

# Data Mining to Compare Spaces

WUG Sept. 9, 2003 by Nancy Dickson

## The Problem

A department or even college would like to investigate the impact of a possible move by looking at the space and capacity they have now as compared to what they will have if and when they move. For a specific example it has been proposed that University Evaluation which is currently located in the Agriculture building will move to the space that Data Administration occupies in the Administration B building. This same technique will work for bigger spaces say moving one floor of the Social Science building to one floor in the Classroom Office building.

## The Detailed Queries in Brio

First we will develop parallel queries to view the two spaces – current space, and space after the move. I'm a beginner on this data so I like to start with the Facility table, find the building I want, limit to it and then join to the Facility Floor table for more detail. Last I add the Facility Room table which has HR Department Names in it. I see that B03 is the HR Rollup Code for University Evaluation, so I will limit to that. All joins are equal joins. This is why I call this "data mining"... because I'm not just creating a canned report, I'm exploring the data and its relationships.

## Query to get University Evaluation Details of Current Space

The screenshot shows the Brio query editor for a query named "Agriculture - details". The query is a join of three tables: Facility, Facility Floor, and Facility Room. The Facility table is limited to Facility Code 044. The Facility Room table is limited to Hr Department Rollup Code B03. The query fields include Facility Code, Room, Facility Floor Level Code, Facility Common Name, Hr Department Rollup Code, Hr Department Name, Room Capacity, Room Sqft, Pefi Room Use Code, and Pefi Room Use Description.

## Results - University Evaluation Current Space

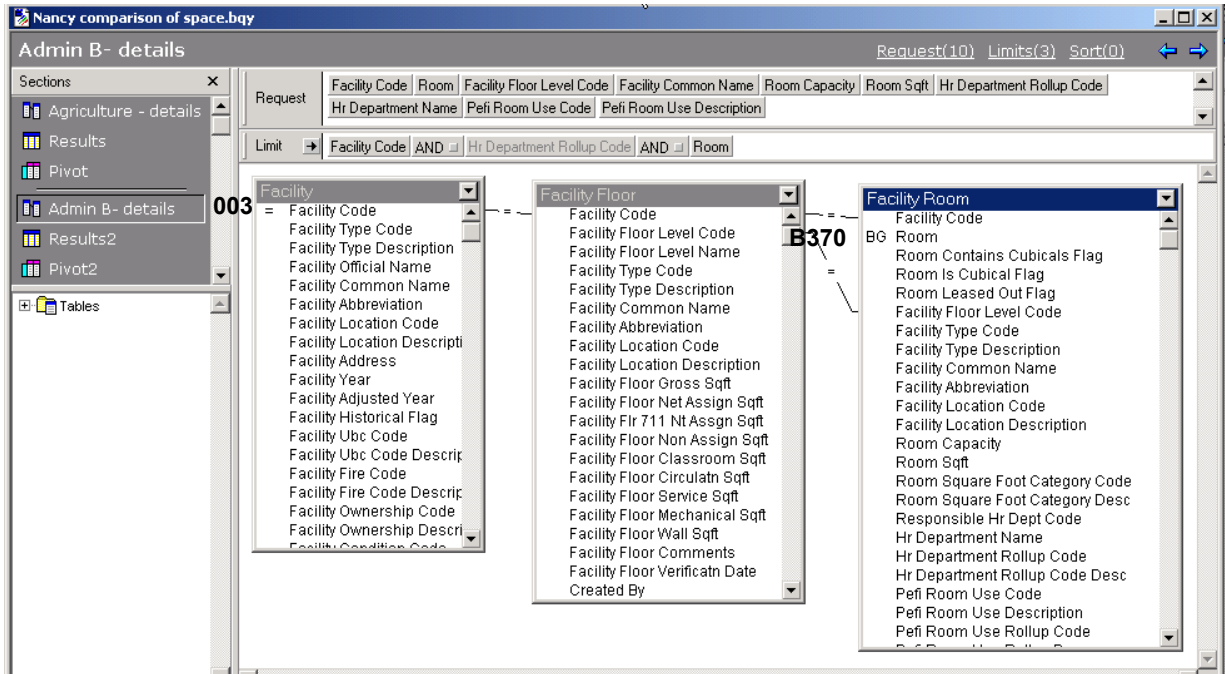
Facility Code	Room	Facility Floor Level Code	Facility Common Name	Hr Department Rollup Code	Hr Department Name	Room Capacity	Room Sqft	Pefi Room Use Code	Pefi Room Use Description
044	281A2	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	153	310	Office
044	281A3	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	157	310	Office
044	281A4	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	17	730	Central Storage
044	281B	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	107	315	Office Service
044	281B1	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	348	310	Office
044	281A	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	127	310	Office
044	281	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	663	316	Reception Area
044	253	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	233	310	Office
044	253A	2	AGRICULTURE	B03	UNIVERSITY EVALUATION	0	188	310	Office

To narrow down to the space that Data Administration occupies in the Admin B building, I started with the Facility table, found the Admin B and limited Facility Code to 003 to get it. Then I added the Facility Floor table for more detail, and last again the Facility Room to see Institutional Analysis and Data Administration. To narrow it down to just our rooms I used a Begins With limit on the Room in the Facility Room table. Joins are all equal.

