

An Interim Report on the Editorial and Analytical Work of the AnonymClassic Project

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In this collective article, members of the AnonymClassic project discuss various aspects of their work on the textual tradition *Kalīla and Dimna*.³ Beatrice Gruendler provides a general introduction to the questions being considered. This is followed by a number of short essays in specific areas, organized into three categories: codicology, literary history and theory, and the digital infrastructure of the project. Jan J. van Ginkel summarizes the challenges involved in editing the Syriac versions of *Kalīla and Dimna*; Rima Redwan explains the AnonymClassic team's approach vis-à-vis the transcription and textual segmentation of Arabic manuscripts; Khoulood Khalfallah follows this with an overview of the types of data that are recorded for each codex that is integrated into the project; Beatrice Gruendler, in a second contribution, shares some preliminary results from the analysis of interrelationships among manuscripts; and Rima Redwan, also in a second contribution, discusses the sets of illustrations, or »image cycles«, that are found in many copies of *Kalīla wa-Dimna*. Moving into the realm of literary history and theory, Isabel Toral poses a range of questions relating to the status of *Kalīla and Dimna*, as (arguably) anonymous in authorship and as a fundamentally *translated* book; Johannes Stephan explores the references to *Kalīla wa-Dimna* found in various medieval Arabic scholarly works; and Matthew L. Keegan confronts the problem of the genre(s) to

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which *Kalīla wa-Dimna* might be assigned and the exceptional »promiscuity« of the text. The last section of the article, on digital infrastructure, contains two contributions: Theodore S. Beers describes a web application that the team has created to facilitate the consultation of published versions of *Kalīla and Dimna*, and, finally, Mahmoud Kozae and Marwa M. Ahmed offer a more comprehensive discussion of the digital tools and methods – specialized and in some cases developed »in-house« – on which the AnonymClassic project relies.

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Introduction – Beatrice Gruendler

Kalīla and Dimna ranks among both the most fascinating and the most elusive works in Arabic literature.⁴ Its enormous spread, being rewritten, versified, and translated in over forty languages (not only major ones but also outliers like Icelandic, Hungarian, and Madurese) in an area stretching from Spain to Malaysia, between the eighth and nineteenth centuries, makes it truly a work of global literature.

Important stations in this textual journey were its Sanskrit sources (the *Panchatantra*, the *Mahābhārata*, and others, c. 300 CE); the first (lost) redaction to Middle Persian (i.e., Pahlavi, c. 550 CE); the translation into Syriac (probably around the end of the sixth century) and Arabic (c. 750 CE); and the propagation from Arabic to other languages, beginning with Greek, Persian, Hebrew, Latin, and Old Castilian (eleventh to thirteenth centuries).

These translations were often creative recompositions, notably in Persian (which saw multiple famous versions) and in Ottoman Turkish, carried out by well-known translators. The Persian *Anvār-i suhaylī* (late fifteenth century) and the Ottoman *Humāyūn-nāme* (sixteenth century) are recognized as classics in their own right.

The Arabic version, or rather versions, became the sources of all later translations, but complete manuscripts exist only since the thirteenth century. Within a few generations after it was translated into Arabic, the work curiously falls apart in transmission,⁵ which makes it necessary to rely for a half millennium of the textual history (eighth to thirteenth centuries) on indirect transmission and early translations.

Beyond the cosmopolitan dissemination of *Kalīla wa-Dimna*, it is in many ways unique within the Arabic tradition. First, it is the earliest extant work of overt prose fiction in high literature, unlike other early fiction in Arabic (much of it lost) that was perceived as popular literature. Second, it has (at least) two layers of meaning: while outwardly presented as a »mirror for princes«, it is told in the form of fables, which require analogical decoding. Third, it also displays a sophisticated framing system, with up to five levels of narration down to very small units (*amthāl*, or analogical images, and *ḥikam*, or wisdom sayings). As such, it functioned as a modular system, whose elements could easily be substituted in iterative processes of cultural translation. In the course of its history in Arabic literature, this work became a popular »house book« on ethics and practical philosophy (and, in modernity, a children's book and schoolbook).⁶ This versatility made the text eminently adaptable, and it provided a source for quotations and entertaining tales that were culled from it and recast in smaller collections from the tenth century CE onward, surviving today in oral retelling.

4 Throughout this article, the work is referred to as *Kalīla and Dimna* in broader contexts, and *Kalīla wa-Dimna* when the focus is on Arabic versions. Our romanization of Arabic terms generally follows the system of the *International Journal of Middle East Studies*; and most dates are given in both the Islamic (AH) and the Julian/Gregorian (CE) calendars.

5 For a brief outline of the history of this text in the early period, see part II, the section by Johannes Stephan.

6 In other literatures (e.g., in Persian), its status could be quite different and change over the course of time.

Finally, *Kalīla wa-Dimna* is one of the first Arabic books, full stop. And it contains self-reflective passages about what it means to read a book – namely critically, searching for the deeper meaning, and then applying the acquired knowledge in real life. The text demonstrably invited interference by those who dealt with it. Being a book of wisdom and a guide to ethics and practical intelligence, it spoke to élites and commoners, adults and children. Through its (often graphic) substories it is also eminently entertaining. (One of our associate projects is to create, based on our research, a teaching tool for the Arabic language.) These many facets have been part of the book since its inception, making it irreducible to one »message«. Nor can it be assigned to one genre; rather, it shares traits with several.⁷

Goals and Methods

Much research on the Arabic *Kalīla wa-Dimna* came to a grinding halt in the early decades of the last century – even as versions of the work in some other languages were being published and studied.⁸ A critical edition was never completed. The present project focuses on the Arabic versions, as among the least researched, most problematic, and also most urgent, since these served as the basis for all later versions.

The foremost obstacle is the text's *mouvance*, which takes place in writing and precludes a traditional stemmatic reconstruction. The so-called copyists (named or anonymous) rewrote the text in gradual or drastic ways and are *de facto* redactors – though they did not acknowledge their interference – as they acted not unlike those who versified or translated the work. In the course of the book's textual history, they overwrote the Arabic translator-redactor Ibn al-Muqaffa' (d. c. 139/757), so that *Kalīla wa-Dimna* is a classic, but its authorship has effectively become anonymous.⁹

The project's goal is to document the text's motions, and not to attempt any sort of (ahistorical) reconstruction of a putative original – made impossible by a half-millennium interval between the composition (eighth century) and the earliest extant manuscripts (thirteenth century), and by their great variety from that point onward. This task is accomplished through a comprehensive gathering of data from all Arabic manuscripts, a more selective digitization and analysis thereof,¹⁰ the comparative display of manuscripts in a digital infrastructure,¹¹ and studies of the text's salient aspects.¹² The manuscripts convey not only the movement of the text itself, its changes, cuts and additions,¹³ and the text's interaction with illustrations,¹⁴ but their paratexts also reveal much about the work's targeted readership and reception, including the spotty information culled from literary sources about the »dark«

7 On this point, see part II, the section by Matthew L. Keegan.

8 The project has gathered a substantial and growing number of these published versions. See part III, the section by Theodore S. Beers.

