6226}%
806 \or % TOCHI
807   \def\@journalName{ACM Transactions on Computer-Human Interaction}%
808   \def\@journalNameShort{ACM Trans. Comput.-Hum. Interact.}%
809   \def\@permissionCodeOne{1073-0516}%
810 \or % TOCL
811   \def\@journalName{ACM Transactions on Computational Logic}%
812   \def\@journalNameShort{ACM Trans. Comput. Logic}%
813   \def\@permissionCodeOne{1529-3785}%
814 \or % TOCS
815   \def\@journalName{ACM Transactions on Computer Systems}%
816   \def\@journalNameShort{ACM Trans. Comput. Syst.}%
817   \def\@permissionCodeOne{0734-2071}%
818 \or % TOCT
819   \def\@journalName{ACM Transactions on Computation Theory}%
820   \def\@journalNameShort{ACM Trans. Comput. Theory}%
821   \def\@permissionCodeOne{1942-3454}%
822 \or % TODAES
823   \def\@journalName{ACM Transactions on Design Automation of Electronic Systems}%
```

```latex
824    \def\@journalNameShort{ACM Trans. Des. Autom. Electron. Syst.}%
825    \def\@permissionCodeOne{1084-4309}%
826 \or % TODS
827    \def\@journalName{ACM Transactions on Database Systems}%
828    \def\@journalNameShort{ACM Trans. Datab. Syst.}%
829    \def\@permissionCodeOne{0362-5915}%
830 \or % TOG
831    \def\@journalName{ACM Transactions on Graphics}%
832    \def\@journalNameShort{ACM Trans. Graph.}%
833    \def\@permissionCodeOne{0730-0301}
834 \or % TOIS
835    \def\@journalName{ACM Transactions on Information Systems}%
836    \def\@journalName{ACM Transactions on Information Systems}%
837    \def\@permissionCodeOne{1046-8188}%
838 \or % TOIT
839    \def\@journalName{ACM Transactions on Internet Technology}%
840    \def\@journalNameShort{ACM Trans. Internet Technol.}%
841    \def\@permissionCodeOne{1533-5399}%
842 \or % TOMACS
843    \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
844    \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
845    \def\@journalNameShort{ACM Trans. Model. Comput. Simul.}%
846 \or % TOMM
847    \def\@journalName{ACM Transactions on Multimedia Computing, Communications and Applications}%
848    \def\@journalNameShort{ACM Trans. Multimedia Comput. Commun. Appl.}%
849    \def\@permissionCodeOne{1551-6857}%
850    \def\@permissionCodeTwo{0100}%
851 \or % TOMPECS
852    \def\@journalName{ACM Transactions on Modeling and Performance Evaluation of Computing Systems}%
853    \def\@journalNameShort{ACM Trans. Model. Perform. Eval. Comput. Syst.}%
854    \def\@permissionCodeOne{2376-3639}%
855 \or % TOMS
856    \def\@journalName{ACM Transactions on Mathematical Software}%
857    \def\@journalNameShort{ACM Trans. Math. Softw.}%
858    \def\@permissionCodeOne{0098-3500}%
859 \or % TOPC
860    \def\@journalName{ACM Transactions on Parallel Computing}%
861    \def\@journalNameShort{ACM Trans. Parallel Comput.}%
862    \def\@permissionCodeOne{1539-9087}%
863 \or % TOPS
864    \def\@journalName{ACM Transactions on Privacy and Security}%
865    \def\@journalNameShort{ACM Trans. Priv. Sec.}%
866    \def\@permissionCodeOne{2471-2566}%
867 \or % TOPLAS
868    \def\@journalName{ACM Transactions on Programming Languages and Systems}%
869    \def\@journalNameShort{ACM Trans. Program. Lang. Syst.}%
870    \def\@permissionCodeOne{0164-0925}%
871 \or % TOS
872    \def\@journalName{ACM Transactions on Storage}%
873    \def\@journalNameShort{ACM Trans. Storage}%
```

```
874   \def\@permissionCodeOne{1553-3077}%
875 \or % TOSEM
876   \def\@journalName{ACM Transactions on Software Engineering and Methodology}%
877   \def\@journalNameShort{ACM Trans. Softw. Eng. Methodol.}%
878   \def\@permissionCodeOne{1049-331X}%
879 \or % TOSN
880   \def\@journalName{ACM Transactions on Sensor Networks}%
881   \def\@journalNameShort{ACM Trans. Sensor Netw.}%
882   \def\@permissionCodeOne{1550-4859}%
883 \or % TRETS
884   \def\@journalName{ACM Transactions on Reconfigurable Technology and Systems}%
885   \def\@journalNameShort{ACM Trans. Reconfig. Technol. Syst.}%
886   \def\@permissionCodeOne{1936-7406}%
887 \or % TSAS
888   \def\@journalName{ACM Transactions on Spatial Algorithms and Systems}%
889   \def\@journalNameShort{ACM Trans. Spatial Algorithms Syst.}%
890   \def\@permissionCodeOne{2374-0353}%
891 \or % TSC
892   \def\@journalName{ACM Transactions on Social Computing}%
893   \def\@journalNameShort{ACM Trans. Soc. Comput.}%
894   \def\@permissionCodeOne{2469-7818}%
895 \or % TSLP
896   \def\@journalName{ACM Transactions on Speech and Language Processing}%
897   \def\@journalNameShort{ACM Trans. Speech Lang. Process.}%
898   \def\@permissionCodeOne{1550-4875}%
899 \or % TWEB
900   \def\@journalName{ACM Transactions on the Web}%
901   \def\@journalNameShort{ACM Trans. Web}%
902   \def\@permissionCodeOne{1559-1131}%
903 \fi
904 \ClassInfo{\@classname}{Using journal code \@journalCode}%
905 }{%
906   \ClassError{\@classname}{Incorrect journal #1}%
907 }%
```

\acmJournal   And the syntactic sugar around it

```
908 \def\acmJournal#1{\setkeys{ACM}{acmJournal=#1}}
```

The defaults:

```
909 \def\@journalCode@nr{0}
910 \def\@journalName{}%
911 \def\@journalNameShort{\@journalName}%
912 \def\@permissionCodeOne{XXXX-XXXX}%
913 \def\@permissionCodeTwo{}%
```

\acmConference   This is the conference command

```
914 \newcommand\acmConference[4][]{%
915   \gdef\acmConference@shortname{#1}%
916   \gdef\acmConference@name{#2}%
```

```
917  \gdef\acmConference@date{#3}%
918  \gdef\acmConference@venue{#4}%
919  \ifx\acmConference@shortname\@empty
920    \gdef\acmConference@shortname{#2}%
921  \fi}
922 \acmConference[Conference'17]{ACM Conference}{July 2017}{Washington,
923  DC, USA}
```

\subtitle   The subtitle macro
```
924 \def\subtitle#1{\def\@subtitle{#1}}
925 \subtitle{}
```

\num@authorgroups   The total number of "groups". Each group is several authors with the same affiliations(s)
```
926 \newcount\num@authorgroups
927 \num@authorgroups=0\relax
```

\if@insideauthorgroup   Whether we are continuing an author group @insideauthorgroup insideauthorgroup-false

\author   Adding an author to the list of authors and addresses
```
928 \renewcommand\author[2][]{%
929  \if@insideauthorgroup\else
930    \global\advance\num@authorgroups by 1\relax
931    \global\@insideauthorgrouptrue
932  \fi
933  \ifx\addresses\@empty
934    \if@ACM@anonymous
935      \gdef\addresses{\@author{Anonymous Author(s)}}%
936      \gdef\authors{Anonymous Author(s)}%
937    \else
938      \gdef\addresses{\@author{#2}}%
939      \gdef\authors{#2}%
940    \fi
941  \else
942    \if@ACM@anonymous\else
943      \g@addto@macro\addresses{\and\@author{#2}}%
944      \g@addto@macro\authors{\and#2}%
945    \fi
946  \fi
947  \if@ACM@anonymous
948    \ifx\shortauthors\@empty
949      \gdef\shortauthors{Anon.}%
950    \fi
951  \else
952    \def\@tempa{#1}%
953    \ifx\@tempa\@empty
954      \ifx\shortauthors\@empty
955        \gdef\shortauthors{#2}%
956      \else
```

```
957          \g@addto@macro\shortauthors{\and#2}%
958        \fi
959      \else
960        \ifx\shortauthors\@empty
961          \gdef\shortauthors{#1}%
962        \else
963          \g@addto@macro\shortauthors{\and#1}%
964        \fi
965      \fi
966    \fi}
```

\affiliation   The macro \affiliation mimics \address from amsart. Note that it has an optional
                argument we do not currently need, but keep for the possible future use.

