

Replication method for Tetradas: Dataset of tonnage estimates of trade through the Danish Sound, 1670–1856

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Please note: Slight differences between the data downloaded in 2014 and 2016 and used in Tetradas and the data that is currently available for download on the website

[www.soundtoll.nl](http://www.soundtoll.nl) may occur.

The replication method starts from the ‘raw’ data that downloaded from the website of the Sound Toll Registers Online project ([www.soundtoll.nl](http://www.soundtoll.nl)). Twelve steps describe how to replicate the statistical series of Tetradas using the auxiliary tables in the online documentation.

### **Step 1. Download CSV-files with data about passages and cargoes from**

**[www.soundtoll.nl](http://www.soundtoll.nl)**

- 1.1. Open the website
- 1.2. Go to “Search here in the Soundtoll Database”
- 1.3. After reading the helptext, click on “I want to go to the database”. A new screen opens “STR online” opens. We will use Database 2, which contains passages after 1633.
- 1.4. Under the heading “Database 2, passages after 1633”, click “Select and search data via alphabetical lists”.
- 1.5. Register first, or proceed to login in order to use the “Download service”
- 1.6. When logged in, click on “Download year / film”. You are now directed to the “STR online – download service”
- 1.7. In the “STR online – download service”, choose a year (or a film) and press “Send”
- 1.8. Based on your selection criteria, four tables appear (Passages, Cargoes, Taxes and Images), which can be downloaded as CSV-files.
- 1.9. Click on “Passages” to download the table
- 1.10. Save the table “Passages” on your computer
- 1.11. Click on “Cargoes” to download the table
- 1.12. Save the table “Cargoes” on your computer

**Step 2. Enter the downloaded data on passages into a relational database**

- 2.1. Open a relational database programme, e.g. Microsoft Access, on your computer.
- 2.2. Create a new blank desktop database (Ger. “Leere Desktopdatenbank”)
- 2.3. Save the empty database in your preferred location and click “Create” (Ger. “Erstellen”)
- 2.4. An empty table in the blank desktop database opens. Close this table.
- 2.5. Go to the menu “External data” (Ger. “Externe Daten”) and select Text File (“Textdatei”) from the Import & Link (“Importieren und Verknüpfen”) subheading
- 2.6. A dialogue screen opens.
- 2.7. Use the Browse...-button (“Durchsuchen...”) to select the CSV-file with data on passages. In this example, this is the “passages\_Year=\_1730.csv” file.
- 2.8. Click Open (“Öffnen”) to select the “passages\_Year=\_1730.csv” file; then choose the option Import the source data into a new table in the current database (“Importieren Sie die Quelldaten in einer neuen Tabelle in der aktuellen Datenbank”)
- 2.9. Press “OK”. The Import Text Wizard (“Textimport-Assistent”) opens. Choose Delimited (“Mit Trennzeichen”) and press Next (“Weiter”).
- 2.10. On the next dialogue screen of the Import Text Wizard (“Textimport-Assistent”), select Semicolon (“Semikolon”), First Row contains Field Names (“Erste Zeile enthält Feldnamen”) and double quotation marks as Text Qualifier (Ger. Textqualifizierer).
- 2.11. In the menu “Codepage”, change Western European (Windows) (“Westeuropäisch (Windows)”) to “Unicode (UTF-8)” to make sure that special characters are imported correctly.
- 2.12. Press “OK” to return to the previous dialogue screen, then press Next (“Weiter”).
- 2.13. The next dialogue screen provides specifications for each of the field in the “passages\_Year=\_1730.csv” file. To avoid problems, I recommend leaving the information as is. Do not change the datatype at this stage. Press “Weiter”.  
Like all other passages tables that can be downloaded from the website, the file “passages\_Year=\_1730.csv” contains 50 fields. Please note that the filenames are in Dutch. An English translation of the filenames is added at the end of this document.
- 2.14. In the next dialogue screen, I recommend adding a primary key.
- 2.15. The file “passages\_Year=\_1730.csv” is now ready to be imported. Change the name of the table to “Passages”. Press Finish (“Fertig stellen”) to complete the process; then press Close (“Schließen”) in the next dialogue screen.

- 2.16. The file “passages\_Year\_=\_1730.csv” is now imported as a table into the relational database programme and renamed “Passages”.
- 2.17. Open the table. As you can see, there were 4,847 registered passages through the Danish Sound in 1730.

