**ni\_link\_nodeb\_to\_nodea\_by\_attribute -** this function creates a link between two nodes based on matching a common attribute i.e. a join. The resulting output table will contain all the attributes of nodeset\_A and nodeset\_B as well as the following:

* Geometry of each node of nodeset A
* PR Key of each node of nodeset A
* Attribute of each node of nodeset A used to match to nodeset B
* Geometry of each node of nodeset B
* PR Key of each node of nodeset B
* Attribute of each node of nodeset B used to match to nodeset A
* New geometry representing straight line between each node of nodeset A to each node of nodeset B.
* Length of the new geometry representing the link between each node of nodeset A and each node of nodeset B.

**Parameters:**

1. nodeset\_A\_table\_name: string - table name of containing nodes
2. nodeset\_A\_prkey: string - primary key of nodeset\_A\_table\_name
3. nodeset\_A\_geometry\_column\_name: string - name of geometry column of nodeset\_A\_table\_name - this will be used to create the new link with the second nodeset\_B table
4. nodeset\_A\_attribute\_name: string - name of attribute that joins with nodeset\_B
5. nodeset\_A\_prefix: string - prefix for all columns of nodeset\_A\_table\_name e.g. "nodeset\_A\_"
6. nodeset\_B\_table\_name: string - table name of containing nodes
7. nodeset\_B\_prkey: string - primary key of nodeset\_B\_table\_name
8. nodeset\_B\_geometry\_column\_name: string - name of geometry column of nodeset\_B\_table\_name - this will be used to create the new link with the first nodeset\_A table
9. nodeset\_B\_attribute\_name: string - name of attribute that joins with nodeset\_A
10. nodeset\_B\_prefix: string - prefix for all columns of nodeset\_A\_table\_name e.g. "nodeset\_B\_"
11. output\_table\_name: string - table name for output
12. add\_to\_geometry\_columns: string - boolean denoting whether to add the resultant join table to the geometry columns table of the current database (adds node\_A\_geom, node\_B\_geom, and node\_AB\_line)

e.g. SELECT \* FROM ni\_link\_nodeB\_to\_nodeA\_by\_attribute('UWWTW\_T\_UWWTPS\_UK\_ONLY\_OSGB', 'uwwid', 'geom', 'uwwid', 'nodeset\_A\_', 'UWWTW\_T\_DischargePoints\_UK\_ONLY\_OSGB36', 'dcpid', 'geom', 'uwwid', 'nodeset\_B\_', 'uwwtw\_t\_uwwtps\_link\_uwwtw\_discharge\_points\_Feb2011', False) f(nodeset\_A\_gid integer, nodeset\_A\_uwwid double precision, nodeset\_A\_uwwstate double precision, nodeset\_A\_rptmstatek character varying(254), nodeset\_A\_aggid double precision, nodeset\_A\_uwwcode character varying(254), nodeset\_A\_uwwname character varying(254), nodeset\_A\_uwwcollect double precision, nodeset\_A\_uwwdateclo character varying(254), nodeset\_A\_uwwhistori character varying(254), nodeset\_A\_uwwlatitud double precision, nodeset\_A\_uwwlongitu double precision, nodeset\_A\_uwwnuts double precision, nodeset\_A\_uwwloadent double precision, nodeset\_A\_uwwcapacit double precision, nodeset\_A\_uwwprimary smallint, nodeset\_A\_uwwseconda smallint, nodeset\_A\_uwwothertr smallint, nodeset\_A\_uwwnremova smallint, nodeset\_A\_uwwpremova smallint, nodeset\_A\_uwwuv smallint, nodeset\_A\_uwwchlorin smallint, nodeset\_A\_uwwozonati smallint, nodeset\_A\_uwwsandfil smallint, nodeset\_A\_uwwmicrofi smallint, nodeset\_A\_uwwother smallint, nodeset\_A\_uwwspecifi character varying(254), nodeset\_A\_uwwbod5per double precision, nodeset\_A\_uwwcodperf double precision, nodeset\_A\_uwwtssperf double precision, nodeset\_A\_uwwntotper double precision, nodeset\_A\_uwwptotper double precision, nodeset\_A\_geom geometry, nodeset\_B\_gid integer, nodeset\_B\_dcpid double precision, nodeset\_B\_dcpstate double precision, nodeset\_B\_rptmstatek character varying(254), nodeset\_B\_uwwid double precision, nodeset\_B\_dcpcode character varying(254), nodeset\_B\_dcpname character varying(254), nodeset\_B\_dcpnuts double precision, nodeset\_B\_dcplatitud double precision, nodeset\_B\_dcplongitu double precision, nodeset\_B\_dcpwaterbo double precision, nodeset\_B\_dcpirrigat double precision, nodeset\_B\_dcptypeofr double precision, nodeset\_B\_rcaid double precision, nodeset\_B\_dcpsurface double precision, nodeset\_B\_dcpwater\_1 character varying(254), nodeset\_B\_dcpnotaffe character varying(254), nodeset\_B\_dcpmsprovi character varying(254), nodeset\_B\_dcpcomacce character varying(254), nodeset\_B\_dcpgroundw character varying(254), nodeset\_B\_dcpreceivi character varying(254), nodeset\_B\_dcpwfdsubu character varying(254), nodeset\_B\_dcpwfdrbd character varying(254), nodeset\_B\_dcpremarks character varying(254), nodeset\_B\_dcpwfdrbdr date, nodeset\_B\_dcpwater\_2 date, nodeset\_B\_dcpgroun\_1 character varying(254), nodeset\_B\_dcprecei\_1 date, nodeset\_B\_dcpwfdsu\_1 character varying(254), nodeset\_B\_geom geometry, node\_A\_id double precision, node\_A\_attr double precision, node\_A\_geom geometry, node\_B\_id double precision, node\_B\_attr double precision, node\_B\_geom geometry, node\_AB\_line geometry, node\_AB\_distance numeric);

Figure.1 illustrates an example of running the above query. The brown/red dots are waste water treatment works, whilst the blue dots are the points at which they discharge to a water course or body. The dashed purple line represents the new geometry created from the function.

