University of Waterloo

PHYS 437A Assignment 2

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I have found a way to query SDSS to determine whether or not an object is in the SDSS survey through CasJobs [3]. First, you must import a table of RA and DEC of the objects you wish to check are in the SDSS survey to your "MyDB" database on CasJobs, an example table is shown below:

NAME	RA	DEC	SBF	NED_D	Virgo	VHel	D	M_K	A_B	T_type	log_RE
IC0598	153.202423	43.145546	0	0	0	2256	35.3	-22.60	0.06	-0.1	1.02
IC0719	175.077042	9.009861	0	0	0	1833	29.4	-22.70	0.22	-2.0	1.10
IC3631	189.950195	12.973927	0	0	0	2822	42.0	-22.01	0.17	-1.3	1.13
NGC0448	18.818876	-1.626105	1	1	0	1908	29.5	-23.02	0.26	-2.5	1.05

This table can be a comma or tab delimited text or csv file. On my "MyDB" database, I called this table "MyTable_0". Then, you can perform the following SQL query on CasJobs under the DR8 context to retrieve the names of the objects in your table that are in SDSS:

```
SELECT
   t.NAME
FROM mydb.MyTable_0 AS t
WHERE
   dbo.fInFootprintEq(t.ra, t.dec, 0.1) = 1
```

The query selects all the names of the objects in my table and uses the DR8 function fInFootprintEq to check if the area specified by the object's RA, DEC, and a chosen angular radius (0.1 arcminutes in the above example) is in SDSS. fInFootprintEq returns 1 as "True" (ie. object is in SDSS) and 0 as "False".

Using the above method, after applying the first cut in Ryan's paper which left me with 356 primaries, I am left with 315 primaries that are within the SDSS survey area. 8 of those are to be cut in the third cut (primaries near Coma, Leo, or Virgo clusters), leaving me with 33 primaries (315 - 8 - 274) that Ryan must have cut due to being in badly masked regions or regions of incomplete coverage.

I chose to write my own code to determine the masked regions and find areas of masked regions as Mangle [9] was not sufficient for this task.

Why doesn't this work:

```
SELECT
   p0.objid, p0.ra, p0.dec
FROM
   mydb.primaries_in_sdss_315 as t,
   PhotoObj as p0
JOIN dbo.fGetNearestObjEq(t.ra,t.dec,1) AS p1 ON p0.objid = p1.objid
```

I want the above to query SDSS to find the nearest object in SDSS to each of the 315 primaries that I found are in SDSS and retrieve the object ID so that I can use Ryan's SQL query (which joins by object ID) to find nearby objects. The above gives me error:

The multi-part identifier "t.ra" could not be bound. The multi-part identifier "t.dec" could not be bound.

But why doesn't that error pop up in my first SQL query which uses t.ra and t.dec on the similar function finFootprintEq?

References

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