9 For a further discussion of these aspects (anonymity, authorship, and literary status), see part II, the section by Isabel Toral.

10 Our processes of manuscript transcription and analysis are described in part I, the sections by Rima Redwan and Khoulood Khalfallah, respectively.

11 On the software being adapted and developed for the project, see part III, the section by Mahmoud Kozae and Marwa M. Ahmed.

12 Some of the literary questions that we investigate are discussed in part II, the sections by Isabel Toral, Johannes Stephan, and Matthew L. Keegan, respectively.

13 See, for example, the review of the issues of *continua* and *cross-copying* in part I, the section by Beatrice Gruendler.

14 On image cycles in *Kalīla wa-Dimna* manuscripts, see part I, the second section by Rima Redwan.

phase before the appearance of complete manuscripts.¹⁵ The information gained from the manuscripts allows further observation of (a) the oscillation of the language between Classical Arabic and Middle Arabic (a hybrid language with its own features); (b) the agency of the so-called copyists, unacknowledged but visible in their interference in the text, as well as in paratexts, including tables of contents, not to mention the illustrations in a large proportion of the manuscripts; and (c) the combination (juxtaposed or merged) with other works in multiple-text manuscripts, helping to place *Kalīla wa-Dimna* in relation to diverse literary genres.

To cover the various linguistic, literary, and cultural facets, AnonymClassic has assembled a team of scholars on Arabic codicology, literary studies, the languages of the book's early versions (Syriac, Arabic, Persian), and computer science. Aspects not covered by the team (e.g., Sanskrit sources, Judeo-Arabic fragments, Latin, Old Castilian and Hebrew versions) are addressed by the project's partners.¹⁶

The concrete goal of AnonymClassic is to publish a comparative edition of selected manuscripts as the basis for a full, digitized edition of those manuscripts that best chart the motions of the text, to be accompanied by studies of aspects of its history, Middle Arabic, cultural translation and fictionality. This will be placed at the disposal of future research on *Kalīla and Dimna* in all its global diversity.

Part I – Codicology

The Syriac Manuscript Situation – Jan J. van Ginkel

In the sixth century CE, most likely at the Sasanian court, a Middle Persian collection of fables was created out of several Sanskrit collections. This Middle Persian *Kalīla and Dimna* was quickly translated into Syriac, most likely at the end of the sixth century, as there are no traces of the Arabic tradition in this text. The translator is named in a fourteenth-century source, the *Catalogue of Biblical and Ecclesiastical Books* of 'Abdisho' bar Brikha, as Budh the Periodeutes.¹⁷

This first Syriac translation survived in only one manuscript, copied by a certain deacon Hormizd near 'Amādiya in northern Iraq in 1524. After its rediscovery in Mardin in the library of the Chaldean Patriarchate in 1870, in the following years four copies were made for Western scholars. In 1895, the Chaldean patriarch brought the manuscript to Paris and gave it to the Société Asiatique and René Graffin. After Graffin had taken it home with him, François Nau was able to write a brief description of the codex in 1911.¹⁸ Since then its whereabouts have been unknown.¹⁹ According to Nau, the manuscript consisted of 134 folios, but there were originally more. *Kalīla and Dimna* fills the first 116 folios, but at least four additional folios have been lost from this section.²⁰ It was written in an East Syriac script and had a

15 On the importance of studying the early »indirect transmission«, see part II, the section by Johannes Stephan.

16 For more on these partnerships, see the project website: <https://www.geschkult.fu-berlin.de/en/e/kalila-wa-dimna/>.

17 See Assemani, *Bibliotheca Orientalis Clementino-Vaticana* 3/2, 219-220. Assemani argues that Budh was active around 570.

18 Nau, *Manuscrit de Mgr Graffin*.

19 It is possible that it ended up in the archive of the collection *Patrologia Orientalis*.

20 The last part (fols. 117-132) contained an apocryphal text, the Apocalypse of Paul (*Visio Pauli*).

wooden cover. Red ink was used to indicate the names of »speakers«. Nau thought the copyist was probably a student, due to a number of irregularities and the generally unstable hand. There were many omissions and corrections in the text and in the margins. The margins also contained religious comments and scribal exercises.

Unlike the original, the four copies made for the use of scholars have been preserved. In 1870, Johannes Elia made the first copy in Mardin for Gustav Bickell, who used it as the basis for the first edition of the text.²¹ Although this copy, Göttingen, Niedersächsische Staats- und Universitätsbibliothek, MS Syr. 1, retains the text of some of the lost folios, the copyist seems not to have been fully able to understand the text. For example, he transcribed the East Syriac text in West Syriac script, but, at times, used West Syriac characters that looked similar to the East Syriac characters, rather than the real equivalent.²² He also inserted some of the liturgical marginalia into the main text.

On the order of Eduard Sachau, three more copies were made in or near Mosul, after the Patriarch had moved the original manuscript there.²³ In 1881-1882, Jeremias Shamir made the second copy, Berlin, Staatsbibliothek, MS Syr. 104 (Sachau 139). In the colophon, the copyist indicates that the original had no diacritics or vowels, and that he therefore added them himself. This implies that all vocalization in the various manuscripts has been added by the later copyists and is, therefore, not necessarily authentic.

The third copy, Berlin, Staatsbibliothek, MS Syr. 105 (Sachau 150), again by Jeremias, dates from 1882 and has hardly any diacritics or vocalization, likely better reflecting the original. In 1883 (probably), a priest named Joseph made a fourth copy, Berlin, Staatsbibliothek, MS Syr. 106 (Sachau 149). Even though textually this copy provides us with the best version, it also has the most omissions. The copyist likewise added his own diacritics and may well have corrected or »improved« his *Vorlage* once or twice.