```
967 \newcommand{\affiliation}[2][]{%
968   \global\@insideauthorgroupfalse
969   \if@ACM@anonymous\else
970     \g@addto@macro\addresses{\affiliation{#1}{#2}}%
971   \fi}
```

\additionalaffiliation   Additional affiliations go to footnotes

```
972 \def\additionalaffiliation#1{\authornote{\@additionalaffiliation{#1}}}
```

\@additionalaffiliation   Process additionalaffiliation inside \authornote

```
973 \def\@additionalaffiliation#1{\bgroup
974   \def\position##1{\ignorespaces}%
975   \def\institution##1{##1\ignorespaces}%
976   \def\department{\@ifnextchar[{\@department}{\@department[]}}%
977   \def\@department[##1]##2{\unskip, ##2\ignorespaces}%
978   \let\streetaddress\position
979   \let\city\position
980   \let\state\position
981   \let\postcode\position
982   \let\country\position
983   Also with #1\unskip.\egroup}
```

\email   The macro \email mimics \email from amsart. Agian it has an optional argument we
          do not currently need, but keep for the possible future use.

```
984 \renewcommand{\email}[2][]{%
985   \if@ACM@anonymous\else
986     \g@addto@macro\addresses{\email{#1}{#2}}%
987   \fi}
```

\orcid   Right now we do not typeset orcids gobble

\@titlenotes   The titlenotes

```
988 \def\@titlenotes{}
```

\titlenote   Adding note to the title

```
989 \def\titlenote#1{%
```

```
990    \g@addto@macro\@title{\footnotemark}%
991    \if@ACM@anonymous
992      \g@addto@macro\@titlenotes{%
993        \stepcounter{footnote}\footnotetext{Title note}}%
994    \else
995      \g@addto@macro\@titlenotes{\stepcounter{footnote}\footnotetext{#1}}%
996    \fi}
```

\@subtitlenotes   The subtitlenotes
```
997 \def\@subtitlenotes{}
```

\subtitlenote   Adding note to the subtitle
```
998 \def\subtitlenote#1{%
999    \g@addto@macro\@subtitle{\footnotemark}%
1000   \if@ACM@anonymous
1001     \g@addto@macro\@subtitlenotes{%
1002       \stepcounter{footnote}\footnotetext{Subtitle note}}%
1003   \else
1004     \g@addto@macro\@subtitlenotes{%
1005       \stepcounter{footnote}\footnotetext{#1}}%
1006   \fi}
```

\@authornotes   The authornotes
```
1007 \def\@authornotes{}
```

\authornote   Adding note to the author
```
1008 \def\authornote#1{%
1009   \if@ACM@anonymous\else
1010     \g@addto@macro\addresses{\@authornotemark}
1011     \g@addto@macro\@authornotes{%
1012       \stepcounter{footnote}\footnotetext{#1}}%
1013   \fi}
```

\acmVolume   The current volume
```
1014 \def\acmVolume#1{\def\@acmVolume{#1}}
1015 \acmVolume{1}
```

\acmNumber   The current number
```
1016 \def\acmNumber#1{\def\@acmNumber{#1}}
1017 \acmNumber{1}
```

\acmArticle   The current article
```
1018 \def\acmArticle#1{\def\@acmArticle{#1}}
1019 \acmArticle{1}
```

\acmArticleSeq   The sequence number
```
1020 \def\acmArticleSeq#1{\def\@acmArticleSeq{#1}}
1021 \acmArticleSeq{\@acmArticle}
```

\acmYear The current year

```
1022 \def\acmYear#1{\def\@acmYear{#1}}
1023 \acmYear{\the\year}
```

\acmMonth The current month

```
1024 \def\acmMonth#1{\def\@acmMonth{#1}}
1025 \acmMonth{\the\month}
```

\@acmPubDate The publication date

```
1026 \def\@acmPubDate{\ifcase\@acmMonth\or
1027    January\or February\or March\or April\or May\or June\or
1028    July\or August\or September\or October\or November\or
1029    December\fi~\@acmYear}
```

\acmPrice The price

```
1030 \def\acmPrice#1{\def\@acmPrice{#1}}
1031 \acmPrice{15.00}
```

\acmISBN The book isbn

```
1032 \def\acmISBN#1{\def\@acmISBN{#1}}
1033 \acmISBN{978-x-xxxx-xxxx-x/YY/MM}
```

\acmDOI The paper doi

```
1034 \def\acmDOI#1{\def\@acmDOI{#1}}
1035 \acmDOI{10.1145/nnnnnnn.nnnnnnn}
```

\if@ACM@badge Whether to print badge. Note that either left or right badge triggers it:

```
1036 \newif\if@ACM@badge
1037 \@ACM@badgefalse
```

\@ACM@badge@width The width of the badge

```
1038 \newlength\@ACM@badge@width
1039 \setlength\@ACM@badge@width{5pc}
```

\@ACM@title@width The width of the badge

```
1040 \newlength\@ACM@title@width
```

\@ACM@badge@skip The space between the badge and the title

```
1041 \newlength\@ACM@badge@skip
1042 \setlength\@ACM@badge@skip{1pc}
```

\acmBadgeR Setting the right badge

```
1043 \newcommand\acmBadgeR[2][]{\@ACM@badgetrue
1044    \def\@acmBadgeR@url{#1}%
1045    \def\@acmBadgeR@image{#2}}
1046 \def\@acmBadgeR@url{}
1047 \def\@acmBadgeR@image{}
```

\acmBadgeL   Setting the left badge

```
1048 \newcommand\acmBadgeL[2][]{\@ACM@badgetrue
1049   \def\@acmBadgeL@url{#1}%
1050   \def\@acmBadgeL@image{#2}}
1051 \def\@acmBadgeL@url{}
1052 \def\@acmBadgeL@image{}
```

\startPage   The start page of the paper

```
1053 \def\startPage#1{\def\@startPage{#1}}
1054 \startPage{}
```

\terms   Terms are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility.

```
1055 \def\terms#1{\def\@terms{#1}}
1056 \terms{}
```

\keywords   Keywords are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility.

```
1057 \def\keywords#1{\def\@keywords{#1}}
1058 \keywords{}
```

abstract   Amsart puts abstract in the box. Since we do not know whether we will use two column mode, we prefer to save the text

```
1059 \renewenvironment{abstract}{\Collect@Body\@saveabstract}{}
```

\@saveabstract   And saving the abstract

```
1060 \long\def\@saveabstract#1{\long\gdef\@abstract{#1}}
1061 \@saveabstract{}
```

\@lempty   The long version of \@empty (to compare with \@abstract)

```
1062 \long\def\@lempty{}
```

\if@ACM@printccs   Whether to print CCS

```
1063 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printccs}[true]{%
1064   \if@ACM@printccs
1065     \ClassInfo{\@classname}{Printing CCS}%
1066   \else
1067     \ClassInfo{\@classname}{Suppressing CCS}%
1068   \fi}{\ClassError{\@classname}{printccs must be true or false}}
```

\if@ACM@printacmref   Whether to print ACM bib

```
1069 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printacmref}[true]{%
1070   \if@ACM@printacmref
1071     \ClassInfo{\@classname}{Printing bibformat}%
1072   \else
1073     \ClassInfo{\@classname}{Suppressing bibformat}%
1074   \fi}{\ClassError{\@classname}{printacmref must be true or false}}
```

`\if@ACM@printfolios` Whether to print folios

```
1075 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printfolios}[true]{%
1076   \if@ACM@printfolios
1077     \ClassInfo{\@classname}{Printing folios}%
1078   \else
1079     \ClassInfo{\@classname}{Suppressing folios}%
1080   \fi}{\ClassError{\@classname}{printfolios must be true or false}}
```

`\settopmatter` The usual syntactic sugar

```
1081 \def\settopmatter#1{\setkeys{@ACM@topmatter@}{#1}}
```

Now the settings

```
1082 \settopmatter{printccs=true, printacmref=true}
1083 \if@ACM@manuscript
1084   \settopmatter{printfolios=true}
1085 \else
1086   \if@ACM@journal
1087     \settopmatter{printfolios=true}
1088   \else
1089     \settopmatter{printfolios=false}
1090   \fi
1091 \fi
```

`\@received` The container for the paper history

```
1092 \def\@received{}
```

`\received` The `\received` command

```
1093 \newcommand\received[2][]{\def\@tempa{#1}%
1094   \ifx\@tempa\@empty
1095     \ifx\@received\@empty
1096       \gdef\@received{Received #2}%
1097     \else
1098       \g@addto@macro{\@received}{; revised #2}%
1099     \fi
1100   \else
1101     \ifx\@received\@empty
1102       \gdef\@received{#1 #2}%
1103     \else
1104       \g@addto@macro{\@received}{; #1 #2}%
1105     \fi
1106   \fi}
1107 \AtEndDocument{%
1108   \ifx\@received\@empty\else
1109     \par\bigskip\noindent\small\normalfont\@received\par
1110   \fi}
```

3.10 Concepts system

We exclude CCSXML stuff generated by the ACM system:

```
1111 \RequirePackage{comment}
1112 \excludecomment{CCSXML}
```

\@concepts   This is the storage macro for concepts

```
1113 \let\@concepts\@empty
```

\ccsdesc   The first argument is the significance, the second is the concept(s)

```
1114 \newcommand\ccsdesc[2][100]{%
1115   \ccsdesc@parse#1~#2~}
```

\ccsdesc@parse   The parser of the expression `Significance~General~Specific` (we need `textcomp` for
\\textrightarrow:

