Information scientists: between editors and data centers

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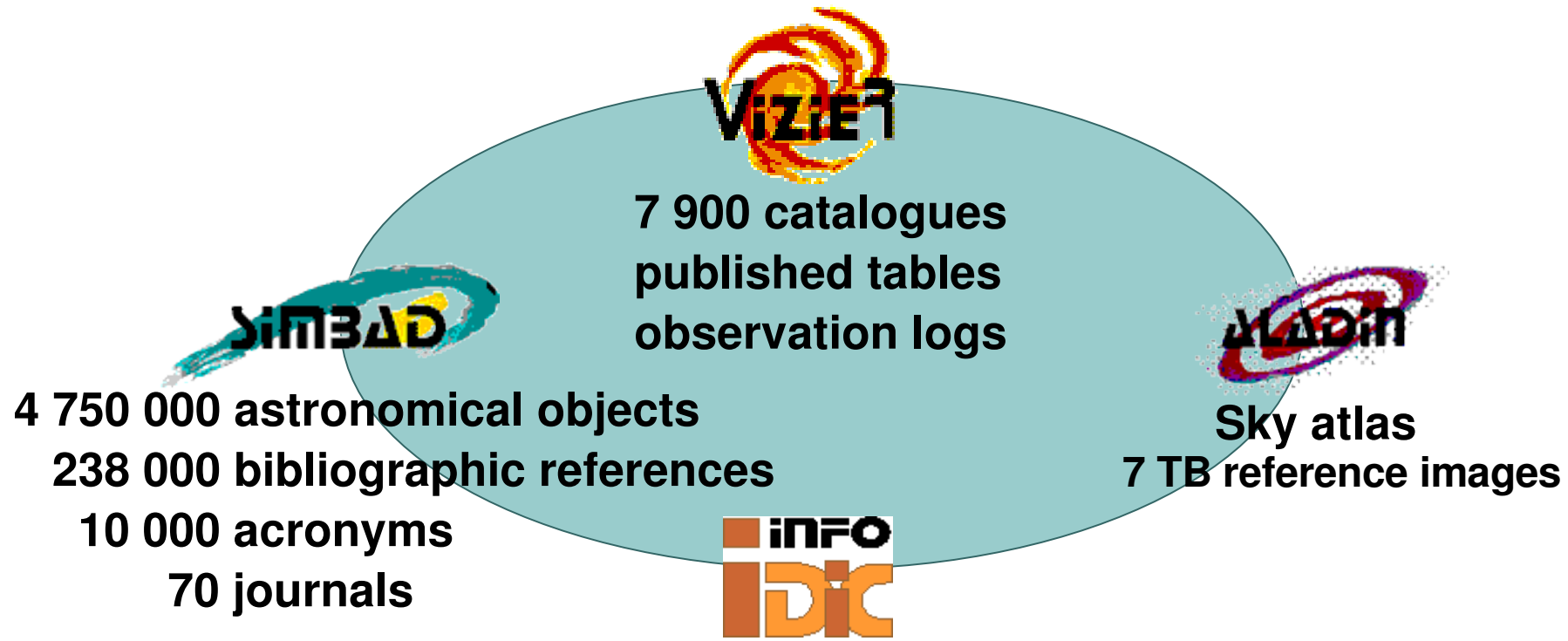
CDS
Centre de Données astronomiques de Strasbourg

