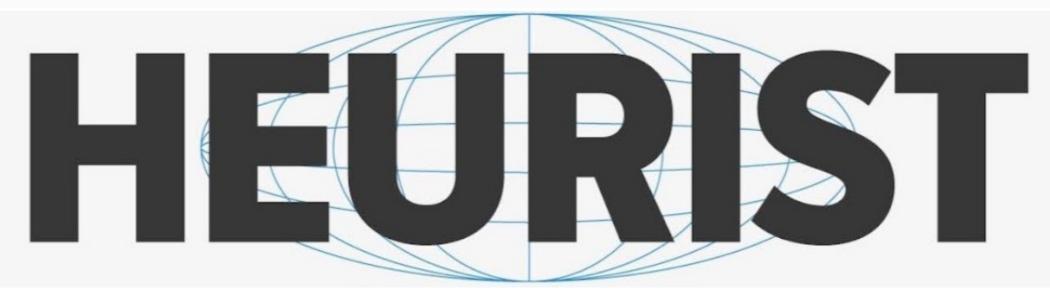
WORKSHOP: HOW TO CREATE A DATABASE WITH HEURIST



Instructor: <u>Helen Katsiadakis</u>, Historian, Researcher Emerita of the Academy of Athens

East Room of the Main Building of the Academy of Athens, 28 Panepistimiou Ave., Athens, Greece Wednesday, 9 June 2023, 09:00-15:00 EET



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ΨΗΦΙΑΚΟ ΤΟΠΙΟ στις Ανθρωπιστικές Επιστήμες



INTRODUCTION

- Databases or spreadsheets
- Functionalities of a database
- Heurist: Designing without planning
- Heurist: Use cases
- Help

HEURIST

- Designing a database: Conceptual modeling
- Entities or record types
- Designing fields
- Relationships
- Other entity properties
- SOS: Title masks
- Searching
- Real-time searches

HANDS ON

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Workshop diagramme

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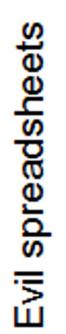
Why databases and not spreadsheets?

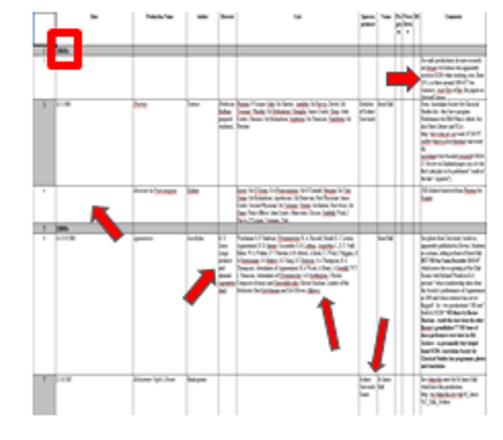
- Spreadsheets are NOT databases
- A database requires a relational structure of the data
- A database consists of:
 - Entities or record types
 - Attributes (text fields, numbers etc.)
 - Relationships
 - Management level



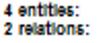


A bad spreadsheet example:





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Production, Person, Organisation, Place Production - Person (Role), Organisation (Role) A bad-case, but not atypical, spreadsheet

Rows are notionally theatrical productions, but include header rows and general notes about a time period. Some productions spread over two or three rows.

- Missing values
- Date range for missing values implied by position
- Inconsistent formatting of text and date values
- Notes appended to values
- Multiple values in one field (People in Cast, but also subsections for Crew, Musicians, Chorus etc.)
- Uncontrolled values eg. company and location (with plenty of typos)





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Why a database?

Advantages:

- Central management of all data
- Consistency of information
- Use of search filters
- Export of subset to webpage, map etc.
- Publication in webpage in real time
- Export of subset to specialized analysis and visualization tools Not suitable for:
- Purely textual data
- 3D data
- Statistical analysis





Advantages of Heurist

- Allows to quickly design, populate, explore and publish data
- Does not require programming skills (unlike other DBMS systems)
- Is available at no charge
- Is compliant with FAIR principles
- Manages any type of data (text, numbers, geospatial data, various types of file formats, relationships etc.)
- Relationships can be associated with a specific semantic that is searchable
- Allows design modifications and experimenting as part of the research process
- Manages permissions
- Enables working collaboratively.





A selection of Heurist use cases

- Judaism and Rome
- <u>Map of the Absentees</u>
- <u>Beyond 1914</u>
- Digital Harlem
- <u>Libraries, Reading Communities & Cultural Formation in the</u> <u>Eighteenth-Century Atlantic</u>
- <u>https://anavathmis.eu/</u>





Help from within the database is accessible in three ways

Se Hel	JRIST V6.3.14	⊖ hkats_war_victim_pensions	This is the latest (alpha) version. If you are blocked by a new bug you can switch to the <u>standard version</u> PLEASE REPORT BUGS.	⑦ Help ∨ L Helen Katsiadakis ∨
Admin	Design (HELP Online help
Design	Modify	C Norway		Heurist Network website
Populate	Record types	Design		Bug report/feature request Heurist Team

- Online help: Link to the systematic help database: <u>https://heuristref.net/heurist/?db=Heurist_Help_System&website</u>
- Heurist Network website: <u>https://heuristnetwork.org/</u>
- Clicking on one of the Heurist functionality menus on the left and the question mark provides access to a menu guide and startup hints for the specific functionality.