IF you already know what to limit among these tables for the other query, you could right click on the query and select Duplicate, change the limits and Process.

Notice also below, you can right click on the query and Rename it so you don't lose track of which query is which.

### Query to get Admin B Details of Space After Move



### Results - Admin B Data Admin Space After Move

The types of space are described by the PEFI Room Use Description. In this particular comparison, the Room Capacity isn't entered. If it was, we could use it for comparisons, but since it is not, we will go ahead with just Room Sqft.

Facility Code	Room	Facility Floor Level Code	Facility Common Name	Room Capacity	Room Sqft	Hr Department Rollup Code	Hr Department Name	Pefi Room Use Code	Pefi Room Use Description
003	B370	3	ADMINISTRATION	0	703	B09	INST ANALYSIS&DATA	316	Reception Area
003	B370A	3	ADMINISTRATION	0	121	B09	INST ANALYSIS&DATA	310	Office
003	B370B	3	ADMINISTRATION	0	121	B09	INST ANALYSIS&DATA	310	Office
003	B370C	3	ADMINISTRATION	0	169	B09	INST ANALYSIS&DATA	310	Office
003	B370D	3	ADMINISTRATION	0	226	B09	INST ANALYSIS&DATA	310	Office
003	B370E	3	ADMINISTRATION	0	147	B09	INST ANALYSIS&DATA	350	Conference Room

## A Couple of Pivots – just for fun

In the first query, click the Insert Menu and select New Pivot. Drag the fields shown into the Pivot Facts and Side Labels boxes. Remember, numbers that you want to accumulate always go in the FACT box. The categories to accumulate by go in either the Side Labels (categories go down left side) or the Top Labels (categories go across top).

Current Space		After Move Space	
	Room Sqft		Room Sqft
Central Storage	17	Conference Room	147
Office	1207	Office	637
Office Service	107	Reception Area	703
Reception Area	663	Total	1487
Total	1994		

Side Labels:	Top Labels:	Facts:
Pefi Room Use Description	Drag columns here to create	Room Sqft

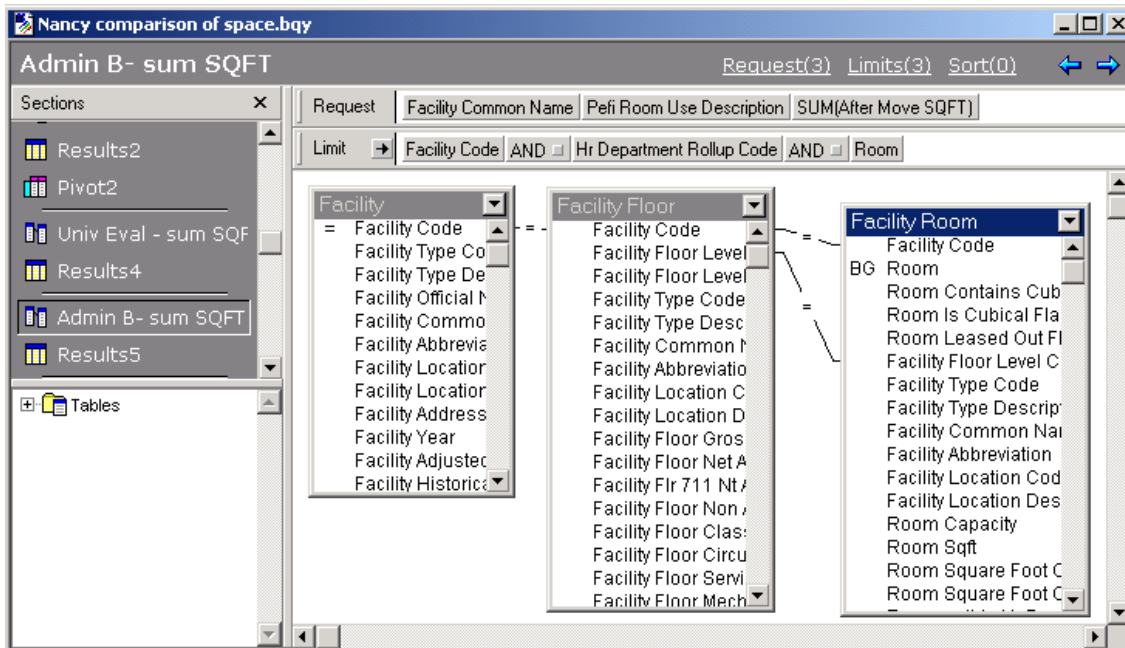
The Pivots don't let us compare the space side by side so we will now create two more queries, one for each area, that sums the Room Sqft like these Pivots do. Then we will combine the two result sets to create one that can be graphed.