**Step 3: Repeat the process described in steps 2.5 to 2.17 for the data on cargoes**

- 3.1. Go to the menu “External data” (“Externe Daten”) and select Text File (“Textdatei”) from the Import & Link (“Importieren und Verknüpfen”) subheading.
- 3.2. A dialogue screen opens.
- 3.3. Use the “Browse...”-button (“Durchsuchen...”) to select the CSV-file with data on cargoes. In this example, this is the “cargoes\_Year\_=\_1730.csv” file.
- 3.4. Click Open (“Öffnen”) to select the “cargoes\_Year\_=\_1730.csv” file; then choose the option Import the source data into a new table in the current database (“Importieren Sie die Quelldaten in einer neuen Tabelle in der aktuellen Datenbank”).
- 3.5. Press “OK”. The Import Text Wizard (“Textimport-Assistent”) opens. Choose Delimited (“Mit Trennzeichen”) and press Next (“Weiter”).
- 3.6. On the next dialogue screen of the Import Text Wizard (“Textimport-Assistent”), select Semicolon (“Semikolon”), First row contains Field Names (“Erste Zeile enthält Feldnamen”) and double quotation marks as Text Qualifier (“Textqualifizierer”). Then press Advanced (“Erweitert...”).
- 3.7. In the menu “Codepage”, change Western European (Windows) (“Westeuropäisch (Windows)”) to “Unicode (UTF-8)” to make sure that special characters are imported correctly.
- 3.8. Press “OK” to return to the previous dialogue screen, then press Next (“Weiter”).
- 3.9. The next dialogue screen provides specifications for each of the field in the “cargoes\_Year\_=\_1730.csv” file. To avoid problems, I recommend leaving the information as is. Do not change the datatype at this stage. Press Next (“Weiter”). Like all other passages tables that can be downloaded from the website, the file “cargoes\_Year\_=\_1730.csv” contains the following fields. Please note that the filenames are in Dutch. A translation of the filenames is added at the end of this document.
- 3.10. In the next dialogue screen, I recommend adding a primary key.

- 3.11. The file “cargoes\_Year=\_1730.csv” is now ready to be imported. Change the name of the table to “Cargoes”. Press Finish (“Fertig stellen”) to complete the process; then press Close (“Schließen”) in the next dialogue screen.
- 3.12. The file “cargoes\_Year=\_1730.csv” is now imported as a table into the relational database programme and renamed “Cargoes”.
- 3.13. Open the table. As you can see, there were 14,911 registered cargoes transported through the Danish Sound in 1730.

#### **Step 4: Create a new joint table “Passages\_Cargoes”**

- 4.1. In Microsoft Access, go to the Create (“Erstellen”) Menu and choose Query Design (“Abfrageentwurf”) to start creating a new query.
- 4.2. Upon clicking Query Design (“Abfrageentwurf”), a dialogue screen appears, which lists the tables “Cargoes” and “Passages”. Select these tables and press Add (“Hinzufügen”) to add them to the new query (named Query1 (“Abfrage1”) by default). Then close the dialogue screen.
- 4.3. In Query1 (“Abfrage1”), join the field id\_doorvaart (i.e. the passage ID) in “Cargoes” with the field id\_doorvaart in “Passages”. Point to the field in table “Cargoes”, press and hold with left mouse-click and drag to the corresponding field in table “Passages”. A line appears between both fields.
- 4.4. Click on the join between both tables once; then right-click once to open the Join Properties (“Verknüpfungseigenschaften”). The option Only includes rows where the joined fields from both tables are equal (“Beinhaltet nur die Datensätze...”) is correct: We link the passage ID (id\_doorvaart) for *unique* passages with the information about one or more different cargoes carried on board. Press OK to confirm this option.
- 4.5. In the table “Passages”, select the \* and drag it to Field (“Feld”). Now all fields of “Passages” are added to the query.
- 4.6. Repeating the same procedure for all fields in “Cargoes” would return an error, since two primary keys are not allowed in the same query. Therefore, left mouse-click one field first; then select all fields using the Ctrl+A command; deselect the primary key field ID using Strg+Left mouse-click; then drag all remaining fields to Field (“Feld”).
- 4.7. Press Run (!) (“Ausführen”) in the upper left corner to run the query and have a look at the results.

