



Basic Training, or, The Barest of Bare Minimum Requirements for Successful CCSDDS Document Development

Note well, we've moved to having a "team" of technical editors.

They may appear kinder and gentler, but they're still going to uphold the quality



The Consultative Committee for Space Data Systems

Technical Editor Boot Camp

London, November 2024

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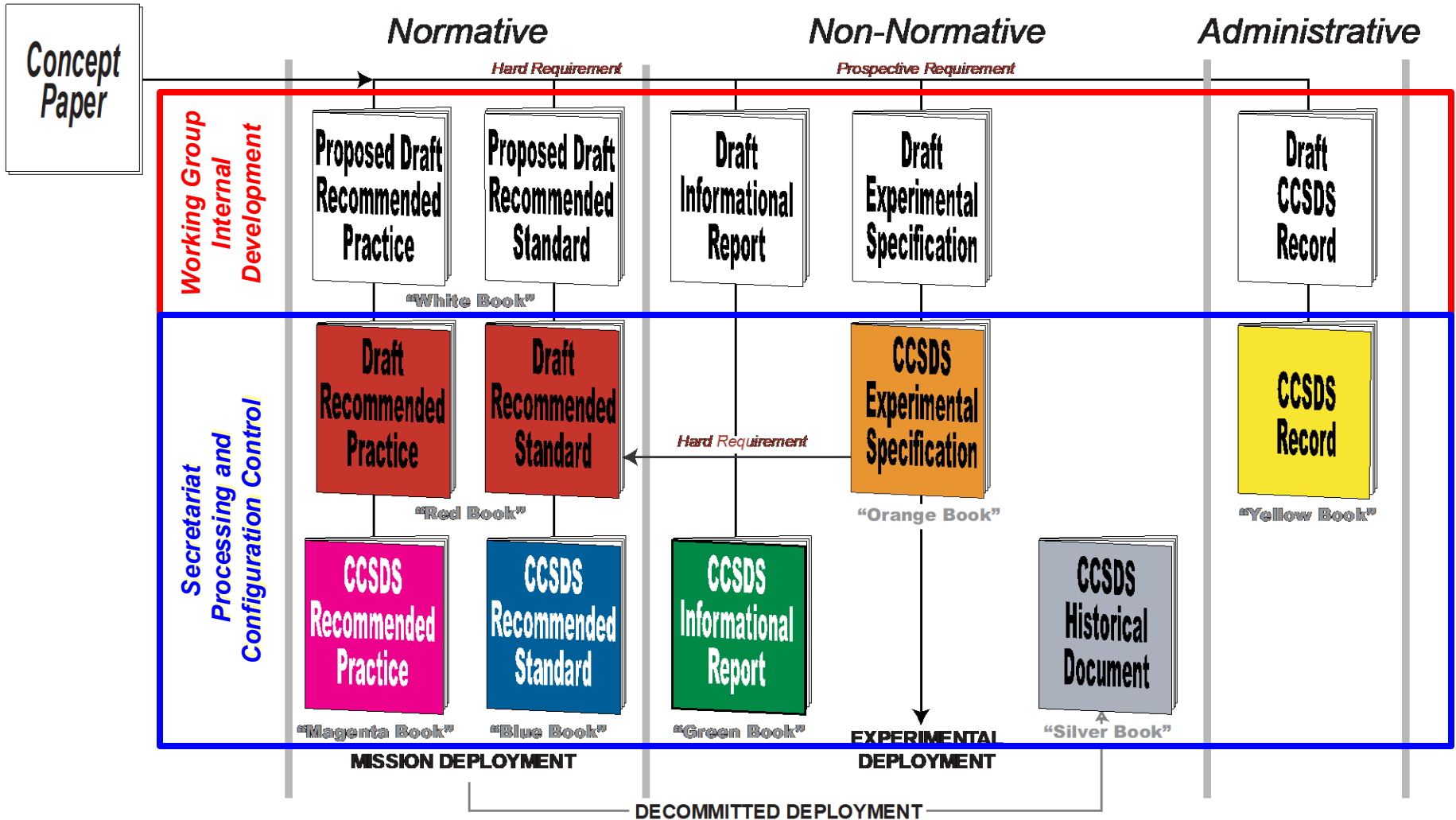
Terminology

Chief Technical Editor (CTE): A title used to refer to the guy who attempts to make the output of CCSDS working groups look like publications of an international standards organization.

– this is now a team

So you need to make friends with multiple people – Natalya and Lee. For a given book, you'll work primarily with one or the other.

CCSDS Document Development Stages





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About CCSDS Documents

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CCSDS Document Development Stages

Recommended Standards and Practices are called **White Books** (proposed draft Recommended Standards and Practices) during working-group-internal development.

After completing working-group-internal development, Recommended Standards and Practices undergo formal CCSDS Agency review as **Red Books** (draft Recommended Standards and Practices).

Only upon successful completion of formal CCSDS Agency review and approval by both the CESG and CMC can Recommended Standards and Practices be published as **Blue Books** and **Magenta Books**.

Draft revisions of Blue Books and Magenta Books are called **Pink Books** or **Pink Sheets**. These documents also undergo formal CCSDS Agency review before they can be released as new issues.



CCSDS

The Consultative Committee for Space Data Systems

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About CCSDS Documents

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**CCSDS Working Groups Do Not
Publish CCSDS Documents**



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About CCSDS Documents

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Document Prioritization

By default, documents received by the Secretariat for processing are prioritized as follows:

- Red and Pink have the highest priority,[†] followed by
- Blue and Magenta, followed by
- Orange and some Yellow (some procedural documents), followed by
- Green

The initial issues of Red/Pink books have higher priority than subsequent issues because initial issues must undergo CESG/CMC polling, which adds at least a month to the turnaround time.

Priorities are adjustable. WGs that need expedited processing of a document can negotiate a schedule as needed.

[†]If there is not sufficient time to conduct a review prior to the next scheduled meetings, Red and Pink Books may drop in priority in favor of Blue and Magenta Books, depending on how long a given book has been in the queue.

Initial Delivery to Secretariat

When a proposed draft has completed working-group-internal development and the Area Director has determined the document is technically mature, the proposed draft must be delivered to the Technical Editors. The Technical Editors must receive

- the version of the document proposed for Agency review;
- **original graphics files for figures in the document;**
- an Area resolution requesting formal Agency review.

The Technical Editors assure the book is in compliance with CCSDS format and style requirements. Elements of the book that are not in compliance with CCSDS format and style requirements must be brought into compliance before the book can go to review.

We are evolving this workflow so that there's more visibility into the process



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Procedures

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Initial Delivery to Secretariat

Historically, some working groups have suffered under the unfortunate misapprehension that delivery of a document to the Chief Technical Editor is a pro-forma step that consumes no more than a day or two of schedule time.

In reality, for a document that is wholly conformant to CCSDS Publications Manual requirements, **at least six weeks will elapse between delivery of a document and release of that document for review.**

The former Chief Technical Editor had never received a document that is wholly conformant to CCSDS Publications Manual requirements. It is exceedingly unlikely that the new team will either.

You may say “challenge accepted” – but maybe that’s not an effective use of your time. Plan for the time needed, and let them do their job.



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Procedures

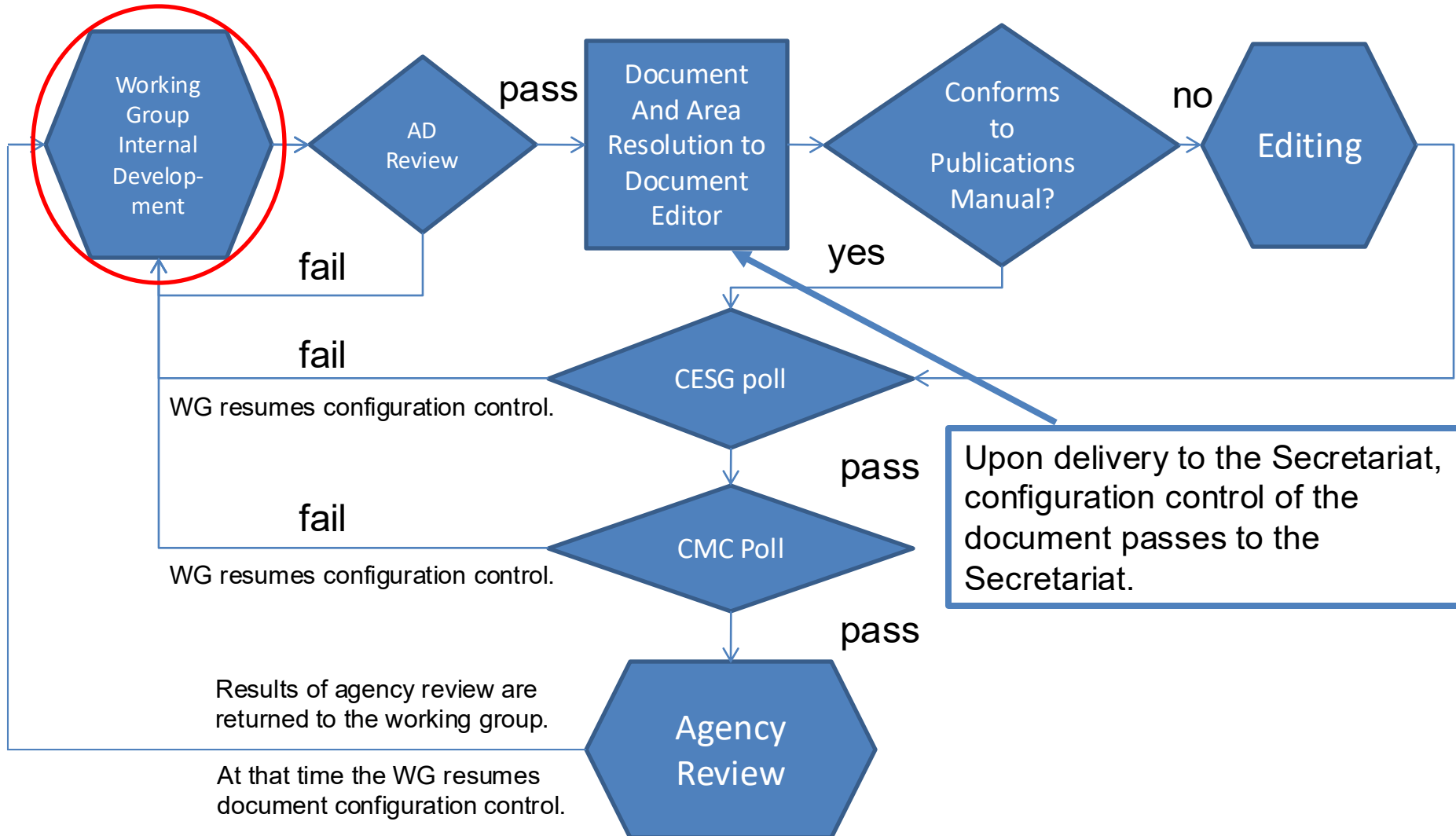
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Review Initiation