Tutorials Learn Heurist at your own pace	Tutorials ~ FAQ Heurist Help System	e a Heurist database nstitutionally- orted services)	¢	
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Welcome to the Heurist tutorials system. Here you can find a sequence of video tutorials with accompanying visual walkthroughs. The first three tutorials show you how to get started in Heurist. The following five tutorials introduce you to the five main menus in the Heurist interface. Later tutorials deal with particular topics that affect many research projects.

Si vous préférez apprendre en français, vous pouvez lire ces tutoriels en français préparés par Régis Witz (MISHA) et Vincent Paillusson (EFEO).

Our Tutorials

https://heuristnetwork.org

Do you need help with something else? Contact Us, and let us know what additional tutorials you think we should provide.

Tutorial 1 | Create Your First Database

Tutorial 2 | Modify the Structure

Tutorial 3 | Create Relationships Between Records

Tutorial 4 | The Explore Menu

Tutorial 5 | The Design Menu

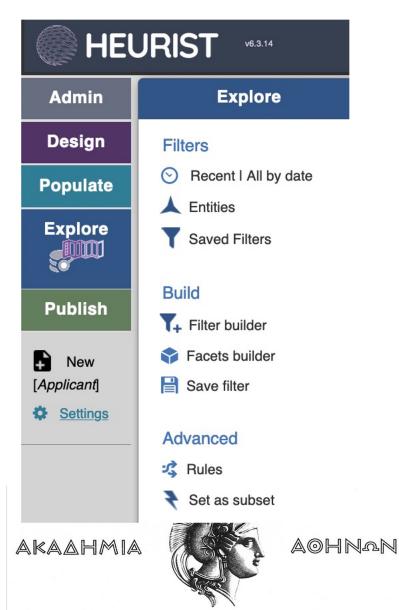


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Heurist: Designing without programming



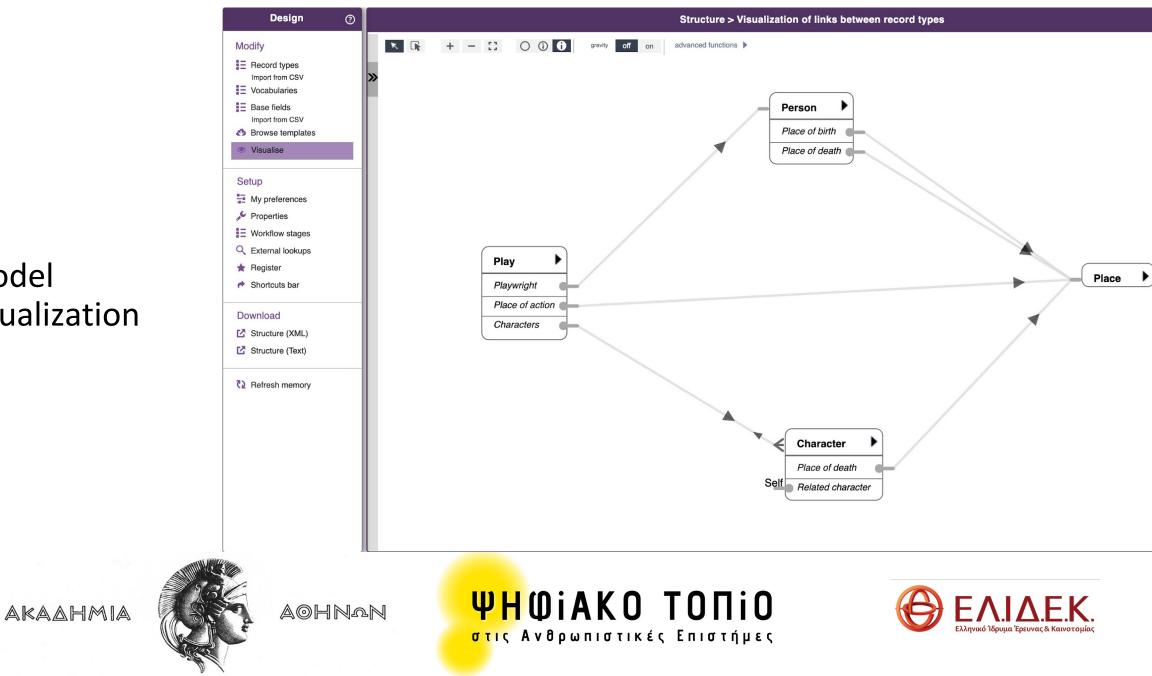
<u>Heurist</u> functionality menus:

- Admin: Administration (Creation of database, user management and integrity verification)
- Design: Design and modification of database structure, entities, fields, vocabularies
- Populate: Adding, importing new data
- Explore: Searching, analyzing and visualizing results
- Publish: Creating websites, exporting data