```
1116 \RequirePackage{textcomp}
1117 \def\ccsdesc@parse#1~#2~#3~{%
1118   \expandafter\ifx\csname CCS@#2\endcsname\relax
1119     \expandafter\gdef\csname CCS@#2\endcsname{\textbullet\ \textbf{#2} \textrightarrow\ }%
1120   \g@addto@macro{\@concepts}{\csname CCS@#2\endcsname}\fi
1121   \expandafter\g@addto@macro\expandafter{\csname CCS@#2\endcsname}{%
1122     \ifnum#1>499\textbf{#3}; \else
1123     \ifnum#1>299\textit{#3}; \else
1124     #3; \fi\fi}}
```

3.11 Copyright system

This is from `acmcopyright.sty`

\if@printcopyright   A flag whether to print copyright symbol

```
1125 \newif\if@printcopyright
1126 \@printcopyrighttrue
```

\if@printpermission   Whether to print permission block

```
1127 \newif\if@printpermission
1128 \@printpermissiontrue
```

\if@acmowned   Whether ACM ownes the rights to the paper

```
1129 \newif\if@acmowned
1130 \@acmownedtrue
```

Keys:

```
1131 \define@choicekey*{ACM@}{acmcopyrightmode}[%
1132   \acm@copyrightinput\acm@copyrightmode]{none,acmcopyright,acmlicensed,%
1133   rightsretained,usgov,usgovmixed,cagov,cagovmixed,%
1134   licensedusgovmixed,licensedcagovmixed,othergov,licensedothergov}{%
1135   \@printpermissiontrue
1136   \@printcopyrighttrue
1137   \@acmownedtrue
1138   \ifnum\acm@copyrightmode=0\relax % none
1139     \@printpermissionfalse
```

```
1140    \@printcopyrightfalse
1141    \@acmownedfalse
1142   \fi
1143   \ifnum\acm@copyrightmode=2\relax % acmlicensed
1144    \@acmownedfalse
1145   \fi
1146   \ifnum\acm@copyrightmode=3\relax % rightsretained
1147    \@acmownedfalse
1148   \fi
1149   \ifnum\acm@copyrightmode=4\relax % usgov
1150    \@printpermissiontrue
1151    \@printcopyrightfalse
1152    \@acmownedfalse
1153   \fi
1154   \ifnum\acm@copyrightmode=6\relax % cagov
1155    \@acmownedfalse
1156   \fi
1157   \ifnum\acm@copyrightmode=8\relax % licensedusgovmixed
1158    \@acmownedfalse
1159   \fi
1160   \ifnum\acm@copyrightmode=9\relax % licensedcagovmixed
1161    \@acmownedfalse
1162   \fi
1163   \ifnum\acm@copyrightmode=10\relax % othergov
1164    \@acmownedtrue
1165   \fi
1166   \ifnum\acm@copyrightmode=11\relax % licensedothergov
1167    \@acmownedfalse
1168   \fi}
```

\setcopyright   This is the syntactic sugar around setting keys.

```
1169 \def\setcopyright#1{\setkeys{ACM@}{acmcopyrightmode=#1}}
1170 \setcopyright{acmcopyright}
```

\@copyrightowner   Here is the owner of the copyright

```
1171 \def\@copyrightowner{%
1172   \ifcase\acm@copyrightmode\relax % none
1173   \or % acmcopyright
1174   ACM\@.
1175   \or % acmlicensed
1176   Copyright held by the owner/author(s). Publication rights licensed to
1177   ACM\@.
1178   \or % rightsretained
1179   Copyright held by the owner/author(s).
1180   \or % usgov
1181   \or % usgovmixed
1182   ACM\@.
1183   \or % cagov
1184   Crown in Right of Canada.
1185   \or %cagovmixed
```

```
1186    ACM\@.
1187    \or %licensedusgovmixed
1188    Copyright held by the owner/author(s). Publication rights licensed to
1189    ACM\@.
1190    \or %licensedcagovmixed
1191    Copyright held by the owner/author(s). Publication rights licensed to
1192    ACM\@.
1193    \or % othergov
1194    ACM\@.
1195    \or % licensedothergov
1196    Copyright held by the owner/author(s). Publication rights licensed to
1197    ACM\@.
1198    \fi}
```

\@formatdoi   Print a clickable doi

```
1199 \def\@formatdoi#1{\url{https://doi.org/#1}}
```

\@copyrightpermission   The canned permission block.

```
1200 \def\@copyrightpermission{%
1201    \ifcase\acm@copyrightmode\relax % none
1202    \or % acmcopyright
1203    Permission to make digital or hard copies of all or part of this
1204    work for personal or classroom use is granted without fee provided
1205    that copies are not made or distributed for profit or commercial
1206    advantage and that copies bear this notice and the full citation on
1207    the first page. Copyrights for components of this work owned by
1208    others than ACM must be honored. Abstracting with credit is
1209    permitted. To copy otherwise, or republish, to post on servers or to
1210    redistribute to lists, requires prior specific permission
1211    and\hspace*{.5pt}/or  a fee. Request permissions from
1212    permissions@acm.org.
1213    \or % acmlicensed
1214    Permission to make digital or hard copies of all or part of this
1215    work for personal or classroom use is granted without fee provided
1216    that copies are not made or distributed for profit or commercial
1217    advantage and that copies bear this notice and the full citation on
1218    the first page. Copyrights for components of this work owned by
1219    others than the author(s) must be honored. Abstracting with credit
1220    is permitted.  To copy otherwise, or republish, to post on servers
1221    or to  redistribute to lists, requires prior specific permission
1222    and\hspace*{.5pt}/or  a fee. Request permissions from
1223    permissions@acm.org.
1224    \or % rightsretained
1225    Permission to make digital or hard copies of part or all of this work
1226    for personal or classroom use is granted without fee provided that
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```

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```
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1301    this article, or to allow others to do so, for Government purposes
1302    only.
1303  \fi}
```

\copyrightyear   By default, the copyright year is the same as \acmYear, but one can override this:

```
1304 \def\copyrightyear#1{\def\@copyrightyear{#1}}
1305 \copyrightyear{\@acmYear}
```

\@teaserfigures   The teaser figures container

```
1306 \def\@teaserfigures{}
```

teaserfigure   The teaser figure

```
1307 \newenvironment{teaserfigure}{\Collect@Body\@saveteaser}{}
```

\@saveteaser   Saving the teaser

```
1308 \long\def\@saveteaser#1{\g@addto@macro\@teaserfigures{\@teaser{#1}}}
```

\thanks   We redefine amsart \thanks, so the anonymous key works

```
1309 \renewcommand{\thanks}[1]{%
1310   \@ifnotempty{#1}{%
1311     \if@ACM@anonymous
1312       \g@addto@macro\thankses{\thanks{A note}}%
1313     \else
1314     \g@addto@macro\thankses{\thanks{#1}}%
1315   \fi}}
```

3.12   Typesetting top matter

\mktitle@bx   Some of our formats use two column design, some use one column one. In all cases we use wide title. Thus we typeset the top matter in a special box to be use in the construction \@twocolumn[⟨*box*⟩].

```
1316 \newbox\mktitle@bx
```

\maketitle The (in)famous \maketitle. Note that in sigchi-a mode authors are *not* in the title box.

Another note: there is a subtle difference between author notes, title notes and thankses. The latter refer to the paper itself, and therefore belong to the copyright/permission block. By the way, this was the default behavior of the old ACM classes.

```
1317 \def\maketitle{%
1318   \if@ACM@anonymous
1319     % Anonymize omission of \author-s
1320     \ifnum\num@authorgroups=0\author{}\fi
1321   \fi
1322   \begingroup
1323   \let\@footnotemark\@footnotemark@nolink
1324   \let\@footnotetext\@footnotetext@nolink
1325   \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
1326   \@topnum\z@ % this prevents figures from falling at the top of page
1327               % 1
1328   \hsize=\textwidth
1329   \def\@makefnmark{\hbox{\@textsuperscript{\@thefnmark}}}%
1330   \@mktitle\if@ACM@sigchiamode\else\@mkauthors\fi\@mkteasers
1331   \@printtopmatter
1332   \if@ACM@sigchiamode\@mkauthors\fi
1333   \setcounter{footnote}{0}%
1334   \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}%
1335   \@titlenotes
1336   \@subtitlenotes
1337   \@authornotes
1338   \let\@makefnmark\relax  \let\@thefnmark\relax
1339   \let\@makefntext\noindent
1340   \ifx\@empty\thankses\else
1341     \footnotetextcopyrightpermission{%
1342       \def\par{\let\par\@par}\parindent\z@\@setthanks}%
1343   \fi
1344   \footnotetextcopyrightpermission{\parindent\z@\parskip0.1\baselineskip
1345   \if@ACM@authorversion\else
1346     \if@printpermission\@copyrightpermission\par\fi
1347   \fi
1348   \if@ACM@manuscript\else
1349     \if@ACM@journal\else % Print the conference short name
1350       {\itshape \acmConference@shortname, \acmConference@venue}\par
1351     \fi
1352   \fi
1353   \if@printcopyright
1354     \copyright\ \@copyrightyear\ \@copyrightowner\
1355   \else
1356     \@copyrightyear.\
1357   \fi
1358   \if@ACM@manuscript
1359     Manuscript submitted to ACM\\
```