When compliance with the Publications Manual exists, the Chief Technical Editor

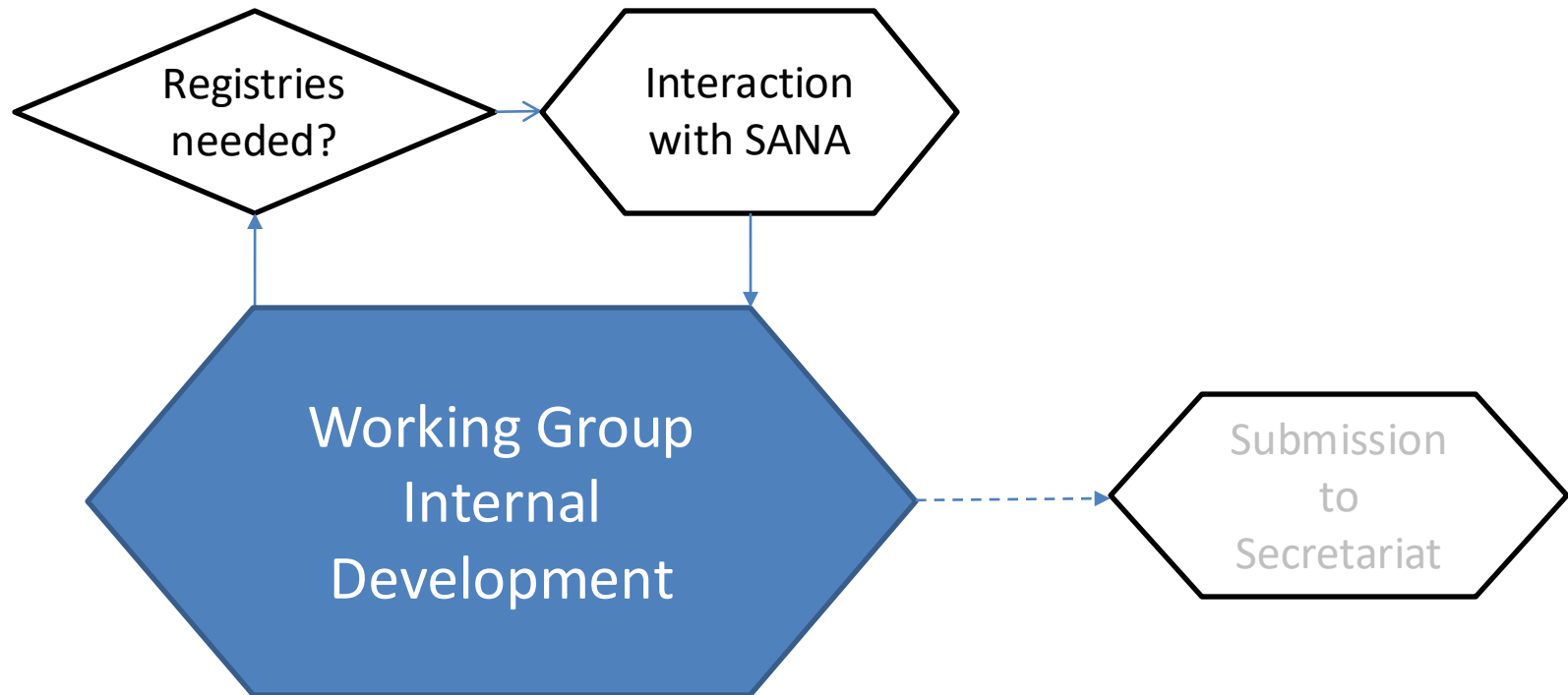
- prepares the PDF file to be used for the review;
- prepares forwarding and RID initiation forms;
- initiates approval polling to authorize review;
- initiates formal CCSDS Agency review.

Progression from White Book to Red Book





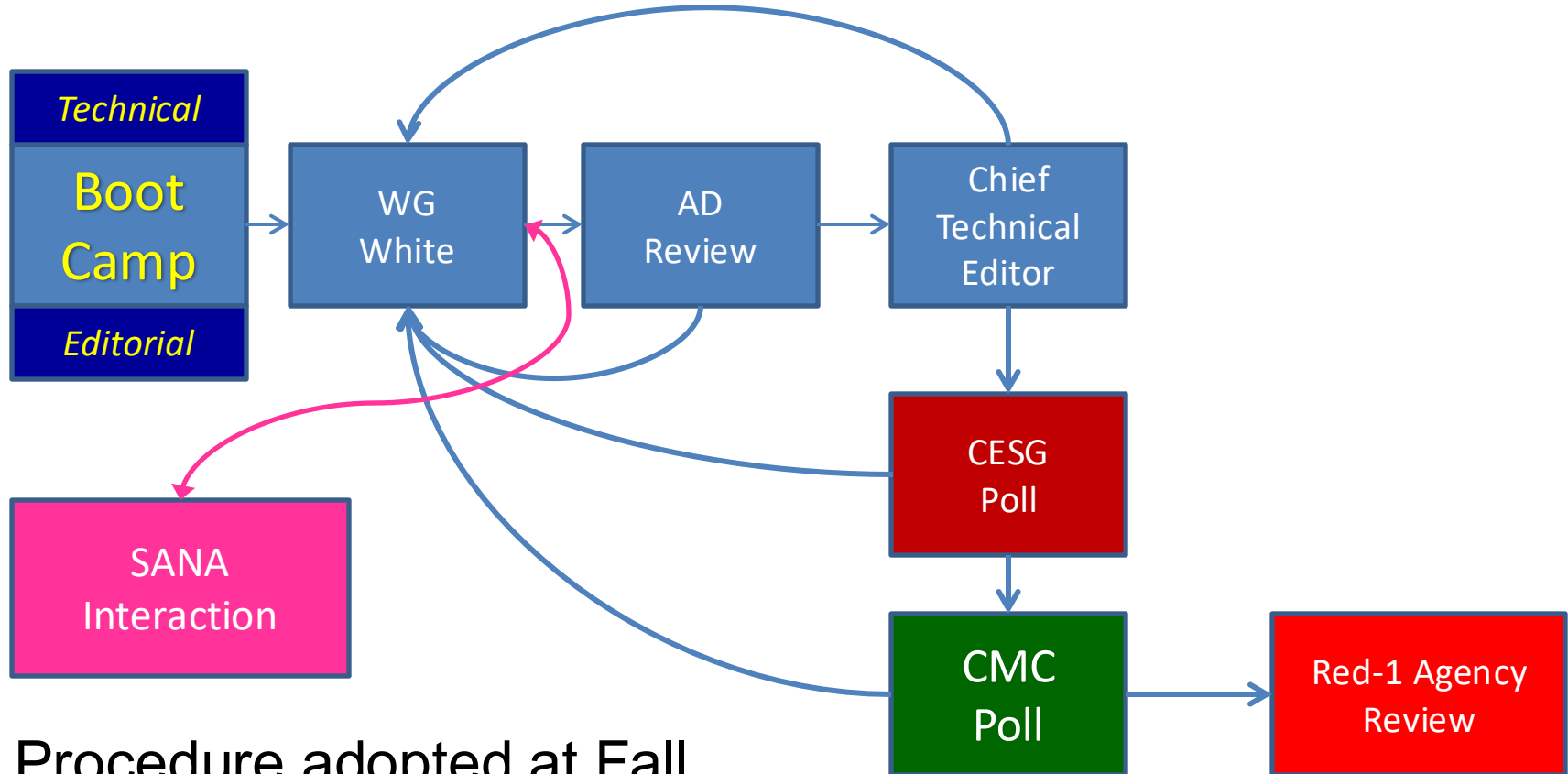
Progression from White Book to Red Book



Identification of the need for creation of or updates to SANA registries, and related interactions with SANA, are supposed to happen prior to Red Review.