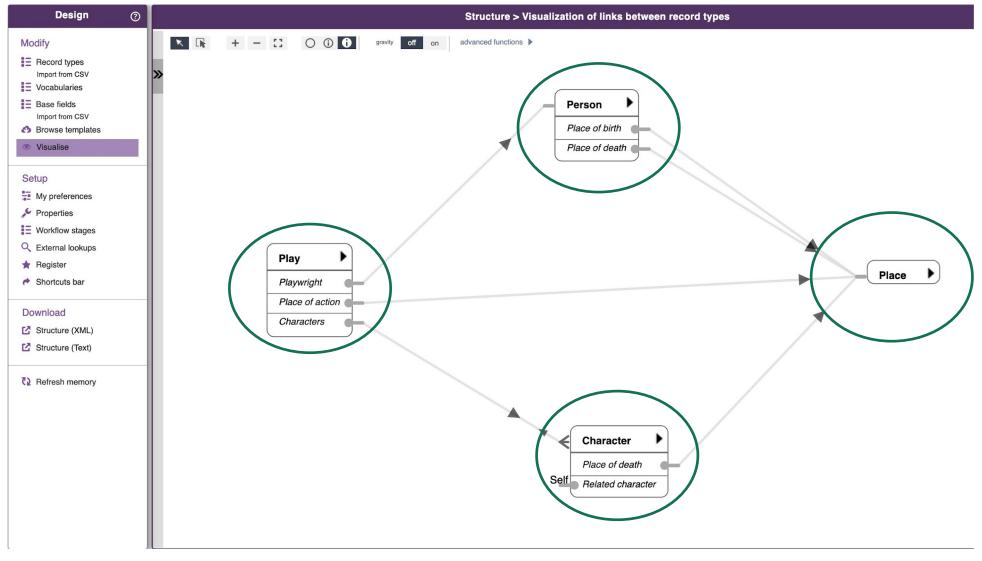




Model visualization



Record type or Entity: the basic element for organizing information





Record
types/
Entities

Modify	+ Add				types cord types which will be useful in ma	ny databases					
Record types					Name	any databases	Count	Filter	Add	Show	
Import from CSV	Basic record types >		(i)		Digital media item		0	Q	+		
Vocabularies	Bibliography		(j)		Life event		0	Q	+		
Base fields			0	_				•		_	
Import from CSV Browse templates	Bibliography - additional		(i)	S			6	Q	+	 Image: A start of the start of	
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		Ť.	()	ø	Person		1	Q	+	~	
Setup	Spatial and Mapping	Ø	()		Place		13	Q	+	~	
My preferences	System Internals	B	()		Web site / page		0	Q	+	~	
🔑 Properties	Web and Media										
Workflow stages											
Q External lookups	🖞 Trash										
★ Register											
Shortcuts bar											
Download											
Structure (XML)											
Structure (Text)											
Refresh memory											



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	Design ⑦	Vocabularies editor	Semantic web	BIBO BiBliOgraphy ontology
	Modify	Groups + Add	Vocabularies + Add 👱 🛓	Terms + Add & Ref 🛓 🏦 drag to 💿 move 🔿 merge Calculate usage
	Record types	My vocabularies	BIBO	➡ top
	E Vocabularies		BIO	abstract
	Base fields	People & events	DCMI-TERMS	AcademicArticle affirmedBy
	Import from CSV Browse templates	Places & organisations	DCMI-TYPE	annotates
	 Visualise 	Cotogoniastion & flags	DOAP	argued
	Usualise	Categorisation & flags	FOAF	Article
	Setup	Semantic web	MUSIC	asin AudioDocument
	My preferences		RDF	AudioDocument
	✓ Properties	Bibliographic & copy	SKOS	authorList
	Workflow stages	Research classification		Bill
	C External lookups			Book BookSection
x <i>,</i> , , , , ,	★ Register	Landscape		Brief
Vocabularies	 Shortcuts bar 	RELATIONSHIPS		Chapter
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	Structure (XML)	ี่ีี่ฃี Trash		Code coden
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Record types/ Entities: Types of fields

Attributes/ Fields:

Text

Text (single line)

Extended text (multiple lines)

Dropdown list (vocabularies, thesauri)

Simple fields

Numbers

Dates

Complex fields

Geospatial (points, lines, polygons, circles, rectangles) fuzzy data (temporal, geographical boundaries)

Files/ multimedia (image, video, urls)

Relationships

Record pointer

Record relationships

Composite title (for mask)



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Designing record typ fields

	Person				Fullscreen	Standard
	Person	Modify structure	Show help	Optional fields	上 Template 🏦 Bug	g report
	Primary information					
	Family name					
	Given name(s)					
gning	Alternate name(s) / title(s)	+				
gning rd type	Gender		•			
	Person type	ŧ	•			
	Birth date					
	Place of birth	select : Place				
	Death date					
	Place of death	select : Place				
	Cause of death		•			
				Save then Dupe New	Save Save + Close Close	Drop Cha
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	D /					

Relationships

Record pointers:

A field of one entity consists of the base field of another entity (foreign key)

E.g.: Entity Person: Person name

Place of birth<<<<< > Entity Place: Name of place

Record relationships:

This relationship has the characteristics of an entity with its own attributes (relationship type, relationship duration etc.)

