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# A synergistic approach to non-narrative historical sources. The database and digital edition of the Spängler household account books, 1733–1785

*The account books of the Salzburg merchant family Spängler from 1733 to 1785 – digital*, Reinhold Reith; Georg Stöger (ed.), 2020. <http://spaengler-haushaltsbuecher.at/> (Last Accessed: 21.07.2022). Reviewed by Werner Scheltjens (University of Bamberg), [werner.scheltjens@uni-bamberg.de](mailto:werner.scheltjens@uni-bamberg.de).



## Abstract

The household account books of the Salzburg merchant family Spängler cover an exceptionally long period and constitute a unique source for the history of consumption in Central Europe in the eighteenth century. This review assesses the diplomatic and database edition that was published by the University of Salzburg and partners in 2020. The review focuses on the synergies that the scholarly digital edition of the household account books aims to establish between the transcription of the books, a database for querying their contents, and a special section containing biographical entries about the actors registered in the books. The review shows where this combination of editing styles is fruitful, especially for non-narrative sources, and where there is scope for further improvements.

# Introduction

1 The [Account Books Spängler Online](#) (Ausgabenbücher Spängler Online, short: ASO; [Reith and Stöger 2020a](#)) are a digital edition of four private household accounts of the Salzburg cloth and silk merchant Franz Anton Spängler.<sup>1</sup> The books are part of the collections of the Salzburg City Archives and were kept by six family members of different generations ([Reith and Stöger 2022](#), 72-74). Reinhold Reith and Georg Stöger (both University of Salzburg) conceptualized, managed, and edited the digital edition of the ASO in collaboration with Luisa Pichler-Baumgartner, Maria Johanna Falkner, and Katharina Scharf ([Imprint](#)). The digital edition and the database that supports querying its contents were published online in June 2020. Reith, Stöger, and their colleagues have worked extensively on the Spängler family and the Salzburg merchant community before ([Reith et al. 2015](#); [Reith et al. 2016](#)). The Austrian Science Fund (FWF PUD 10) and some additional organizations funded the *in extenso* digital publication of the ASO, which was carried out in cooperation with the Salzburg City Archives. The technical implementation and design were outsourced to a Munich-based consulting company.<sup>2</sup>

2 The ASO pursue the synergistic combination of a full diplomatic transcription of the source with a (relational) database for querying and computing its contents. Their conceptualization differs from that of well-known forms of digital text editions. Rather than an index, commentary, and description, a database linked with the transcription provides the functionalities for exploring the account books. In so doing, the ASO are part of a tradition of publishing non-narrative historical sources online. Previous examples of digital editions organized in a similar way include the municipal account books of Basel ([Burghartz 2015](#); [Burghartz, Calvi, and Vogeler 2017](#)) and the (unfinished) digital edition of the account books of the Loitz merchant family of Stettin and Danzig ([Lipińska et al. 2019](#)). The ASO project associates itself loosely with the emerging methodological tradition of combining textual editing with a database but gives no details about its technical implementation. Since only few other projects in the realm of economic history have pursued the integration of a scholarly digital edition (SDE, in the ASO: '[Transcription](#)') with a relational database for querying its contents (here: '[Database](#)'), this is quite unfortunate. This review pays special attention to the interaction between transcription and database of the ASO and highlights the strengths, challenges, and weaknesses of this approach.

## Subject and content of the edition

3 The household account books document the daily expenses of members of the Spängler family in Salzburg. Their expenses cover a wide variety of topics, ranging from birthday presents for family members to wages paid to personnel, maintenance costs for carriages, expenditures for food supplies, and much more. The source offers much detailed information about the cost of living and wages earned in Salzburg during a significant part of the eighteenth century. Within the historiography of household account books, which took off in the 1970s ([Reith and Stöger 2022](#), 72-73), the ASO occupy an exceptional position. Covering more than 50 years from 1733 until 1785, they have a broader scope than earlier editions of private household account books in the German realm (for an overview see [Pichler-Baumgartner 2016](#)). They contribute a wealth of microdata to ongoing research about consumption patterns, household expenditures, and social and family relations – topics that are at the core of Reith and Stöger’s research (see e.g. [Reith et al. 2015](#); [Reith et al. 2016](#); [Stöger 2019](#); [Reith and Knapp 2021](#)). The ASO also stand out against the bulk of the known private household account books, which have their origins in the fifteenth and sixteenth centuries (see [Reith and Stöger 2022](#), 72-73; [Pichler-Baumgartner 2016](#), 63-77). Thus, the ASO make an important contribution to the history of consumption and everyday life in the eighteenth century ([Reith and Stöger 2022](#), 74).

4 The ASO publish the four household account books of the Spängler family. The first book (184 pp.; each scan is one page) covers the period from January 1733 to June 1750; the second book (186 pp.) runs from June 1750 until January 1761; the third (188 pp.) from January 1761 to January 1772 and the fourth (180 pp.) from January 1772 to May 1785. Each book was scanned from front to cover. Including the pages before the first bookkeeping entry, which are given a negative page number in the digital edition, the total number of scans is 754. The series is almost without gaps. The editors indicate only three brief interruptions after the death of each of Franz Anton Spängler’s three wives. According to the editors, the transcription and database contain about 21,000 bookkeeping entries. No sampling procedures have been applied. The introduction to the digital edition contains a general bibliography. Additionally, each of the biographical entries in the web application contains extensive references to literature, published and archival sources. For some of the biographical entries, portraits of the persons are included in the web application.