Centre de Données de Strasbourg

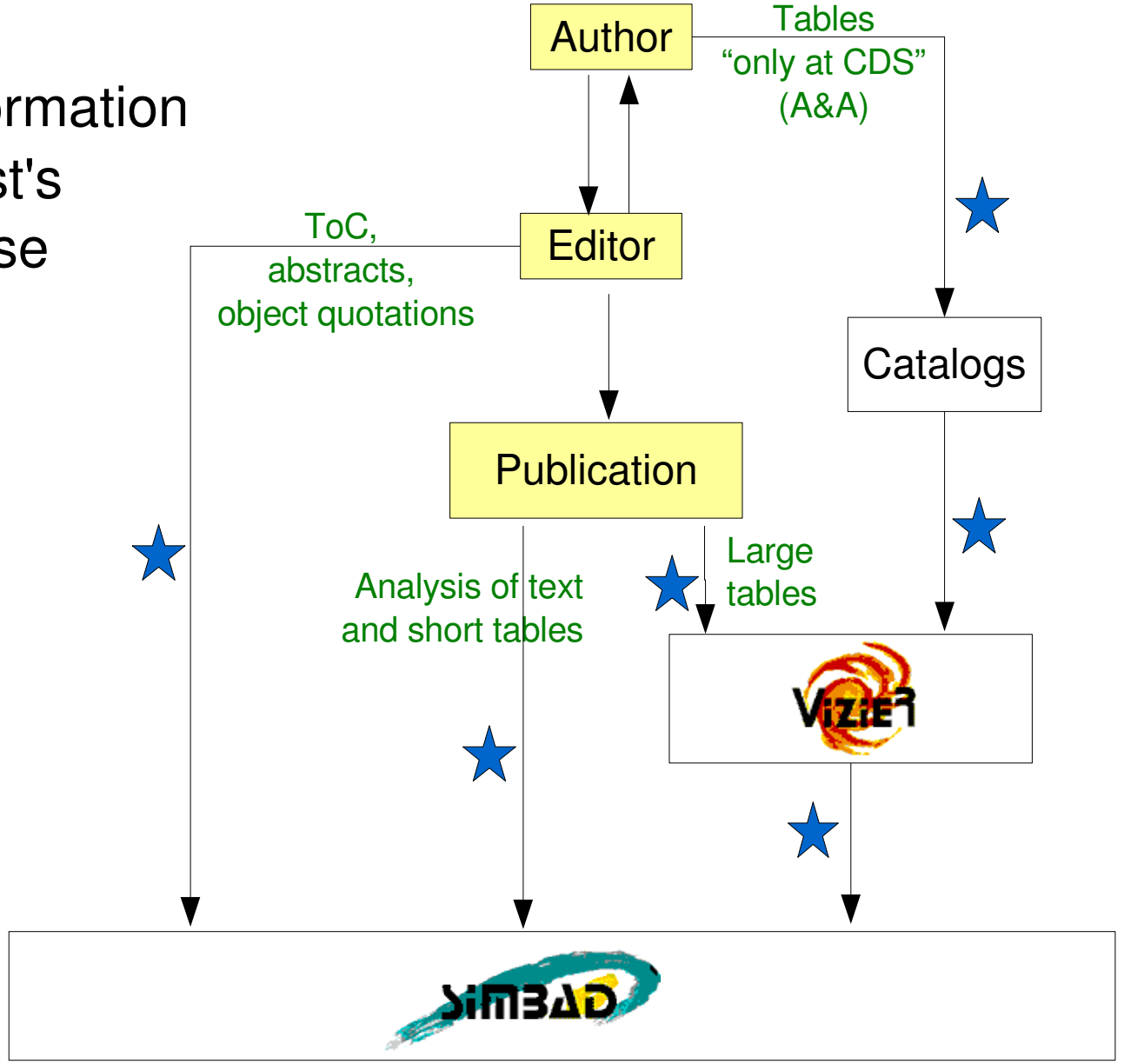
- Founded in 1972
- Ongoing collaboration with other data centers
- On the Internet since 1991
- Involved in the publication of electronic tables of *Astronomy & Astrophysics* since 1993
- Develops and maintains on-line services