- 4.8. As could be expected, the query contains 14,911 records – one for each cargo item – but for each of these cargo items, it contains the corresponding “Passage” data as well.
- 4.9. Close the query and save it as “qryPassages\_Cargoes”.
- 4.10. Return to the menu Create (“Erstellen”) and select Query Design (“Abfrageentwurf”) again. In the dialogue screen, go to the tab Queries (“Abfragen”), select “qryPassages\_Cargoes” and add it to the new query (Add; “Hinzufügen”). Close the dialogue screen afterwards (Close; “Schließen”).
- 4.11. The query “qryPassages\_Cargoes” is now ready to be used in another query, which again – by default – is named Query1 (“Abfrage1”). This time, we create a query to make a new table based on the information we provide. Such query is called a Make Table-query.
- 4.12. Under the heading Query Type, Design (“Abfragetools, Entwurf”), select Make Table (“Tabelle erstellen”). A dialogue screen opens.
- 4.13. Enter “Passages\_Cargoes” as the name for the new table (Table Name; “Tabellenname”). We want to create this table in the Current Database (“Aktuelle datenbank”). (For very large tables, it is preferable to create them in a new, separate database using the option Another Database (“Andere Datenbank”).
- 4.14. In Query1 (“Abfrage1”) left mouse-click on the \* and drag to “Feld”. All fields in “qryPassages\_Cargoes” will be included in the new table “Passages\_Cargoes”.
- 4.15. Click Run (!) (“Ausführen”) to run the query. Another dialogue screen appears:
- 4.16. Verify the information and press Yes (“Ja”) to execute the Make Table-query. The query remains opened, while the new table appears in the menu on the left side of the screen.
- 4.17. Close Query1 (“Abfrage1”).

### **Step 5: Prepare the data in “Passages\_Cargoes” for adding standard values from the auxiliary tables from Tetradas (9\_AUX)**

- 5.1. Open the table “Passages\_Cargoes”. In the upper left corner, switch from Table View (“Datenblattansicht”) to Design View (“Entwurfansicht”).
- 5.2. The Design View (“Entwurfansicht”) looks like this.
- 5.3. We use the Design View (“Entwurfansicht”) to add a few fields to the table. We will add standard values to these fields below.

- 5.4. Insert a new field below the field “schipper\_plaatsnaam” (Eng. shipmaster’s domicile). Give this field the following name: “domicile\_code” and select Short Text (“Kurzer Text”) as its data type. We will add standard codes for the toponyms in “schipper\_plaatsnaam” to this field.
- 5.5. Insert a new field below the field “van” (Eng. from, i.e. port of departure). Give this field the following name: “from\_code” and select Short Text (“Kurzer Text”) as its data type. Below, we will add standard codes for the toponyms in “van” to this new field.
- 5.6. Insert a new field below the field “naar” (Eng. to, i.e. port of destination). Give this field the following name: “to\_code” and select Short Text (“Kurzer Text”) as its data type. Below, we will add standard codes for the toponyms in “naar” to this new field.
- 5.7. Insert a new field below the field “maat” (Eng. measure). Give this field the following name: “measure\_ST” and select Short Text (“Kurzer Text”) as its data type. Below, we will add standard codes for the weights and measures in “maat” to this new field.
- 5.8. Insert a new field below the field “aantal” (Eng. quantity). Give this field the following name: “quantity\_ST” and select Number (“Zahl”) as its data type. Below, we will add standard codes for the quantities in “aantal” to this new field.
- 5.9. Insert a new field below the field “soort” (Eng. type, what is meant here is product or commodity). Give this field the following name: “product\_ST” and select Short Text (“Kurzer Text”) as its data type. Below, we will add standard codes for the cargo descriptions in “soort” to this new field.
- 5.10. Save the changes to the table “Passages\_Cargoes”

#### **Step 6: Add standard values about locations to “Passages\_Cargoes”**

- 6.1. In this step, we add standard values about the toponyms in “Passages\_Cargoes” to the fields created in the previous step, “domicile\_code”, “from\_code”, “to\_code”. The fieldnames indicate that we will add (old-fashioned) codes to these new fields. To do so, we import the file AUX\_WELLING\_codes.xlsx from section 9\_AUX, which contains the auxiliary tables, in *Tetradas*.
- 6.2. In the menu External Data (“Externe Daten”), select “Excel” to import an Excel file.
- 6.3. Find the right *Tetradas* file in your folders and click “Open”.
- 6.4. Select “Import the file as a new table” and press “OK” to continue.

