

# eXtyles® Automatic Reference Correction

## Reference Correction Overview

Reference Correction is an extension of the eXtyles PubMed and CrossRef Reference Checking tools. In addition to providing links to cited content and warnings indicating missing or inaccurate information, Reference Correction can insert or correct reference data according to one of two modes: **Add** or **Add and Merge**.

### Add Mode

In Add mode, Reference Correction adds missing data — for example, additional author names or missing volume or page numbers. Add mode does not attempt to correct existing data supplied by the author.

Example before Reference Correction:

```
<jrn>4. Sarks SH. Aging and degeneration in the macular region: A clinicopathologic study. Br J Ophthalmol. ■ ■ ■;60:324-341.</jrn>
```

Example after Reference Correction:

```
<jrn>4. Sarks SH. Aging and degeneration in the macular region: A clinico-pathological study. Br J Ophthalmol. 1976;60(5):324-341 doi:10.1136/bjo.60.5.324.</jrn>
```

CrossRef has filled in the missing year; note that customers also have the option, as with this reference, to have the missing issue number automatically added to conform to the most recent edition of the AMA style guide.

PubMed can be safely run in either Add or Add and Merge mode. Currently, Inera recommends that CrossRef be run only in Add mode.

### Add and Merge Mode

In Add and Merge mode, Reference Correction adds missing data and intelligently merges any revisions with existing data, providing warnings where significant discrepancies are found.

Example before Reference Correction:

```
<jrn>32. Elner SG, Pavilack MA, Todd RF, et al. Modulation and function of intracellular adhesion molecule-1 (CD54) on human retinal epithelial cells. Lab Invest. 1992;66:200-211.</jrn>
```

Example after Reference Correction:

```
<jrn>32. Elner SG, Elner VM, Pavilack MA, et al. Modulation and function of intercellular adhesion molecule-1 (CD54) on human retinal pigment epithelial cells. Lab Invest. 1992;66(2):200-211 Medline:1346541.</jrn>
```

PubMed has corrected the author list and, in the article title, has changed the term "intracellular" to "intercellular" and added the word "pigment."

PubMed can be safely run in either Add or Add and Merge mode. Currently, Inera recommends that CrossRef be run only in Add mode.

### Intelligent Merge

If you opt to enable Add and Merge mode for PubMed Reference Correction, note that this is not a simple replacement of the author's entire reference with PubMed's listing. eXtyles instead does an "intelligent merge" of the data provided by the author and PubMed. Though PubMed's data is extremely reliable, it is not perfect, and there are inconsistencies around certain elements (e.g., special characters). Therefore, in cases in which an author has provided more detailed or complete information, eXtyles will bias toward the original text, replacing only those elements that can safely be assumed to be incorrect or incomplete.

An example of this is an article title in which the author has used the Greek beta character ( $\beta$ ) but in which PubMed has used the transcription "beta." eXtyle will preserve the special character but will make additional corrections to the article title as needed.

Example before Reference Correction:

```
<jrn>Beaulieu JM, Marion S, Rodriguiz RM, et al. A  $\beta$ -arrestin 2 Signalling Complex Mediates Lithium on Behavior. Cell. 2008;132:125-136.</jrn>
```

Article title as indexed by PubMed:

A beta-arrestin 2 signaling complex mediates lithium action on behavior.

Example after Reference Correction:

```
<jrn>Beaulieu JM, Marion S, Rodriguiz RM, et al. A  $\beta$ -arrestin 2 signaling complex mediates lithium action on behavior. Cell. 2008;132(1):125-136 Medline:18191226.</jrn>
```

Reference Correction made the following corrections to the article title:

1. Title casing was replaced with sentence casing.
2. The British spelling "signalling" was replaced with the American spelling "signaling."
3. The word "action" was inserted.

The author's correct use of the  $\beta$  character, however, was preserved.

## PubMed Reference Correction

eXtyle PubMed Reference Correction calls the PubMed batch citation checker for all journal references. In addition to providing links to cited content, Reference Correction can insert or repair missing or incorrect reference elements with data pulled from PubMed.

To run PubMed Reference Correction on a document:

1. Complete **Bibliographic Reference** processing, including the cleanup and re-processing of all references that eXtyle did not automatically fix.
2. Be sure you have a connection to the Internet.
3. Select the option **PubMed Reference Correction** from the eXtyle menu under **Advanced Processing**.

PubMed Reference Correction should take approximately 30 seconds for 60 references.

## Reference Correction Comments

Reference Correction adds missing data and intelligently merges any revisions with existing data, providing warnings where significant discrepancies are found. For example, for this reference:

```
<jrn>141. Mullins R, Anderson D, Russell S, Hageman G. Ocular drusen contain proteins common to extracellular deposits associated with atherosclerosis, elastosis, amyloidosis, and dense deposit disease. FASEB J. 2000;14:835-846. Medline:10783137</jrn>
```

PubMed Reference Correction returned the following comment:

eXtyle has not updated ref. 141 "Mullins, Anderson, Russell, Hageman, 2000" because the article title in Medline significantly differs from the author's original. The Medline reference is Mullins RF, Russell SR, Anderson DH, Hageman GS. Drusen associated with aging and age-related macular degeneration contain proteins common to extracellular deposits associated with atherosclerosis, elastosis, amyloidosis, and dense deposit disease. FASEB J. 2000;14(7):835-846

Because PubMed's article title differed significantly from the title provided by the author, a comment was inserted indicating that the reference had not been automatically corrected. However, the corrected reference is provided in the comment body, fully edited and color coded, and can be copied and pasted into the Word document if, after review, the editor has determined that it is correct.