## The SQFT Summing Queries in BrioQuery

Go to the Agriculture Details Query, right click and click Duplicate. Right click on the new query and rename it Univ Eval – sum SQFT. Remove everything from the Request line except Facility Common Name, Room SQFT, and PEFI Room Use Description. Double click on the Room SQFT on the Request Line and replace its name with SQFT Before Move. Click ok. Highlight Room SQFT on the Request Line, then right click on it – Data Function/Sum. Click Process to get the total square foot by PEFI category.

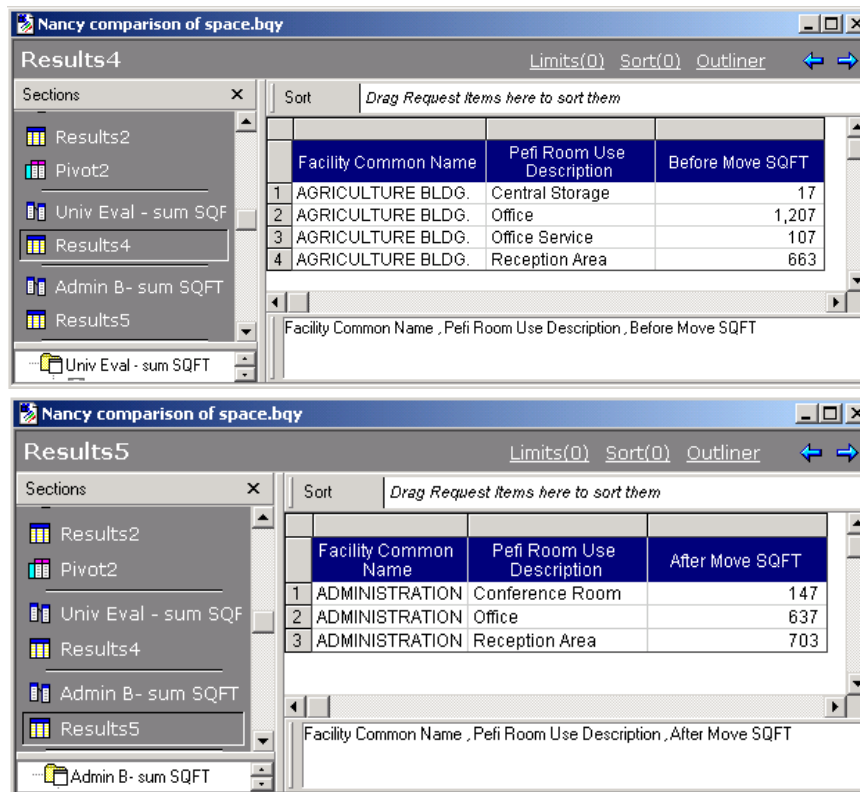
The screenshot shows the BrioQuery interface for a query titled "Univ Eval - sum SQFT". The "Request" line contains the following fields: "Facility Common Name", "SUM(Before Move SQFT)", and "Pefi Room Use Description". The "Limit" line contains "Facility Code" and "AND Hr Department Rollup Code". The background shows three tables: "Facility", "Facility Floor", and "Facility Room". The "Facility Room" table is highlighted, showing fields like "Room Sqft" and "Room Square Foot C".

Duplicate the Admin B Details Query in the same way and change it similarly to rename and sum the Room SQFT.