Procedures for WG interactions with SANA for the purpose of creating and modifying SANA registries are defined in CCSDS 313.2-Y-1, Procedures for SANA Registry Specification (Yellow Book, Issue 1, May 2016).

Progression from White Book to Red Book



Procedure adopted at Fall
2010 CESG Meeting

Conclusion of Review

When a draft has completed formal CCSDS Agency review, the results of the review, Review Item Disposition (RID) forms partially completed by reviewers, are returned to the working group for disposition.

- The working group must formulate dispositions for all review comments and update the document accordingly.
- If technical changes are introduced to the document, normally it must undergo another formal Agency review, in which case the working group must forward the current version to the Chief Technical Editor to be prepared for review again.
- This review/disposition loop repeats until no RIDs necessitating technical changes are received.

Progression from Draft to Published Document

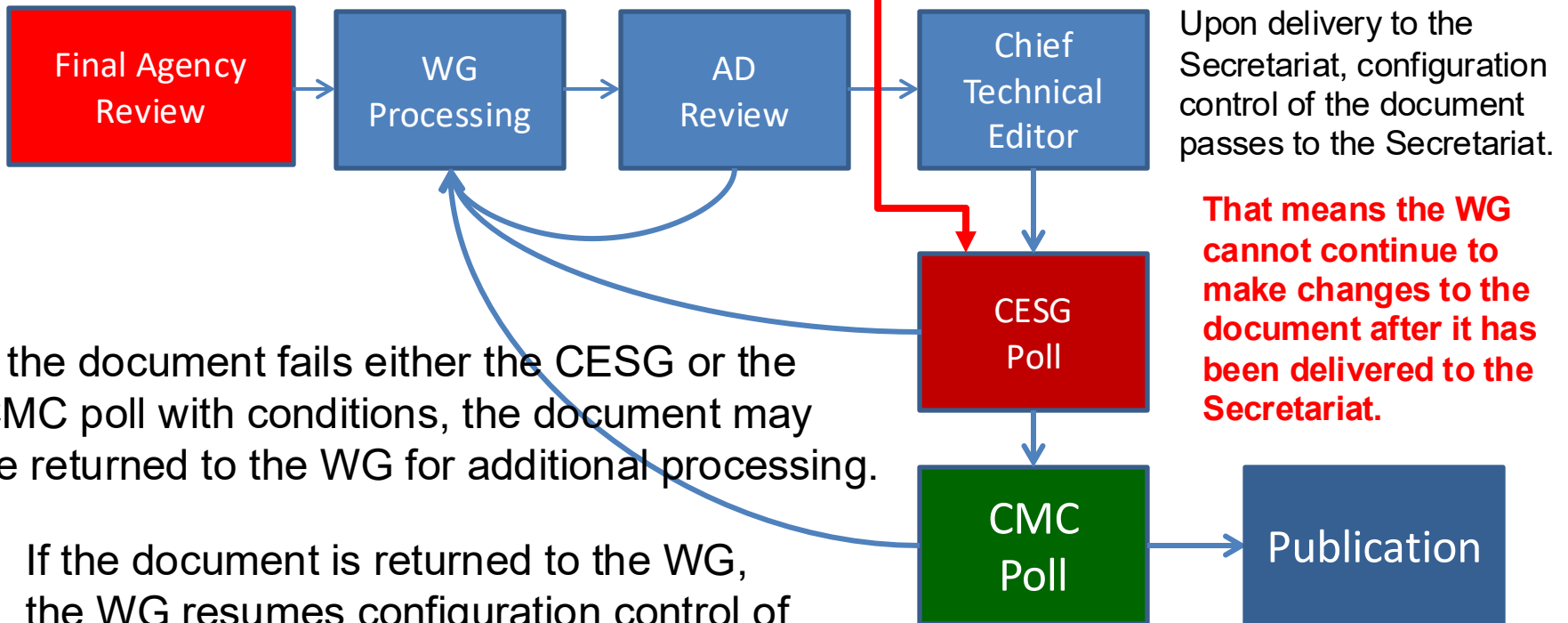
At the successful conclusion of all needed Agency reviews, in order for the document to become either a Blue or Magenta Book, the Chief Technical Editor must receive

- the final version of the document reflecting dispositions of all review comments;
- **original graphics files** for figures added or modified since the review;
- a record of all review comments and dispositions;
- if the document relies on any patents, the completed patent forms;
- for Recommended Standards, a report on interoperability testing:
 - test report must include results of interaction with any SANA registries and exercise of the licensing process for any patents;
- an Area resolution requesting publication of the document.

With these materials in hand, the Chief Technical Editor initiates the final approval process, which should be expected to take at least 60 days.

Progression from Red Book to Publication

SANA registries should be finalized and approved prior to polling.



Upon delivery to the Secretariat, configuration control of the document passes to the Secretariat.

That means the WG cannot continue to make changes to the document after it has been delivered to the Secretariat.

If the document fails either the CESG or the CMC poll with conditions, the document may be returned to the WG for additional processing.

If the document is returned to the WG, the WG resumes configuration control of the document.

What's all this about configuration control?

Configuration control relies on the concept that there can be only one current version of a document.

When a WG delivers a document to the Secretariat, the Secretariat takes custody of (one can only hope) the current version of that document.

That means the WG relinquishes custody of the current version.

The WG cannot continue to make changes to a document that has been delivered to the Secretariat because the WG no longer has custody of the current version of that document.

No, “oops we forgot these really important things” 2 months afterwards -> The technical editors may ask for revisions in something to make it publishable” – a good example would be a graphic file that just doesn't work right when scaled. But no new scales, no new lines on the plot, etc.

Document Status and Document Editor Queue

The Chief Technical Editor uploads a monthly status report on current documents (documents that have been released or delivered to the Secretariat for release) as well as a report on the editorial “queue” (documents delivered to the Secretariat but not yet released). Both reports are available at the following location:

<http://cwe.ccsds.org/cesg/docs/>

This is being updated. Brian is working on making this more useful.



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Drafting Requirements; or, Why Your Book Still Hasn't Been Published



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Drafting Requirements

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From *CCSDS Publications Manual* (CCSDS A20.0-Y-4, Yellow Book, Issue 4, April 2014) :

3.4.3.3 For normative-track documents,

- a) specifications shall begin in section 3 and continue through as many subsequent sections as needed;
- b) each specification shall be explicitly identified by a unique subsection or paragraph number;
- c) text shall be written in terse style;
- d) comments and explanatory material shall be clearly identified as non-normative:
 - 1) the NOTE format as defined in section 4 shall be used for brief non-normative comments;
 - 2) non-normative text requiring one or more paragraphs of text may be set off in special subsections having one of the following reserved titles:
 - Overview—used only to introduce a set of related subsections;
 - Background;
 - Rationale;
 - Discussion;
 - 3) descriptive text shall not introduce implicit or hidden requirements, or modify the meaning or obligations of existing requirements;
 - 4) normative text shall not appear in subsections whose titles are identified as reserved in 3.4.3.3 d)2).

NOTE – In general, non-normative text is to be avoided in normative sections (sections 3 through *n*) of CCSDS normative-track documents. CCSDS Informational Reports are the proper repository of non-normative text intended to aid in understanding or acceptance of standards-track documents.



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Drafting Requirements

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From *CCSDS Publications Manual* (CCSDS A20.0-Y-4, Yellow Book, Issue 4, April 2014) :

terse style: Style of specification in which normal text is limited to concise statements of requirements. Discussions concerning rationale, background, and other ancillary topics are constrained to be brief and are set off from normal text, usually in a note, or sometimes in a subsection that is clearly labeled as being non-normative. (1.6.1 TERMS)

We're engineers, we love adding explanatory details, which help understand the specification statement, or why we have it. This is great, but the statement must stand alone. If it can't maybe it needs rewriting.

Jim's comment from consuming the books – You read the Blue book with a Green book open to understand how it fits in the picture. So, update the green book too!



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Drafting Requirements

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Terse Style

By far the most important requirement for CCSDS document style is the requirement for Terse Style.

When the CCSDS Publications Manual was originally drafted, Blue Books were envisioned as immaculate specifications uncorrupted by discussions of rationale and other non-normative material.

The prototype for the ideal Blue Book defined in the Publications Manual was the 1992 issue of Packet Telemetry (issue 3), drafted by Horst Kummer, one of the founders of CCSDS.

[Packet Telemetry](#)

Terse Style

Drafting a document in Terse Style is relatively easy. Rewriting a document that does not conform to Terse Style is extremely time consuming.

If the rewrite is done by someone, like the Technical Editing team, who were not involved in definition of requirements in the working group, a great deal of guesswork may be involved in determining which elements should be normative and which should not.

That is to say, if the working group does not set out from the start to write normative-track documents in terse style, the working group should not expect to meet its schedule.

Like all requirements, one should ask “is this testable”? And “how is it testable”?

No writing requirements that cannot be verified. “desires” go in rationales or green books.



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Drafting Requirements

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Terse Style (continued)—Input

6.5.2 ERROR REPORTING

NOT NORMATIVE

NOT STATED AS A REQUIREMENT

Depending on the security features in use, the SDLS ProcessSecurity function specified in [8] can verify the authenticity of the frame a **NOT NORMATIVE** ts of the Transfer Frame Data Field. If the SDLS ProcessSecurity function detects any errors, these are reported to either the Virtual Channel Demultiplexing Function or the Virtual Channel Reception Function. The way that **NOT STATED AS A REQUIREMENT** use Functions and the SDLS ProcessSecurity Function is implementation dependent

NOT STATED AS A REQUIREMENT

If the SDLS ProcessSecurity Function does not report an error, the Virtual Channel Reception Function extracts the contents of the Transfer Frame Data Field **NOT NORMATIVE** and delivers it to its user (or Function). If the SDLS ProcessSecurity Function reports an error, either the Virtual Channel Demultiplexing Function or the Virtual Channel Reception Function discards the frame (depending on the interface point): in this case, the optional Verification Status Code parameter can be used to inform the user of the relevant service. (See sections 3.3.2.6, 3.4.2.6).