- 6.5. On the next dialogue screen, make sure to mark that the first row contains column headings; then press Next (“Weiter”).
- 6.6. Do not make any changes to the next dialogue screen; press Next (“Weiter”).
- 6.7. Add a primary key, if you want to; then press Next (“Weiter”).
- 6.8. Give the table a name, e.g. “WELLING\_codes” and finish the process (Finish; “Fertig stellen”).
- 6.9. Go to the menu Create (“Erstellen”) and select Query Design (“Abfrageentwurf”) to start making a new query. In the dialogue screen, select the tables “Passages\_Cargoes” and “WELLING\_codes” and add them to the query.
- 6.10. Microsoft Access recognizes the fields “ID” in both tables and automatically joins them. Remove this join (left mouse-click to select the join, then right mouse-click to delete the join).
- 6.11. Join the tables in a different way: establish a join between the field “schipper\_plaatsnaam” in “Passages\_Cargoes” and “place” in “WELLING\_codes”. Select and drag “schipper\_plaatsnaam” to “place” to link both tables.
- 6.12. Drag the field “domicile\_code” from “Passages\_Cargoes” to “Feld”.
- 6.13. In the menu Query Type, Design (“Abfragetools, Entwurf”), select Update (“Aktualisieren”) to create an Update-query.
- 6.14. Notice that the option in the lower part of the screen have changed.
- 6.15. We want to update the still empty field “domicile\_code” with the standard codes for different domiciles, which are stored in the table “WELLING\_codes”. To do so, we use the Update To-row (“Aktualisieren”) to indicate where the updated information should come from. Enter the condition for updating the field “domicile\_code” as follows: [WELLING\_codes].[Soundcoding]  
(Notice that our selection criterion has already been set by the join between “schipper\_plaatsnaam” and “place” – they have to contain identical information, otherwise the field “domicile\_code” will not be updated).
- 6.16. Execute the query. A dialogue screen appears, which indicates how many fields will be updated. Notice that there is a slight difference between the total number of rows in “Passages\_Cargoes” (14,911) and the number of rows that will be updated (14,888). This means that for some of the data in the field “schipper\_plaatsnaam” no standard code is available in “WELLING\_codes”.
- 6.17. Press Yes (“Ja”) to execute the query and finish the process.
- 6.18. Repeat the same process to add standard codes to the field “from\_code”.

- 6.19. Repeat the same process to add standard codes to the field “to\_code”.

### **Step 7: Add standard product values to the table “Passages\_Cargoes”**

- 7.1. In this step, we add standard values about the products in “Passages\_Cargoes” to the field “product\_ST” created in the previous step. To do so, we import the file AUX\_cargo\_descriptions.xlsx from section 9\_AUX, which contains the auxiliary tables, in *Tetradas*.
- 7.2. In the menu External Data (“Externe Daten”), select “Excel” to import an Excel file.
- 7.3. Find the right *Tetradas* file in your folders and click “Open”.
- 7.4. Select “Import the file as a new table” and press “OK” to continue.
- 7.5. On the next dialogue screen, select the sheet “commodities”; make sure to mark that the first row contains column headings; then press Next (“Weiter”).
- 7.6. Do not make any changes to the next dialogue screen; press Next (“Weiter”).
- 7.7. Add a primary key, if you want to; then press Next (“Weiter”).
- 7.8. Give the table a name, e.g. “AUX\_cargo\_descriptions” and finish the process (Finish; “Fertig stellen”).
- 7.9. Go to the menu Create (“Erstellen”) and select Query Design (“Abfrageentwurf”) to start making a new query. In the dialogue screen, select the tables “Passages\_Cargoes” and “AUX\_cargo\_descriptions” and add them to the query.
- 7.10. Microsoft Access recognizes the fields “ID” in both tables and automatically joins them. Remove this join (left mouse-click to select the join, then right mouse-click to delete the join).
- 7.11. Join the tables in a different way: establish a join between the field “soort” in “Passages\_Cargoes” and “original denomination” in “AUX\_cargo\_descriptions”. Select and drag “original denomination” to “soort” to link both tables.
- 7.12. Drag the field “product\_ST” from “Passages\_Cargoes” to “Feld”.
- 7.13. In the menu Query Type, Design (“Abfragetools, Entwurf”), select Update (“Aktualisieren”) to create an Update-query.
- 7.14. Notice that the option in the lower part of the screen have changed.
- 7.15. Now we want to update the (still empty) field “product\_ST” with the standard values for cargo descriptions, which are stored in the table “AUX\_cargo\_descriptions”. To do so, we use the Update To-row (“Aktualisieren”) to indicate where the updated information should come from. Enter the condition for updating the field “product\_ST” as follows: [AUX\_cargo\_descriptions].[commodity]