The CDS on-line services



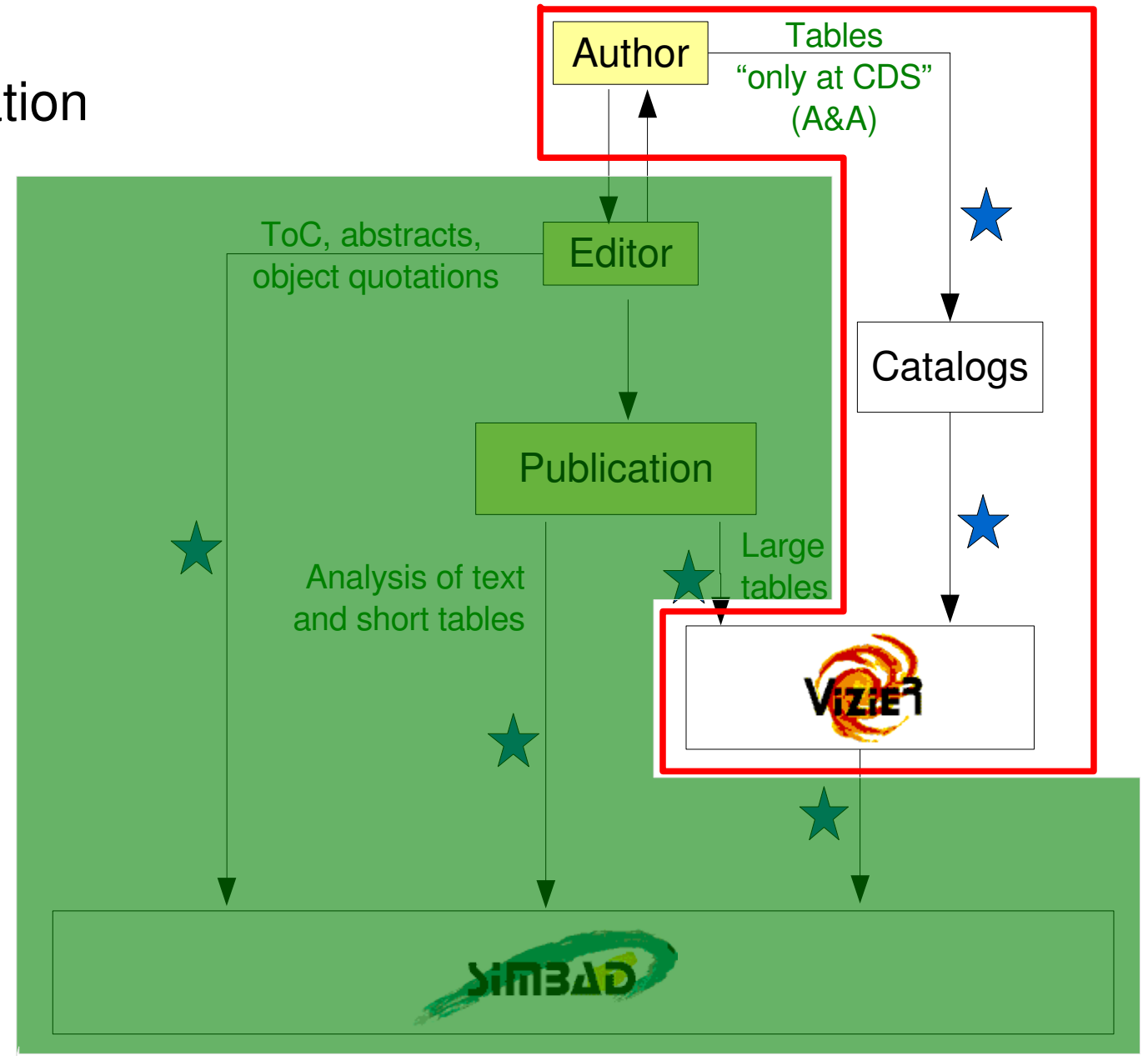
Life cycle of an article

- ★ : information scientist's expertise



Electronic tables (1)