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Terse Style (continued)—Interpretation

6.5.2 ERROR REPORTING

NOT NORMATIVE

6.5.2.1 Discussion

Depending on the security features in use, the SDLS ProcessSecurity Function specified in reference [8] can verify the authenticity of the frame and it can decrypt the contents of the Transfer Frame Data Field. If the SDLS ProcessSecurity Function detects any errors, these are reported to either the Virtual Channel Demultiplexing Function or the Virtual Channel Reception Function. The way that Transfer Frame data is passed between either of these Functions and the SDLS ProcessSecurity Function is implementation dependent.

6.5.2.2 Requirements

NORMATIVE

6.5.2.2.1 If the SDLS ProcessSecurity Function does not report an error, the Virtual Channel Reception Function shall extract the contents of the Transfer Frame Data Field from the frame and deliver it to its user (or Function).

6.5.2.2.2 If the SDLS ProcessSecurity Function reports an error, either the Virtual Channel Demultiplexing Function or the Virtual Channel Reception Function shall discard the frame (depending on the interface point).

NOT NORMATIVE

NOTE – In this case, the optional Verification Status Code parameter can be used to inform the user of the relevant service (see 3.3.2.6 and 3.4.2.6).



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Drafting Requirements

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Terse Style (continued)—Input

6.4.3 VIRTUAL CHANNEL GENERATION FUNCTION WITH SDLS

6.4.3.1 If the interface to the SDLS protocol is in the Virtual Channel Generation Function, then the order of processing between the functions of the TM and SDLS protocols shall occur as follows in the Virtual Channel Generation Function:

- a) the frame assembly processing by the Virtual Channel Generation Function
- b) the call by the Virtual Channel Generation Function to the SDLS ApplySecurity Function

The Virtual Channel Generation Function assembles a transfer frame as specified in 6.2. The SDLS ApplySecurity Function adds the Security Header and optional Security Trailer.

The SDLS ApplySecurity Function specified in [8] provides the contents of these security fields as necessary and may modify the contents of the Transfer Frame Data Field by encrypting the data. Note that the way that Transfer Frame data is passed between the Virtual Channel Generation Function and the SDLS ApplySecurity Function is implementation dependent.

6.4.3.2 When assembling a Transfer Frame on a Virtual Channel that uses SDLS, the Virtual Channel Generation Function shall apply the Transfer Frame specification in 6.2 to determine the lengths and positions of the fields in the Transfer Frame.

NOTE - The lengths of the Security Header and Security Trailer are managed parameters of the Virtual Channel (see 6.5).

6.4.3.3 The Security Header, and the Security Trailer if it is present for the Virtual Channel, shall be kept empty by the Virtual Channel Generation Function when it is assembling a Transfer Frame on a Virtual Channel that uses SDLS.

NOTES:

1. The Virtual Channel Generation Function may contain the interface to the SDLS protocol. In this case, it calls the SDLS ApplySecurity function for the Transfer Frames that it assembles for Virtual Channels that use SDLS.
2. See 4.2.3 for the other requirements for the Virtual Channel Generation Function.

NORMATIVE

NOT STATED AS A REQUIREMENT

NOT NORMATIVE

NOT NORMATIVE



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Drafting Requirements

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Terse Style (continued)—Interpretation

NORMATIVE

6.4.3 VIRTUAL CHANNEL GENERATION FUNCTION WITH SDLS

6.4.3.1 When assembling a Transfer Frame, the Virtual Channel Generation Function shall conform to the specifications of 4.2.4, 6.3, and 6.4.3.2 through 6.4.3.3.

6.4.3.2 The Security Header, and the Security Trailer if it is present for the Virtual Channel, shall be kept empty.

NOTES

NOT NORMATIVE

1 The SDLS ApplySecurity Function specified in reference [8] provides the contents of these security fields as necessary and may modify the contents of the Transfer Frame Data Field by encrypting the data.

2 The lengths of the Security Header and Security Trailer are managed parameters of the Virtual Channel (see 6.6).

NORMATIVE

6.4.3.3 If the Virtual Channel Generation Function contains the interface to the SDLS protocol,

a) it shall call the SDLS ApplySecurity function for the Transfer Frames that it assembles for Virtual Channels that use SDLS;

b) the order of processing between the functions of the TM and SDLS protocols shall occur as follows:

1) the frame assembly processing by the Virtual Channel Generation Function;

2) the call by the Virtual Channel Generation Function to the SDLS ApplySecurity Function.

NOTE – The way that Transfer Frame data is passed between the Virtual Channel Generation Function and the SDLS ApplySecurity Function is implementation dependent.

NOT NORMATIVE



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Drafting Requirements

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Format

Format elements are simple and straightforward. One need only open the Publications Manual (or any other modern CCSDS book) to see examples.

[Publications Manual](#)

Current word-processor styles and boilerplate text can also be found in “template” files* available at the following location:

http://cwe.ccsds.org/cesg/docs/Document_Templates/

(Downloading the template files for use can seem something of a challenge, since the CWE by default opens all Microsoft Word files in Office Online, but with persistence and savvy use of the ... menus, wondrous things can be accomplished!)

* not to be confused with Word *.dot, *.dotx, *.dotm files

Format (continued)

The most recent updates to the Publications Manual added requirements for additional document elements:

- Implementation Conformance Statement (ICS) Proforma;
- Space Assigned Numbers Authority (SANA) Considerations;
- Patent Issues;
- References:
 - Normative references must now be explicit references to relevant sections/clauses/etc. in the referenced document.

Format (continued)

In order to accommodate recent draconian requirements of the ISO Central Secretariat, an organization with which we used to have a good working relationship, all the “template” files mentioned on the preceding slide (and accessible at http://cwe.ccsds.org/cesg/docs/Document_Templates/) have been updated to A4 page size.

All the template files use fields for metainformation repeated in various places throughout all CCSDS documents.


For users who are overwhelmed by such Microsoft Word wizardry, the fields can easily be “unlinked” (converted to text) by selecting them and typing Ctrl-6. However, users are encouraged retain the fields and to maintain pertinent metainformation in the document properties.

- ←
- Home
- New
- Open
- Info**
- Save
- Save As
- History
- Print
- Share
- Export
- Close

Info

732x1b2_final


C: » Work » Documents » 700 SIS » 732x1 Unified Space Data Link Protocol » SDR-2106-10 Input for Blue 2



Convert

Compatibility Mode


Some new features are disabled to prevent problems when working with previous versions of Office. Converting this file will enable these features, but may result in layout changes.



Protect Document

Protect Document

Control what types of changes can be made to this document.




Check for Issues

Inspect Document

Before publishing this file, check for issues that may affect the document's appearance or content.

- Document properties
- Headers and footers
- Characters formatted
- Custom XML data
- Content that cannot be converted to a file type



Manage Document

Manage Document

There are no unsaved changes.

732x1b2_final.doc Properties

General Summary Statistics Contents Custom

Name:

Checked by: Client

Date completed:

Department:

Destination:

Disposition:

Type:

Value: Link to content

Name	Value	Type
Documen...	CCSDS 732...	Text
Issue	Issue 2	Text
Issue Date	October 2021	Text
Documen...	Recommen...	Text
Documen...	Blue Book	Text

Properties

Size 1.42MB

Pages

Words 38617

Total Editing Time 56 Minutes

Title Unified Space Data Link Pr...