In addition to this Syriac version based on the Middle Persian text, there is also a second Syriac version of *Kalila and Dimna* based on an early Arabic text.²⁴ An unknown translator produced this highly Christianized rendering in the tenth or eleventh century. It shares many elements of the early Arabic tradition with other translated versions like the Greek, the Hebrew, and the Old Castilian. This work, which has survived in a unique manuscript, now at Dublin, Trinity College, MS 1505, consists of 209 folios, with *Kalila and Dimna* being on the first 184 folios. The original manuscript dates from the thirteenth century, but large parts, most notably fols. 1-160, were restored in the fourteenth or fifteenth century. A second touch-up of several passages took place in around 1613. The text has many copying errors, which may have been caused, in part, by the extensive restoration. The origin of the manuscript is unknown, but it was most likely produced in northern Iraq. This codex is, in principle, no longer accessible, as the paper and vellum are brittle and, in addition, because it has been rebound too tightly.

21 Bickell, *Kalilag und Damrag*.

22 For example, East Syriac *aleph* (ܐ) was read as West Syriac *taw* (ܬ).

23 See Schulthess, *Kalila und Dimna*.

24 Wright, *Book of Kalilah and Dimnah*.

Making an edition based on these manuscripts presents many challenges, as both of the Syriac textual traditions have been severely mangled in transmission. Both Nau's description of the manuscript of the older version and the elaborate restoration of the manuscript of the newer version are clear indicators that the text is less well established than one might imagine based on published editions. It is therefore obvious that comparison with other versions of *Kalila and Dimna*, in all of the various linguistic traditions, is essential for editing the Syriac versions.

Arabic Manuscript Transcription and Textual Segmentation – Rima Redwan

The Arabic manuscripts of *Kalila wa-Dimna* pose complex questions of their own. In each manuscript, the number and order of chapters tends to vary. In most cases, the manuscripts are subdivided into seventeen or eighteen chapters, including the prefaces. For the process of our analysis, we have thus far focused our transcription work on six chapters or passages thereof. This initial selection, which covers the different phases of the book's textual history mentioned in the introduction above, consists of the following passages: »The Owls and the Crows« (Oc), originating from the *Panchatantra*; »The Mouse and the Cat« (Mc), originating from the *Mahābhārata*; »The King and His Dreams« (Kd), of unknown, perhaps Sanskrit origin; »Burzoy's Long Voyage« (Lv), originating from the Sasanian redaction; and the preface of Ibn al-Muqaffa' (Im) and the added tale »The Ascetic and the Guest« (Ag), both from the Arabic translation-redaction.²⁵

Speaking in very general terms, in the process of manuscript transcription, two paradigms may be followed: diplomatic and normalized transcription. The diplomatic mode is used for retaining the orthography as-is (to the extent possible), while normalized transcription is meant to facilitate the presentation and comparison of the content. In practice, this is more of a spectrum than a binary. Editors strive to render their source materials faithfully, while introducing the degree of normalization required to achieve the other goals of their work. The balance that is struck will depend on a range of factors, and some compromise is usually unavoidable.

The approach implemented in our project falls well within the realm of normalized transcription. We are working with a large number of manuscripts, whose variations in textual content are already substantial, even before considering the finer points of orthography and scribal practice. It needs to be feasible for us to make meaningful comparisons (both manually and with digital tools) across this corpus of sources. And there are special challenges in the Arabic script, which is, to begin with, an *abjad* or »consonantary«. The letters represent consonants and long vowels, while short vowels are left for the reader to understand from context – or, in some cases, indicated by means of diacritical marks. This means that reading requires a layer of interpretation that is not applicable in, for instance, the Latin alphabet. (There are other relevant features of the Arabic script, but this is perhaps the most obvious difference to emphasize to non-specialists.) We ensure that our transcription of *Kalila wa-Dimna* manuscripts follows a fairly uniform writing standard. The orthography is adjusted to Classical Arabic. It is important to note, however, that this normalization concerns neither morphology nor syntax. Cases of non-classical syntax, in which individual words still follow Classical Arabic, are kept in the transcription. Also retained are specific Middle Arabic morphological forms, such as non-classical verbal stems.

25 We use the chapter abbreviations of François de Blois: *Burzōy's Voyage*, 62.

Our next step is the segmentation of the text, enabling literary analysis and comparison. Each chapter is segmented into semantic units, each of these being marked by a unique title. These units are based on the textual structure, reflecting separate, self-contained parts of monologue, dialogue, or third-person narrative, as well as wisdom sayings (*ḥikam*) and analogical images (*amthāl*). Based on these segmented units, synoptic digital editions are created. The primary tool that we use is the LERA platform,²⁶ which supports editions of any number of digitized manuscripts of a given passage. The segmentation thus provides the possibility of gaining a comprehensive overview of the structure of each version of the text, as well as enabling a comparison with any other textual variant. With regard to the juxtaposition of variants among the manuscripts, this edition is our key procedure.

Manuscript Description and Classification – Khoulood Khalfallah

Considering the abundance of textual witnesses that we have gathered in the AnonymClassic project, we are confronted with the challenge of extracting and examining all aspects of the roughly 140 *Kalīla wa-Dimna* manuscripts that we have identified, of which we have already obtained copies of around 95. To be able to meet this challenge, we have divided our process into three main workstreams.

First is a codicological study of all specimens. The aim of this study is to collect and ascertain the material data of the manuscripts. This includes general information about each codex, such as the relevant catalog information, the place of origin, the date of completion of the copy, the presence or absence of a colophon, etc. This survey also covers more detailed material aspects of each manuscript, for example, the dimensions of the paper, the number of lines per page, the existence of a frame, text division elements, and catchwords. Another important component in our description work is the script. Therefore, useful information about the script is added to this category, including the script type and execution, the colors of ink used by the copyist, the number of hands found in the copy, as well as the presence of diacritics and vowel marks, and other general aspects of the orthography. The linguistic features observed in a manuscript allow us to place its register between Classical and Middle Arabic. (The latter term is still insufficiently defined; we therefore make note of the specific features.) To finish work on this first stage, we also examine any illustrations, noting, among other characteristics, their frequency, placement, and style. In cases where illustrations are left blank or are substituted by legends, we take care to capture their format.

After collecting this information, we move to the second phase, which is to assess the version or form in which *Kalīla wa-Dimna* appears in each manuscript. This part includes some basic information about the manuscript, such as the name of the copyist, the frequency and placement of any notes, and the patron associated with the copy (where applicable). An important aspect of this phase is to compare the chapter sequence found in the table of contents (if present) against the sequence that occurs throughout the text itself. All *Kalīla wa-Dimna* manuscripts are then classified according to their actual chapter sequences. Finally, the *incipit* and *explicit* of a copy are noted to record its unique features.

