Departments, Campuses And Workbooks

Names

At most of the institutions in our initial sample, there is just one department that could be regarded as a "Mathematics Department" (we define this phrase to mean that the department has "mathematics" or "mathematical" in its name.) We will use 3 names for such a department. Each name should reflect at least the institution's name, the particular campus (city) if there are multiple campuses.

a) A natural language name. Spaces between words, only highly standard abbreviations. E.g "U. of Wisconsin at Madison". Something that a literate person might enter to an internet search. Mainly for use in the file into which project staff enter abbreviated data (Table 1.)

b) In file names, we won't use spaces or periods and we want to show the dates for which we have data for this department . E.g "UWisconsinMadison1905To2005.xlsx".

c) In table headings, etc., we will need an abbreviated name as well in order to make it possible for the heading to be concise (to avoid scrolling, simplify printing.) For example: WiscMad.

Notice that our names do not include the exact name of the department as it appears in the catalog. You cannot tell whether the department in question in Madison, Wisconsin was entitled "Mathematics" or "Mathematical Science", etc. This is done for brevity and to avoid the problem of a department that changes its name. The user can consult the catalog scans to see how the department is named in the catalog in any particular year.

There is more about naming at the end of this file, after the relevant issue of multiple departments is taken up.

Multiple Departments

Some campuses have multiple departments with "mathematics" or "mathematical" in their titles. We need to cover them all in order to present an accurate picture of that campus. We will prepare separate workbooks for the separate departments.   In the original sample there are three examples of this:

Examples.

1. U. Texas at Austin has a Department[1] of Pure Mathematics and a Department[1] of Applied Mathematics from survey year 1905 till survey year 1945. Starting in survey year 1955 there is a single department that deals with applied and pure

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[1] Actually called a "School" instead of a "Department" for the first few years.

courses.

2. Stanford U. has separate pure and applied departments through 1923 (a year we are taking to be a stand-in for 1925). By 1935 there is just one department.

3. Johns Hopkins started up a separate department of Industrial Engineering in 1950. The courses mostly concern how to run a business such as *Accounting* and *Production Methods*. There is statistics course, but overall, the department doesn't look like a mathematics department, and its name does not qualify it for our attention. Over the years this department changes toward including operations research courses, more statistics, discrete math, optimization and "how to run a factory" stuff disappears. By 1973 it has the name Department of Mathematical Sciences. In 2004 it renames itself to Applied Mathematics and Statistics.

   We will ignore the alternate Hopkins Department till 1975, which is the first survey year in which the department includes the word "Mathematical". The fact that it evolved from a dep't of Industrial Engineering is interesting and should be noted somewhere in the workbook, but we won't provide details.

Relations Among Multiple Departments

Sister mathematics departments at a campuscan sometimes come together or sometimes split off from one another, rather like a dance. Or sometimes they are just dancing at opposite ends of the room, i.e., never split or join. This provides a problem of how to use workbooks to convey the situation at the campus.

Our original idea was to put all the mathematics courses at a campus in one workbook. The cell in which a course's presence is recorded would have to have a notation about which department the course is in. This would be simple to do, but it clutters the cells with verbiage, and it makes hard work for anyone who wants to see the alternative departments separately. It would be like taking a plate of mixed vegetables and separating out the peas and carrots in separate piles.

We decided to help out the browser who wants to see departments separately by having a separate workbook for each department. In addition, VBA software will produce an "AllDept" workbook which combines the data of the separate workbooks – an implementation of the original idea described in the previous paragraph. This seems ideal for the user because, no matter how he likes the peas and carrots – separate or jumbled together – he can have it his way.

The "AllDept" workbook cannot be said to represent any particular department. It represents the campus as a whole and we will refer to it as a "combination workbook" (or Combo for short). Of course, for a campus where there is just one department, there is no combination workbook. Its single department workbook is all there is.

Implementing the combining of departments.