- ★ : information scientist's expertise

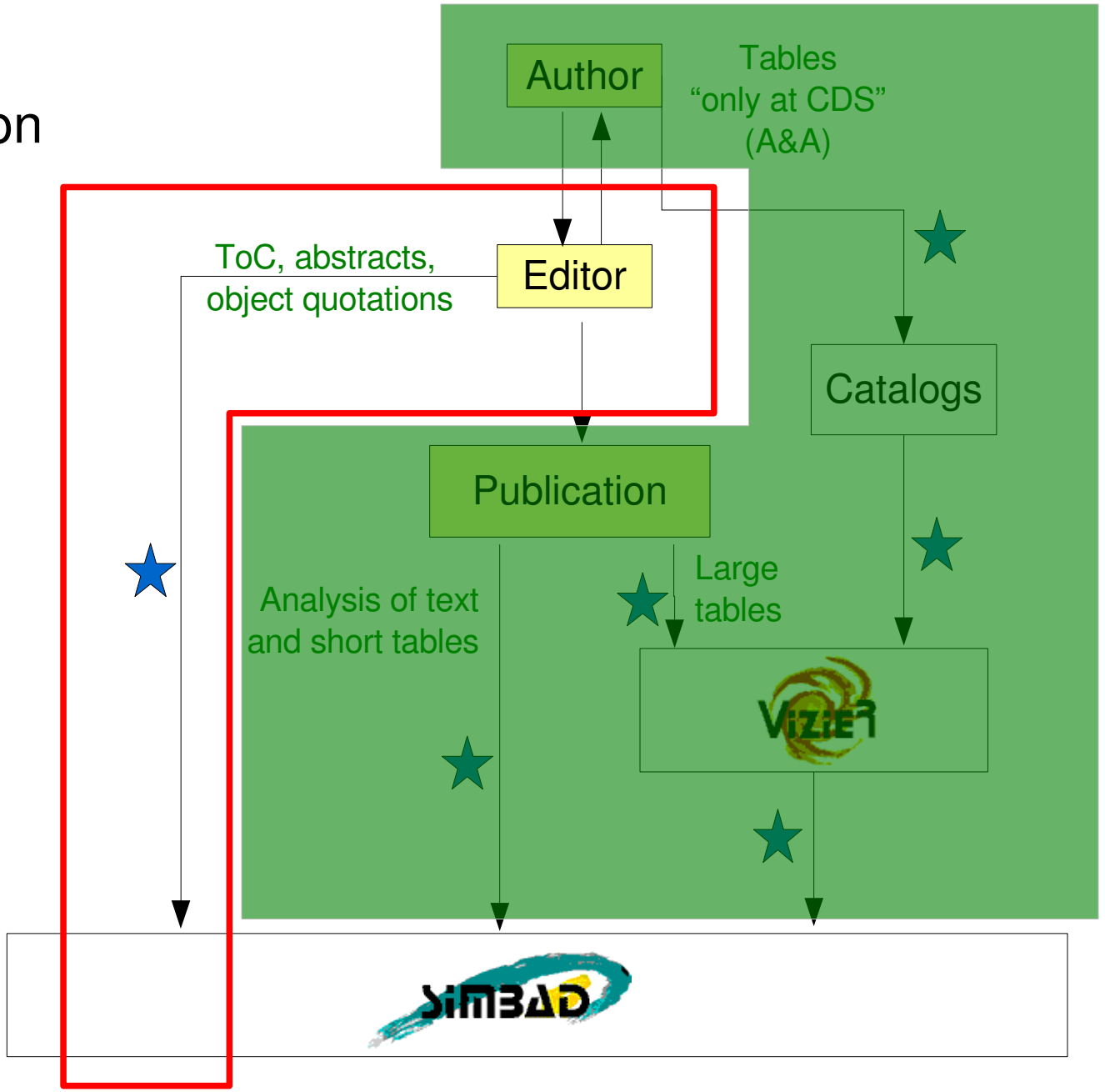


Electronic tables (2)

- A&A: part of the publication process
  - Scientific editor
    - tables "only at CDS"
    - at editor's request:
      tables+description sent directly to the CDS by authors
  - CDS
    - descriptions homogenized and standardized
    - check (data consistency, may imply interactions with the authors)
    - become public upon publication
    - accessible via VizieR

Tables of contents (1)