(Notice that our selection criterion has already been set by the join between “original denomination” and “soort” – they have to contain identical information, otherwise the field “product\_ST” will not be updated).

- 7.16. Execute the query. A dialogue screen appears, which indicates how many fields will be updated. Notice that there is a slight difference between the total number of rows in “Passages\_Cargoes” (14,911) and the number of rows that will be updated (14,910). This means that for one row in the table “Passages\_Cargoes”, there is no standard value available in “AUX\_cargo\_descriptions”.
- 7.17. Press Yes (“Ja”) to execute the query and finish the process.

### **Step 8: Add standard values for weights and measures to the table “Passages\_Cargoes”**

- 8.1. In this step, we add standard values for weights and measures in “Passages\_Cargoes” to the field “measure\_ST” created in the previous step. To do so, we import the file *AUX\_measures.xlsx* from section 9\_AUX, which contains the auxiliary tables, in *Tetradas*.
- 8.2. Repeat the procedure described in steps 7.2.-7.8. to create table “AUX\_measures” in the database.
- 8.3. Go to the menu Create (“Erstellen”) and select Query Design (“Abfrageentwurf”) to start making a new query. In the dialogue screen, select the tables “Passages\_Cargoes” and “AUX\_measures” and add them to the query.
- 8.4. Microsoft Access recognizes the fields “ID” in both tables and automatically joins them. Remove this join (left mouse-click to select the join, then right mouse-click to delete the join).
- 8.5. Join the tables in a different way: establish a join between the field “maat” in “Passages\_Cargoes” and “original denomination” in “AUX\_measures”. Select and drag “original denomination” to “maat” to link both tables.
- 8.6. Drag the field “measure\_ST” from “Passages\_Cargoes” to Field (“Feld”).
- 8.7. In the menu Query Type, Design (“Abfragetools, Entwurf”), select Update (“Aktualisieren”) to create an Update-query.
- 8.8. Notice that the option in the lower part of the screen have changed.
- 8.9. Now we want to update the (still empty) field “measure\_ST” with the standard values for weights and measures, which are stored in the table “AUX\_measures”. To do so, we use the Update To-row (“Aktualisieren”) to indicate where the updated

information should come from. Enter the condition for updating the field “measure\_ST” as follows: [AUX\_measures].[standardised denomination] (Notice that our selection criterion has already been set by the join between “original denomination” and “maat” – they have to contain identical information, otherwise the field “measure\_ST” will not be updated).

- 8.10. Execute the query. A dialogue screen appears, which indicates how many fields will be updated. Notice that there is a no difference between the total number of rows in “Passages\_Cargoes” (14,911) and the number of rows that will be updated (14,911).
- 8.11. Press Yes (“Ja”) to execute the query and finish the process.

### **Step 9: Add standard values for quantities to the table “Passages\_Cargoes”**

- 9.1. In this step, we add standard values for quantities in “Passages\_Cargoes” to the field “quantity\_ST” created in the previous step. To do so, we import the file AUX\_quantities.xlsx from section 9\_AUX, which contains the auxiliary tables, in *Tetradas*.
- 9.2. Repeat the procedure described in steps 7.2.-7.8. to create table “AUX\_quantities” in the database.
- 9.3. Go to the menu Create (“Erstellen”) and select Query Design (“Abfrageentwurf”) to start making a new query. In the dialogue screen, select the tables “Passages\_Cargoes” and “AUX\_quantities” and add them to the query.
- 9.4. Microsoft Access recognizes the fields “ID” in both tables and automatically joins them. Remove this join (left mouse-click to select the join, then right mouse-click to delete the join).
- 9.5. Join the tables in a different way: establish a join between the field “aantal” in “Passages\_Cargoes” and “original denomination” in “AUX\_quantities”. Select and drag “quantity” to “aantal” to link both tables.
- 9.6. Drag the field “quantity\_ST” from “Passages\_Cargoes” to Field (“Feld”).
- 9.7. In the menu Query Type, Design (“Abfragetools, Entwurf”), select Update (“Aktualisieren”) to create an Update-query.
- 9.8. Notice that the option in the lower part of the screen have changed.
- 9.9. Now we want to update the (still empty) field “quantity\_ST” with the standard values for weights and measures, which are stored in the table “AUX\_quantities”. To do so, we use the Update To-row (“Aktualisieren”) to indicate where the updated