26 On the LERA platform, see part III, the section by Mahmoud Kozae and Marwa M. Ahmed.

In the third part of this analysis, we focus on the content of the text, in order to be able to establish links among different copies. Through the segmentation system that we have designed, and thanks to the LERA platform that we are using, the process of comparing manuscript versions of select passages has become easier, clearer, and more precise. According to our interim observations and results, we evaluate the text in each chapter or passage based on its length (i.e., the number of semantic units contained) and structure (i.e., the sequence of semantic units). Within the same copy, we record all of the different phenomena of re-writing: cuts, additions, and changes. One interesting case of rewriting took place in London, British Library, MS Or. 3900 (hereafter L3900), a twelfth/eighteenth-century manuscript. In the first unit of Ibn al-Muqaffa's preface, the copyist assumes authorship himself and drops the name of the Arabic translator-redactor and the title of the book.²⁷

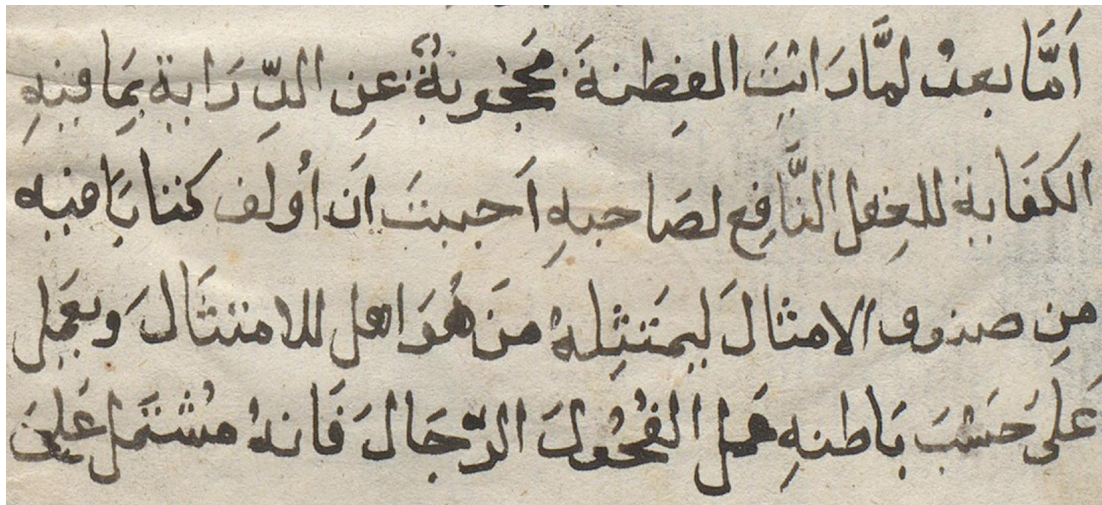


Fig. 1: London, British Library, MS Or. 3900 (1166/1752-1753), fol. 1v. »To proceed: When I saw intelligence becoming veiled from knowledge, which enables the mind to help him who possesses one, I wanted to compose a book with kinds of parables ...«

27 On this manuscript, see also part I, the section by Beatrice Gruendler and part II, the section by Isabel Toral, respectively.

Image Cycles in Kalīla wa-Dimna Manuscripts – Rima Redwan

Illustrations are an essential element in the textual transmission of *Kalīla wa-Dimna*; they provide an important source of information for, among other things, a manuscript's dating (if it is otherwise undated), its place of production, and its relation to other codices.

From the preface of Ibn al-Muqaffa' (Im), it is clear that manuscripts of *Kalīla wa-Dimna* were intended to be illustrated:

It was intended to show images (*khayālāt*) of the animals in varieties of paints and colors (*aṣbāgh, alwān*) to delight the hearts of princes and increase their pleasure, and also the degree of care that they would bestow on the work.²⁸

Here, the question of the intended audience arises: What kind of reader did the author of the text aim to address?²⁹ If this »author« was not Ibn al-Muqaffa' himself, one can assume that this passage represents the view of a copyist of the thirteenth century or earlier, since the earliest version of this textual unit is found in the manuscript Paris, Bibliothèque nationale de France, MS arabe 3465 (hereafter P3465), dated to the first part of that century. The copyist may thus have given an *ex post* explanation for the illustrations that were actually present in the manuscripts on which he was working.

An important aspect of the use of illustrations is their relation to the appeal of stories; namely, their number seems to correlate with the number of substories within a given chapter. A look at »The Lion and the Ox« (Lo), for example, shows that this is the chapter with the highest number of illustrations and also with the most substories (fifteen).

About one-third of the total 140 *Kalīla wa-Dimna* manuscripts for which we have gathered data are illustrated, or display gaps in the text that were intended to be filled with illustrations. A significant feature is the inclusion of captions, which in some cases occur even without the described illustrations (with or without spaces left blank). For the most part, a caption or legend provides the reader not merely with the name of the illustrated character(s), but also with a short description of the matching narrative scene or part of the plot. Beyond offering information and linking image to text, such detailed captions serve a visual function and must be seen as an integral part of the picture.

Regardless of the illustrations' style, the depicted motifs intervene at specific points in the narrative and deserve detailed examination for the ways in which they structure the plot and highlight specific scenes of the frame narrative, main tales, and substories. Thus, the places where illustrations are inserted represent a key aspect of each version. The resulting sequence of images in a given codex – termed the »image cycle« – becomes a factor in classifying the interrelation of manuscripts. A good example of manuscripts bearing similarities in image and text are Oxford, Bodleian Library, MS Pococke 400 (hereafter Pococke 400); Paris, Bibliothèque nationale de France, MS arabe 3467 (hereafter P3467); and München, Bayerische Staatsbibliothek, MS 616 (hereafter München 616). These three manuscripts originate from fourteenth-century Egypt or Syria. Not only in their motifs, but also in terms of the style and color palette, the similarities are striking. The three manuscripts' text is nearly identical, and they belong to the same image cycle.

28 On this passage as a semantic unit, see part I, the section by Beatrice Gruendler.

29 On the readership of *Kalīla wa-Dimna*, see part II, the section by Johannes Stephan.



Fig. 2(a): Oxford, Bodleian, MS Pococke 400 (755/1354), fol. 46r.



Fig. 2(c): München, BStB, MS 616 (first half of the eighth/fourteenth century), fol. 48v.