- ★ : information scientist's expertise

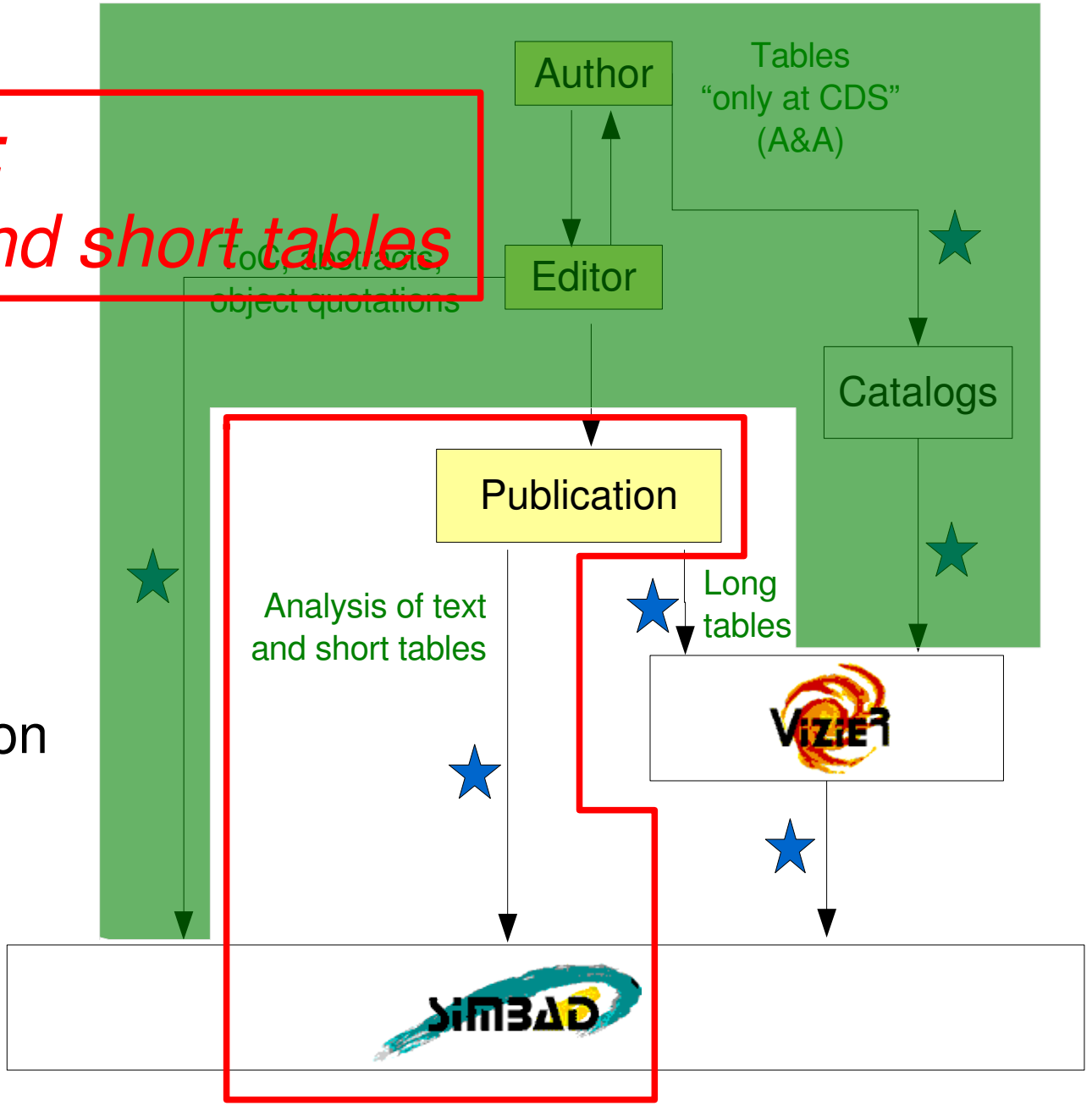


Tables of contents (2)

- Publisher
  - Tables of Contents + Abstracts + Keywords
  - Object Quotations (A&A), tagged by the authors
- CDS
  - Check/control/validation
  - SIMBAD update

How data are entered into SIMBAD (1)