E.g.: two persons are related by relationship type 'marriage', relationship duration from date x to date z). This is not a simple relationship. It has its own attributes. It is therefore considered as a distinct entity.





Record Relationship: a distinct entity

Vlachaki Maria I byMarriage.IsMarriedTo - > Vlachakis Nikolaos

Record relationship: id 627 🤌

Primary information

Source record Vlachaki Maria Relationship type byMarriage.IsMarriedTo

Target record Vlachakis Nikolaos

The Relationship type is a vocabulary term which is to be found in Vocabularies RELATIONSHIPS



A special relationship

Child record: a subclass of record pointers

When a record, e.g., of the entity Place, is connected to more records of other entities, this relationship is described as a record pointer.

When a record, e.g., of the entity Works, is connected only to one record of another entity, e.g., the entity Composer, this relationship is described as a child record, a subclass of the record pointer relationship.

E.g.: Composer: Mozart

Child records: Piano Concerto No. 22 in Eb major, K. 482 ...

Symphony No. 40 in G minor, K. 550 ...

Don Giovanni, K. 527 ...



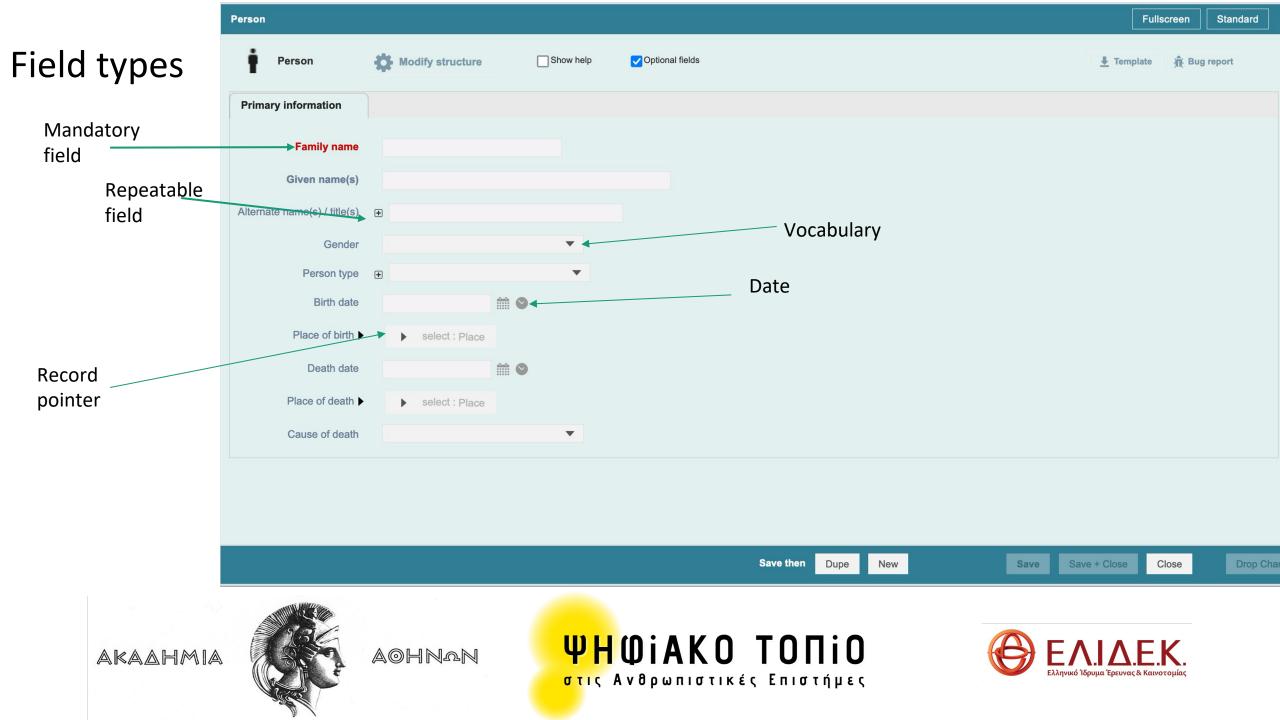


Other entity properties

Each entity has at least one mandatory field (field name in red). E.g., the Name is the mandatory field for the entity Person.

One field can be single or repeatable, i.e., have multiple entries. For instance, a Writer may have written multiple works.





Choose base fields

The base fields chosen should have a <u>similar sense of meaning</u>, e.g. use Start date for Birth date, Creator for Author, Short description for Abstract, Extended description for Notes. You can rename the fields to what you actually want once selected - the new name applies to the current record type only (the base field retains its name).

<u>Do not completely redefine a base field</u> for a different purpose than it appears to be intended for, for instance redefining Family name as Street, Length as Count, or Format as Condition. Significant change to the meaning of a field may later lead to confusion. Fields which use the same base field will reference the same vocabulary (for term-list dropdowns and relationship type) or the same target record types (for record pointers and relationships) - you cannot change the vocabulary or target record types for one without changing it for all the others.