```
1360  \else
1361    \if@ACM@authorversion
1362        This is the author's version of the work. It is posted here for
1363        your personal use. Not for redistribution. The definitive Version
1364        of Record was published in
1365        \if@ACM@journal
1366          \emph{\@journalName}%
1367        \else
1368          \emph{Proceedings of \acmConference@name, \acmConference@date}%
1369        \fi
1370        \ifx\@acmDOI\@empty
1371          .
1372        \else
1373          , \@formatdoi{\@acmDOI}.
1374        \fi\\
1375      \else
1376        \if@ACM@journal
1377          \@permissionCodeOne/\@acmYear/\@acmMonth-ART\@acmArticle\
1378          \$\@acmPrice\\
1379          DOI: \nolinkurl{\@acmDOI}%
1380        \else % Conference
1381          \@acmISBN
1382          \ifx\@acmPrice\@empty.\else\dots\$\@acmPrice\fi\\
1383          DOI: \nolinkurl{\@acmDOI}%
1384        \fi
1385      \fi
1386    \fi}%
1387  \endgroup
1388  \setcounter{footnote}{0}%
1389  \@mkabstract
1390  \if@ACM@printccs
1391    \ifx\@concepts\@empty\else\bgroup
1392      {\@specialsection{CCS Concepts}%
1393        \@concepts\par}\egroup
1394    \fi
1395  \fi
1396  \ifx\@terms\@empty\else\bgroup
1397    {\@specialsection{General Terms}%
1398        \@terms\par}\egroup
1399  \fi
1400  \ifx\@keywords\@empty\else\bgroup
1401    {\if@ACM@journal
1402        \@specialsection{Additional Key Words and Phrases}%
1403      \else
1404        \@specialsection{Keywords}%
1405      \fi
1406        \@keywords}\par\egroup
1407  \fi
1408  \andify\authors
1409  \andify\shortauthors
```

```
1410    \global\let\authors=\authors
1411    \global\let\shortauthors=\shortauthors
1412    \if@ACM@printacmref
1413      \@mkbibcitation
1414    \fi
1415    \hypersetup{pdfauthor={\authors},
1416      pdftitle={\@title}, pdfkeywords={\@concepts}}%
1417    \@printendtopmatter
1418    \@afterindentfalse
1419    \@afterheading
1420 }
```

\@specialsection This macro starts section for proceedings and uses small for journals

```
1421 \def\@specialsection#1{%
1422    \ifcase\ACM@format@nr
1423    \relax % manuscript
1424      \par\medskip\small\noindent#1: %
1425    \or % acmsmall
1426      \par\medskip\small\noindent#1: %
1427    \or % acmlarge
1428      \par\medskip\small\noindent#1: %
1429    \or % acmtog
1430      \par\medskip\small\noindent#1: %
1431    \or % sigconf
1432      \section*{#1}%
1433    \or % siggraph
1434      \section*{#1}%
1435    \or % sigplan
1436      \paragraph*{#1}%
1437    \or % sigchi
1438      \section*{#1}%
1439    \or % sigchi-a
1440      \section*{#1}%
1441    \fi}
```

\@printtopmatter The printing of top matter starts the new page, and uses the given title box. Note that for sigchi-a we print badges here rather than in \mktitle since we want them on the margins.

```
1442 \def\@printtopmatter{%
1443    \ifx\@startPage\@empty
1444      \gdef\@startPage{1}%
1445    \else
1446      \setcounter{page}{\@startPage}%
1447    \fi
1448    \thispagestyle{firstpagestyle}%
1449    \noindent
1450    \ifcase\ACM@format@nr
1451    \relax % manuscript
1452      \box\mktitle@bx\par
```

```
1453    \noindent\hrulefill\par
1454  \or % acmsmall
1455    \box\mktitle@bx\par
1456    \noindent\hrulefill\par
1457  \or % acmlarge
1458    \box\mktitle@bx\par
1459    \noindent\hrulefill\par
1460  \or % acmtog
1461    \twocolumn[\box\mktitle@bx]%
1462  \or % sigconf
1463    \twocolumn[\box\mktitle@bx]%
1464  \or % siggraph
1465    \twocolumn[\box\mktitle@bx]%
1466  \or % sigplan
1467    \twocolumn[\box\mktitle@bx]%
1468  \or % sigchi
1469    \twocolumn[\box\mktitle@bx]%
1470  \or % sigchi-a
1471    \par\box\mktitle@bx\par\bigskip
1472    \if@ACM@badge
1473        \marginpar{\noindent
1474          \ifx\@acmBadgeL@image\@empty\else
1475            \href{\@acmBadgeL@url}{%
1476              \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}%
1477            \hskip\@ACM@badge@skip
1478          \fi
1479          \ifx\@acmBadgeR@image\@empty\else
1480            \href{\@acmBadgeR@url}{%
1481              \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}%
1482          \fi}%
1483    \fi
1484  \fi
1485 }
```

\@mktitle   The title of the article

```
1486 \def\@mktitle{%
1487  \ifcase\ACM@format@nr
1488  \relax % manuscript
1489    \@mktitle@i
1490  \or % acmsmall
1491    \@mktitle@i
1492  \or % acmlarge
1493    \@mktitle@i
1494  \or % acmtog
1495    \@mktitle@i
1496  \or % sigconf
1497    \@mktitle@iii
1498  \or % siggraph
1499    \@mktitle@iii
1500  \or % sigplan
```

```
1501      \@mktitle@iii
1502   \or % sigchi
1503      \@mktitle@iii
1504   \or % sigchi-a
1505      \@mktitle@iv
1506   \fi
1507 }
```

\@titlefont   The font to typeset title

```
1508 \def\@titlefont{%
1509   \ifcase\ACM@format@nr
1510   \relax % manuscript
1511     \LARGE\bfseries\sffamily
1512   \or % acmsmall
1513     \LARGE\bfseries\sffamily
1514   \or % acmlarge
1515     \LARGE\bfseries\sffamily
1516   \or % acmtog
1517     \Huge\sffamily
1518   \or % sigconf
1519     \Huge\sffamily\bfseries
1520   \or % siggraph
1521     \Huge\sffamily\bfseries
1522   \or % sigplan
1523     \Huge\bfseries
1524   \or % sigchi
1525     \Huge\sffamily\bfseries
1526   \or % sigchi-a
1527      \Huge\bfseries
1528   \fi}
```

\@subtitlefont   The font to typeset title

```
1529 \def\@subtitlefont{%
1530   \ifcase\ACM@format@nr
1531   \relax % manuscript
1532     \mdseries
1533   \or % acmsmall
1534     \mdseries
1535   \or % acmlarge
1536     \mdseries
1537   \or % acmtog
1538      \LARGE
1539   \or % sigconf
1540      \LARGE\mdseries
1541   \or % siggraph
1542      \LARGE\mdseries
1543   \or % sigplan
1544      \LARGE\mdseries
1545   \or % sigchi
1546      \LARGE\mdseries
```

```
1547    \or % sigchi-a
1548      \mdseries
1549    \fi}
```

\@mktitle@i   The version of \mktitle for most journals

```
1550 \def\@mktitle@i{\hsize=\textwidth
1551   \@ACM@title@width=\hsize
1552   \ifx\@acmBadgeL@image\@empty\else
1553     \advance\@ACM@title@width by -\@ACM@badge@width
1554     \advance\@ACM@title@width by -\@ACM@badge@skip
1555   \fi
1556   \ifx\@acmBadgeR@image\@empty\else
1557     \advance\@ACM@title@width by -\@ACM@badge@width
1558     \advance\@ACM@title@width by -\@ACM@badge@skip
1559   \fi
1560   \setbox\mktitle@bx=\vbox{\noindent\@titlefont
1561     \ifx\@acmBadgeL@image\@empty\else
1562       \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeL@url}{%
1563         \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}}%
1564       \hskip\@ACM@badge@skip
1565     \fi
1566     \parbox[t]{\@ACM@title@width}{\raggedright
1567       \@titlefont\noindent
1568       \@title
1569   \ifx\@subtitle\@empty\else
1570     \par\noindent{\@subtitlefont\@subtitle}
1571   \fi}%
1572   \ifx\@acmBadgeR@image\@empty\else
1573     \hskip\@ACM@badge@skip
1574     \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeR@url}{%
1575         \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}}%
1576   \fi
1577   \par\bigskip}}%
```

\@mktitle@ii   The version of \mktitle for TOG. Since v1.06 is subsumed by the \mktitle@i macro

\@mktitle@iii   The version of \@mktitle for sigproc. Note that since the title is centered, we leave the space for the left badge even if only the right badge is defined.