A different kind of relationship among illustrations in *Kalīla wa-Dimna* manuscripts can be demonstrated with a dramatic scene in the chapter »The King and His Dreams« (Kd), in which the vizier returns to the king pretending to have executed the queen on his order. Here the same motif is illustrated, but carried out in completely different styles regarding the number of characters shown, their bodily proportions, dress, and posture, and the representation of the surroundings – from nothing (Rabat, Bibliothèque royale, MS 3655; hereafter Rabat 3655) via a thin line frame (Istanbul, Archaeological Museum, MS EY 344; hereafter Istanbul EY 344) and a prop (the king's veil in Cambridge, Corpus Christi College, Parker Library, MS 578; hereafter CCCP 578) to a fully realized architecture (Paris, Bibliothèque nationale de France, MS arabe 5881; hereafter P5881).

Aside from the dating of the manuscripts, each one contains a different version of the text. But these four are the only manuscripts found so far that include this motif of the vizier with the blood-smearred sword. In this context the question presents itself: Who decided in a given version which of the scenes should be illustrated?



Fig. 3(a): Rabat, Br, MS 3655 (c. 1265-1280 CE), fol. 100v.



Fig. 3(b): Istanbul, AM, MS EY 344 (eleventh/seventeenth century), fol. 132v.



Fig. 3(c): Cambridge, CCC, Parker Lib., MS 578 (eighth/fourteenth century), fol. 108r.³¹

31 This image is covered by a Creative Commons NonCommercial license.



Fig. 3(d): Paris, BnF, MS arabe 5881 (1092/1681), fol. 75r.

In sum, illustrations impart many kinds of information, providing evidence for dating and provenance, confirming relations among manuscripts, and offering important clues for literary analysis, as they highlight particular moments in the narrative.³²

Manuscript Continua and Cross-Copying – Beatrice Gruendler

The Arabic manuscripts of *Kalila wa-Dimna* have so far been found to relate to each other in two major ways, namely, as *continua* or by *cross-copying*. Not all manuscripts fit these models; for example, there are a handful of early copies (eighth/fourteenth to ninth/fifteenth centuries) that stand apart.³³ Also disregarded here are verbatim copies of known manuscripts, whose proportion is minor. What follows is an interim result, based on several dozen of the roughly 95 manuscripts that we have collected. Our conclusions will doubtless continue to evolve as the project moves forward.

Continua

For our purposes, a continuum is understood as a group of manuscripts that resemble each other in macrostructure and microstructure yet deviate in many places.³⁴ In terms of the macrostructure, this means that the manuscripts of a continuum share most of their semantic units as well as their sequence. This being said, the sequence of units is fairly stable overall, and a restructuring, as happens in three of the six passages chosen for close analysis, defines a continuum. In terms of microstructure, i.e., the formulation within the individual units, differences are minor but numerous, and they vary in degree. Passages of near-verbatim identity across most manuscripts of a continuum alternate with new elements, ranging from single words or phrases to longer sentences. Two distinct continua have so far been defined; they are referred to after the libraries that hold particularly representative manuscripts.

The London continuum (hereafter L-c) is named after two manuscripts at the British Library – MS Or. 8751 (dated 799/1369) and MS Or. 4044 (dated to the ninth/fifteenth century; hereafter L4044) – and it also includes Istanbul, Ayasofya, MS 4095 (dated 618/1221). This continuum is likely the earlier of the two that we have identified, as it shares some structural features (the presence and sequence of units) with eighth/fourteenth-century copies that fall outside of it. In total, the manuscripts belonging to this group are fewer and mostly older than those of the other continuum. One unusual case is Paris, Bibliothèque nationale de France, MS arabe 3466 (dated 854/1450; hereafter P3466), as it belongs to the London continuum in later chapters («The King and His Dreams»; «The Mouse and the Cat»; «The Ascetic and the Guest»), while matching the Paris continuum in earlier chapters (e.g., Ibn al-Muqaffa's preface).³⁵

32 For a study of such illustrations from an art-historical perspective, see Vernay-Nouri and Brac de la Perrière, *Journeys of Kalila and Dimna*.

33 These include Rabat 3655; Riyadh, King Faisal Center, MS 2536 (dated 747/1346; hereafter Riyadh 2536); and Istanbul EY 344.

34 The term «continuum» has been employed in a descriptive manner by Charlotte Touati for the relationship of Christian Arabic apocrypha. This is discussed in Schulthess, *Manuscripts arabes*, 7. Our usage is more tailored to the case of *Kalila wa-Dimna*.

35 Again, we follow the chapter shorthand of de Blois. The abbreviations of the chapters mentioned in this paragraph are as follows, in order: Kd; Mc; Ag; Im.

The Paris continuum (hereafter P-c) is named after noteworthy representatives that are held at the Bibliothèque nationale, namely, MSS arabes 3465, 3473 (dated to the eleventh/seventeenth century; hereafter P3473), and 3466 (albeit only in earlier chapters). It furthermore includes subcontinua with closer mutual proximity, namely, Riyadh, King Faisal Center, MS 2407 (dated 1103/1692) and Berlin, Staatsbibliothek, MS Wetzstein II 672 (dated 1246/1830), both similar to P3473; and Tunis, Bibliothèque nationale de Tunisie, MS 2281 (dated 1070/1660) and Beirut, Université Saint-Joseph, MS 0022(2) (dated 1263/1847), both similar to P3466. The Paris continuum proliferates at a later time, flourishing up to the nineteenth century, and it is better represented numerically.

For comparison, the two continua are shown based on the preface of Ibn al-Muqaffa', where the structural differences are most distinct (see *Figs. 4(a)* and *4(b)* below). In L-c the position of the substory of the merchant and his partner occurs in the middle (units 90-97) and has no further tales following it, with the betraying partner remaining ashamed and silent regarding his erroneous theft. Units 96-97 belong solely to this continuum, as they are needed to end the substory here. This version of the preface gives emphasis throughout to the processes of critical reading, reflection, and the need to verify received information, as well as advising mental fortitude and moral stamina. (Other units specific to this continuum are 8, 10, 18, 22-23, 45-46, 56, 65, and 68; omitted here are those units that appear in only one manuscript.) The conclusion of the chapter focuses on understanding the book, mentioning the preface's addition by the Arabic translator-redactor Ibn al-Muqaffa' and the importance of heeding his instructions. He speaks here in the first person (units 86-88). The double meaning of the fables is not explained, in keeping with the absence of further tales after the merchant and his partner.