Two paths:
1- Text and short tables



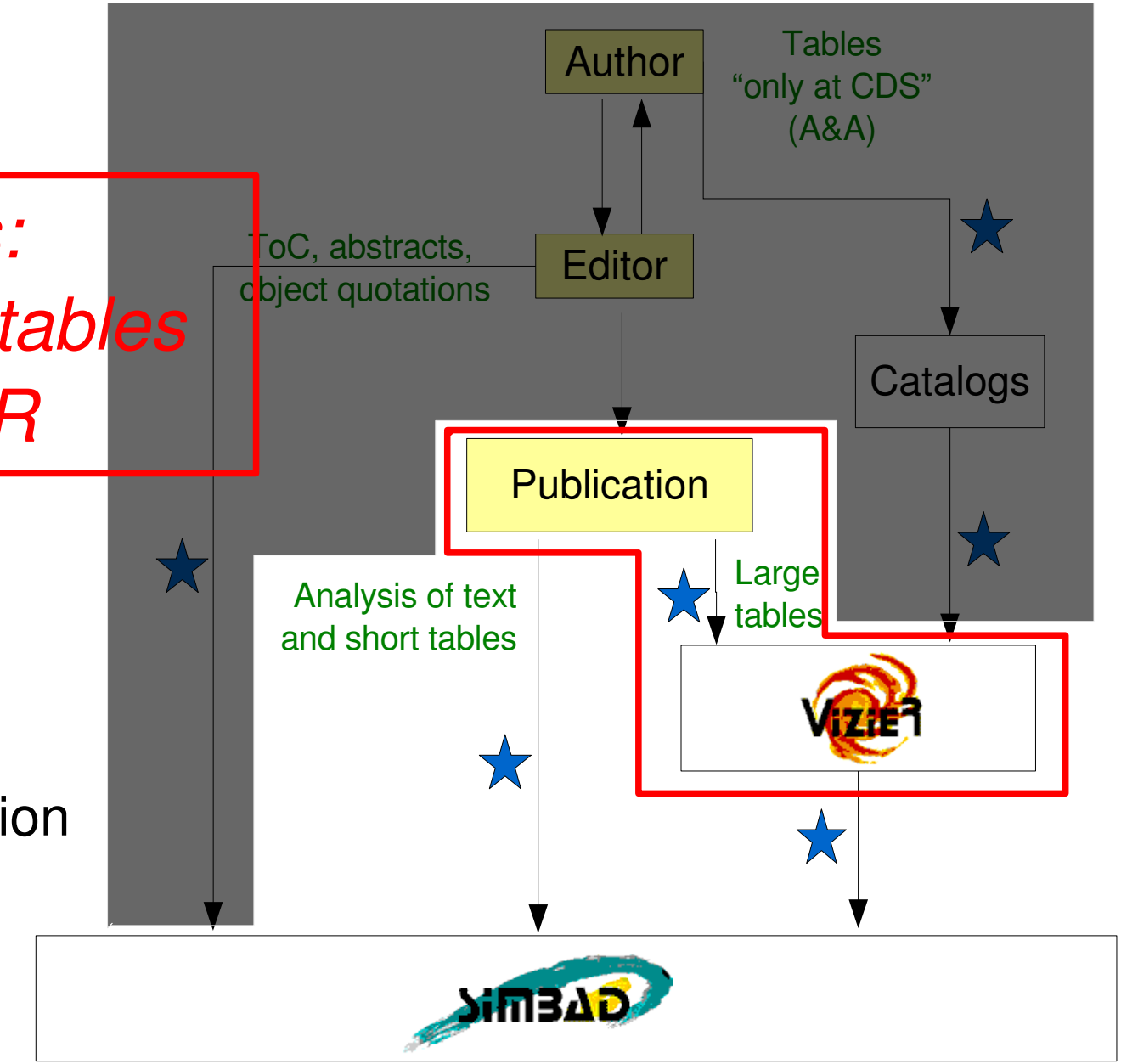
- ★ : information scientist's expertise

Detailed article analysis

- Objects in text and short tables
  - Identification of astronomical objects and related data
    - by reading the paper
      - with the help of a dedicated in-house software (DJIN, see S. Lesteven presentation) since 2008 and only for the main journals
  - SIMBAD update
    - cross identification: does the object already exist in SIMBAD (possibly under another name)?