5 The ASO make the data accessible in three different ways, starting from the ‘[Transcription](#)’, the ‘[Database](#)’, or a comprehensive list of ‘[Persons](#)’ mentioned in the source. Alongside the ‘Introduction’, these are the main menu items on the homepage of the digital edition. The first section of the web application, ‘Transcription’, provides an enriched transcription of the ASO, which is flanked by scans of the original source. In the transcribed text, the names of persons are linked to biographical entries, which open in a pop-up window when clicked. The list of biographical entries, ‘Persons’, can be accessed separately as well and thus constitutes the second way of accessing the data in the ASO. A simple mouse-click queries the person against the database and immediately shows all mentions of this person in the database entries. The entries themselves provide links to the corresponding book/page in the ‘Transcription’ section. In addition to searches based on personal names, the ‘Database’ section also supports full-text search as well as list-based searches for the categories ‘mode of payment’, ‘type of service / occasion / object’, and ‘recipient’. The ‘Database’ section also supports queries based on date (from, to), value (min, max), and book/page. The latter can be used as a means to access specific pages in the transcription.

## Aims and Methods

6 The [introduction to the web application](#) and a recent publication clearly define the aims of the ASO ([Reith and Stöger 2022](#)). However, only two sections in the introduction (“About the text edition and the database” and “Edition guidelines”) contain information about the methods applied during the process. Most of the explanation deals with the database and the biographies of the persons mentioned in the account books.

vor die Mahlzeit extra außgeben	10
den <u>Mägd</u> zu ihrem Tag	4 15
1 Rauchs Heibl	2 40
für 4 hl. Messen lauth Quitung	1 36
fl 341: 13 1/4	
3 Xber vor 51 u Schmalz a xr 9	7 39
4 dito zur Hauß Nothwurf	20
6 dito der Frl. <u>Oxlin</u> zum Nicolo	2
11 dito zur Hauß Nothwurf	15
28 9ber annor(um) für Fracht ob 38 Emer Wein auß Cremsß a fl 3	114
18 Xber zur Hauß Nothwurf	19
23 dito für 20 u Kosten a xr 5 1/2	1 50
dito zur Hauß Nothwurf	30
dito der Khöchin vor das Herunt(er) Blindern Drinckhgelt	1
dito der Urßola Drinckhgelt	1 30
24 dito für Außsückhung der Naterin	16

Fig. 1: Screenshot of book 1, page 11.

7 About the transcription itself, it is said that “[t]he original sequence was retained in the text edition in order to document the structure, character and upkeep of these account books; that means, even crossouts (insofar as those struck words were legible) were reproduced, along with special characters and marginalia.” ([Reith and Stöger 2020b](#)) [Transcriptions](#) are displayed next to scans of the transcribed page (see [fig. 1](#)). Minor modifications were made to the transcribed text, mostly for the sake of legibility.<sup>3</sup> The original spelling was largely retained. The original spelling of the personal names in the account books has also been preserved in the transcription, but is linked to a uniform spelling of the person’s name in the ‘Persons’ section.

8 This example page highlights a few particularities of the transcription. First, strikethrough of the entire page is not added to the transcription, because it is visible on the scan. Second, entries that were crossed out in the account books are transcribed as well, but they are not marked as such in the transcription. Moreover, they are not included in the database to avoid incorrect calculations. Third, abbreviations are written in full, using parentheses to add the abbreviated parts of the word, e.g. annor => annor(um). For some words, the abbreviations were retained, the “Edition guidelines” indicate that “(...) [t]he abbreviations and spellings of Sa (for Summa), pr (for per) and zus (for zusammen, altogether) were retained in the transcription.” It is somewhat regrettable that legitimate concerns about the legibility of the transcription were not extended to the currencies and measures in the text. In the case of currencies, “(...) the standard units x (Kreuzer) and f (Gulden) were substituted by xr and fl to facilitate legibility.” ([Reith and Stöger 2020b](#)). Furthermore, as indicated in the section “Remarks about the currency and standard units”, “[p]ayments in ducats were marked with the abbreviation # [hashtag – W.S.] and the converted value (c. 5 fl) was recorded.” ([Reith and Stöger 2020b](#)) The sign used for the pound is u (u with strikethrough) (see [Introduction](#)). This was probably a pragmatic solution to avoid having to deal with the complex issue of the visualization of pre-modern signs for currencies and measures, for which – if at all – Unicode equivalents are only scarcely available, although the pound sign would not have posed any particular problems.

9 In contrast with other efforts to improve legibility and computability of the source, abbreviated measures are left untouched. The web application only provides a general description of its metric equivalents in the [introduction](#). Since the account books are a source for economic historians with an interest in the history of consumption, this is remarkable. Looking more closely at the weights and measures in the source, some

issues become apparent that have an impact beyond the realm of historical metrology. For example, one may wonder why ‘barrel’ (Fass) is not described in the section on weights and measures, although it appears prominently in the list of keywords.

book/page	date	day	month	transcription	gulden	kreuzer	value	writer	persons	places	mode of payment	type of service / occasion / object	recipient
1	11	1733-09-21		dem Wein Visierer	30	0.50	FAS				wage	wine, barrel	public service
1	21	1735-01-16		an <a href="#">Franz Rechperger</a> , Binder, zahle für Kellerarbeit und Vüßl Zurichtung dieß verflorsene Jahr	17	58	17.97	FAS	<a href="#">Rechperger, Franz</a>		wage	maintenance, barrel	crafts, cooper
1	34	1736-06-12	12	ditto für Wein abreichen zahle den Pinter	38	0.63	FAS				wage	wine, barrel	crafts, cooper
1	161	1748-12-22		für Weinsfuß Reperim	6	0.10	AES				wage	maintenance, barrel	crafts, cooper
2	5	1750-11-27	27	ditto für 1 Wein Füßl Reperim	12	0.20	AES				wage	wine, barrel	crafts, cooper
2	37	1753-01-11		zahle an <a href="#">Graf, Binter</a> , für Reparatur 2 Wein Vüßl	34	0.57	FAS	<a href="#">Graf, Joseph Anton</a>			wage	maintenance, barrel	crafts, cooper
2	44	1753-08-16		den Binder für Arbeit im Keller	18	0.30	AES				wage	wine, barrel	crafts, cooper
2	46	1753-12-13	13	bezahle an <a href="#">Joseph Anton Graf</a> , Vüßpinter, lauth Conto	39	0.65	FAS	<a href="#">Graf, Joseph Anton</a>			wage	barrel	crafts, cooper
2	74	1756-01-31		ditto vor ein Tröller Vüßl abzubinden	10	0.17	MTS				wage	barrel	crafts, cooper
2	92	1756-12-29		den Pinter für den Eißten Rauff	12	0.20	FAS				wage	barrel	crafts, cooper
2	98	1757-03-15	15	für ain Vüßl binden	20	0.33	MTS				wage	barrel	crafts, cooper
2	107	1757-10-18	18	bezahle an <a href="#">Pinter</a> Arbeit vor die Vasser ins Ostereich	2	10	2.17	MTS			wage	barrel	crafts, cooper