```
1578 \def\@mktitle@iii{\hsize=\textwidth
1579   \setbox\mktitle@bx=\vbox{\@titlefont\centering
1580     \@ACM@title@width=\hsize
1581     \if@ACM@badge
1582       \advance\@ACM@title@width by -2\@ACM@badge@width
1583       \advance\@ACM@title@width by -2\@ACM@badge@skip
1584       \parbox[b]{\@ACM@badge@width}{\strut
1585         \ifx\@acmBadgeL@image\@empty\else
1586           \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeL@url}{%
1587           \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}}%
1588         \fi}%
1589       \hskip\@ACM@badge@skip
```

```
1590        \fi
1591        \parbox[t]{\@ACM@title@width}{\centering\@titlefont
1592          \@title
1593          \ifx\@subtitle\@empty\else
1594            \par\noindent{\@subtitlefont\@subtitle}
1595          \fi
1596        }%
1597        \if@ACM@badge
1598          \hskip\@ACM@badge@skip
1599          \parbox[b]{\@ACM@badge@width}{\strut
1600            \ifx\@acmBadgeR@image\@empty\else
1601              \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeR@url}{%
1602                \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}}%
1603          \fi}%
1604        \fi
1605        \par\bigskip}}%
```

\@mktitle@iv   The version of \@mktitle for sigchi-a

```
1606 \def\@mktitle@iv{\hsize=\textwidth
1607    \setbox\mktitle@bx=\vbox{\raggedright\leftskip5pc\@titlefont
1608      \noindent\leavevmode\leaders\hrule height 2pt\hfill\kern0pt\par
1609      \noindent\@title
1610      \ifx\@subtitle\@empty\else
1611        \par\noindent\@subtitlefont\@subtitle
1612      \fi
1613      \par\bigskip}}%
```

\@ACM@addtoaddress   The macro adds an item to address using the following rules:

1. If we start a paragraph, add the item

2. Otherwise, add a comma and the item

3. However, the comma is deleted, if it is on the end of the line. We use the magic
   cleaders trick for this.

```
1614 \newbox\@ACM@commabox
1615 \def\@ACM@addtoaddress#1{%
1616    \ifvmode\else
1617      \setbox\@ACM@commabox=\hbox{, }%
1618      \unskip\cleaders\copy\@ACM@commabox\hskip\wd\@ACM@commabox
1619    \fi
1620    #1}
```

\institution   Theoretically we can define the macros for \affiliation inside the \@mkauthors-style
\position   commands. However, this would lead to a strange error if an author uses them outside
\department   \affiliation. Of course we can make them produce an error message, but…
\streetaddress   We follow the strange American tradtion of no comma before zip code.
\city
\state   `1621 \if@ACM@journal`
\postcode   `1622    \let\position\@gobble`
\country
```

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```
1623    \def\institution#1{#1\ignorespaces}%
1624    \newcommand\department[2][0]{}%
1625    \let\streetaddress\@gobble
1626    \let\city\@gobble
1627    \let\state\@gobble
1628    \let\postcode\@gobble
1629    \let\country\@gobble
1630 \else
1631    \def\position#1{#1\par}%
1632    \def\institution#1{#1\par}%
1633    \newcommand\department[2][0]{#2\par}%
1634    \def\streetaddress#1{#1\par}%
1635    \let\city\@ACM@addtoaddress
1636    \let\state\@ACM@addtoaddress
1637    \def\postcode#1{\unskip\space#1}%
1638    \let\country\@ACM@addtoaddress
1639 \fi
```

\@mkauthors   Typesetting authors

```
1640 \def\@mkauthors{\begingroup
1641    \hsize=\textwidth
1642    \ifcase\ACM@format@nr
1643    \relax % manuscript
1644       \@mkauthors@i
1645    \or % acmsmall
1646       \@mkauthors@i
1647    \or % acmlarge
1648       \@mkauthors@i
1649    \or % acmtog
1650       \@mkauthors@i
1651    \or % sigconf
1652       \@mkauthors@iii
1653    \or % siggraph
1654       \@mkauthors@iii
1655    \or % sigplan
1656       \@mkauthors@iii
1657    \or % sigchi
1658       \@mkauthors@iii
1659    \or % sigchi-a
1660       \@mkauthors@iv
1661    \fi
1662    \endgroup
1663 }
```

\@authorfont   Somehow different conferences use different fonts for author names. Why?

```
1664 \def\@authorfont{\Large\sffamily}
```

\@affiliationfont   Font for affiliations

```
1665 \def\@affiliationfont{\normalsize\normalfont}
```

64

Adjusting fonts for different formats

```
1666 \ifcase\ACM@format@nr
1667 \relax % manuscript
1668 \or % acmsmall
1669   \def\@authorfont{\large\sffamily}
1670   \def\@affiliationfont{\small\normalfont}
1671 \or % acmlarge
1672 \or % acmtog
1673   \def\@authorfont{\LARGE\sffamily}
1674   \def\@affiliationfont{\large}
1675 \or % sigconf
1676   \def\@authorfont{\LARGE}
1677   \def\@affiliationfont{\large}
1678 \or % siggraph
1679   \def\@authorfont{\normalsize\normalfont}
1680   \def\@affiliationfont{\normalsize\normalfont}
1681 \or % sigplan
1682   \def\@authorfont{\Large\normalfont}
1683   \def\@affiliationfont{\normalsize\normalfont}
1684 \or % sigchi
1685   \def\@authorfont{\bfseries}
1686   \def\@affiliationfont{\mdseries}
1687 \or % sigchi-a
1688   \def\@authorfont{\bfseries}
1689   \def\@affiliationfont{\mdseries}
1690 \fi
```

\@typeset@author@line At this point we have \@currentauthors and \@currentaffiliations. We typeset them in the journal style

```
1691 \def\@typeset@author@line{%
1692   \andify\@currentauthors\par\noindent
1693   \@currentauthors\def\@currentauthors{}%
1694   \ifx\@currentaffiliations\@empty\else
1695     \andify\@currentaffiliations
1696       \unskip, {\@currentaffiliations}\par
1697   \fi
1698   \def\@currentaffiliations{}}
```

\@mkauthors@i This is version used in most formats. Note that \and between authors with the same affiliation becomes ␣and␣:

```
1699 \def\@mkauthors@i{%
1700   \def\@currentauthors{}%
1701   \def\@currentaffiliations{}%
1702   \global\let\and\@typeset@author@line
1703   \def\@author##1{%
1704     \ifx\@currentauthors\@empty
1705       \gdef\@currentauthors{\@authorfont\MakeUppercase{##1}}%
1706     \else
1707       \g@addto@macro{\@currentauthors}{\and\MakeUppercase{##1}}%
```

```
1708      \fi
1709      \gdef\and{}}%
1710   \def\email##1##2{}%
1711   \def\affiliation##1##2{%
1712      \def\@tempa{##2}\ifx\@tempa\@empty\else
1713         \ifx\@currentaffiliations\@empty
1714            \gdef\@currentaffiliations{\@affiliationfont##2}%
1715         \else
1716            \g@addto@macro{\@currentaffiliations}{\and##2}%
1717         \fi
1718      \fi
1719      \global\let\and\@typeset@author@line}%
1720   \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par\medskip
1721      \noindent\addresses\@typeset@author@line
1722   \par\medskip}%
1723 }
```

\@mkauthors@ii   \@mkauthors@iI was version used in acmtog. No longer necessary

\author@bx   The box to put individual author to

```
1724 \newbox\author@bx
```

\author@bx@wd   The width of the author box

```
1725 \newdimen\author@bx@wd
```

\author@bx@sep   The separation between the author boxes

```
1726 \newskip\author@bx@sep
1727 \author@bx@sep=1pc\relax
```

\@typeset@author@bx   Typesetting the box with authors. Note that in SIGCHI-A the box is not centered.

```
1728 \def\@typeset@author@bx{\bgroup\hsize=\author@bx@wd\def\and{\par}%
1729   \global\setbox\author@bx=\vtop{\if@ACM@sigchiamode\else\centering\fi
1730      \@authorfont\@currentauthors\par\@affiliationfont
1731      \@currentaffiliation}\egroup
1732   \box\author@bx\hspace{\author@bx@sep}%
1733   \gdef\@currentauthors{}%
1734   \gdef\@currentaffiliation{}}
```

\@mkauthors@iii   The sigconf version. Here we use centered design with each author in a separate box.

```
1735 \def\@mkauthors@iii{%
```

First, we need to determine the design of the author strip. The boxes are separated by \author@bx@sep plus two \author@bx@sep margins. This means that each box must be of width $(\texttt{\textbackslash textwidth} - \texttt{\textbackslash author@bx@sep})/N - \texttt{\textbackslash author@bx@sep}$, where N is the number of boxes per row.