Tags Add a tag

Comments Add comments


Related Dates

Last Modified 10/30/2021 12:45 PM


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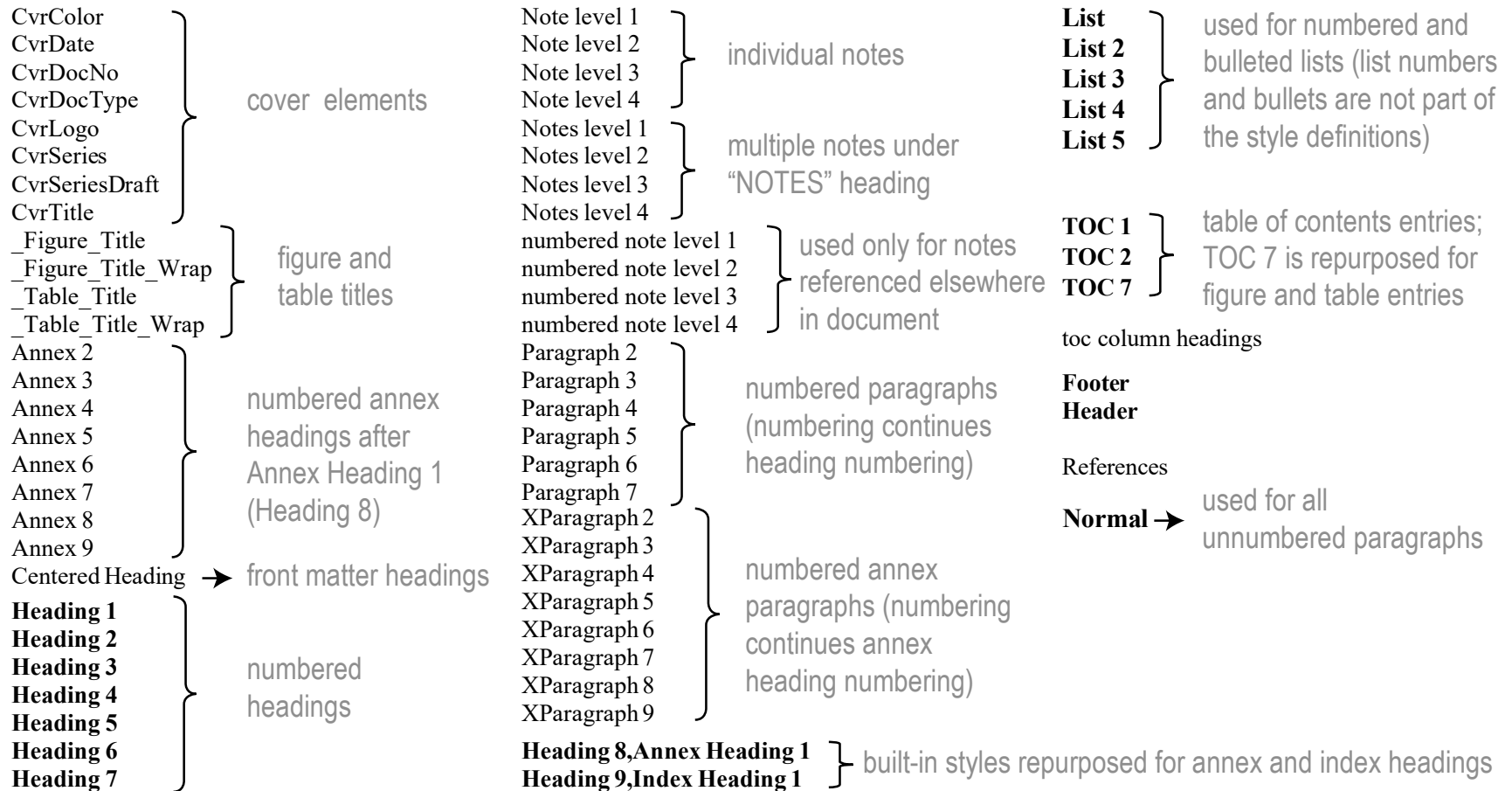
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Drafting Requirements

London, November 2024

Format (continued)

Styles defined in document template files:



Boilerplate

Boilerplate text added to Recommended Standards and Practices:

1.{n} NOMENCLATURE

1.{n}.1 NORMATIVE TEXT

The following conventions apply for the normative specifications in this document:

- a) the words ‘shall’ and ‘must’ imply a binding and verifiable specification;
- b) the word ‘should’ implies an optional, but desirable, specification;
- c) the word ‘may’ implies an optional specification;
- d) the words ‘is’, ‘are’, and ‘will’ imply statements of fact.

NOTE – These conventions do not imply constraints on diction in text that is clearly informative in nature.

1.{n}.2 INFORMATIVE TEXT

In the normative sections of this document, informative text is set off from the normative specifications either in notes or under one of the following subsection headings:

- Overview;
- Background;
- Rationale;
- Discussion.

Boilerplate (continued)

New boilerplate text to be added to Recommended Standards and Experimental Specifications for which patents apply:

1.{n} Patented Technologies

The Consultative Committee on Space Data Systems (CCSDS) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning {subject matter} given in {subsection}. The CCSDS takes no position concerning the evidence, validity, and scope of these patent rights.

The holders of these patent rights have assured the CCSDS that they are willing to negotiate licenses under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with CCSDS. Information can be obtained from the CCSDS Secretariat at the address indicated on page i. Contact information for the holders of these patent rights is provided in {Security, SANA, and Patent Considerations Annex}.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. The CCSDS shall not be held responsible for identifying any or all such patent rights.



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Drafting Requirements

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Boilerplate (continued)

New boilerplate text to be added to Foreword of standards-track documents and Experimental Specifications for which patents do not apply:

“Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CCSDS shall not be held responsible for identifying any or all such patent rights.”

New boilerplate text to be added to the Preface of draft standards-track documents:

“Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.”

Required annexes:

- All standards-track documents and Experimental Specifications must now contain a Security, SANA, and Patent Considerations informative annex.
- All Recommended Practices must contain a similar informative annex containing at least Security Considerations.
- All standards-track documents must now contain an Implementation Conformance Statement normative annex. [...](#)
- All Experimental Specifications must contain an annex documenting qualifying implementations.



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Editorial Conventions and Pitfalls; or, Why Can't I Just Do Things the Way I Want?

Conventions

- Bookmarks for cross references to figures and tables
- TC tags for figure and table table-of-contents entries
- Single quotes
- Lowercase figure, table, section, and annex references
- The “Oxford” Comma



The Consultative Committee for Space Data Systems

Technical Editor Boot Camp

Editorial Conventions and Pitfalls

London, November 2024

The New York Times

<https://nyti.ms/2nvOihs>

Lack of Oxford Comma Could Cost Maine Company Millions in Overtime Dispute

By [DANIEL VICTOR](#) MARCH 16, 2017

A class-action lawsuit about overtime pay for truck drivers hinged entirely on a debate that has bitterly divided friends, families and foes: The dreaded — or totally necessary — Oxford comma, perhaps the most polarizing of punctuation marks.

What ensued in the United States Court of Appeals for the First Circuit, and in a 29-page court decision handed down on Monday, was an exercise in high-stakes grammar pedantry that could cost a dairy company in Portland, Me., an estimated \$10 million.

In 2014, three truck drivers sued Oakhurst Dairy, seeking more than four years' worth of overtime pay that they had been denied. Maine law requires workers to be paid 1.5 times their normal rate for each hour worked after 40 hours, but it carves out some exemptions.

A quick punctuation lesson before we proceed: In a list of three or more items — like “beans, potatoes and rice” — some people would put a comma after potatoes, and some would leave it out. A lot of people feel very, very strongly about it.

The debate over commas is often a pretty inconsequential one, but it was anything but for the truck drivers. Note the lack of Oxford comma — also known as the serial comma — in the following state law, which says overtime rules do not apply to:

The canning, processing, preserving, freezing, drying, marketing, storing, packing for shipment or distribution of:

- (1) Agricultural produce;
- (2) Meat and fish products; and
- (3) Perishable foods.

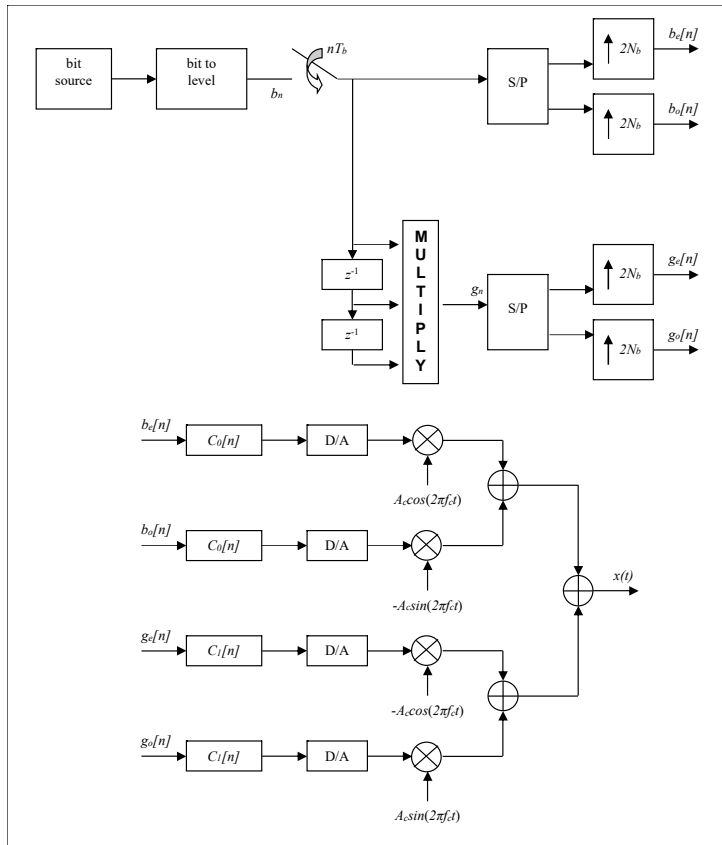
Does the law intend to exempt the distribution of the three categories that follow, or does it mean to exempt packing for the shipping or distribution of them?

...