Create a new field

If you can't find a suitable base field, type a new name. This will create a new base field and use it to create a new field in this record type. It is a good idea to use a rather generic name and description so you can re-use the base field in other record types and then customise the field appropriately for this record type.

	Field name:	Related institution					
		A concise generic name used as a default for this field wherever it is used eg. 'creator' rather than 'artist' or 'author'. Fields may be reused in multiple record types. This name can be overridden with a name specific to each record type in which it is used.					
	Default help text:	Related institution					
			erridden with more specific help for each record type that uses this field r>, bold and italics with and <i> </i>	l type			
	Data type:	Select	ded choice				
		Dropdown (Terms)	Note: in most cases this cannot be changed once set				
	Requirement:	Numeric (Integer or decimal)					
		Text (single line)	or whether the field is optional or hidden				
	Repeatability:	Memo Text (multi-line or html)	han one value at a time				
	Semantic/Reference URI:	Date / temporal		Z			
	ocmanio/relefence ord.	Geospatial	nce definition of the base field (optional)				
	Internal / Concept ID:	File or media URL					
	Repeatability: Text (single line) Memo Text (multi-line or html) Date / temporal Geospatial File or media LIPI						
		Relationship marker					
			CREATE NEW FIELD CREATE AND CUSTOMISE	NEW FIELD Close			
40	HNAN	ΨΗΦίΑΚΟ		ΕΛΙΔΕΚ			
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Creating a new field

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SOS: Do not forget the title mask when designing an entity

The title mask is a composite title constructed dynamically from field values. It is a string into which field values are inserted to create the title and is used as the extended title displayed in search results and other lists.

This is an example of a title mask used for one entity:

 [Surname], [Given names]-[Place of origin]-[Date of incident]-[Place of incident]

For the person Andreas Angelakis the search result is

Angelakis Andreas Perivolia, Chania 15 Mar 1918 Samos.



Θ× **Record Type Title Mask Edit** The title mask builds a composite title from fields in the record (see manual). Field values identified by [] are inserted into the mask, Select fields to insert e.g. [Title], pp. [Start_Page]-[End_Page] might generate: "Alice in Wonderland, pp. 37-39" (add to record structure first) The element names in square brackets should match field names for this record type. The constructed value is used as the extended title displayed in search results and other lists. Select All Visible checkboxes To insert a literal square-bracket, use two consecutive square-brackets ([[or]]). metadata Add optional text if a value is not available by adding {Text for existing value \Text for missing value} after a field. ⊿ fields e.g. [Starting date] {\Starting date of: \No starting date} will either generate: "Starting date of: 04-11-1974" or "No starting date" if there isn't Start_date is empty. Surname Additional add a character cap to field values by adding the desire amount within the optional text like so, (50 \Text for existing value \Text for missing value} will cause the value, if it exists, to show 50 characters max. Given names **≡** Gender **E** Family status **E**ducation level Insert **Build Mask:** Select fields in tree and click button to insert in mask at cursor position fields Occupation For legibility we strongly advise splitting field specifications onto separate lines (which will be combined in the result) Related Person(s) Year of military class [Surname] [Given names] [Place of origin..Primary place name] [Date of incident] [Place of incident..Primary place name] **E**nlistment Served since **≡** Rank Regiment Place of origin **E**vidence Date of incident Illness **Test mask Type of incident** Place of incident select from records of this type (if any exist) ... \sim Mappable location (geospatial) **≡** War period Test Var Short summary SAVE MASK Cancel ΨΗΦΙΑΚΟ ΤΟΠΙΟ AOHNAN στις Ανθρωπιστικές Επιστήμες

Creating the title mask

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Two more fields with distinct properties: Time

Victim ID: 63 Αγγερέτας Μιχα	Temporal Object	×	Standard	×
Victim 🏠 Mod	Simple Date Simple Range Fuzzy Range Radiometric		ort	~
Year w For old Rank Στρατ Military	Circa / approximate			Record Summary
Regiment Military Place of origin Origin	hh or hh:mm or hh:mm:ss + for east (Europe,Africa,Asia) - for west (N & S America)			ummary
Evidence Type Date of incident Date of incident	Conjecture			
For old Illness Name	SAVE Cancel			
Type of incident Killed	Use calendar: Gregorian			
Place of incident Place Place				
Mappable location (geospatial)	F			
	1918 First World War ral classification of the incident			
Step 1	hrough filtered subset 3/323 Save then Dupe New Save + Close	Close	Drop Cl	nanges
	ΑΘΗΝΩΝ στις Ανθρωπιστικές Επιστήμες		Ελληνι	ΛΙΖ κό Ίδρυμα Έρε