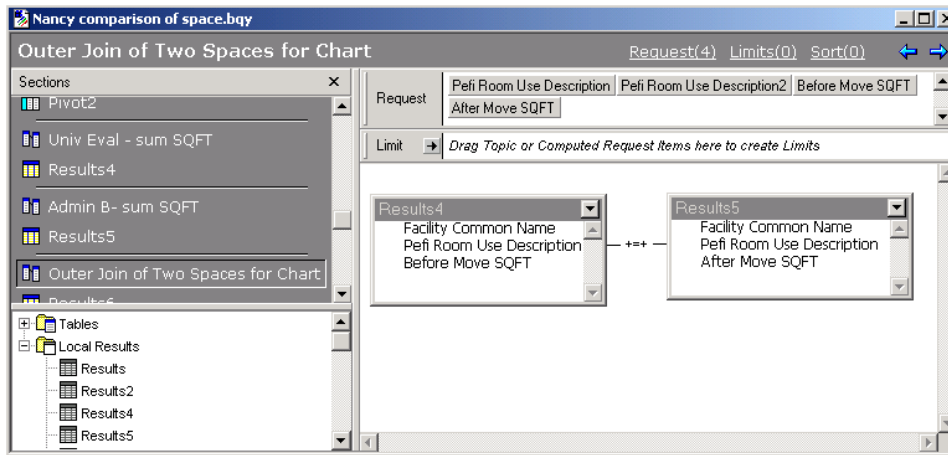
## Combining the Results in A Query with an Outer Join

The results look a lot like the Pivots but their advantage is, we can combine them into one data set for graphing with another query.

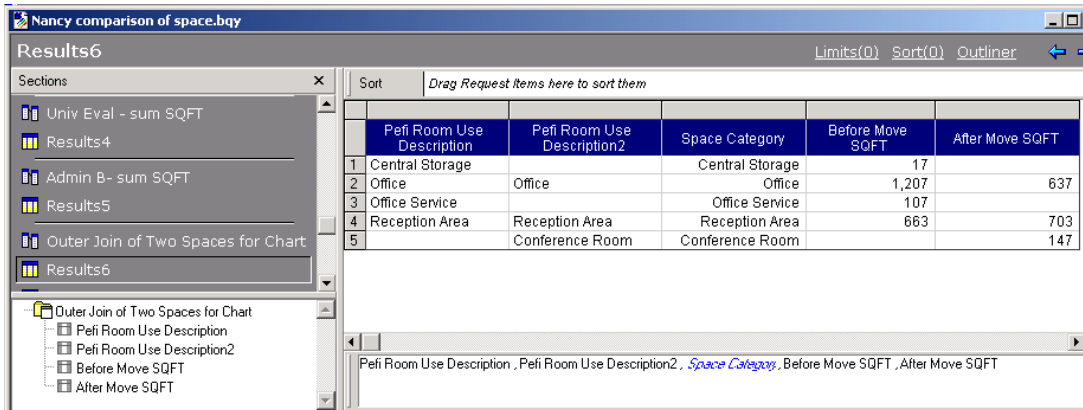


Click Insert/ New Query and click NO to not log on to the previous connection. When the Brio Welcome Box comes up, select NO CONNECTION – A blank document.

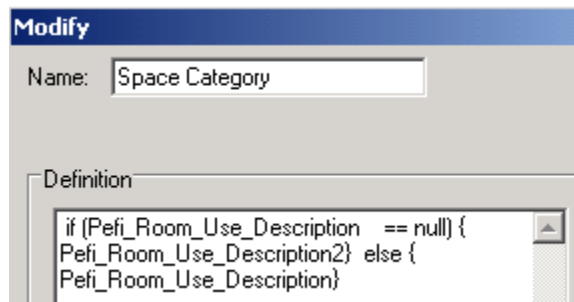
Now Right click on the Tables icon to get to Local Results. Even if the regular logon comes up, CANCEL it.. and then open the Local Results.



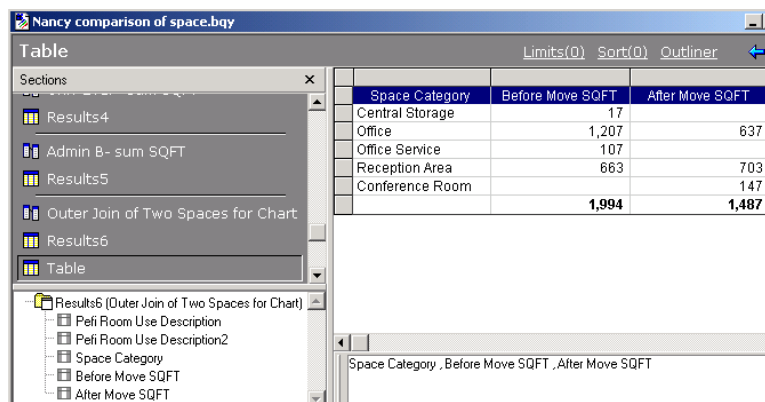
Drag out Results 4 and Results5 and join on Pefi Description. Double click on the join line and change it to an OUTER join. This will merge the two sets of records so we don't lose any of them. Process.



We use a Computed Item to create a column that has all the space categories in it. A Computed Item is made by right clicking on the results and clicking on Add Computed Item.