information should come from. Enter the condition for updating the field “quantity\_ST” as follows: [AUX\_quantities].[quantity\_decimal]  
 (Notice that our selection criterion has already been set by the join between “quantity” and “aantal” – they have to contain identical information, otherwise the field “quantity\_ST” will not be updated).

- 9.10. Execute the query. A dialogue screen appears, which indicates how many fields will be updated. Notice that there is a slight difference between the total number of rows in “Passages\_Cargoes” (14,911) and the number of rows that will be updated (14,909).
- 9.11. Press Yes (“Ja”) to execute the query and finish the process.

### **Step 10: Create a query for calculating tonnage estimates of exports from the Baltic (Bex)**

- 10.1. To prepare the query for calculating tonnage estimates of exports from the Baltic, we repeat the procedure described in 7.2-7.8 to import the files AUX\_ports, AUX\_product\_frequencies.xlsx and AUX\_conversions.xlsx from section 9\_AUX, which contains the auxiliary tables of *Tetradas*.
- 10.2. In the menu Create (“Erstellen”), select Query Design (“Abfrageentwurf”). In the dialogue screen, select the following tables: “Passages\_Cargoes”, “AUX\_conversions”, “AUX\_product\_frequencies” and “AUX\_ports” and add them to the query layout (Add; “Hinzufügen”).
- 10.3. In the menu Query Type, Design (“Abfragetools, Entwurf”), select Show Table (“Tabelle anzeigen”) and add the table “AUX\_ports” two more times to the query design.
- 10.4. Remove all unnecessary links between the tables.
- 10.5. Join the field “from\_code” in “Passages\_Cargoes” with the field “code” in “AUX\_ports”, the field “to\_code” in “Passages\_Cargoes” with the field “code” in “AUX\_ports\_1”, and the field “domicile\_code” in “Passages\_Cargoes” with the field “code” in “AUX\_ports\_2”.
- 10.6. Join the field “measure\_ST” in “Passages\_Cargoes” with the field “standardised measure” in “AUX\_conversions”, the field “product\_ST” in “Passages\_Cargoes” with the field “standardised commodity” in “AUX\_conversions”, and the field “from\_code” in “Passages\_Cargoes” with the field “clean\_code” in “AUX\_conversions”.

- 10.7. Join the field “product\_ST” in “Passages\_Cargoes” with the field “product\_ST” in “AUX\_product\_frequencies”.
- 10.8. All is set to design the query and calculate tonnages. You may add or leave out as many fields from all the tables in the query design as you desire. Dragging the fields from the upper part of the query design to the Field (“Feld”) in the query design grid, we can now combine fields from the different tables.
- 10.9. In the query design grid for exports from the Baltic, add the following fields from the tables in the upper part of the query design (in that order):  
 From “Passages\_Cargoes”: Passages\_id\_doorvaart, dag, maand, jaar, schipper\_voornamen, schipper\_patroniem, schipper\_tussenvoegsel, schipper\_achternaam, schipper\_plaatsnaam, domicile\_code;  
 From “AUX\_ports\_2”: port / locality, region, country\_1721;  
 From Passages\_Cargoes: van, from\_code;  
 From “AUX\_ports”: port / locality, country\_1721, west\_of\_Helsingør;  
 From “Passages\_Cargoes”: naar, to\_code;  
 From “AUX\_ports\_1”: port / locality, country\_1721;  
 From “Passages\_Cargoes”: maat, measure\_ST, aantal, quantity\_ST, soort, product\_ST;  
 From “AUX\_conversions”: metric quantity, standard unit.
- 10.10. In the query design grid, add a new field “tonnage”, which contains the calculated tonnage for each row in the query. Add the following formula for this field:  

$$([\text{quantity\_ST}] * [\text{metric quantity}]) / 1000$$
- 10.11. In the query design grid, add three conditions (“Kriterien”) to finalize the query:  
 - AUX\_ports.west\_of\_Helsingør = No (“Nein”) (The location of the port is set as ‘not west of Helsingør to make sure that only exports from the Baltic are taken into account)  
 - AUX\_conversions.[standard unit] = "kg" (To avoid problems with non-convertable units of measurement)  
 - tonnage:  $[\text{quantity\_ST}] * [\text{metric quantity}] / 1000 = < 1200$  (To avoid unrealistic conversions caused by errors in the database)
- 10.12. Save the query as qryBex