P-c, by contrast, foregrounds and enhances the storytelling. The substory of the merchant and his partner is here placed at the end and followed by additional substories. In this version, the betraying partner admits his guilt, and this is followed by a dialogue between the two merchants, including an analogous subtale about a thief who confuses a jar of grain with a jar of gold (units 102-103). The merchants' dialogue and the conclusion of this internal frame (units 95, 98-101, and 106) are likewise specific to P-c. Further subtals of this continuum concern three brothers, the older two of whom squander their shares of the father's inheritance, while the youngest saves them with his own (units 108-113); and a fisher and a pearl (115-116). This version explains the reading of fables as a process of decoding, using the logical technical terms of premises (*muqaddimāt*) and conclusions (*natā'ij*). The double-layeredness is taken up in the conclusion (unit 124), which characterizes the book as serving four goals for four different audiences: children, rulers, copyists and illustrators,³⁶ and philosophers. The features of this version make it more entertaining, all the while justifying this entertainment as an outward manifestation hiding a deeper meaning.

36 See the quote about illustrations in part I, the second section by Rima Redwan.

Synopsis of semantic units in the chapter Im

			Paris 3465	Paris 3473	Paris 3466	Paris 5881	Ayasofya 4095	London 8751	London 4044
Chapter sequence			A	B	D	C	C var.	C var.	A var.
Date			13th c.	17th c.	854/1450	1092/1681	618/1221	799/1369	15th c.
Unit no.	Unit type	Unit XML ID	P3465	P3473	P3466	P5881	A4095	L8751	L4044
1	n	ImBaydabasComposition							
2	g	ImUniqueBookOfWisdom		1					
3	n	ImIndiansCodeAnimalSpeech	1	2	1		1	1	1
4	n	ImBookReunitesAspects	2	3	2		2	2	2
5	m	ImFarmerObtainsWeeds		4					
6	n	ImBooksUsesAreWisdomPlay	3	5	3		3	3	3
7	m	ImBequeathedTreasure	4	6			4	4	4
8	n	ImKnowledgeManyBranches					5	5	5
9	n	ImReaderIgnoringCodeNoBenefit	5	7	4				6
10	n	ImReaderToReflect				1	6	6	7
11	n	ImFastReaderNoBenefit	6	8	5	2	7	7	8
12	n	ImIndiscriminateReaderNoBenefit	7	9	6	3	8	8	9
13	m	ImBuriedTreasureLost	8	10	7	4	9	9	10
14	ml	ImDiscovererHiresHelp	9	11		5	10	10	11
15	m	ImDiscovererLosesTreasure	10	12		6	11	11	12
16	h	ImReadingNotInDepthNoBenefit	11	13		7	12	12	13
17	m	ImNutCrackedForBenefit	12	14		8	13	13	14
18	n	ImGleanSecretKnowledge				9	14	14	15
19	m	ImMemorizedSheetNoKnowledge	13	15	8	10	15	15	16
20	n	ImUnderstandingReaderMustAct	14	16	9	11	16	16	17
21	h	ImReasonSelfDenialNeverTooMuch		17	10	12	17		18
22	h	ImLifeNeedsCultureKnowledge				13	18		19
23	m	ImNoScorningCultureDeath					19	17	
24	m	ImCultureIsLikeSpark		18	11	14	20	18	20
25	h	ImCultureRaisesKnowledgeForUseA		19	12	15	21	19	21
26	m	ImManThrowsBallHigh					22		22
27	h	ImBuildingRestsOnBasis							
28	n	ImCultureRaisesKnowledgeForUseB					23		
29	m	ImManNoticingBurglarFallsAsleep	15	20	13	16	24	20	23
30	h	ImUnusedKnowledgeIsIncomplete	16	21	14	17	25	21	24
31	m	ImKnowledgeActionIsTreeFruit	17	22	15	18	26	22	25
32	h	ImNoActionNoScholar	18	23		19	27	23	26
33	n	ImManLearnsOfLostTraveller				20	28	24	27
34	m	ImInformedManTakesRiskyRoad	19	24	16	21	29	25	28
35	n	ImManErrsDespiteInfo	20	25		22	30	26	29
36	m	ImInformedPatientTakesBadFood	21	26		23	31	27	30
37	h	ImWhoDistinguishesHasNoExcuse	22	27		24	32	28	31
38	m	ImSeeingManInDitchNoExcuse	23	28	17	25	33	29	32
39	h	ImScholarMustTeachHimself	24	29	18	26	34	30	33
40	m	ImSourceBenefitsOnlyOthers	25		19	27	35	31	34
41	m	ImSilkWormBenefitsOnlyOthers	26	30	20				
42	h	ImLearnerMustTameSoul	27	31	21			32	35
43	h	ImThingsNeededForWorldlyLife	28	32	22	28	36	33	36
44	h	ImNoBlamingFaultsOneHasToo	29	33	23				
45	h	ImActionPursuedForBenefit				29	37	34	37
46	m	ImSomeReadersErrInThis					38	35	38
47	m	ImPassiveReaderLikeBlind							
48	m	ImBlindBlamingBlind	30	34	24		39	36	39
49	n	ImNoBenefitByOthersHarm				30	40	37	40
50	n	ImPursuitMustHaveLimit	31	35		38	48	45	48
51	h	ImWhoStrivesAimlesslyFails				39			
52	h	ImJourneyWithoutLimitKills	32	36		40	49	46	49
53	n	ImNoSeekingTheUnreachable	33	37		41	50	47	50
54	n	ImNoPreferringHereToHereafter	34	38		42	51	48	51
55	h	ImDetachmentEasesDeath	35	39		43	52	49	52
56	h	ImNoDespairDespiteHardship					53	50	53
57	h	ImTwoThingsSuitAll	36	40	25	44	54	51	54
58	h	ImTwoThingsDoNotSuitAll	37	41	26				
59	m	ImFireBurnsAll	38	42	27	45	55	52	55
60	m	ImFireWaterDoNotJoin	39	43	28				
61	n	ImGodsGiftUnexpected	40	44		46	56	53	56
62	m	ImPauperWinsBurglarsGarb	41	45		47	57	54	57
63	ml	ImThiefTakesJar	42	46		48	58	55	58
64	m	ImPauperCatchesThief	43	47		49	59	56	59
65	m	ImIntelligentMustNotDespair				50	60	57	60
66	n	ImStrivingNotExpectingLuck	44	48		51	61	58	61