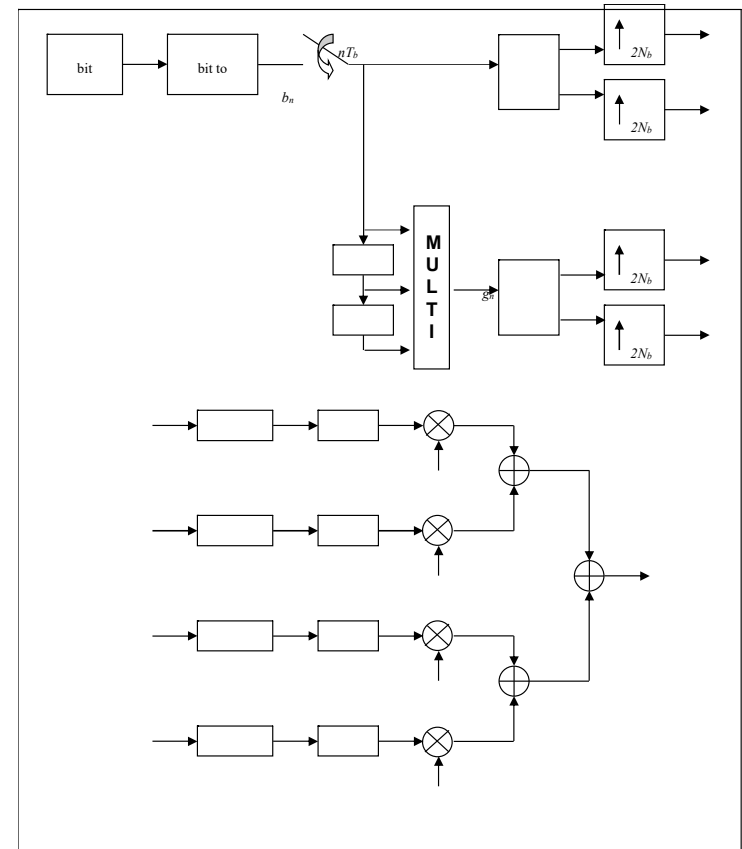
Pitfalls

- Word AutoShapes
- Bitmaps
- AutoCorrect/Replace Text As You Type
- Auto Language Recognition
- Copyrighted Materials
- Superfluous References
- Definitions
- Titles/Headings As Antecedents
- “This” As Catch-All Pronoun
- Non-third-person discourse
- Non-Parallel Structure
- Inconsistent Orthography
- Redefined Word Template Styles
- User-Defined Word Styles
- Tables pasted as graphics into the document

Pitfalls: Word AutoShapes



AutoShape Figure As Input



AutoShape Figure with Styles Applied

Pitfalls: Word AutoShapes

The instantaneous frequency pulse $g(\tau)$ can be obtained through a linear filter with impulse response defined by:

$$g(\tau) = h(\tau) * \text{rect}(\tau/T_s)$$

where $*$ denotes convolution and $\text{rect}(x)$ is the function:

$$\begin{aligned} \text{rect}(\tau/T_s) &= 1/T_s \text{ for } \tau \leq T_s/2 \\ \text{rect}(\tau/T_s) &= 0 \text{ otherwise} \end{aligned}$$

Equation As Input

The instantaneous frequency pulse $g(\tau)$ can be obtained through a linear filter with impulse response defined by:

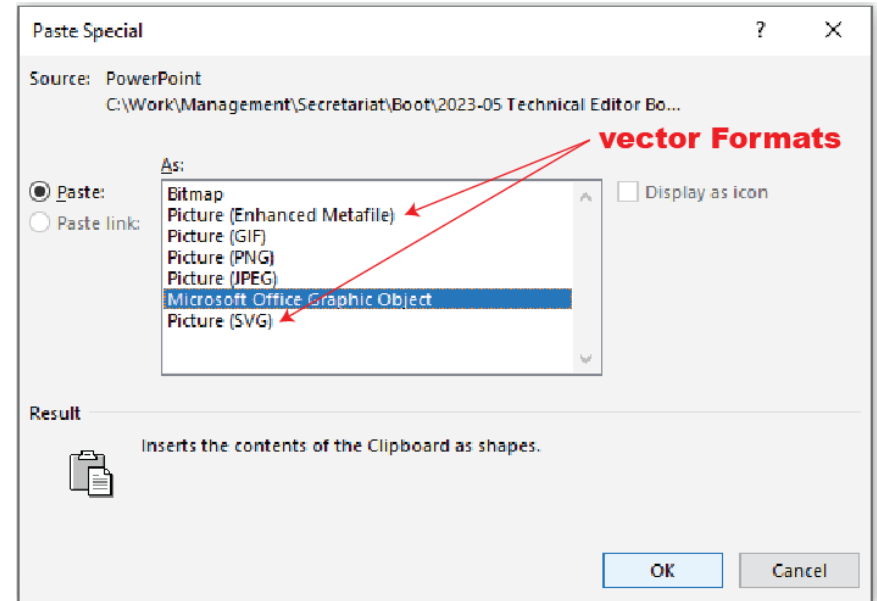
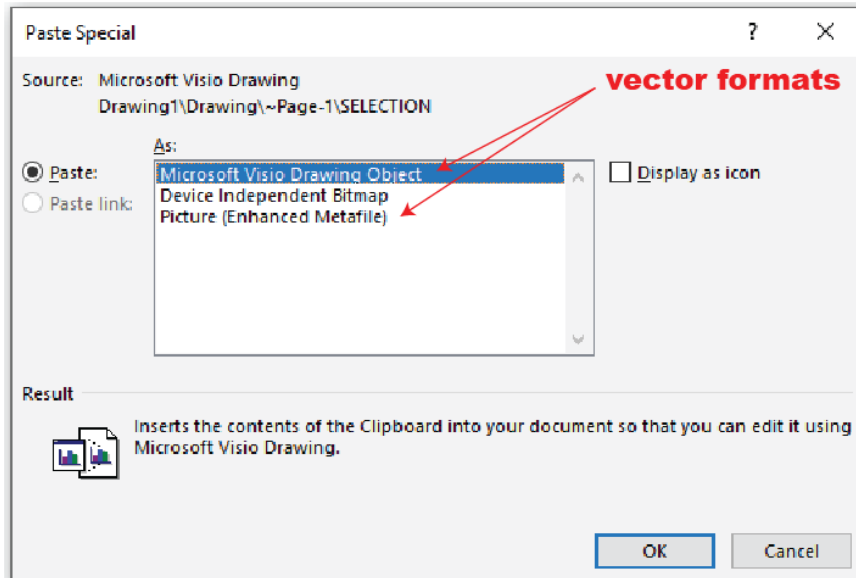
$$g(\tau) = h(\tau) * \text{rect}(\tau/T_s)$$

where $*$ denotes convolution and $\text{rect}(x)$ is the function:

$$\begin{aligned} \text{rect}(\tau/T_s) &= 1/T_s \text{ for } \tau \leq T_s/2 \\ \text{rect}(\tau/T_s) &= 0 \text{ otherwise} \end{aligned}$$

Equation with Styles Applied

Pitfalls: Bitmaps



Note: The default option in the right-hand Paste Special window, Microsoft Office Graphics Object, is not a vector format.

Pitfalls: Bitmaps

Original Graphics Formats

Examples of native file formats of popular graphics platforms (native formats are always preferred for delivery to the Secretariat):

- AI Adobe Illustrator
- PPT, PPTX Power Point
- VSD Visio

Examples of vector/font-preserving* interchange file formats (interchange formats should be delivered to Secretariat only when native format is unavailable):

- WMF Windows Metafile
- EMF Enhanced (Windows) Metafile
- PICT, PCT older Macintosh graphics interchange format, replaced by PDF with OS X
- PDF portable document format
- EPS encapsulated Postscript
- PS Postscript
- SVG scalable vector graphics

*All the formats listed *can* be used to store bitmaps as well as vectors. Engineers who do not know the difference between bitmaps and vectors should request tutelage from the nearest underpaid editorial dweeb.