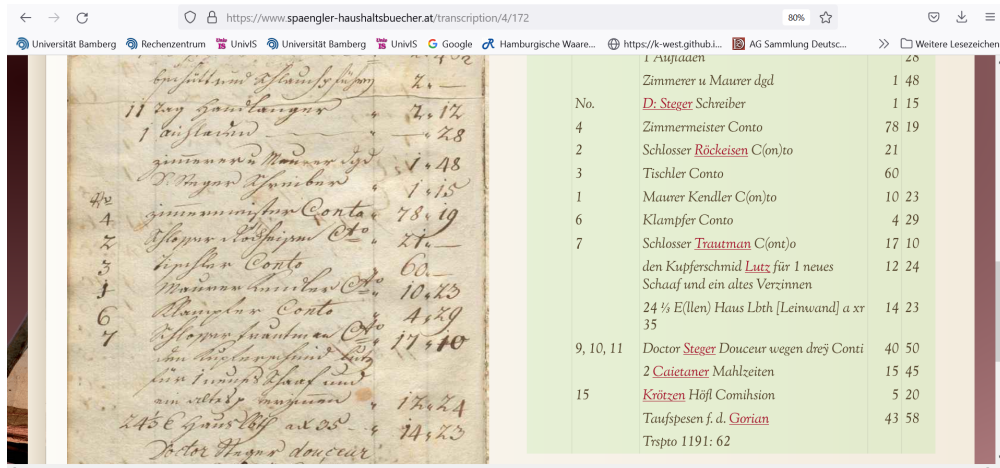
Fig. 2: Selection of query results for ‘barrel’ as ‘type of service / occasion / object’.

10 The answer is that, in many cases, the keyword ‘barrel’ was used to annotate wages paid to the cooper (see [fig. 2](#)). The next section deals with similar (minor) inconsistencies in more detail.

## Publication and presentation

11 The user interface is clear and intuitive. The main access methods of the scholarly digital edition correspond to the main sections of the web application. The interface is relatively easy to navigate as soon as the user understands how the different sections are interconnected. The names in the ‘[Transcription](#)’ are linked to a pop-up window with the corresponding information from the ‘[Persons](#)’ section. The names in the ‘Persons’ section are linked to the ‘[Database](#)’ section. In the ‘Database’ section, book and page info link to the ‘Transcription’ section, and a mouse-click on a person’s name in the ‘Transcription’ makes the corresponding biographical entry from the ‘Persons’ section pop-up on the screen.

## The 'Database' section



No.	Entry	Value
	Zimmerer u Maurer dgd	1 48
	D. Steger Schreiber	1 15
4	Zimmermeister Conto	78 19
2	Schlosser Röckelsen C(ont)to	21
3	Tischler Conto	60
1	Maurer Kendler C(ont)to	10 23
6	Klampfer Conto	4 29
7	Schlosser Trautman C(ont)to	17 10
	den Kupferschmid Lutz für 1 neues Schauf und ein altes Verzinnen	12 24
	24 1/2 E(l)len Haus Lbth [Leinwand] a xr 35	14 23
9, 10, 11	Doctor Steger Douceur wegen dreÿ Conti	40 50
	2 Caietaner Mahlzeiten	15 45
15	Krötzen Höfl Comihision	5 20
	Taufspesen f. d. Gorian	43 58
	Trispto 1191: 62	

Fig. 3: List numbers entered into the month field in book 4, page 172.

12 The 'Database' section permits full-text, keyword, person, date, value and book/page searches. The book/page search allows navigating to a specific page in one of the account books. The querying of dates is very helpful, but the option should be used with caution. Date queries are based on a calculated field that generates dates in the YYYY-MM-DD format. When information about day and or month of an entry is missing, the corresponding metadata field in the search result remains empty. Moreover, on some occasions, other information is entered into the 'month' field. On page 172 in book 4, for example, the month-column was used to add numbers to a list (see [fig. 3](#)). While this corresponds to the location of the numbers in the original, as can be seen on the scan, it is unfortunate that the project provides no information about such occurrences.

13 The value search allows to enter minimum and/or maximum values (with two decimals) to select expenses within a certain range, but caution is necessary, because "(...) [e]ntries lacking monetary quatntities [sic!] and pure text entries (forwarding entries or subtotals) are not part of the database." ([Reith and Stöger 2020b](#)). The full-text, keyword and person searches are discussed in more detail below.

place		transcription				meta-data							
book/page	date	day	month	item	gulden	kreuzer	value	writer	persons	places	mode of payment	type of service / occasion / object	recipient
1	12	1734-01-06	6	dito	den Schmißgefellen für Adlerlaß der Pfenit	21	0.35	FAS			wage	horse	crafts, blacksmith
1	15	1734-05-30	30	dito	denen Schmißgefellen für Adlerlaßung der Pfenit und Maubraumen	30	0.50	FAS			wage	horse	crafts, blacksmith
1	30	1735-12-26	26	dito	für Adlerlaß der 3 Pfenit	1	12	1.20	FAS		wage	horse	
1	47	1737-06-22			für Pfenit Adlerlaß	24	0.40	FAS	Mayr			horse	
3	95	1766-07-12			bezahle an Herrn Windt für Verzehrung des Pfenit und Gutscher von Pater Joseph	6	32	6.53	MTS	Wilhelmseder, Johann Mathias	Sternbräu, Salzburg	journey, provisions	crafts, inn-keeper
4	100	1778-10-26	26		für Herrn Osterer sein Pfenit auf der Trinck Stuben	3	55	3.92	MTS	Osterer, Johann Franz		drinking room	

Fig. 4: Screenshot of book 1, page 47.