Categories of comments that may appear during PubMed Reference Correction include:

1. The reference is not corrected, and a comment is inserted. The above reference is an example of this; the article titles provided by the author and PubMed differed enough that eXtyles deemed it unsafe to make any changes to the reference. The corrected reference or reference element is provided in the comment.
2. The reference is partially corrected, and a comment is inserted. An example of this would be a reference in which a missing volume number was inserted according to the PubMed data, but the PubMed article title was set in all caps. Because of this formatting eccentricity, even if there is a discrepancy in the titles, eXtyles will not merge in PubMed's data. The unmerged data will instead be included in the comment.
3. The reference is corrected, and a comment is inserted. In this case the reference is updated, but because the change is noteworthy and might require review, the author's original text is included in the comment. For example, for this reference:

```
<jrn>168. Elnor SG, Elnor VM, Pavilack MA, et al. Modulation and function of intercellular adhesion molecule-1 (CD54) on human retinal pigment epithelial cells. Lab Invest. 1992;56(2):200-211. Medline:1346541</jrn>
```

PubMed Reference Correction returned the following comment:

The title in ref. 168 "Elnor, Elnor, Pavilack, et al, 1992" was updated, but differs from the author's original: **Modulation and function of intracellular adhesion molecule-1 (CD54) on human retinal epithelial cells.**

For reference corrections that do not require editorial review, the changes are made automatically and no comments are inserted.

### Reference Linking Comments

A Word Comment is inserted after each reference that fails to match the PubMed database. For example, the reference:

```
<jrn>6. Schwartz S, Kent WJ, Smit A, Zhang Z, Baertsch R, Hardison RC, et al. Human-mouse alignments with BLASTZ. Genome Res 2003;12:103-107.</jrn>
```

was not found on PubMed. The following comment was added to the Word Comment window:

Medline indexes "Genome Res" but cannot find a listing for the reference 6 "Schwartz, Kent, Smit, Zhang, Baertsch, Hardison, Haussler, Miller, Ma, Tromp, et al, 2003". Please check the reference for accuracy.

With this information, the editor can query the author. Alternatively, the editor can resolve the problem by checking directly on PubMed. In this case, volume number, 12, is incorrect and the citation can be corrected as:

```
<jrn>6. Schwartz S, Kent WJ, Smit A, Zhang Z, Baertsch R, Hardison RC, et al. Human-mouse alignments with BLASTZ. Genome Res 2003;13:103-107.</jrn>
```

Messages that may appear as a result of a failure to link to PubMed are:

1. PubMed does not recognize the journal name. This typically appears when PubMed does not index a particular journal, but it may also indicate a significant problem with the journal title that eXtyle Bibliographic Reference Processing was unable to correct.
2. PubMed cannot find an abstract for the reference. This message appears when PubMed indexes the journal, but there is a problem somewhere else in the reference information (first author name, volume, year, or first page). It will also appear for references that are older than PubMed indexes.
3. PubMed reports the reference matches multiple abstracts. This message appears in situations of ambiguous data.

To manually determine the reason a message was inserted, you can use the PubMed single citation matcher, located at <http://www.ncbi.nlm.nih.gov/entrez/query/static/citmatch.html>.

Sometimes you may receive a message that eXtyle was unable to contact the PubMed website. If this happens, try again in a few minutes. If the problem persists, please check with your eXtyle or network administrator.

## CrossRef Reference Correction

CrossRef Reference Correction works in much the same manner as PubMed Reference Correction, with these exceptions:

1. CrossRef Reference Correction is typically run in Add mode, rather than Add and Merge mode. In Add mode, Reference Correction adds missing data (e.g., additional author names or missing volume or page numbers). Add mode does not attempt to correct existing data (e.g., article titles) supplied by the author.
2. Though CrossRef Reference Correction runs in Add mode, it will still insert comments about discrepancies in author names, article titles, etc. For instance, for this reference:

```
<jrn>9. S. Zhang, W. Fan, N. C. Panoiu, K. J. Malloy, R. M. Osgood, and S. R. J. Brueck, "Demonstration of near-infrared-negative-index materials," Phys. Rev. Lett. 95, 137404 (2005).</jrn>
```

CrossRef Reference Correction returned the following comment:

eXtyle has not updated ref. 9 "Zhang, Fan, Panoiu, Malloy, Osgood, Brueck, 2005" because the article title in CrossRef significantly differs from the author's original. The CrossRef reference is S. Zhang, W. Fan, N. C. Panoiu, K. J. Malloy, R. M. Osgood, and S. R. J. Brueck, "Experimental Demonstration of Near-Infrared Negative-Index Metamaterials," Phys. Rev. Lett. 95(13), (2005)

If the reference returned by CrossRef is correct, the user can easily paste in the relevant portion or the entire reference. Note that in the above example, CrossRef indexes the article title in title case rather than sentence case, so the editor may opt to manually edit the reference instead.

3. Typically, CrossRef Reference Correction is set up with fuzzy matching turned on. In most cases the results are quite good, but occasionally Inera has seen incorrect results. In all cases when a match is made with fuzzy matching, you will receive a warning that the reference data and the CrossRef data do not match.