How data are entered into SIMBAD (2)

Two paths:
2. Large tables
2.1 VizieR



- ★ : information scientist's expertise

Large tables
First into VizieR

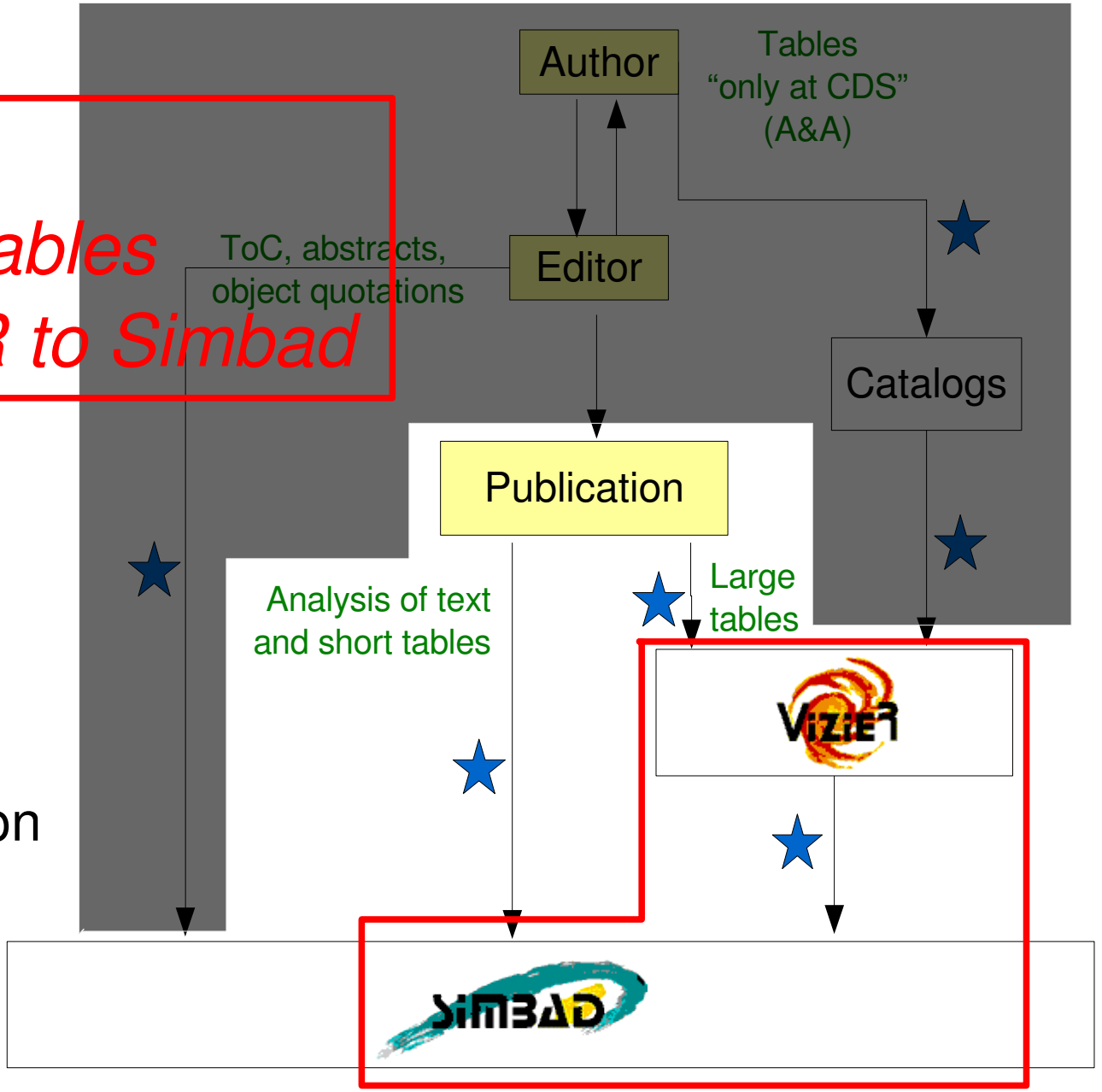
- Analysis of large tables
  - Descriptions homogenized and standardized
    - if no description file is available, one is created
  - Checks for data consistency
  - VizieR update

How data are entered into SIMBAD (3)

Two paths:

2. Large tables

2.2 VizieR to Simbad

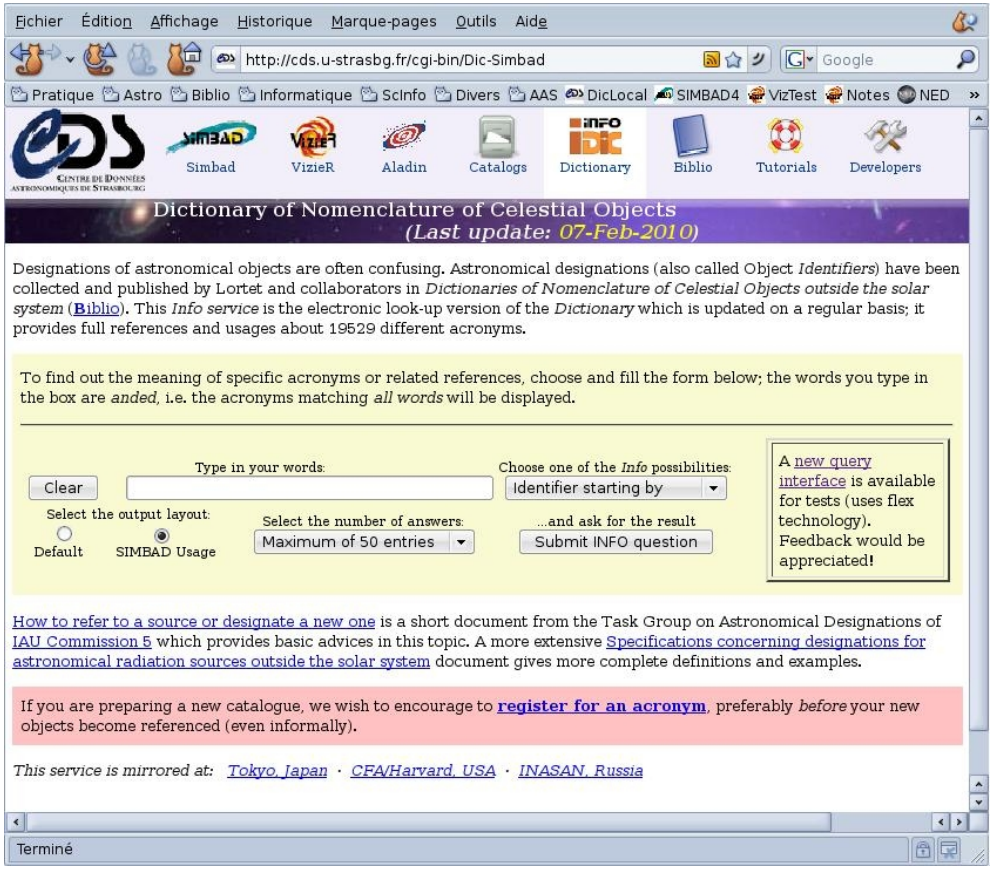


- ★ : information scientist's expertise

Large tables
From VizieR to Simbad

- Table processing
  - Identification of astronomical objects and related data
    - in-house tool “Raccord” (“*junction*”/”*join*”)
    - cross match with SIMBAD
  - SIMBAD update
  - See F. Woelfel et al. (2006, LISA V, Boston)

Our cornerstone:
The *Dictionary of Nomenclature of Celestial Objects*



- Confusing designations
- 19 000 acronyms
- IAU Commission V: register an acronym
- Essential input to DJIN
- ... It keeps me busy!

http://cds.u-strasbg.fr/cgi-bin/Dic-Simbad

What special skills do we need? (1)

- Knowledge of astronomy
  - to identify astronomical object names
  - to be familiar with the astronomical zoo (stars, binaries, cepheids, clusters of stars, planetary nebulae, interacting galaxies, voids...)
  - to recognize the parameters relevant for SIMBAD (redshifts, magnitudes, spectral types, metallicity...)
  - to follow the evolution of the discipline

What special skills do we need? (2)

- Information technology skills
  - linux environment
  - scripting and programming (in awk, perl)
- Sharing expertise
  - close interactions
  - discussion of complex cases with astronomers

Conclusion-1

- CDS: a team of complementary skills
  - information scientists
  - astronomers
  - software engineers
- Collaboration with journal editors quite effective, data and bibliography fully linked
- Widely used services with a high added-value
  - ~300,000 queries/day

Conclusion-2

- The critical elements for success
  - evolution with the scientific knowledge
  - constant interaction with astronomers
  - contents & tools: always the user's needs in mind
  - close collaboration with all others actors (journals, ADS, NED)