```
1736   \author@bx@wd=\textwidth\relax
1737   \advance\author@bx@wd by -\author@bx@sep\relax
1738   \ifcase\num@authorgroups
1739   \relax % 0?
```

```
1740    \or   % 1=one author per row
1741    \or   % 2=two authors per row
1742      \divide\author@bx@wd by \num@authorgroups\relax
1743    \or   % 3=three authors per row
1744      \divide\author@bx@wd by \num@authorgroups\relax
1745    \or   % 4=two authors per row (!)
1746      \divide\author@bx@wd by 2\relax
1747    \else % three authors per row
1748      \divide\author@bx@wd by 3\relax
1749    \fi
1750    \advance\author@bx@wd by -\author@bx@sep\relax
```

Now, parsing of \addresses:

```
1751    \gdef\@currentauthors{}%
1752    \gdef\@currentaffiliation{}%
1753    \def\@author##1{\ifx\@currentauthors\@empty
1754      \gdef\@currentauthors{\par##1}%
1755    \else
1756      \g@addto@macro\@currentauthors{\par##1}%
1757    \fi
1758    \gdef\and{}%
1759    \def\email##1##2{\ifx\@currentaffiliation\@empty
1760      \gdef\@currentaffiliation{\nolinkurl{##2}}%
1761    \else
1762      \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
1763    \fi}%
1764    \def\affiliation##1##2{\ifx\@currentaffiliation\@empty
1765      \gdef\@currentaffiliation{##2}%
1766    \else
1767      \g@addto@macro\@currentaffiliation{\par##2}%
1768    \fi
1769    \global\let\and\@typeset@author@bx
1770 }%
```

Actual typesetting is done by \and macro:

```
1771    \hsize=\textwidth
1772    \global\setbox\mktitle@bx=\vbox{\noindent
1773      \box\mktitle@bx\par\medskip\leavevmode
1774      \lineskip=1pc\relax\centering\hspace*{-1em}%
1775      \addresses\let\and\@typeset@author@bx\and\par\bigskip}}
```

\@mkauthors@iv The sigchia version. Now we put authors in the main text, and no more than 2 authors per line.

```
1776 \def\@mkauthors@iv{%
```

First, we need to determine the design of the author strip. The boxes are separated by \author@bx@sep plus two \author@bx@sep margins. This means that each box must be of width (\textwidth − \author@bx@sep)/N − \author@bx@sep, where N is the number of boxes per row.

```
1777    \author@bx@wd=\columnwidth\relax
```

```
1778    \advance\author@bx@wd by -\author@bx@sep\relax
1779    \ifcase\num@authorgroups
1780    \relax % 0?
1781    \or   % 1=one author per row
1782    \else  % 2=two authors per row
1783       \divide\author@bx@wd by 2\relax
1784    \fi
1785    \advance\author@bx@wd by -\author@bx@sep\relax
```

Now, parsing of \addresses:

```
1786    \gdef\@currentauthors{}%
1787    \gdef\@currentaffiliation{}%
1788    \def\@author##1{\ifx\@currentauthors\@empty
1789       \gdef\@currentauthors{\par##1}%
1790    \else
1791       \g@addto@macro\@currentauthors{\par##1}%
1792    \fi
1793    \gdef\and{}}%
1794    \def\email##1##2{\ifx\@currentaffiliation\@empty
1795       \gdef\@currentaffiliation{\nolinkurl{##2}}%
1796    \else
1797       \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
1798    \fi}%
1799    \def\affiliation##1##2{\ifx\@currentaffiliation\@empty
1800       \gdef\@currentaffiliation{##2}%
1801    \else
1802       \g@addto@macro\@currentaffiliation{\par##2}%
1803    \fi
1804    \global\let\and\@typeset@author@bx}%
1805 %
```

Actual typesetting is done by \and macro

```
1806       \bgroup\hsize=\columnwidth
1807       \par\raggedright\leftskip=\z@
1808       \lineskip=1pc\noindent
1809       \addresses\let\and\@typeset@author@bx\and\par\bigskip\egroup}
```

\@authornotemark   Adding footnotemark to authors

```
1810 \def\@authornotemark{\g@addto@macro\@currentauthors{\footnotemark}}
```

\@mkteasers   Typesetting teasers

```
1811 \def\@mkteasers{%
1812 \ifx\@teaserfigures\@empty\else
1813    \def\@teaser##1{\par\bigskip\bgroup
1814       \captionsetup{type=figure}##1\egroup\par}
1815    \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par
1816    \noindent\@teaserfigures\par\medskip}%
1817  \fi}
```

\@setaddresses   This is an amsart macro, which we do not need.

```
1818 \def\@setaddresses{}
```

\@mkabstract   Typesetting abstract

```
1819 \def\@mkabstract{\bgroup
1820   \ifx\@abstract\@lempty\else
1821   {\phantomsection\addcontentsline{toc}{section}{Abstract}%
1822     \if@ACM@journal
1823        \small\noindent
1824     \else
1825       \section*{Abstract}%
1826     \fi
1827   \ignorespaces\@abstract\par}%
1828   \fi\egroup}
```

\@mkbibcitation   Print bibcitation format

```
1829 \def\@mkbibcitation{\bgroup
1830   \def\footnotemark{}%
1831   \def\\{\unskip{} \ignorespaces}%
1832   \def\footnote{\ClassError{\@classname}{Please do note use footnotes
1833       inside \string\title{} or \string\author{} command! Use
1834       \string\titlenote{} or \string\authornote{} instead!}}%
1835   \par\medskip\small\noindent{\bfseries ACM Reference format:}\par\nobreak
1836   \noindent\authors. \@acmYear. \@title.
1837   \if@ACM@journal
1838       \textit{\@journalNameShort}
1839       \@acmVolume, \@acmNumber, Article~\@acmArticle\ (\@acmPubDate),
1840       \ref{TotPages}~pages.
1841   \else
1842     In \textit{Proceedings of \acmConference@name, \acmConference@venue,
1843       \acmConference@date
1844       \ifx\acmConference@name\acmConference@shortname\else
1845         \ (\acmConference@shortname)\fi
1846         ,} \ref{TotPages}~pages.
1847   \fi\par
1848   \noindent DOI: \nolinkurl{\@acmDOI}
1849 \par\egroup}
```

\@printendtopmatter   End the top matter

```
1850 \def\@printendtopmatter{\par\medskip
1851   \ifcase\ACM@format@nr
1852   \relax % manuscript
1853     \noindent\hrulefill\par\medskip
1854   \or % acmsmall
1855     \noindent\hrulefill\par\medskip
1856   \or % acmlarge
1857     \noindent\hrulefill\par\medskip
1858   \or % acmtog
1859     \par\bigskip
1860   \or % sigconf
1861     \par\bigskip
1862   \or % siggraph
```

```
1863     \par\bigskip
1864 \or % sigplan
1865     \par\bigskip
1866 \or % sigchi
1867     \par\bigskip
1868 \or % sigchi-a
1869 \fi
1870 }
```

\@setthanks   We redefine \setthanks using \long

```
1871 \def\@setthanks{\long\def\thanks##1{\par##1\@addpunct.}\thankses}
```

3.13   Headers and Footers

We use fancyhdr for our headers and footers:

```
1872 \RequirePackage{fancyhdr}
```

\ACM@linecount@bx   This is the box displayed in the review mode

```
1873 \if@ACM@review
1874   \newsavebox{\ACM@linecount@bx}
1875   \savebox{\ACM@linecount@bx}[4em][t]{\parbox[t]{4em}{%
1876     \newlength\ACM@linecount@bxht\setlength{\ACM@linecount@bxht}{-\baselineskip}
1877     \@tempcnta\@ne\relax
1878     \loop{\color{ACMRed}\scriptsize\the\@tempcnta}\\
1879     \advance\@tempcnta by \@ne
1880     \addtolength{\ACM@linecount@bxht}{\baselineskip}
1881     \ifdim\ACM@linecount@bxht<\textheight\repeat}}
1882 \fi
```

\ACM@linecount   How to display the box

```
1883 \def\ACM@linecount{%
1884 \if@ACM@review
1885 \begin{picture}(0,0)%
1886   \put(-26,-22){\usebox{\ACM@linecount@bx}}%
1887 \end{picture}%
1888 \fi}
```

\@shortauthors   Even if the author redefined \shortauthors, we do not print them in the anonymous
mode in the headers:

```
1889 \def\@shortauthors{\if@ACM@anonymous Anon.\else\shortauthors\fi}
```

\@headfootfont   The font to typeset header and footer text.

```
1890 \def\@headfootfont{%
1891 \ifcase\ACM@format@nr
1892 \relax % manuscript
1893   \sffamily
1894 \or % acmsmall
1895   \sffamily
```

```
1896    \or % acmlarge
1897      \sffamily
1898    \or % acmtog
1899      \sffamily
1900    \or % sigconf
1901      \sffamily
1902    \or % siggraph
1903      \sffamily
1904    \or % sigplan
1905      \sffamily
1906    \or % sigchi
1907      \sffamily
1908    \or % sigchi-a
1909      \sffamily
1910    \fi}
```

standardpagestyle   The pagestyle for all pages but the first one