Synopsis of semantic units in the chapter Im

			Paris 3465	Paris 3473	Paris 3466	Paris 5881	Ayasofya 4095	London 8751	London 4044
Chapter sequence			A	B	D	C	C var.	C var.	A var.
Date			13th c.	17th c.	854/1450	1092/1681	618/1221	799/1369	15th c.
Unit no.	Unit type	Unit XML ID	P3465	P3473	P3466	P5881	A4095	L8751	L4044
67	n	ImFortunateFewNoModel	45	49		52	62	59	62
68	n	ImStrivingMassesAreModel				53	63	60	63
69	n	ImStrivingForBenefitNotHarm	46	50		54	64	61	64
70	m	ImDoveRepeatsLossOfChick	47	51		55	65	62	65
71	m	ImJudgeOfLegalTricks							
72	n	ImGuardingGodsMeasure	48		29	56	66	63	66
73	h	ImStrivingForHereHereafter	49	52	30	59	67	64	68
74	h	ImStrivingForHere	50	53	31	58		65	69
75	h	ImStrivingForHereafter				57			67
76	h	ImThreeThingsForWorldlyMan	51	54	32	60	68	66	70
77	h	ImThingsMarkingTheUseless	52	55	33	61	69	67	71
78	n	ImManyAreCredulous	53	56	34	62	70	68	72
79	n	ImBelievingInformation				63	71	69	73
80	n	ImCheckingOnesDesire	54	57	35	64	72	70	74
81	n	ImCheckingInfoForTruth	55	58	36	65	73	71	75
82	m	ImContinuingOnWrongPath	56	59	37	66	74	72	76
83	m	ImLosingItchyEye	57	60	38	67	75	73	77
84	n	ImHeedingDecreeResolve	58	61	39	68	76	74	78
85	n	ImDoUntoOtherAsToOneself	59	62	40	69	77	75	79
86	n	ImReaderMustHeedPreface				70	78	76	80
87	n	ImUnderstandingBookBenefits				71	79	77	81
88	n	ImThrowingStoneInDark					80		
89	n	ImTransAddsChapterToExplain				72	81	78	82
90	m	ImMerchantStealsFromPartner	60	63	41	31	41	38	41
91	ml	ImMerchantDevisesPlot	61	64	42	32	42	39	42
92	m	ImMerchantExecutesPlot	62	65	43	33	43	40	43
93	ml	ImPartnerFindsGarb	63	66	44	34	44	41	44
94	m	ImMerchantStealsOwnBale	64	67	45	35	45	42	45
95	m	ImMerchantSeesErrorAtHome	65	68	46				
96	m	ImMerchantSeesErrorInShop				36	46	43	46
97	m	ImMerchantSilentAboutBetrayal				37	47	44	47
98	ml	ImPartnerFearsAccusationMono	66		47				
99	d	ImPartnerFearsAccusationDialog	67	69	48				
100	d	ImMerchantAdmitsTreachery	68	70	49				
101	d	ImPartnerRequestsExplaining	69	71	50				
102	d	ImPartnersParableMerchantThief	70	72	51				
103	m	ImThiefTakesGrainForGold	71	73	52				
104	m	ImThiefEyesJar							
105	m	ImThiefTakesGrain							
106	d	ImMerchantForfeitsTrust	72	74	53				
107	n	ImReadingForParables	73	75	54				
108	m	ImTwoBrothersSquander	74	76					
109	ml	ImYoungestReflectsOnWealth	75	77					
110	h	ImMisspendingRichIsPoor	76	78					
111	h	ImRightSpendingEarnsPraise	77	79					
112	h	ImFalseSpendingBringsRegret	78	80					
113	ml	ImYoungestSpendsOnSiblings	79	81					
114	n	ImReaderMustTakeTime	80	82	55				
115	m	ImFisherFindsEmptyShell	81	83	56				
116	m	ImFisherMissesPearl	82	84	57				
117	n	ImSuperficialReadersMissMeaning	83	85					
118	n	ImPleasureSeekingReaders	84	86					
119	m	ImGardenerNeglectsHarvest	85	87					
120	d	ImReaderNeedsStaminaFocus		88	58				
121	m	ImPhilDiscipleTwoOwners		89					
122	m	ImFriendsReachAgreementByCounseling							
123	d	ImPrefaceToExplainHighAudience			59				
124	n	ImBookHasFourGoals	86	90	60				
125	tm	ImEndOfPrefaceBegContents	87		61				
126	tm	ImEndOfPrefBegLvOrBu					82		
127	h	ImCultureLightsUpHeart							

Figs. 4(a-b): Tabulation of semantic units in the preface of Ibn al-Muqaffa', toward the end of which the Paris (left) and London (right) continua show clear divergence.

Cross-Copying

One phenomenon that could be detected particularly with the aid of the synoptic editions of the LERA platform is that some copyist-redactors composed their versions out of several others in a process of cross-copying.³⁷ This term has been preferred here over »contamination«, which has long been employed in classical and medieval studies but is increasingly seen as outdated, and which presupposes a reconstructable original text (or »Urtext«). It is uncertain how these manuscripts came about, but given the great variety of versions already in the eighth/fourteenth century, it is plausible that copyists consulting various available *Vorlagen* for reproduction chose to combine their different facets into one comprehensive version. This recalls compilation techniques known from scholarly works, for instance in lexicography; but there all elements of different sources are assembled and recombined, whereas here the parts that are incorporated are carefully selected, while others are cut. Excluded here are cases in which versions appear to have been combined by error, such as Riyadh 2536, in which a missing page in Ibn al-Muqaffa's preface is restored from a *Vorlage* of a different continuum, resulting in many duplications. The practice of cross-copying appears as early as the fourteenth century, in Pococke 400 and CCCP 578, but here it will be shown in P5881.

In the long version of the voyage of Burzoy to India (Lv), the Persian king gives a description of the kind of person to be chosen for the dangerous mission of retrieving the book of wisdom (unit 16, »LvKingSearchesScholar«; see the tabulation of manuscripts, *Fig. 5*, at the end of this section). Elements from different manuscripts are found combined in P5881 in this unit. The beginning is shared with Pococke 400: the scholar sought must belong to one of two categories – a scribe or a physician (*immā kātiban taḥrīran aw ṭabīban faylasūfan*). The middle part of the unit is shared with representatives of the Paris continuum (P3465, P3466, P3473) in various combinations: the individual must be educated and intelligent (*rajuḷ adīb āqil*) and an avid scholar (*hariṣ ālā ṭalab al-ilm / ṭalab al-ulūm*), and must pursue his education diligently (*mujtahid fī ... al-adab*) and read philosophical books (*kutub al-falsafa*). The end is again parallel to Pococke 400, describing the advisors' setting out in search of the candidate.