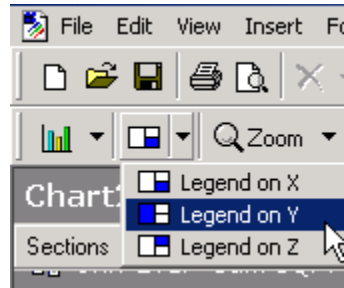
Then click Insert / Table and drag just the fields shown which we will use to graph.



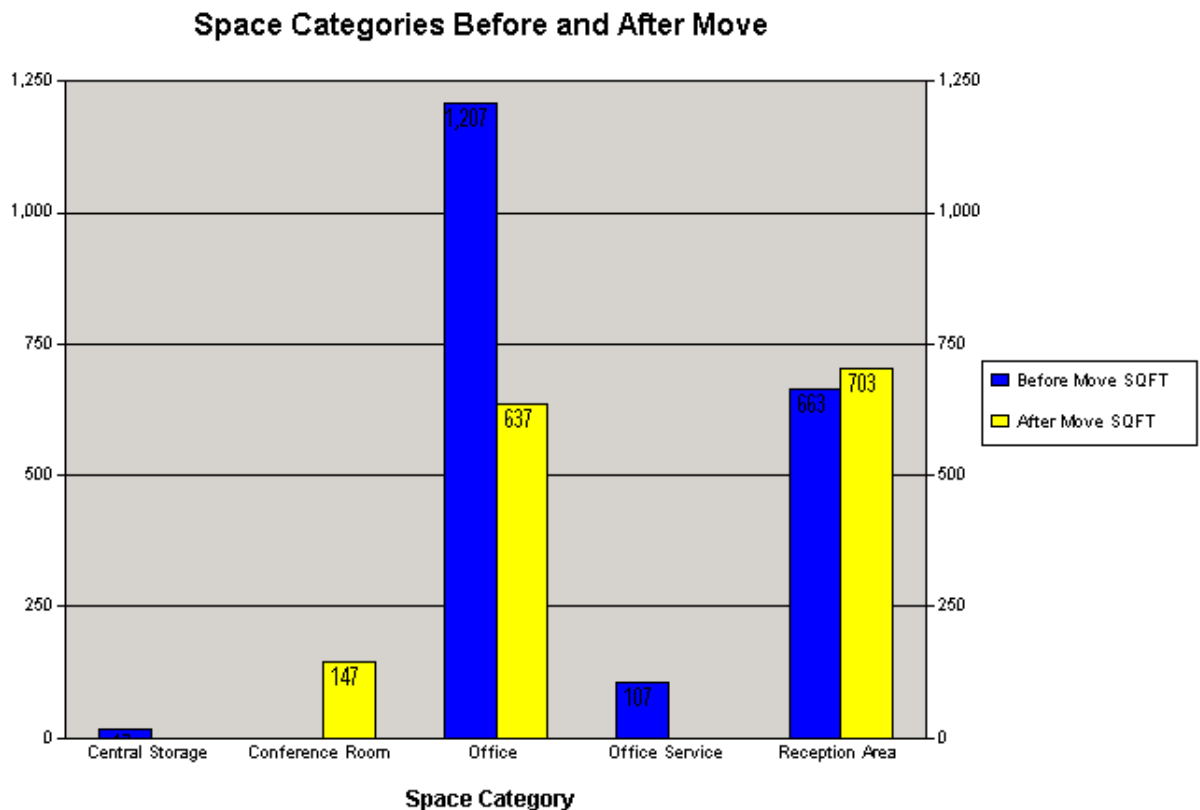
## Graphing the Before and After Move Space Categories

Click Insert / New Chart. A blank chart will appear. Notice the outlier boxes at the bottom. Drag Space Category into the X Category box. This will put the PEFI categories across the bottom. Then drag the two SQFT fields into the Y Category Box.

Go up to the Chart Menu icons and change the Legend to the Y axis (see below)



The graph will look something like this...



Right click on a bar series to get to Properties to change colors, turn values on or off etc. Change the title text. To get to all the various options, right click on things. The whole chart has options, (I turned off 3D!), as well as the bars.

After thoughts.. OK Canned Report Creators... find a more efficient way to make this graph now that I "data mined" my way to it. Say... a one table query.. with the Facility Room table? But I argue.. with all my three tables joined, I have a one stop shopping place in which I can zero in on different space categories however I want. AND...now I understand the data better!

OH... last but not least.. did you know if you had other data besides the square feet along with the graph data, you can drill down into it by right clicking on the graph bars and Brio will make new graphs on the fly!