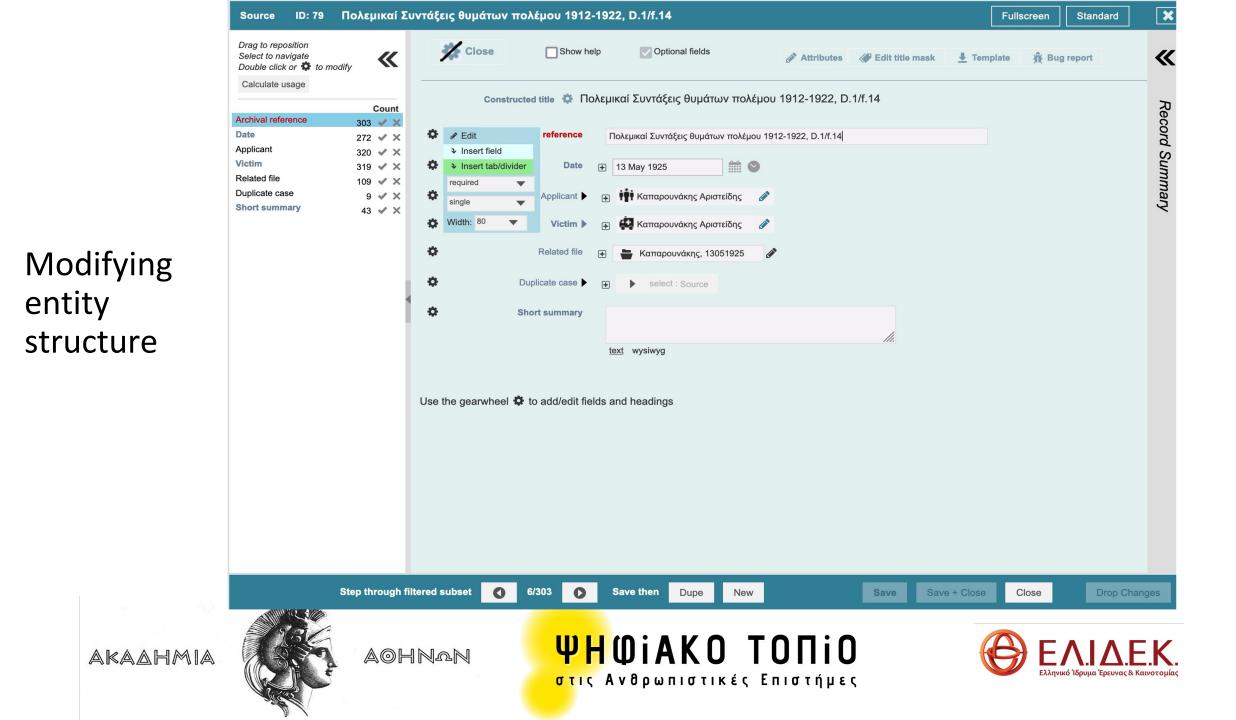
Two more fields with distinct properties: Place



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× ID: 66 Πολεμικαί Συντάξεις θυμάτων πολέμου 1912-1922, D.1/f.13 Fullscreen Standard Source **«** Source Show help Optional fields - Bug report Modify structure **Template** Constructed title 🔅 Πολεμικαί Συντάξεις θυμάτων πολέμου 1912-1922, D.1/f.13 Record Summary **Archival reference** Πολεμικαί Συντάξεις θυμάτων πολέμου 1912-1922, D.1/f.13 Date + ∓ 👬 Αγγερέτα Στυλιανή 🔗 Applicant > 👯 Αγγερέτας Μιχαήλ 🛛 🔗 Victim (+) ø Related file + -You will often return Duplicate case select : Source + to design mode to Short summary modify the structure text wysiwyg Step through filtered subset 0 0 5/303 Save then Dupe New Save Save + Close Close Drop Changes ΨΗΦΙΑΚΟ ΤΟΠΙΟ AKAAHMIA AOHNAN Ελληνικό Ίδρυμα Έρευνας & Καινοτς στις Ανθρωπιστικές Επιστήμες



Explore menu: Using filters

- A. Existing filters
- All (By date)
- Entities
- Saved filters
- B. Building filters
- Simple filter builder
- Facets builder