14 The query results appear below the search mask and consist of three parts: ‘place’, ‘transcription’, and ‘meta-data’ (see [fig. 4](#)). The part ‘place’ contains information about the date of the entry and where it is found in the original source (book and page info). The date is a calculated field based on information about day and month in the transcription. Further query result fields subsumed in the part ‘transcription’ are the text of the entry and the amounts paid in *gulden* and *kreuzer*. These amounts form the basis for the first calculated field in the ‘meta-data’ part of the query results, called ‘value’. The second metadata field is that of the ‘writer’, which is followed by ‘persons’, ‘places’, ‘mode of payment’, ‘type of service / occasion / object’, and ‘recipient’. All metadata fields, except ‘writer’ and ‘places’, can be queried via the search mask. The metadata field ‘writer’ contains a three-letter abbreviation of the author of the entry. Six family members wrote in the account books. In the ‘transcription’ part of the query results, information about the writer of the entry is not processed further. The ‘Transcription’ section, however, uses background colours to differentiate between contributing family members. For each entry, a mouse-over displays the three-letter abbreviation of the family member’s name. For example, it allows to observe when and how the wives of Franz Anton Spängler (FAS) participated in bookkeeping.

15 *Full-text search* does not differentiate between lowercase and uppercase. It supports the use of percentage (%) and underscore (\_) wildcards to match any number of characters starting from zero (%) or exactly one character (\_). For example, ‘Schmid%ge\_elle’ returns 11 results, including ‘Schmidtgeselle’ and ‘Schmidtgebelle’, but also ‘Schmidt Geßelle’. Unfortunately, the website provides no information about the use of wildcards. Therefore, this functionality is easily overlooked. Full-text search

comprises the transcription as well as the metadata fields 'person' and 'places'. Most of the other metadata fields can only be searched via the keyword lists, in which the editors clearly invested a lot of time and effort. This means that the metadata term 'wine', which is a keyword listed in 'type of services / object / occasion' returns no results when used in a full-text search. However, since the German word for wine often occurs in the transcription, a full-text search for 'Wein' does indeed return 244 results. Given the extent of the keyword lists, it is useful to check if it already comprises your search term.

16 *Keyword search* is available for three categories: 'mode of payment', 'type of service / occasion / object', and 'recipient'. Via a link in the introduction, the full German-English [list of keywords](#) in these categories is available for download. Many keywords contain two levels separated by a comma in the downloadable list, e.g. 'wage, beer money' or 'education, newspaper'. To deal with these levels, the search mask provides two fields from which keywords can be chosen. When keyword data on the second level is available, the choices appear as a sub-list in the second field. In the opposite case, the second field in the search mask disappears. For the keyword 'wage' there are six second-level keywords ('beer money', 'bonus payment', 'annual wage', 'wage benefit for board', 'daily wages', 'gratuity'). For some reason, 'wage benefit for board' is also listed as a first-level keyword. Second-level keyword is clearly optional: of 5,690 entries with mode of payment 'wage', 285 have the second-level keyword 'annual wage', 151 'beer money', 48 'bonus payments', 356 'daily wages', 369 'gratuity' and 37 'wage benefit for board'. Note, however, that 'wage benefit for board' as first-level keyword generates 43 results.

place		transcription				meta-data						
book/page	date	day month	item	gulden	kreuzer	value	writer	persons	places	mode of payment	type of service / occasion / object	recipient
1	145	1747-09-25	2 n Mandl xv 22			44	0.73	AES			luxury food, almond	
1	148	1747-12-22	1 n Mandl			24	0.40	AES			luxury food, almond	
1	154	1748-05-09	für Zuger et Mandln	5	37 1/2	5.63	AES				luxury food, almond	
1	174	1749-11-13	für Mandln et Käken			40	0.67	AES			luxury food, almond	
1	176	1749-12-22	für Zueben, Mandln, Wein Berl, und Binelli	1	49	1.82	AES				luxury food, almond	
2	6	1750-12-17	1 n Mandl			20	0.33	AES			luxury food, almond	
2	21	1751-12-21	1 n Mandl			20	0.33	AES			luxury food, almond	
2	33	1752-09-29	29 dito für 6 n Mandln xv 20			2	2.00	AES			luxury food, almond	
2	47	1753-12-23	für 1 n Mandl			20	0.33	FAS			luxury food, almond	
2	58	1754-12-24	1 n Mandl			18	0.30	FAS	Hagenauer, Johann Lorenz		luxury food, almond	commerce, merchant
2	175	1760-10-06	3 1/2 n Mandln xv 25			1	27	1.45	MTS		luxury food, almond	
3	52	1763-12-22	für 1/2 n Mandlbücht			30	0.50	MTS			luxury food, almond	
3	68	1764-12-16	1 n Mandl x			22	0.37	MTS			luxury food, almond	

Fig. 5: Query results for 'luxury food, almond' as 'type of service / occasion / object'.