```
1911 \fancypagestyle{standardpagestyle}{%
1912  \fancyhf{}%
1913  \renewcommand{\headrulewidth}{\z@}%
1914  \renewcommand{\footrulewidth}{\z@}%
1915  \ifcase\ACM@format@nr
1916  \relax % manuscript
1917    \fancyhead[LE]{\ACM@linecount\if@ACM@printfolios\thepage\fi}%
1918    \fancyhead[RO]{\if@ACM@printfolios\thepage\fi}%
1919    \fancyhead[RE]{\@shortauthors}%
1920    \fancyhead[LO]{\ACM@linecount\shorttitle}%
1921    \fancyfoot[RO,LE]{\footnotesize Manuscript submitted to ACM}%
1922  \or % acmsmall
1923    \fancyhead[LE]{\ACM@linecount\@headfootfont\@acmArticle\if@ACM@printfolios:\thepage\fi}%
1924    \fancyhead[RO]{\@headfootfont\@acmArticle\if@ACM@printfolios:\thepage\fi}%
1925    \fancyhead[RE]{\@headfootfont\@shortauthors}%
1926    \fancyhead[LO]{\ACM@linecount\@headfootfont\shorttitle}%
1927    \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1928    \@acmNumber, Article \@acmArticle.  Publication date: \@acmPubDate.}%
1929  \or % acmlarge
1930    \fancyhead[LE]{\ACM@linecount\@headfootfont
1931     \@acmArticle\if@ACM@printfolios:\thepage\fi\quad\textbullet\quad\@shortauthors}%
1932    \fancyhead[LO]{\ACM@linecount}%
1933    \fancyhead[RO]{\@headfootfont
1934     \shorttitle\quad\textbullet\quad\@acmArticle\if@ACM@printfolios:\thepage\fi}%
1935    \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1936    \@acmNumber, Article \@acmArticle.  Publication date: \@acmPubDate.}%
1937  \or % acmtog
1938    \fancyhead[LE]{\ACM@linecount\@headfootfont
1939     \@acmArticle\if@ACM@printfolios:\thepage\fi\quad\textbullet\quad\@shortauthors}%
1940    \fancyhead[LO]{\ACM@linecount}%
1941    \fancyhead[RO]{\@headfootfont
1942     \shorttitle\quad\textbullet\quad\@acmArticle\if@ACM@printfolios:\thepage\fi}%
1943    \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
```

```
1944    \@acmNumber, Article \@acmArticle.  Publication date: \@acmPubDate.}%
1945  \else % Proceedings
1946    \fancyfoot[C]{\if@ACM@printfolios\footnotesize\thepage\fi}%
1947    \fancyhead[LO]{\ACM@linecount\@headfootfont\shorttitle}%
1948    \fancyhead[RE]{\@headfootfont\@shortauthors}%
1949    \fancyhead[LE]{\ACM@linecount\@headfootfont\acmConference@shortname,
1950      \acmConference@date, \acmConference@venue}%
1951    \fancyhead[RO]{\@headfootfont\acmConference@shortname,
1952      \acmConference@date, \acmConference@venue}%
1953  \fi
1954  \if@ACM@sigchiamode
1955    \fancyheadoffset[L]{\dimexpr(\marginparsep+\marginparwidth)}%
1956  \fi
1957 }
1958 \pagestyle{standardpagestyle}
```

\@folio@wd Folio blob width, height, offsets and max number
\@folio@ht
\@folio@voffset
\@folio@max

```
1959 \newdimen\@folio@wd
1960 \@folio@wd=\z@
1961 \newdimen\@folio@ht
1962 \@folio@ht=\z@
1963 \newdimen\@folio@voffset
1964 \@folio@voffset=\z@
1965 \def\@folio@max{1}
1966 \ifcase\ACM@format@nr
1967 \relax % manuscript
1968 \or % acmsmall
1969   \@folio@wd=45.75pt\relax
1970   \@folio@ht=1.25in\relax
1971   \@folio@voffset=.2in\relax
1972   \def\@folio@max{8}
1973 \or % acmlarge
1974   \@folio@wd=43.25pt\relax
1975   \@folio@ht=79pt\relax
1976   \@folio@voffset=.55in\relax
1977   \def\@folio@max{10}
1978 \fi
```

\@folioblob The macro to typeset the folio blob.

```
1979 \def\@folioblob{\@tempcnta=\@acmArticleSeq\relax
```

First, we calculate \@acmArticleSeq modulo \@folio@max

```
1980   \loop
1981     \ifnum\@tempcnta>\@folio@max\relax
1982       \advance\@tempcnta by - \@folio@max
1983   \repeat
1984   \advance\@tempcnta by -1\relax
1985   \@tempdima=\@folio@ht\relax
1986   \multiply\@tempdima by \the\@tempcnta\relax
1987   \advance\@tempdima by -\@folio@voffset\relax
```

72

```
1988    \begin{picture}(0,0)
1989    \makebox[\z@]{\raisebox{-\@tempdima}{%
1990        \rlap{%
1991          \raisebox{-0.45\@folio@ht}[\z@][\z@]{%
1992            \rule{\@folio@wd}{\@folio@ht}}}%
1993        \parbox{\@folio@wd}{%
1994          \centering
1995          \textcolor{white}{\LARGE\bfseries\sffamily\@acmArticle}}}}}
1996  \end{picture}}
1997
```

firstpagestyle   The pagestyle for the first page only.

```
1998 \fancypagestyle{firstpagestyle}{%
1999   \fancyhf{}%
2000   \renewcommand{\headrulewidth}{\z@}%
2001   \renewcommand{\footrulewidth}{\z@}%
2002   \ifcase\ACM@format@nr
2003   \relax % manuscript
2004     \fancyhead[L]{\ACM@linecount}%
2005     \fancyfoot[RO,LE]{\if@ACM@printfolios\small\thepage\fi}%
2006     \fancyfoot[RE,LO]{\footnotesize Manuscript submitted to ACM}%
2007   \or % acmsmall
2008     \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2009     \@acmNumber, Article \@acmArticle.  Publication date:
2010     \@acmPubDate.}%
2011     \fancyhead[LE]{\ACM@linecount\@folioblob}%
2012     \fancyhead[LO]{\ACM@linecount}%
2013     \fancyhead[RO]{\@folioblob}%
2014     \fancyheadoffset[RO,LE]{0.6\@folio@wd}%
2015   \or % acmlarge
2016     \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2017     \@acmNumber, Article \@acmArticle.  Publication date:
2018     \@acmPubDate.}%
2019     \fancyhead[RO]{\@folioblob}%
2020     \fancyhead[LE]{\ACM@linecount\@folioblob}%
2021     \fancyhead[LO]{\ACM@linecount}%
2022     \fancyheadoffset[RO,LE]{1.4\@folio@wd}%
2023   \or % acmtog
2024     \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2025     \@acmNumber, Article \@acmArticle.  Publication date:
2026     \@acmPubDate.}%
2027     \fancyhead[L]{\ACM@linecount}%
2028   \else % Conference proceedings
2029     \fancyhead[L]{\ACM@linecount}%
2030     \fancyfoot[C]{\if@ACM@printfolios\footnotesize\thepage\fi}%
2031   \fi
2032 }
```

3.14 Sectioning

Sectioning is different for different levels

```
2033 \renewcommand\section{\@startsection{section}{1}{\z@}%
2034   {-.75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2035   {.25\baselineskip}%
2036   {\@secfont}}
2037 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
2038   {-.75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2039   {.25\baselineskip}%
2040   {\@subsecfont}}
2041 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{10pt}%
2042   {-.5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2043   {-3.5\p@}%
2044   {\@subsubsecfont\@adddotafter}}
2045 \renewcommand\paragraph{\@startsection{paragraph}{4}{\parindent}%
2046   {-.5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2047   {-3.5\p@}%
2048   {\@parfont\@adddotafter}}
2049 \renewcommand\part{\@startsection{part}{9}{\z@}%
2050   {-10\p@ \@plus -4\p@ \@minus -2\p@}%
2051   {4\p@}%
2052   {\@parfont}}
```

`\section@raggedright` Special version of \raggedright compatible with \MakeUppercase

```
2053 \def\section@raggedright{\@rightskip\@flushglue
2054   \rightskip\@rightskip
2055   \leftskip\z@skip
2056   \parindent\z@}
```

`\@secfont` Fonts for sections etc. are different for different formats.
`\@subsecfont`
`\@subsubsecfont`
`\@parfont`

```
2057 \def\@secfont{\sffamily\bfseries\section@raggedright\MakeUppercase}
2058 \def\@subsecfont{\sffamily\bfseries\section@raggedright}
2059 \def\@subsubsecfont{\sffamily\itshape}
2060 \def\@parfont{\itshape}
2061 \setcounter{secnumdepth}{3}
2062 \ifcase\ACM@format@nr
2063 \relax % manuscript
2064 \or % acmsmall
2065 \or % acmlarge
2066   \def\@secfont{\sffamily\large\section@raggedright\MakeUppercase}
2067   \def\@subsecfont{\sffamily\large\section@raggedright}
2068 \or % acmtog
2069   \def\@secfont{\sffamily\large\section@raggedright\MakeUppercase}
2070   \def\@subsecfont{\sffamily\large\section@raggedright}
2071 \or % sigconf
2072   \def\@secfont{\bfseries\Large\section@raggedright\MakeUppercase}
2073   \def\@subsecfont{\bfseries\Large\section@raggedright}
2074 \or % siggraph
2075   \def\@secfont{\bfseries\sffamily\Large\section@raggedright\MakeUppercase}
```

