How JATS Empowers Scholarly Communication

Advantages of JATS for journal article publishing, production, and management

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JATS: a standard model for journal articles

(Journal Article Tag Suite)

JATS is a named collection of XML elements describing one journal article called a “model” of the article

- Originally modeled STEM articles (Scientific, Technical, Engineering, Medical)
- Now covers all journal types: (sociology, economics, soft sciences, etc.)
- Models only journal articles, not books, issues of journals, magazines, etc.

*ANSI/NISO Z39.96-2015 JATS: Journal Article Tag Suite (JATS V1.1)

Some advantages of using JATS are really advantages of using XML

- Platform and vendor independence
- Content computer-manipulable and human-readable
- Full Unicode (internationalization)
- Mark up data once and make multiple output products
- Validate structure with a schema
- Machine-readable context for better searching/data-mining
Why JATS?

- **Designed** for modern journals (the 80/20 case)
- **Price is right**: models, documentation, some tools are *free*:
  - US National Library of Medicine (NLM)
  - github (JATS4R et al.)
- **Documented**: extensive Tag Libraries, examples, recommendations
- **Highly customizable**
- **Semantic and declarative markup**, not presentational/behavioral

Synergy in numbers: the world publishes journals in JATS

(Many languages and many multilingual documents)

- SciELO schema is a JATS superset
- Almost all middle-sized/small journal publishers use JATS
- All of the huge publishers *can* (and do) make JATS for interchange
- Archives accept (or require) JATS
- Web-hosting and service vendors require or support JATS
- JATS used world-wide
  (including: All the SciELO countries, Australia, Belgium, Canada, Egypt, Finland, France, Germany, Italy, Japan, Norway, Russia, South Korea, Sweden, US, UK, and more)

Whole communities can agree on data content
JATS model fits journal production
(structure of a JATS journal article)

• Front Matter (<front>)
  • journal-level metadata
  • article-level metadata

• Body Matter (<body>)
  • paragraphs
  • sections
  • figures and tables (XHTML, CALS)
  • equations (MathML)

• Back Matter (<back>)
  • appendices
  • citations with detailed metadata

For publishers: faster and less expensive

• Faster time to publication

• Single format for accepting content
  (publishers create, convert on receipt, authors create)

• Single source publishing: many output products from one file:
  (HTML5, PDF, other print, eBook, web apps, accessible files)

• Interoperability

• Reduced cost of article production

Faster publication and lower cost make open access more sustainable!
Also improved lifecycle and quality

- Editors, reviewers, and production get the advantages of XML
- Improved communication throughout lifecycle
- Investment in tools, training, process pays benefits throughout lifecycle
- Better control of repository or archive
- Improved Quality Assurance

More intelligent QA than

“Does it look right?”

- Checking:
  - business rule compliance and irregularities
  - empty titles and paragraphs
  - internal cross-references
- References checked with deposit authority
- Order or numbering of references corrected

Enables new QA techniques

- Schematron (the rules-based XML validation language)
- False color proofs
  (turn semantic components bright colors and scan by eye)
- Lists of anything imaginable, for human checking
- Code values checked against authority files
  (journal abbreviated titles, keywords, surnames)
Also advantages for scholarly community

- Production advantages for publishers and archives
- Manageable and searchable text of an article
- Recording metadata essential for research communication

JATS supports extensive metadata that travels with the XML

Article-level metadata for citation and credit
- Article title (including alternative languages)
- Article identifiers (DOI, etc.)
- Copyright and permissions
- Finding aids (abstracts, keywords, subjects)
- Contributors with
  - alternative names (both Japanese characters and romanized)
  - multiple affiliations (with alternative names for multiple languages)
  - multiple roles (possibly linked to CRediT taxonomy)
Metadata for mining and extraction

- Machine-processable external identifiers
  - for authors (e.g., ORCID)
  - for institutions (e.g., Ringgold, ISNI)
- Detailed funding description
  - both monetary and non-monetary funding
  - award and grant identifiers
  - funding sources and principals
- Labeled Data Availability Statements
- Terms and subjects linked to ontologies/taxonomies
- Links to companion articles (different language versions), related books or web pages, errata

Detailed references

To allow publication tracking

- For journal articles named elements include journal title, article title, journal issue, first and last page numbers, author surname, day-month-year of publication, and DOI
- sufficient named elements to cite books, patents, conference papers, standards, and other works
- Allows for data citations (including access times)

JATS enables interchange and communication!