ID	Date	Description	Quantity	Price	Category
1 155	1748-06-13	für 1 Zugerhuert	3	3.00 AES	luxury food, sugar
1 156	1748-07-09	für 1 Zugerhuert et 1 m Coffe	4 32 1/2	4.54 AES	luxury food, sugar
1 158	1748-09-28	für 2 Huert Zuger et Guirtz den Hrn Franciscanern I C	10 46	10.77 AES	luxury food, sugar; clergy, Franciscans
1 165	1749-02-21	21 Februari für 10 1/2 m Zuger xx 37	6 28	6.47 AES	luxury food, sugar
1 169	1749-06-21	für Zuger et Mandln	2 31	2.52 AES	luxury food, sugar
1 170	1749-07-15	für 4 m Zuger xx 35	2 20	2.33 AES	luxury food, sugar
1 172	1749-09-18	für 1 m Zuger	36	0.60 AES	luxury food, sugar
1 172	1749-10-05	für Zuger Caffee et Pfeffer I. C.	11 4 1/2	11.08 AES	luxury food, sugar
1 176	1750-01-04	für 5 m Zuger xx 34	2 54	2.90 AES	luxury food, sugar
1 179	1750-02-06	6 Februari 6 1/2 m Zuger Huert xx 34	3 28	3.47 AES	luxury food, sugar
1 179	1750-02-24	5 1/4 m Zuger xx 32	2 48	2.80 AES	luxury food, sugar
1 182	1750-06-06	für 1 Zuger Huert	3 6	3.10 AES	luxury food, sugar
2 2	1750-08-09	1 m Zuger	32	0.53 AES	luxury food, sugar
2 4	1750-10-04	11 1/4 m Zuger xx 30	5 37 1/2	5.63 AES	luxury food, sugar
2 9	1751-02-03	für 1 m Zuckher	30	0.50 AES	luxury food, sugar
2 10	1751-02-11	für 5 1/4 m Zuckher xx 30	2 52 1/2	2.88 AES	luxury food, sugar
2 18	1751-09-28	für 11 1/2 m Zuger xx 30	5 45	5.75 AES	luxury food, sugar
2 24	1752-02-02	für 1 Zuckherhuert, Coffe & Fischbain	4 27	4.45 AES	luxury food, sugar

Fig. 6: Query results for 'luxury food, sugar' as 'type of service / occasion / object'.

17 The list of keywords for the category 'kind [i.e. mode] of payment' (*Ger.* Art der Zahlung) consists of 16 first- and second-level keywords; the 'recipient' list categorizes the recipients of the payments and contains 128 first- and second-level keywords. Finally, the 'type of service / occasion / object' list specifies the different kinds of payments in the account books. There are 285 (!) first- and second-level keywords in this list. Sometimes, first-level keywords also appear as second-level keywords, e.g. 'animal' is a first-level keyword, but also a second-level keyword to 'house'; 'barrel' is a first-level keyword, but also a second-level keyword to 'maintenance'; 'food' is a first-level keyword that returns 4,031 entries, but as a secondary keyword to 'transport' it only returns two entries. Both the issue with first- and second-level keywords and the length and detail of the keyword list itself have an impact on the use of the keyword lists. It is not always clear what to expect in each category. It is hard to obtain a clear view of the contents of the database based on keyword searches. Some of the categories in the 'type of service / occasion / object' list are very small; others are very large. The keyword 'clothing', for example, has 1,855 entries, 'cleaning' has 1,236 and 'education' has 874. The decisions made for including an entry into a certain category are not always clear; sometimes they are doubtful. For English speakers, it is not helpful that the full list of keywords (provided as pdf) is in the alphabetical order of the German keywords. Some of the English translations seem to be a bit artificial (e.g. spicery goods for the German 'Spezereiware') and some keywords seem to overlap (e.g. spice and spicery goods). If more than one commodity was listed in the same entry, only one (not necessarily the first) is referenced with a keyword. This leads to more minor inconsistencies in the database. For example, it is unclear why the entry in book one page 154 'für Zuger et Mandln' (*Eng.* for sugar and almonds) is categorized under 'luxury food, almond' rather than 'luxury food, sugar'

(see [fig. 5](#)), whereas in book one page 169, an entry with the exact same wording is categorized as 'luxury food, sugar' (see [fig. 6](#)).

18 One very large category is 'food'. It comprises 7,271 entries. The first-level category food has 24 second-level keywords – from baked goods, beer and bread to vegetables, vinegar and wine. As before, the categorization may be a bit misleading at first. Many of the entries that are categorized as 'food, baked goods' document the payment of wage supplements or gratuities (*Ger. Trinkgeld*) to the baking personnel ('recipient' = 'servants'). The search mask does not facilitate excluding certain categories from the query. However, when putting the query results in descending order, which is a functionality that is offered for almost all fields in the display of query results, it is possible to separate a list of actual 'baked goods' from the remaining entries. Further processing is easier in an Excel sheet containing the query results, which can be downloaded from the database section.

## The 'Persons' section

19 The '[Persons](#)' section is an essential part of the ASO. According to the editors, it "(...) lists over 500 individuals and families [and] (...) provides information for local research as well." ([Reith and Stöger 2022](#)). The 'Persons' section adds much value to the database. Even 'unknown' persons are included. Wherever possible, the scarce information in the account books is used to describe their identity. For other, better-known persons, extensive biographical entries including a number of portraits are provided, which are accessible from the 'Transcription' and 'Database' sections as well. The 'Persons' section links to the 'Database' section. When clicking on the name of a person in the alphabetical list of biographical entries, this full name is copied into the field 'persons' in the 'Database' section, where it matches with the person's metadata. Although this is an excellent way to explore and query the database, there are a few issues with its implementation in the ASO. For several persons in the 'Persons' section, the database query returns no results. Vice versa, for quite a few names in the Excel download of the database (more on downloading below), no corresponding entries were found in the 'Persons' section. A few explanations could be found for these inconsistencies.