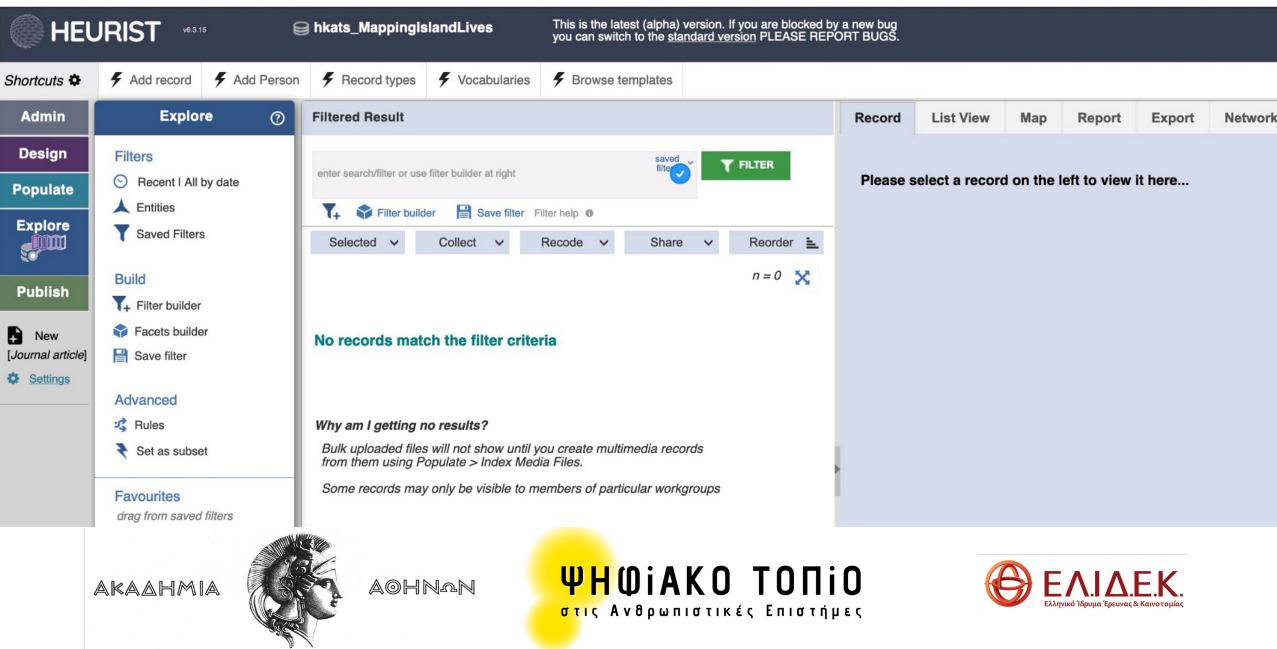


Explore menu: Results display

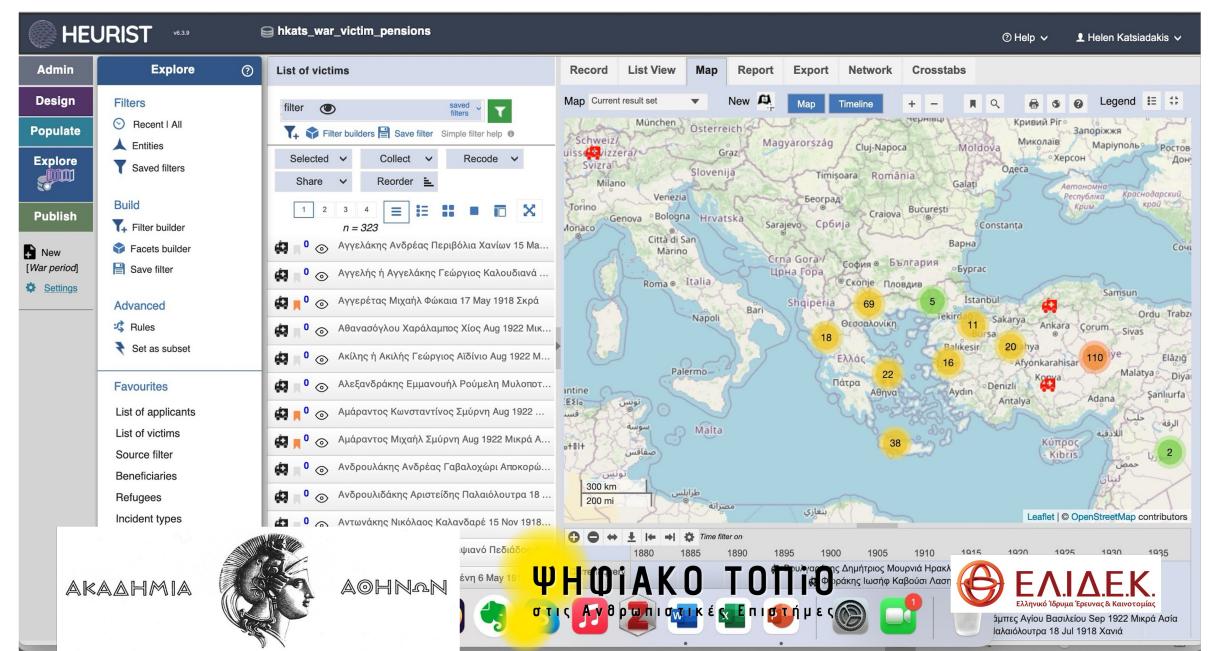
- Records display
- List
- Map and timeline display
- Report building
- Export
- Network
- Crosstabs



Heurist: Search I



Heurist: Search II



Where is my data?

A. Heurist is a web application installed on two servers (in Australia and France), accessible

- through most browsers (Chrome, Firefox, Safari)
- from many computers and by many users.
- It is upgraded automatically and centrally.
- It offers increased security specifications (backup/recovery, malware protection).

B. It is possible to install Heurist on another, e.g., institutional or commercial server, with all that this entails in terms of security, cost and maintenance.

C. A full backup can be downloaded to a local computer.



Just before moving to hands on

Support:

- <u>https://heuristnetwork.org/</u>
 - Tutorials
 - FAQ
 - Heurist Help System
- <u>https://heuristnetwork.org/community/</u>
 - Mailing list
 - User groups
- <u>https://heurist.readthedocs.io/en/latest/index.html</u>





HANDS ON: Exercise with pencil and paper - A

If you don't have a research subject, use the following example "Ibsen plays". Then Draw on paper these entities

and the relationships between them.