### **Step 11: Create a query for calculating tonnage estimates of imports to the Baltic (Wim)**

- 11.1. To prepare the query for calculating tonnage estimates of exports from the Baltic, we repeat the procedure described in 7.2-7.8 to import the files AUX\_ports, AUX\_product\_frequencies.xlsx and AUX\_conversions.xlsx from section 9\_AUX, which contains the auxiliary tables of *Tetradas*.
- 11.2. In the menu Create (“Erstellen”), select Query Design (“Abfrageentwurf”). In the dialogue screen, select the following tables: “Passages\_Cargoes”, “AUX\_conversions”, “AUX\_product\_frequencies” and “AUX\_ports” and add them to the query layout (Add; “Hinzufügen”).
- 11.3. In the menu Query Type, Design (“Abfragetools, Entwurf”), select Show Table (“Tabelle anzeigen”) and add the table “AUX\_ports” two more times to the query design.
- 11.4. Remove all unnecessary links between the tables.
- 11.5. Join the field “from\_code” in “Passages\_Cargoes” with the field “code” in “AUX\_ports”, the field “to\_code” in “Passages\_Cargoes” with the field “code” in “AUX\_ports\_1”, and the field “domicile\_code” in “Passages\_Cargoes” with the field “code” in “AUX\_ports\_2”.
- 11.6. Join the field “measure\_ST” in “Passages\_Cargoes” with the field “standardised measure” in “AUX\_conversions”, the field “product\_ST” in “Passages\_Cargoes” with the field “standardised commodity” in “AUX\_conversions”, and the field “from\_code” in “Passages\_Cargoes” with the field “clean\_code” in “AUX\_conversions”.
- 11.7. Join the field “product\_ST” in “Passages\_Cargoes” with the field “product\_ST” in “AUX\_product\_frequencies”.
- 11.8. All is set to design the query and calculate tonnages. You may add or leave out as many fields from all the tables in the query design as you desire. Dragging the fields from the upper part of the query design to the Field (“Feld”) in the query design grid, we can now combine fields from the different tables.
- 11.9. In the query design grid for imports to the Baltic, add the following fields from the tables in the upper part of the query design (in that order):  
From “Passages\_Cargoes”: Passages\_id\_doorvaart, dag, maand, jaar, schipper\_voornamen, schipper\_patroniem, schipper\_tussenvoegsel, schipper\_achternaam, schipper\_plaatsnaam, domicile\_code;  
From “AUX\_ports\_2”: port / locality, region, country\_1721;  
From Passages\_Cargoes: van, from\_code;

From “AUX\_ports”: port / locality, country\_1721, west\_of\_Helsingør;

From “Passages\_Cargoes”: naar, to\_code;

From “AUX\_ports\_1”: port / locality, country\_1721;

From “Passages\_Cargoes”: maat, measure\_ST, aantal, quantity\_ST, soort, product\_ST;

From “AUX\_conversions”: metric quantity, standard unit.

- 11.10. In the query design grid, add a new field “tonnage”, which contains the calculated tonnage for each row in the query. Add the following formula for this field:  

$$([\text{quantity\_ST}] * [\text{metric quantity}]) / 1000$$
- 10.11. In the query design grid, add three conditions (“Kriterien”) to finalize the query:
  - AUX\_ports.west\_of\_Helsingør = Yes (“Ja”) (The location of the port is set as ‘west of Helsingør’ to make sure that only imports to the Baltic are taken into account)
  - AUX\_conversions.[standard unit] = "kg" (To avoid problems with non-convertable units of measurement)
  - tonnage:  $[\text{quantity\_ST}] * [\text{metric quantity}] / 1000 = < 1200$  (To avoid unrealistic conversions caused by errors in the database)
- 11.12. Save the query as qryWim

### **Step 12: Use the queries Bex and Wim to generate statistical series**

Together, the queries qryBex (7,354) and qryWim (7,099) provide tonnage estimates for more than 95% of all entries in the table “Passages\_Cargoes” (14,911).