20 Where persons were found in the 'persons' metadata of the 'Database', but not in the 'Persons' section of the web application, the reasons are either the person being unknown or occurring rarely. A systematic comparison of the Excel downloads of

(almost) the entire database with the alphabetical list of 'persons' revealed the names of 89 persons that registered in the database with their metadata, but for which no corresponding biographical entry could be found in the 'Persons' section. For example, the Excel download contains one entry concerning 'Graßpointner, Mathias'. The 'Persons' section, however, lists 'Großpointner, Mathias' and does not find the other entry for which the metadata are different. Often, minor inconsistencies in the spelling of names lead to such non-matches. Another example is that of Maria Theresia Obenaus, who is found with 'persons' metadata in the database, but has no corresponding entry in the 'Persons' section (neither is her name linked in the 'Transcription'). These entries in the account books do not appear in the query results, when the 'Persons' section is taken as starting point.

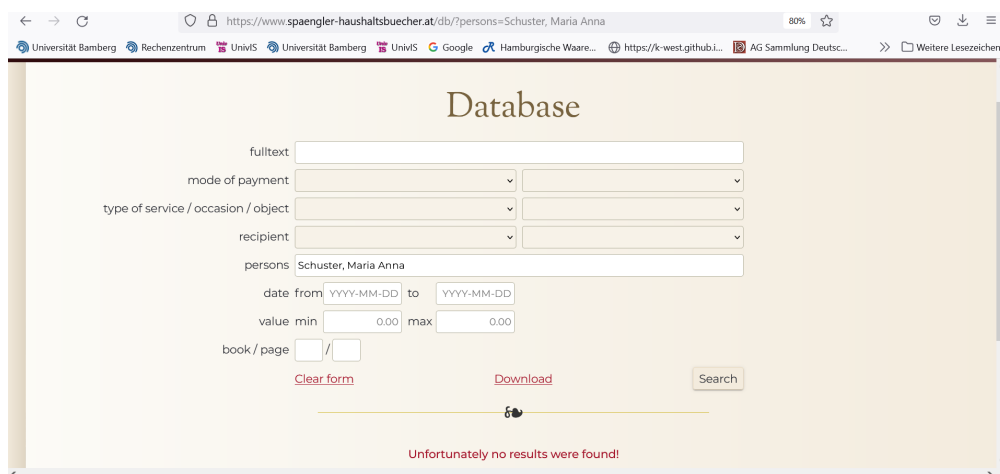


Fig. 7: Query result for 'Schuster, Maria Anna', a person with a biographical entry in the 'Persons' section, but no corresponding entries in the database.

21 For persons that have a biographical entry in the 'Persons' section, but no corresponding entries in the database, two explanations could be found. Sometimes, this person is related to someone that occurs in the database. For example, three persons named 'Schuster' have biographical entries: Maria Anna, Anna Theresia, and Martin. Only Anna Theresia has corresponding entries in the database; for the other names, a query yields no results (see [fig. 7](#)).

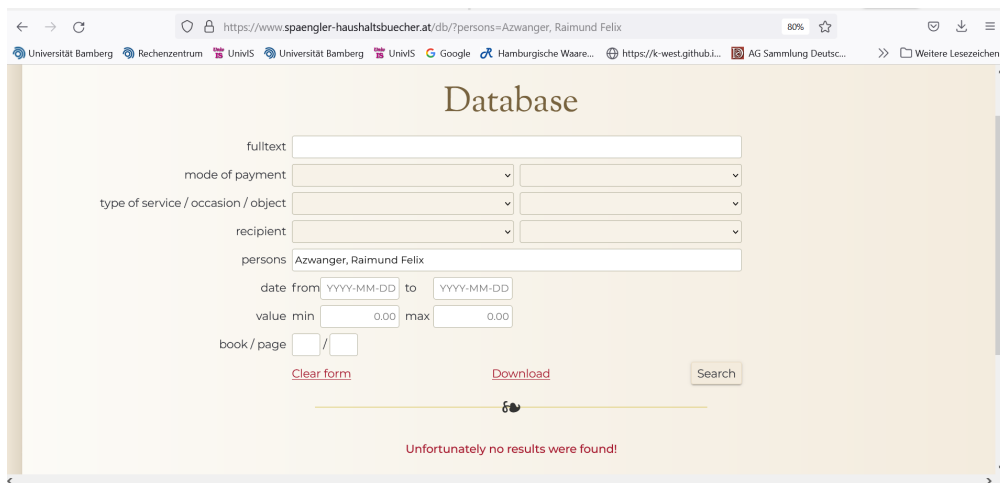


Fig. 8: Query result for 'Azwanger, Raimund Felix', a person with biographical entry in the 'Persons' section, but no corresponding entries in the database.

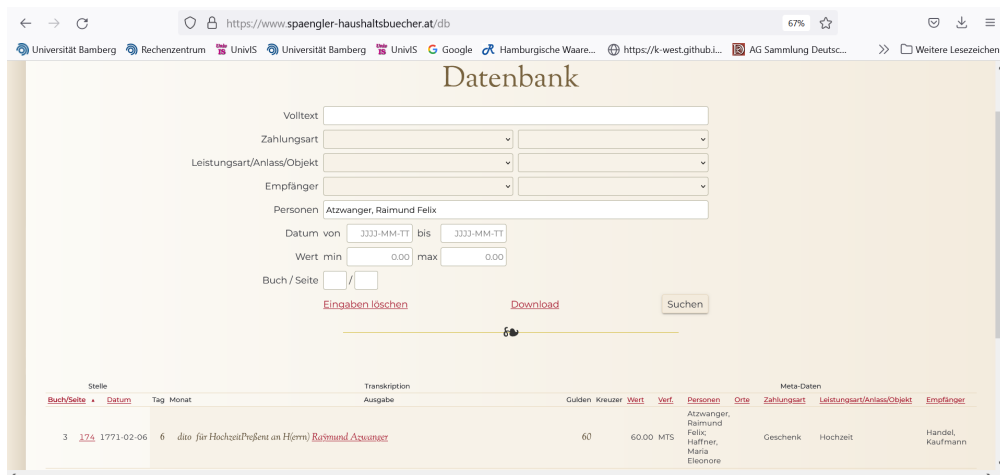


Fig. 9: Query result for 'Atzwanger, Raimund Felix', a person with inconsistent metadata in the database.