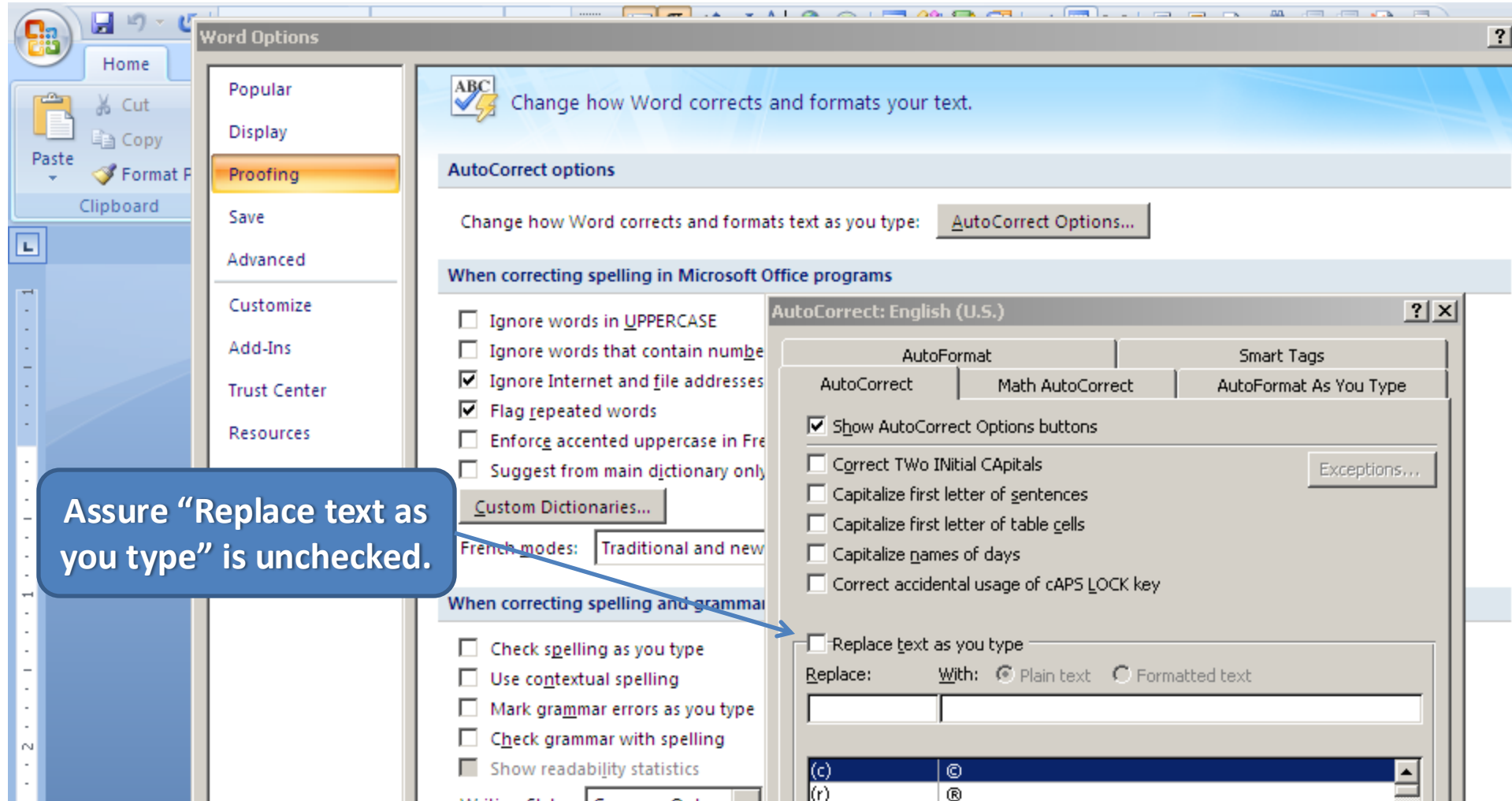
Pitfalls: Bitmaps

Examples of bitmap/raster file formats (bitmap/raster formats are generally **unsuitable** for publication):

- PNG Portable Network Graphics
- TIF, TIFF Tagged Image File Format
- JPG, JPEG Joint Photographic Experts Group
- JFIF (JPEG File Interchange Format)
- RAW
- GIF Graphics Interchange Format
- BMP Windows Bitmap Format

Some types of graphics, photographs, for example, exist only in bitmap/raster format. If there is a necessity to include photographs or similar images in a document, the resolution of the image should be at least 300 dpi. (The resolution of typical JPEG images is only 72 dpi.)

Pitfalls: AutoCorrect/ Replace Text As You Type



The image shows a screenshot of the Microsoft Word Options dialog box, specifically the Proofing section. The 'AutoCorrect options' tab is selected. A callout box with a blue background and white text points to the 'Replace text as you type' checkbox, which is currently unchecked. The callout text reads: "Assure 'Replace text as you type' is unchecked." The 'AutoCorrect: English (U.S.)' sub-dialog is also visible, showing various AutoCorrect options, with 'Show AutoCorrect Options buttons' checked and 'Replace text as you type' unchecked. The 'Replace' and 'With' fields are empty, and the 'With' radio buttons are set to 'Plain text'.

Word Options

Popular

Display

Proofing

Save

Advanced

Customize

Add-Ins

Trust Center

Resources

Change how Word corrects and formats your text.

AutoCorrect options

Change how Word corrects and formats text as you type: [AutoCorrect Options...](#)

When correcting spelling in Microsoft Office programs

- Ignore words in UPPERCASE
- Ignore words that contain numbe
- Ignore Internet and file addresses
- Flag repeated words
- Enforce accented uppercase in Fre
- Suggest from main dictionary only

[Custom Dictionaries...](#)

French modes: Traditional and new

When correcting spelling and grammar

- Check spelling as you type
- Use contextual spelling
- Mark grammar errors as you type
- Check grammar with spelling
- Show readability statistics

Writing Style: Grammar Only

AutoCorrect: English (U.S.)

AutoFormat | Smart Tags

AutoCorrect | Math AutoCorrect | AutoFormat As You Type

- Show AutoCorrect Options buttons
- Correct TWo INITIAL Capitals [Exceptions...](#)
- Capitalize first letter of sentences
- Capitalize first letter of table cells
- Capitalize names of days
- Correct accidental usage of cAPS LOCK key
- Replace text as you type

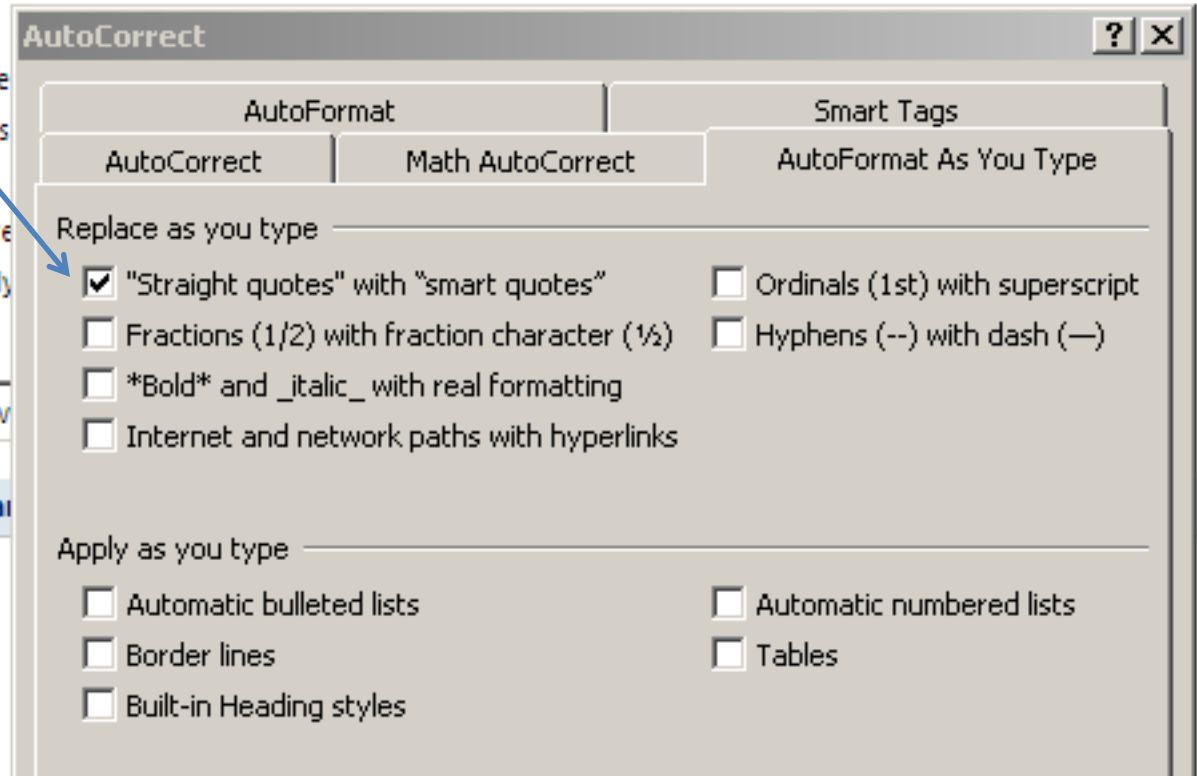
Replace: With: Plain text Formatted text