All statistics in *Tetradas* have these queries as their starting points.

Fields in cargoes\_Year=\_xxxx.csv

Field Name	Data Type	English translation
id_doorvaart	Short Text	Passage ID
regel	Short Text	Row
van	Short Text	From (port of departure)
naar	Short Text	To (port of destination)
maat	Short Text	Measure
aantal	Short Text	Quantity
soort	Short Text	Commodity description
muntsort1	Short Text	Currency1
bedrag1	Short Text	Amount1
muntsort2	Short Text	Currency2
bedrag2	Short Text	Amount2
muntsort3	Short Text	Currency3
bedrag3	Short Text	Amount3
maat_alt	Short Text	Alternative measure
aantal_alt	Short Text	Alternative quantity
hulp	Short Text	Help

Fields in passages\_Year=\_xxxx.csv

Field Name	Data Type	English Translation
id_doorvaart	Kurzer Text	Passage ID
dag	Kurzer Text	Day
maand	Kurzer Text	Month
jaar	Kurzer Text	Year
volgnummer	Kurzer Text	Running Number
schipper_voornamen	Kurzer Text	Shipmaster First names
schipper_patroniem	Kurzer Text	Shipmaster Patronymic
schipper_tussenvoegsel	Kurzer Text	Shipmaster Affix
schipper_achternaam	Kurzer Text	Shipmaster Last Name
schipper_plaatsnaam	Kurzer Text	Shipmaster Domicile
soort_korting	Kurzer Text	Type of Discount
korting_muntsort1	Kurzer Text	Discount Currency1
korting_bedrag1	Kurzer Text	Discount Amount1
korting_muntsort2	Kurzer Text	Discount Currency2
korting_bedrag2	Kurzer Text	Discount Amount2
korting_muntsort3	Kurzer Text	Discount Currency3
korting_bedrag3	Kurzer Text	Discount Amount3
subtotaal1_muntsort1	Kurzer Text	Subtotal1 Currency1
subtotaal1_bedrag1	Kurzer Text	Subtotal1 Amount1
subtotaal1_muntsort2	Kurzer Text	Subtotal1 Currency2
subtotaal1_bedrag2	Kurzer Text	Subtotal1 Amount2
subtotaal1_muntsort3	Kurzer Text	Subtotal1 Currency3
subtotaal1_bedrag3	Kurzer Text	Subtotal1 Amount3
subtotaal2_muntsort1	Kurzer Text	Subtotal2 Currency1
subtotaal2_bedrag1	Kurzer Text	Subtotal2 Amount1
subtotaal2_muntsort2	Kurzer Text	Subtotal2 Currency2

subtotaal2_bedrag2	Kurzer Text	Subtotal2 Amount2
subtotaal2_muntsoort3	Kurzer Text	Subtotal2 Currency3
subtotaal2_bedrag3	Kurzer Text	Subtotal2 Amount3
totaal_muntsoort1	Kurzer Text	Total Currency1
totaal_bedrag1	Kurzer Text	Total Amount1
totaal_muntsoort2	Kurzer Text	Total Currency2
totaal_bedrag2	Kurzer Text	Total Amount2
totaal_muntsoort3	Kurzer Text	Total Currency3
totaal_bedrag3	Kurzer Text	Total Amount3
totaal_muntsoort4	Kurzer Text	Total Currency4
totaal_bedrag4	Kurzer Text	Total Amount4
totaal_muntsoort5	Kurzer Text	Total Currency5
totaal_bedrag5	Kurzer Text	Total Amount5
privilege	Kurzer Text	Privilege
opmerking_bron	Kurzer Text	Remark in the Source
opmerking_invoerder	Kurzer Text	Remark Data Entry
naam_invoerder	Kurzer Text	Name of Person who entered the Data
datum_opgevoerd	Kurzer Text	Date of Upload
dirnummer	Kurzer Text	Directory Number
tonnage	Kurzer Text	Tonnage
belasting_korting	Kurzer Text	Tax Discount
hulp	Kurzer Text	Help
hulp1	Kurzer Text	Help1
hulp2	Kurzer Text	Help2