22 Rather often, spelling inconsistencies in the person metadata field in the database result in an error message. For example, no corresponding entries are found in the database for 'Azwanger, Raimund Felix', because a slightly different spelling of his surname (Atzwanger) was used in the person's metadata (see [fig. 8](#) and [9](#)). A systematic survey of all names in the 'Person' section revealed that in 38 cases, the link to the database yields no results.

## Download options

23 The web application does not contain any technical interfaces. Download options have some limitations. It is impossible to download the entire database directly; the number of entries that can be downloaded at once is topped off at 5,000. Moreover, in

the English version of the website the download option only works when at least some data is entered in the search mask, for example book and page numbers, or dates. With some limitations (not every entry has a date), the date can be used as a means for downloading (almost) the entire database in a few steps. Query results can be downloaded as Excel files that contain all the items in the database display. The Excel sheet also contains an extra field containing the number of the scan and one containing the row number of the entry. The number of the scan is preceded by a letter indicating the book (a = 1, b = 2, c = 3, d = 4). Row numbers continue across the different account books, starting with 1 for the first row of book 1 and ending with 22,951 for the last row of book 4. Since rows without values are not included in the database (see [Introduction](#)), the Excel sheet contains 21,146 rows. Scans can be downloaded one by one from the web application, but the quality is not high (96 x 96 dpi). No information is given about the rights and restrictions for the reuse of text and images downloaded from the website.

## Conclusions

24 The ASO follow a digital paradigm and can be considered a scholarly digital edition. The ASO combine a diplomatic with a database edition to improve the analysis of the source from the perspective of the history of consumption. The editorial guidelines are rather concise, but offer enough information about the transcription of the account books. More in-depth information about the structure and functions of the database, on the other hand, would have been helpful.

25 A major strength of the ASO is its clear and intuitive structure that makes it easy to explore the source from a variety of perspectives. Despite its inconsistencies, the 'Persons' section, which provides additional biographical information about many people in the account books, is a major asset of the work. The way in which the transcription and database sections of the web application are connected, has its limitations, but the merits clearly prevail. The ASO provide an excellent example of how relatively straightforward digital techniques, such as the use of hyperlinks, are leveraged to the benefit of a synergistic digital edition. This method could be useful for other non-narrative sources besides the household account books. Therefore, it is unfortunate that the ASO remain silent about the technical side of the project.

26 Since its editors embed their work primarily in German-language historiography, there is much scope for future research with the ASO. For example, it would be interesting to compare the format and contents of the ASO with examples of household

books in, for example, Great Britain. At first sight, it seems that eighteenth-century household books are quite common in British historiography. Researchers have used them to discuss consumer behavior, but also to examine changes in fashion in the eighteenth century ([Garry 2016](#)), the role of second-hand markets in private households, and issues of masculinity and the image of women ([Vickery 2006](#); [Harvey 2012](#)). The ASO open doors for comparative analyses on these and related topics. Given the obvious value of the source, its methods and web application, it would be recommended for the editors to get rid of the minor inconsistencies in the application, especially in the ‘Persons’ section, and to publish information about the technologies used for preparing and publishing this fascinating digital edition.

## Notes

[1.](#) Note that the name of the website says ‘Haushaltsbücher’, whereas the descriptive title of the website specifies that we are dealing with ‘Ausgabenbücher’, in which only expenses were recorded. In English, the distinction disappears and the source is described as ‘(household) account books’.

[2.](#) Insofar as this can be inferred from the web application itself, the technologies used for presenting the content on the web are CSS and JavaScript. The backend technology used for the different sections of the web application – ‘transcription’, ‘database’, and ‘persons’ – is not specified.

[3.](#) The editors indicate that “[t]he addition of punctuation and completions of shortened declinations, articles and word endings as well as consonants (indicated in the original as a double underlining) were made without comment for the sake of better fluency.” ([Introduction](#)).

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# Factsheet

Resource reviewed	
<b>Title</b>	The account books of the Salzburg merchant family Spängler from 1733 to 1785 – digital
<b>Editors</b>	Reinhold Reith; Georg Stöger
<b>URI</b>	<a href="http://spaengler-haushaltsbuecher.at/">http://spaengler-haushaltsbuecher.at/</a>
<b>Publication Date</b>	2020
<b>Date of last access</b>	21.07.2022

Reviewer	
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Documentation		
<b>Bibliographic description</b>	Is it easily possible to describe the project bibliographically along the schema "responsible editors, publishing/hosting institution, year(s) of publishing"? (cf. <a href="#">Catalogue 1.2</a> )	yes
<b>Contributors</b>	Are the contributors (editors, institutions, associates) of the project fully documented? (cf. <a href="#">Catalogue 1.4</a> )	yes
<b>Contacts</b>	Does the project list contact persons? (cf. <a href="#">Catalogue 1.5</a> )	yes
<b>Selection</b>	Is the selection of materials of the project explicitly documented? (cf. <a href="#">Catalogue 2.1</a> )	yes
<b>Reasonability of the selection</b>	Is the selection by and large reasonable? (cf. <a href="#">Catalogue 2.1</a> )	yes
<b>Archiving of data</b>	Does the documentation include information about the long term sustainability of the basic data (archiving of the data)? (cf. <a href="#">Catalogue 4.16</a> )	yes

