

Describing contents of astronomical manuscripts: the case of astronomical tables

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Extended abstract:

Astral sciences manuscripts usually present various types of content formats. Prose or verse texts, diagrams, and numerical tables are the most common. For historians of astronomy much information about ancient actors practices in astral sciences lies in the interaction between these different kinds of contents. The study of these interactions has much to do with the various ways these contents are arranged in manuscripts (most astral sciences manuscripts present the three types together, some present two of them or even only one). Thus it is essential that each is well documented in manuscripts descriptions. However, numerical tables are very often overlooked and poorly described in catalogues. This in spite of the fact they might often provide interesting elements for datation and localisation of the manuscript production and circulation. The reasons for this and proposition to overcome this issue were addressed in the presentation.

Various project in the history of astral sciences ([ALFA](#), [TAMAS](#), [HAMSI](#), [PAL](#)) have recently joined their forces in producing together a common digital humanity platform that meets their need under the name [DISHAS](#). In building this web platform, we have decided to begin with tools required to manage numerical tables in astral sciences sources. This has lead us to produce and define different layers of metadata around them. This experience could be useful in two ways for the issue of cataloguing astronomical tables in manuscripts. First, part of the metadata we have defined could be used or adapted as element of description of an astronomical table in a manuscript description. Second, the DISHAS platform itself could be a resource for manuscript cataloguers when they encounter astronomical material in the manuscript they describe.

The general catalogues are usually very terse concerning astronomical tables. They mention the existence of tables. In some cases, they provide a title, a date or a name when a colophon exist in the manuscript. Manuscripts descriptions produced by historians of astronomy usually provide a detailed technical information about the astronomical tables but mostly with no codicological information or even information about the layout of the tables, the scripts used in noting them or even the type of numbers used.

However numerical tables where presented in many different ways in manuscripts. The shape of the table, the use of colours or lines, the various ways to fill the tables are the main elements of variations. They have not only a visual impact but also a semiotic one and modify the way the table can be read and used especially in the context of computations. These aspects of a table can be described just in the same way any other decorative or layout item is described in the manuscript catalogue. Another important aspect is that astronomical tables usually appears in sets in manuscripts. These set are astronomically significant (they might concern a specific kind of astronomical phenomena like eclipses for instance) and are often mathematically functional (i.e. they allow a specific computation to be performed). Thus it is not a bad practice, if time allows, to describe tables individually in a manuscripts in order to allow a study of tables sets and their variations from one manuscript to another.

* This presentation was prepared in close collaboration with Richard Kremer (Dartmouth College, USA)

Beyond these formal aspects, the main information proposed by an astronomical tables lies in its content. However, not all numbers contain the same amount of information, and historian of astronomy have defined for different types of tables what is called an explicit parameter of the table. These are specific values of the tables, very often the maximum and minimum of the table. They allow the historian to identify the table and situate it in an intellectual tradition. A few instances of these kind of quantities related to Mars was explained. The DISHAS platform will, when operational, provide the necessary help for cataloguers to identify the tables and their traditions according to these explicit parameters. In parallel, it might be more convenient and just as reliable to provide in manuscript description of astronomical tables the first and last five lines of each table. This practice is close to that already established with content in the form of prose or verse texts and the information provided by these first and last lines will, in most cases, be enough for the historian of astronomy to identify the tables described.

The presentation was concluded with a few recommendation with respect to the cataloguing of astronomical tables in manuscript if these catalogues are to be helpful in identifying the tables astronomical and mathematical meaning and allow understanding its relation to the (physical) structure of the manuscript described. A description should systematically include the following elements:

- Record tables individually
- Record the title of the tables; their headings, the units.
- Record key values: first/last lines
- Records places, dates and radices

It could also include some other important aspects

- Record the extremum of the table
- The importance and the variety of tables layout
- The uses of colours, of various type of lines
- The step and range of the arguments
- The precisions of the entries
- Ways to “fill” the table

Eventually the discussion with the audience was opened on the opportunities that will be offered by the DISHAS platform for cataloguers and the way it could become a useful tool also for manuscript studies at large with respect to how astronomical tables are addressed in this area of scholarship. One of the most promising perspective in this respect seems to be in maintaining in DISHAS some “authority files” with respect to astronomical tables along with tools that enables cataloguers to find quickly inside the authority files if a specific tables is recorded or not.