But there is still a problem, arising from the question of when a department is born (at which point a workbook starts up) and when it dies (when a workbook ends).   Did the Departments of Pure Mathematics and of Applied Mathematics at Texas die in 1953, and was the successor, named Department of Mathematics and Astronomy[2], a new department deserving of its own workbook starting in survey year 1955? Since the Department of Mathematics and Astronomy has a substantially different mission from the departments that came before, this is how we will view it. In other words:

For Texas, we will have 4 workbooks, one for the pure department till 1945, one for the applied dep't till 1945, and one for the pure and applied (including astronomy) dep't starting in 1955, and then a fourth campus workbook showing the combination of all.

Likewise, we treat Stanford the same way. From 1905 till 1923 we have two departments, a pure and applied one. Starting in 1935 a new (in our survey) department that handles pure and applied math arrives in our survey. There will be a fourth campus workbook showing all courses found in any department.

How to implement splitting.

The inverse of joining is splitting. Suppose there is a Department M in 1985 but it is no longer present (under that name) in 1995. However in 1995 we have new departments named A and B and most of Department M's courses wind up in one or the other of these. This is what would be termed "splitting". It could occur with a Department of Mathematical Science splitting to the Department of Mathematics and the Department of Operations Research and Applied Mathematics. It does not appear as if we have such a case, but if we did, we would presumably[3] use 4 workbooks, one for M going up to 1985, one for A, one for B (each starting in 1995) and a combination workbook for the union of all 3 departments. But it would depend on how close the change comes to being a real split. In the paragraph below we return to Hopkins where it seems more like an independent birth than a split.

Parallel departments.

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[2] "Astronomy" in the title lasted only one sample year. By 1965 it was simply the Department of Mathematics.

[3] The final decision about handling any such case will wait till we have an actual case to consider.

At Johns Hopkins, the Department of Mathematical Sciences that arises in 1973 (first appearing in our 1975 workbook) does not appear to be a splitting off from the Department of Mathematics because it seems that at most one statistics course came from the Mathematics Department. For this reason, we regard the Mathematics Department from 1975 till 2005 to be part of the Mathematics Department from 1905 till 2005.

Thus, there is just one workbook for the Johns Hopkins Mathematics Department, covering 1905-2005. There is a separate workbook for Applied Mathematics and Statistics (the eventual name of the department whose prior name was Department of Mathematical Sciences) covering 1975 to 2005 . And there will be an AllDepts (combination) workbook that shows all courses from either department.

Names and abbreviations.

Departments sometimes change their names for reasons that do not seem compelling for the purposes of Cajori Two. For example, in 1905, at Texas, we have the <u>School</u> of Pure Mathematics, but by 1925 it is the <u>Department</u> of Applied Mathematics. It seems sensible to ignore the distinction the folks at Texas were making[4] and not start new workbooks to recognize the name changes.

The names we will actually use for file names, and headings in tables, etc. will be chosen to be as short as possible while still reflecting the salient realities we see. These realities include

1. The institution name as it is commonly called. Thus Leland Stanford Junior[5] University (the official name) is simply Stanford.
2. The particular campus in the case of state universities with campuses at multiple cities.
3. In the case of multiple departments, how the department differs from others at the campus in question. For example, at Johns Hopkins we will have the following

   JHopkinsUMath1905To2005
   JHopkinsUAppAndStat1975To2005
   JHopkinsUAllDepts1905-2005

   Note that we do not use JHopkinsU*MathScience*1975To2005. (Department of Mathematical Science was an early name for
   Department of Applied Mathematics and Statistics.) We have only one workbook for this department, despite its having two names, and in choosing a single name, we prefer later names to earlier ones.

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[4] The user can find the names used for the departments in the scans of the catalog excerpts.
[5] "Junior" modifies "Leland Stanford", not "University"

Dates are used to remind the user not to be puzzled about years full of blanks in the workbooks.

The exact names and abbreviations we will use are in the file *ParametersToSet.xlsx* in *CajoriTwo 3.0\DataAnalysis\SomeUserChoicesGuidingARun*