(c) ©

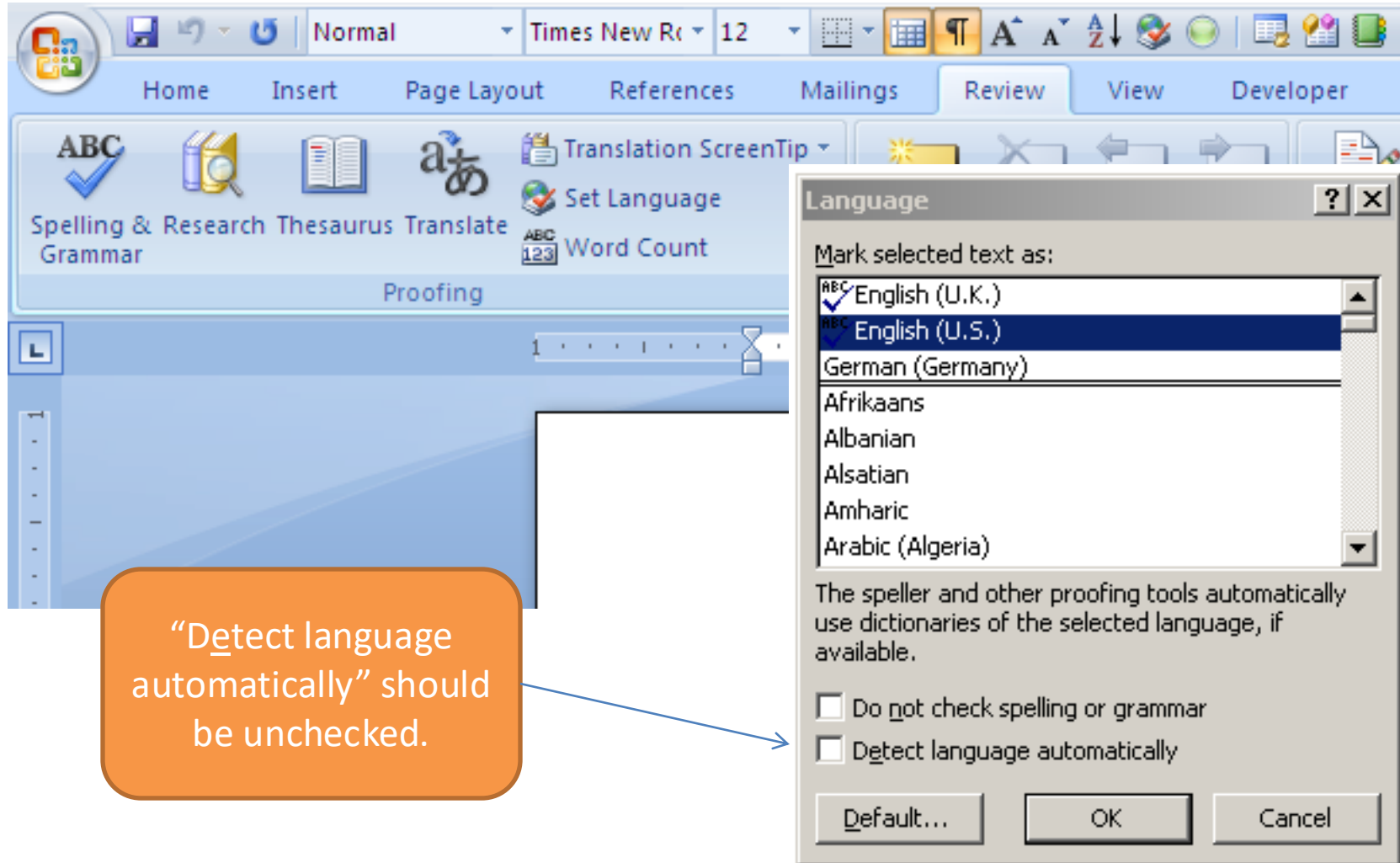
(r) ®

Pitfalls: AutoCorrect/ AutoFormat As You Type

AutoFormat for quotation marks is OK



Pitfalls: Auto Language Recognition



The screenshot shows the Microsoft Word ribbon with the 'Review' tab selected. The 'Proofing' group is visible, containing 'Spelling & Grammar', 'Thesaurus', 'Translate', and 'Word Count'. The 'Language' dialog box is open, showing a list of languages. 'English (U.S.)' is selected. Below the list, the checkbox 'Detect language automatically' is unchecked. An orange callout box points to this checkbox with the text: "Detect language automatically" should be unchecked.

Pitfalls: Copyrighted Materials

Inclusion of materials from other publications in CCSDS documents should be avoided.

If the WG feels a document must include material from another publication, the WG needs to obtain formal reprint permission from the copyright holder for that publication, and that permission needs to be delivered to the Secretariat when the document is delivered for release.

Failure to obtain reprint permission will significantly delay processing of the document; that is to say, the document will probably land at the end of the queue behind documents that do not require special processing.

Pitfalls: Superfluous References

Publications included in normative reference lists must be essential to the specification and must be referenced in the document text.

Informative reference lists should be limited to works that have direct relevance to the CCSDS document.

The Document Editor must check every publication in every reference list for correct publication data and availability: the more publications listed, the more time must be devoted to that activity.

Pitfalls: Definitions

3.4.1.6 Definitions

3.4.1.6.1 Terms. Terms specific to the document shall be listed.

- a) The term being defined shall
 - be positioned on the left margin;
 - be set in boldface type;
 - have the same case as when used normally in text;
 - be followed by a colon.
- b) If the term has an abbreviated form, the abbreviation shall
 - be positioned following term, separated by a comma, before the colon introducing the definition;
 - be set in boldface type;
 - have the same case as when used normally in text.

NOTE – The style specified in 5.3.3.5 for calling out acronyms and abbreviations does not apply with abbreviations of formally defined terms.

- c) The principal definition of the term shall
 - begin on the same line as the term, following the colon and trailing white space;
 - be expressed as a phrase in the same grammatical form as the term (i.e., as the same part of speech);
 - be terminated with a period.
- d) Additional normative qualifying statements, if needed, shall
 - be placed, without break, after the principal definition;
 - be phrased as complete sentences terminated by periods.
- e) Informative statements related to a term or its definition, if needed, shall be rendered as notes on the next line following the respective term and definition.
- f) The text used to introduce the list of terms shall be: “For the purposes of this document, the following definitions apply.”

Note: Terms adopted from ISO documents, e.g., ISO/IEC 7498-1, need to be in the same form as in the ISO specification.

Pitfalls: Definitions (continued)

From ISO/IEC 7498-1:

5.2 Principles of layering

5.2.1 Definitions

5.2.1.1 (N)-subsystem: An element in a hierarchical division of an open system which interacts directly only with elements in the next higher division or the next lower division of that open system.

5.2.1.2 (N)-layer: A subdivision of the OSI architecture, constituted by subsystems of the same rank (N).

5.2.1.3 peer-(N)-entities: Entities within the same (N)-layer.

5.2.1.4 sublayer: A subdivision of a layer.

5.2.1.5 (N)-service: A capability of the (N)-layer and the layers beneath it, which is provided to (N+1)-entities at the boundary between the (N)-layer and the (N+1)-layer.

5.2.1.6 (N)-facility: A part of an (N)-service.

5.2.1.7 (N)-function: A part of the activity of (N)-entities.

5.2.1.8 (N)-service-access-point, (N)-SAP: The point at which (N)-services are provided by an (N)-entity to an (N+1)-entity.

5.2.1.9 (N)-protocol: A set of rules and formats (semantic and syntactic) which determines the communication behavior of (N)-entities in the performance of (N)-functions.

5.2.1.10 (N)-entity-type: A description of a class of (N)-entities in terms of a set of capabilities defined for the (N)-layer.

5.2.1.11 (N)-entity: An active element within an (N)-subsystem embodying a set of capabilities defined for the (N)-layer that corresponds to a specific (N)-entity-type (without any extra capabilities being used).

5.2.1.12 (N)-entity-invocation: A specific utilization of part or all of the capabilities of a given (N)-entity (without any extra capabilities being used).

5.6.1.3 (N)-protocol-data-unit: A unit of data specified in an (N)-protocol and consisting of (N)-protocol-control-information and possibly (N)-user-data.

5.6.1.4 (N)-service-data-unit: An amount of information whose identity is preserved when transferred between peer-(N+1)-entities and which is not interpreted by the supporting (N)-entities.



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Pitfalls: Definitions (continued)

SANA has a registry of terms and definitions used in existing CCSDS documents:

<http://sanaregistry.org/r/glossary/glossary.html>

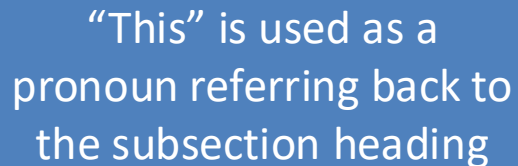
That registry needs to be consulted whenever a term is defined in a new document.

If a term is already defined in the SANA glossary, it should not be redefined arbitrarily.

Pitfalls: Titles/Headings As Antecedents; “This” As Catch-All Pronoun

Poor: 3.2.9.7 Data Field Length Parameter

This specifies the length of the Data Field in octets.



“This” is used as a pronoun referring back to the subsection heading

Improved: 3.2.9.7 Data Field Length Parameter

The Data Field Length Parameter specifies the length of the Data Field in octets.

Pitfalls: Non–third-person discourse

- 1st person plural:** To convert the normalized time values (τ_{cor} , τ_{acq-Li} , and $\tau_{acq-tot}$) to time measured in chips of the probing sequence, **we** need to multiply . . .
- Changed to 3rd person:** To convert the normalized time values (τ_{cor} , τ_{acq-Li} , and $\tau_{acq-tot}$) to time measured in chips of the probing sequence, **it** is necessary to multiply . . .
-
- 2nd person imperative:** The frequency error will in general have contributions due to both spacecraft oscillator frequency drift and imperfect uplink Doppler predicts. **Note that** the range bias error is proportional . . .
- Changed to 3rd person:** The frequency error will in general have contributions due to both spacecraft oscillator frequency drift and imperfect uplink Doppler predicts. **The range bias error is** proportional . . .
- Changed to 3rd person:** The frequency error will in general have contributions due to both spacecraft oscillator frequency drift and imperfect uplink Doppler predicts. **It should be noted that** the range bias error is proportional . . .

Pitfalls: Non-Parallel Structure

Poor: The following conventions apply for the normative specifications in this Recommended Standard:

- a) the words ‘shall’ and ‘must’ imply a binding and verifiable specification;
- b) to indicate an optional, but desirable, specification, the word ‘should’ is used;
- c) ‘may’ for an optional specification;
- d) statements of fact are made using the words ‘is’, ‘are’, and ‘will’.

Improved: The following conventions apply for the normative specifications in this Recommended Standard:

- a) the words ‘shall’ and ‘must’ imply a binding and verifiable specification;
- b) the word ‘should’ implies an optional, but desirable, specification;
- c) the word ‘may’ implies an optional specification;
- d) the words ‘is’, ‘are’, and ‘will’ imply statements of fact.



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Pitfalls

5.2.2 DI

5.2.2.1 D

For prac
guide to

5.2.2.2 C

Because
(referenc
official C

NOTE

5.2.2.3 C



After the American or British English style has been selected for a given CCSDS document, it shall be used throughout (without mixing).



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Pitfalls

- Word AutoShapes
- Bitmaps
- AutoCorrect/ Replace Text As You Type
- Auto Language Recognition
- Copyrighted Materials
- Superfluous References
- Definitions
- Titles/Headings As Antecedents
- “This” As Catch-All Pronoun
- Non-third-person discourse
- Non-Parallel Structure
- Inconsistent Orthography
- Redefined Word Template Styles
- User-Defined Word Styles
- Tables pasted as graphics into the document



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