Birth date: 20 March 1828

Death date: 23 May 1906

Birth place: Skien

Death place: Oslo (Kristiania)

Play Name: Bygmester Solness

Composition date: 1890

1st performance date: 19 January 1893

1st performance place: München

Type of play: Drama

Characters:

Halvard Solness, master builder

Aline Solness, wife of Halvard

Doctor Herdal, physician

Knut Brovik, formerly an architect, now in Solness's employment

Ragnar Brovik, son of Knut Brovik, draftsman

Kaia Fosli, bookkeeper

Hilda Wangel, 23-year-old young girl





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HANDS ON I: Exercise with pencil and paper - B

If you have a specific research subject, select 3-4 entities with a few fields each. At this stage do not make your base more complex.

- Make a list of entities and main fields (not exhaustive).
- Include fields that create relationships and note their relationship types (record pointers, child records, record relationships)
- Include the target entities that these fields link to
- If you have a vocabulary, list some vocabulary terms as examples.
- Define the field types (text, date etc.) and the properties of these fields (single/ multiple)

Draw on paper these entities and the relationships between them.





Registration: https://heuristnetwork.org/

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A unique solution to the data management needs of Humanities researchers

HEURIST is a research-driven data management system that puts *you* in charge, allowing you to **design**, **populate**, **explore and publish** your own richly-structured database(s) within hours, through a simple web interface, without the need for programmers or consultants. We provide full support, including round-the clock email support, live workshops, online tutorials and access to a global network of Heurist users.

HEURIST is agile. You can **build a capable database and a CMS website in a matter of hours**, starting with a simple design and building incrementally as needs change, modifying the live database on-the-fly. Use our free servers, which support hundreds of projects and are centrally maintained. It is easy to migrate data in and out of Heurist, because of its standard, open-source design, and its ability import and export common data formats.

HEURIST is flexible. It can **effectively store**, **analyse and publish a wide variety of Humanities data**, whether you're a musicologist collecting songs, an archaeologist collecting objects, or a historian collecting events. HEURIST can handle everything: text, numbers, hierarchical classifications, images, video, spatial data and dates (including non-western and approximate dates). Rich relationships between records can be built with ease.

HEURIST gets results. You can **perform sophisticated filtering**, then **save**, **organise and publish the results** as interactive maps, timelines, network visualisations, cross-tabulations, lists, custom reports, and a range of export formats, all of which can easily be embedded live in a website created in Heurist's internal CMS, or in a personal or institutional website.

Designed **by** researchers, **for** researchers, Heurist reduces complex underlying decisions to simple, logical choices.

GET STARTED - Create a fully-functional, customisable online database >



Want to get started with Heurist? Try our

 $\textbf{Tutorials} \rightarrow$

Want to see how others use Heurist? See our

Featured Projects \rightarrow

Not sure what you need?

Contact Us \rightarrow

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uses at **no charge**. Databases created on this service can be

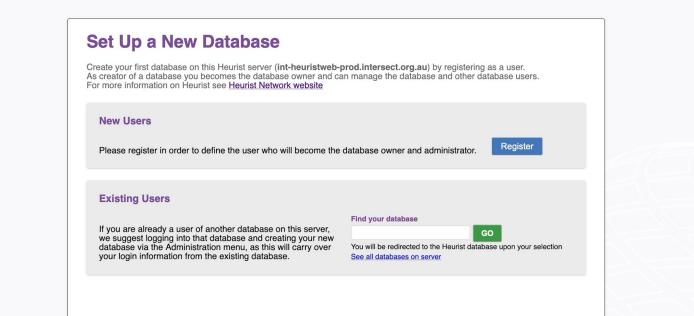




https://heurist.huma-num.fr/HEURIST/heurist/startup/



Designed by researchers, for researchers, Heurist reduces complex relational structures to simple, logical choices and provides comprehensive tools to collect, manage, analyse, visualise, export, publish and archive information. Heurist Network website



DATABASE NAME TEMPLATE

hdb_(name or initials)_(database name)



Using Heurist: Exercise 1

Design menu

1. Record types

Browse, select, and rearrange the groups.

Edit the record type **person** (edit fields):

Given names: make it a repeatable field

Person type (terms): Add a term to the vocabulary

View the properties of the fileds (Temporal, pointer fields, record relatioships, vocabularies)

Modify the position/ delete fields

Edit mask: Add another field to the title mask.

Repeat the same exercise with the record type **place**

1. Add record type

Give it a name and select a symbol

Follow the instructions

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Using Heurist: Exercise 2- Implementing your model

Begin with Design menu

Select one of the existing Record types and/ or create new ones according to your needs

Edit existing fields or add new ones.

Create the title mask for each record type.

If you created your database according to the example, the model should look like this:









Visualization



Using Heurist: Exercise 2- Implementing your model

Go to the Populate menu

And use the **New record** button

Select the record type for the new record(s) and add a few records. If necessary, select the **Modify structure** button to modify its structure. Pressing the **Save** button is mandatory. Saving is not automatic.

One of the record types you should chose should be **Place** in order to see how the **map digitizer** works.

From the **Explore menu** perform a few simple searches to see how the results appear in the result windows.





Happy experimenting

Thank you

Helen Katsiadakis

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