```
2076  \def\@subsecfont{\bfseries\sffamily\Large\section@raggedright}
2077 \or % sigplan
2078  \def\@secfont{\bfseries\Large\section@raggedright}
2079  \def\@subsecfont{\bfseries\section@raggedright}
2080  \renewcommand\subsubsection{\@startsection{subsubsection}{3}{\z@}%
2081    {-.75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2082    {.25\baselineskip}%
2083    {\@subsubsecfont}}
2084  \def\@subsubsecfont{\bfseries\section@raggedright}
2085  \renewcommand\paragraph{\@startsection{paragraph}{4}{\z@}%
2086    {-.5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2087    {-3.5\p@}%
2088    {\@parfont\@addspaceafter}}
2089  \def\@parfont{\bfseries\itshape}
2090  \renewcommand\subparagraph{\@startsection{subparagraph}{5}{\z@}%
2091    {-.5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2092    {-3.5\p@}%
2093    {\@subparfont\@addspaceafter}}
2094  \def\@subparfont{\itshape}
2095 \or % sigchi
2096  \setcounter{secnumdepth}{1}
2097  \def\@secfont{\bfseries\sffamily\section@raggedright\MakeUppercase}
2098  \def\@subsecfont{\bfseries\sffamily\section@raggedright}
2099 \or % sigchi-a
2100  \setcounter{secnumdepth}{0}
2101  \def\@secfont{\bfseries\sffamily\section@raggedright\MakeUppercase}
2102  \def\@subsecfont{\bfseries\sffamily\section@raggedright}
2103 \fi
```

\@adddotafter Add punctuation after the command

```
2104 \def\@adddotafter#1{#1\@addpunct{.}}
```

\@addspaceafter Add space after the command

```
2105 \def\@addspaceafter#1{#1\@addpunct{\enspace}}
```

3.15 TOC Lists

\@dotsep Related to the \tableofcontents are all the horizontal fillers. Base LaTeX defines
\@dottedtocline, which we should not disable. Yet, this command expects \@dotsep
to be defined, but leaves this to the class implementation. Since amsart does not provide
this, we copy the standard variant from article here.

```
2106 \providecommand*\@dotsep{4.5}
```

3.16 Theorems

\@acmplainbodyfont The font to typeset the acmplain theorem style body.

```
2107 \def\@acmplainbodyfont{\itshape}
```

\@acmplainindent	The amount to indent the acmplain theorem style.
	2108 \def\@acmplainindent{\parindent}
\@acmplainheadfont	The font to typeset the acmplain theorem style head.
	2109 \def\@acmplainheadfont{\scshape}
\@acmplainnotefont	The font to typeset the acmplain theorem style note.
	2110 \def\@acmplainnotefont{\@empty}

Customization of acmplain theorem style:

```
2111 \ifcase\ACM@format@nr
2112 \relax % manuscript
2113 \or % acmsmall
2114 \or % acmlarge
2115 \or % acmtog
2116 \or % sigconf
2117 \or % siggraph
2118 \or % sigplan
2119   \def\@acmplainbodyfont{\itshape}
2120   \def\@acmplainindent{\z@}
2121   \def\@acmplainheadfont{\bfseries}
2122   \def\@acmplainnotefont{\normalfont}
2123 \or % sigchi
2124 \or % sigchi-a
2125 \fi
```

acmplain The acmplain theorem style

```
2126 \newtheoremstyle{acmplain}%
2127   {.5\baselineskip\@plus.2\baselineskip
2128     \@minus.2\baselineskip}% space above
2129   {.5\baselineskip\@plus.2\baselineskip
2130     \@minus.2\baselineskip}% space below
2131   {\@acmplainbodyfont}% body font
2132   {\@acmplainindent}% indent amount
2133   {\@acmplainheadfont}% head font
2134   {.}% punctuation after head
2135   {.5em}% spacing after head
2136   {\thmname{#1}\thmnumber{ #2}\thmnote{ {\@acmplainnotefont(#3)}}}% head spec
```

\@acmdefinitionbodyfont	The font to typeset the acmdefinition theorem style body.
	2137 \def\@acmdefinitionbodyfont{\normalfont}
\@acmdefinitionindent	The amount to indent the acmdefinition theorem style.
	2138 \def\@acmdefinitionindent{\parindent}
\@acmdefinitionheadfont	The font to typeset the acmdefinition theorem style head.
	2139 \def\@acmdefinitionheadfont{\itshape}

\@acmdefinitionnotefont The font to typeset the `acmdefinition` theorem style note.

```
2140 \def\@acmdefinitionnotefont{\@empty}
```

Customization of acmdefinition theorem style:

```
2141 \ifcase\ACM@format@nr
2142 \relax % manuscript
2143 \or % acmsmall
2144 \or % acmlarge
2145 \or % acmtog
2146 \or % sigconf
2147 \or % siggraph
2148 \or % sigplan
2149   \def\@acmdefinitionbodyfont{\normalfont}
2150   \def\@acmdefinitionindent{\z@}
2151   \def\@acmdefinitionheadfont{\bfseries}
2152   \def\@acmdefinitionnotefont{\normalfont}
2153 \or % sigchi
2154 \or % sigchi-a
2155 \fi
```

acmdefinition The acmdefinition theorem style

```
2156 \newtheoremstyle{acmdefinition}%
2157   {.5\baselineskip\@plus.2\baselineskip
2158     \@minus.2\baselineskip}% space above
2159   {.5\baselineskip\@plus.2\baselineskip
2160     \@minus.2\baselineskip}% space below
2161   {\@acmdefinitionbodyfont}% body font
2162   {\@acmdefinitionindent}% indent amount
2163   {\@acmdefinitionheadfont}% head font
2164   {.}% punctuation after head
2165   {.5em}% spacing after head
2166   {\thmname{#1}\thmnumber{ #2}\thmnote{ {\@acmdefinitionnotefont(#3)}}}% head spec
```

The definitions for theorems:

```
2167 \theoremstyle{acmplain}
2168 \newtheorem{theorem}{Theorem}[section]
2169 \newtheorem{conjecture}[theorem]{Conjecture}
2170 \newtheorem{proposition}[theorem]{Proposition}
2171 \newtheorem{lemma}[theorem]{Lemma}
2172 \newtheorem{corollary}[theorem]{Corollary}
2173 \theoremstyle{acmdefinition}
2174 \newtheorem{example}[theorem]{Example}
2175 \newtheorem{definition}[theorem]{Definition}
2176 \theoremstyle{acmplain}
```

\@proofnamefont The font to typeset the proof name.

```
2177 \def\@proofnamefont{\scshape}
```

\@proofindent Whether or not to indent proofs.

```
2178 \def\@proofindent{\indent}
```

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Customization of proof environment.

```
2179 \ifcase\ACM@format@nr
2180 \relax % manuscript
2181 \or % acmsmall
2182 \or % acmlarge
2183 \or % acmtog
2184 \or % sigconf
2185 \or % siggraph
2186 \or % sigplan
2187   \def\@proofnamefont{\itshape}
2188   \def\@proofindent{\noindent}
2189 \or % sigchi
2190 \or % sigchi-a
2191 \fi
```

proof   We want some customization of proof environment.

```
2192 \renewenvironment{proof}[1][\proofname]{\par
2193   \pushQED{\qed}%
2194   \normalfont \topsep6\p@\@plus6\p@\relax
2195   \trivlist
2196   \item[\@proofindent\hskip\labelsep
2197         {\@proofnamefont #1\@addpunct{.}}]\ignorespaces
2198 }{%
2199   \popQED\endtrivlist\@endpefalse
2200 }
```

3.17   Acknowledgments

\acks   This is a comment-like structure

```
2201 \specialcomment{acks}{%
2202   \begingroup
2203   \section*{Acknowledgments}
2204   \phantomsection\addcontentsline{toc}{section}{Acknowledgments}
2205 }{%
2206   \endgroup
2207 }
```

\grantsponsor   We just typeset the name of the sponsor

```
2208 \def\grantsponsor#1#2#3{#2}
```

\grantnum

```
2209 \newcommand\grantnum[3][]{#3%
2210   \def\@tempa{#1}\ifx\@tempa\@empty\else\space(\url{#1})\fi}
```

3.18   Conditional typesetting

We use the comment package for conditional typesetting:

```
2211 \if@ACM@screen
```

```
2212  \includecomment{screenonly}
2213  \excludecomment{printonly}
2214 \else
2215  \excludecomment{screenonly}
2216  \includecomment{printonly}
2217 \fi
2218 \if@ACM@anonymous
2219  \excludecomment{anonsuppress}
2220  \excludecomment{acks}
2221 \else
2222  \includecomment{anonsuppress}
2223 \fi
```

3.19 Additional bibliography commands

\showeprint The command \showeprint has two arguments: the (optional) prefix and the eprint number. Right now the only prefix we understand is the (lowercase) word 'arxiv' (see http://arxiv.org/hypertex/bibstyles/.

```
2224 \newcommand\showeprint[2][arxiv]{%
2225  \def\@tempa{#1}%
2226  \ifx\@tempa\@empty\def\@tempa{arxiv}\fi
2227  \def\@tempb{arxiv}%
2228  \ifx\@tempa\@tempb
2229    arXiv:\href{http://arxiv.org/abs/#2}{#2}\else arXiv:#2%
2230  \fi}
```

3.20 End of Class

```
2231 \normalsize\normalfont\frenchspacing
2232 ⟨/class⟩
```

References

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[10] Nicola L. C. Talbot. *User Manual for glossaries.sty v4.25*, June 2016. http://www.ctan.org/pkg/subcaption.

Change History

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Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

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