<b>Aims</b>	Are the aims and purposes of the project explicitly documented? (cf. <a href="#">Catalogue 3.1</a> )	yes
<b>Methods</b>	Are the methods employed in the project explicitly documented? (cf. <a href="#">Catalogue 3.1</a> )	yes
<b>Data model</b>	Does the project document which data model (e.g. TEI) has been used and for what reason? (cf. <a href="#">Catalogue 3.7</a> )	no
<b>Help</b>	Does the project offer help texts concerning the use of the project? (cf. <a href="#">Catalogue 4.15</a> )	no
<b>Citation</b>	Does the project supply citation guidelines (i.e. how to cite the project or a part of it)? (cf. <a href="#">Catalogue 4.8</a> )	yes
<b>Completion</b>	Does the edition regard itself as a completed project (i.e. not promise further modifications and additions)? (cf. <a href="#">Catalogue 4.16</a> )	yes
<b>Institutional curation</b>	Does the project provide information about institutional support for the curation and sustainability of the project? (cf. <a href="#">Catalogue 4.16</a> )	no
<b>Contents</b>		
<b>Previous edition</b>	Has the material been previously edited (in print or digitally)? (cf. <a href="#">Catalogue 2.2</a> )	no
<b>Materials used</b>	Does the edition make use of these previous editions? (cf. <a href="#">Catalogue 2.2</a> )	not applicable
<b>Introduction</b>	Does the project offer an introduction to the subject-matter (the author(s), the work, its history, the theme, etc.) of the project? (cf. <a href="#">Catalogue 4.15</a> )	yes
<b>Bibliography</b>	Does the project offer a bibliography? (cf. <a href="#">Catalogue 2.3</a> )	yes
<b>Commentary</b>	Does the project offer a scholarly commentary (e.g. notes on unclear passages, interpretation, etc.)? (cf. <a href="#">Catalogue 2.3</a> )	no
<b>Contexts</b>	Does the project include or link to external resources with contextual material? (cf. <a href="#">Catalogue 2.3</a> )	yes

<b>Images</b>	Does the project offer images of digitised sources? (cf. <a href="#">Catalogue 2.3</a> )	yes
<b>Image quality</b>	Does the project offer images of an acceptable quality? (cf. <a href="#">Catalogue 4.6</a> )	no
<b>Transcriptions</b>	Is the text fully transcribed? (cf. <a href="#">Catalogue 2.3</a> )	yes
<b>Text quality</b>	Does the project offer texts of an acceptable quality (typos, errors, etc.)? (cf. <a href="#">Catalogue 4.6</a> )	yes
<b>Indices</b>	Does the project feature compilations indices, registers or visualisations that offer alternative ways to access the material? (cf. <a href="#">Catalogue 4.5</a> )	yes
<b>Types of documents</b>	Which kinds of documents are at the basis of the project? (cf. <a href="#">Catalogue 1.3</a> and <a href="#">2.1</a> )	Single manuscript, Other: Account Books
<b>Document era</b>	What era(s) do the documents belong to? (cf. <a href="#">Catalogue 1.3</a> and <a href="#">2.1</a> )	Early modern
<b>Subject</b>	Which perspective(s) do the editors take towards the edited material? How can the edition be classified in general terms? (cf. <a href="#">Catalogue 1.3</a> )	History, Other: Economic History
<b>Spin-Offs</b>	Does the project offer any spin-offs? (cf. <a href="#">Catalogue 4.11</a> )	None
<b>Access modes</b>		
<b>Browse by</b>	By which categories does the project offer to browse the contents? (cf. <a href="#">Catalogue 4.3</a> )	Pages, Persons, Other: Database
<b>Simple search</b>	Does the project offer a simple search? (cf. <a href="#">Catalogue 4.4</a> )	yes
<b>Advanced search</b>	Does the project offer an advanced search? (cf. <a href="#">Catalogue 4.4</a> )	no
<b>Wildcard search</b>	Does the search support the use of wildcards? (cf. <a href="#">Catalogue 4.4</a> )	no
<b>Index</b>	Does the search offer an index of the searched field? (cf. <a href="#">Catalogue 4.4</a> )	yes
<b>Suggest functionalities</b>	Does the search offer autocompletion or suggest functionalities? (cf. <a href="#">Catalogue 4.4</a> )	no

<b>Help texts</b>	Does the project offer help texts for the search? (cf. <a href="#">Catalogue 4.4</a> )	no
<b>Aims and methods</b>		
<b>Audience</b>	Who is the intended audience of the project? (cf. <a href="#">Catalogue 3.3</a> )	Scholars, Interested public
<b>Typology</b>	Which type fits best for the reviewed project? (cf. <a href="#">Catalogue 3.3</a> and <a href="#">5.1</a> )	Other: Combination of database and diplomatic edition
<b>Critical editing</b>	In how far is the text critically edited? (cf. <a href="#">Catalogue 3.6</a> )	Other: Categorization of data items
<b>XML</b>	Is the data encoded in XML? (cf. <a href="#">Catalogue 3.7</a> )	no
<b>Standardized data model</b>	Is the project employing a standardized data model (e.g. TEI)? (cf. <a href="#">Catalogue 3.7</a> )	yes
<b>Types of text</b>	Which kinds or forms of text are presented? (cf. <a href="#">Catalogue 3.5.</a> )	Diplomatic transcription, Semantic data
<b>Technical accessibility</b>		
<b>Persistent identification</b>	Are there persistent identifiers and an addressing system for the edition and/or parts/objects of it and which mechanism is used to that end? (cf. <a href="#">Catalogue 4.8</a> )	Persistent URLs
<b>Interfaces</b>	Are there technical interfaces like OAI-PMH, REST etc., which allow the reuse of the data of the project in other contexts? (cf. <a href="#">Catalogue 4.9</a> )	None
<b>Open Access</b>	Is the edition Open Access?	yes
<b>Accessibility of the basic data</b>	Is the basic data (e.g. the XML) of the project accessible for each part of the edition (e.g. for a page)? (cf. <a href="#">Catalogue 4.12</a> )	yes
<b>Download</b>	Can the entire raw data of the project be downloaded (as a whole)? (cf. <a href="#">Catalogue 4.9</a> )	no
<b>Reuse</b>	Can you use the data with other tools useful for this kind of content? (cf. <a href="#">Catalogue 4.9</a> )	yes
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<b>Advisors</b>	Kramml, Peter F.	
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