In between, however, P5881 adds further facets, namely that this person must also practice speculative theology and exegesis (*mutatābi'an fī l-naẓar wa-l-tafsīr*), both being Islamic disciplines. And the copyist-redactor adds at the end that the advisors continued their search until they found a man fitting this ambitious description (*ṭalabū man hādhihī ṣifatuḥū ḥattā wajadūhu*). Some of these formulations have since been identified in CCCP 578, which implies that the cross-copying of P5881 was inspired by the same action of an earlier copyist-redactor. Here, and in many other units, the (anonymous) copyist-redactor of P5881 maximizes the narrative by adding aspects from various manuscripts, and potentially his own voice. Beyond incorporating elements from a number of units from different *Vorlagen*, the intervention in P5881 shows a recurrent focus on rational thinking and Islamic religion (however anachronistic this may be, in a tale about the Sasanian era).

There are various ways of cross-copying. P5881 represents a mosaic of many small parts. In the chapter of »The Long Voyage of Burzoy« (Lv), three or four changes per unit between different *Vorlagen* can be observed. Other manuscripts that show large-scale cross-copying of the mosaic style are Paris, Bibliothèque nationale de France, MS arabe 3471 (dated 1053/1643; hereafter P3471) and Oxford, Bodleian Library, MS Arab. 253 (dated 1227/1812).

37 The term was coined by Jean Dagenais, with reference to Old Castilian: *Ethics of Reading*, 132.

Conversely, in CCCP 578 the cross-copying is done in larger blocks within units; and in Pococke 400, it is combined with targeted cuts of analogical images (*amthāl*) and wisdom sayings (*ḥikam*). A further variety appears in München 616, in a substory of the chapter of »The Owls and the Crows« (Oc), in which passages within units and entire units are added in the margins, with symbols in the text indicating the places of insertion. The model for the supplied passages derives from the same continuum (close to P3466; München, Bayerische Staatsbibliothek, MS 618, dated 1046/1636; or L4044), and the additions enrich the narrative, a substory of marital deception, with graphic detail. In a further case, Istanbul, Ayasofya, MS 4213 (dated 880/1476), the cross-copying is openly declared: in the frame dialogue between the king and the philosopher in the chapter of »The Mouse and the Cat« (Mc), a unit from one *Vorlage* is followed, after the formula for adding variants (*wa-qīla*, »and it has been said«), by a very different version from another.³⁸ Finally, cross-copying can be used to claim authorship, as in L3900, in which the copyist-redactor merges his *incipit* (similar to Riyadh 2536) seamlessly into the preface of Ibn al-Muqaffa' (in a version close to Pococke 400), whose first person in the final unit then appears to be the copyist-redactor himself.³⁹ In the cases reviewed here, the cross-copying is substantial and clearly traceable, but this phenomenon may affect many more manuscripts, to varying degrees.

Some cross-copied versions became very popular: all of Pococke 400, P5881 and P3471 received verbatim copies, which indicates that readers appreciated the versions enhanced in this manner.

P3456	P3466	P3473	P3475	M487	Pococke 400	P5881
فأمر الملك وزيره برزجمهر أن يبحث له عن رجلٍ أديبٍ عاقلٍ من أهل مملكته بصيرٍ بلسان الفارسيةٍ ماهرٍ بكلام الهند ويكون بليغًا باللسانين جميعًا حريصًا على طلب العلم مجتهدًا في استعمال الأدبٍ مبادرًا في طلب العلم والبحث عن كتب الفلسفة	فأمر أن يبحث له عن رجلٍ أديبٍ عاقلٍ	أمر أن ينتخب له رجلًا من الحكماء من أهل مملكته بصيرًا بلسان الفارسية ما هزا بالكلام الهندية بليغًا حريصًا على العلوم والحمة مجتهدًا في استكمال الأدب صابرًا على مضض الطلب الفلسفة	فلما أن أتم رأيه على البعثة اختر من مملكته وانتخب من علمته		فلما أن تم عزمه ورأيه على أن يبحث من يرضى خيريه ويرضاه سأل أهل مملكته أن يبحثوا [ر]بطلته في جميع مملكته رجالًا قد حوى هذه الخصال وأمر أن يكون من هذين الصفين إما كاتبًا تحريريًا أو طبيبًا فيلسوفًا عارفًا بلسان فارس والهند فخرج أهل مشورته وذوو الرأي من خاصته فيحثوا عن الرجال	فلما تم عزمه ورأيه على البعثة سأل أهل مملكته أن يبحثوا أو يطلبوا له رجالًا من جميع أهل مملكته قد جمعت فيه هذه الخصال وليكن من أحد هذه الصفين إما كاتبًا تحريريًا وإما طبيبًا ماهرًا فيلسوفًا عالمًا عالياً وليكن أدبياً عاقلًا لبيناً عارفًا بلسان الفارسية والهندية كاتبًا بهما جميعًا حريصًا على العلم مجتهدًا في استكمال الأدب متابعًا على النظر والتفسير يكتب الفلسفة فيوتى به قال فخرج أهل مشورته وذوي رأيه مسرعين فيحثوا عن الرجال وطلبوا من هذه صفته حتى وجدوه

Fig. 5: An example of cross-copying in P5881 (rightmost column), with highlighting to show pieces that are shared with other manuscripts.

38 Istanbul, Ayasofya, MS 4213. In the PDF, see p. 103, left, line 7. (The foliation is not visible in the PDF.)

39 On this point, see also part I, the section by Khoulood Khalfallah.

Part II – Literary History and Theory

Anonymity and Translation in Kalīla and Dimna – Isabel Toral

The project AnonymClassic's acronym (i.e., »Anonym« and »Classic«) stands for two conceptual fields that are highly relevant for our research, namely »authorship and anonymity« and »literary status and genre«. Our goal is to contribute to a deeper understanding of these issues in premodern Arabic literature by investigating the history of this extremely popular text over time, and by reconstructing the dazzling variety of versions in Arabic and other languages and cultures. Based on these results, we aim to engage in a wider discussion with other premodern European and non-European philologies, and to explore the extent to which these concepts and discussions from modernist philologies are transferable to our material, and/or how they should be modified. The following are a few of the questions that we address:

1. *Authorship and anonymity:* To what degree can we speak of *Kalīla wa-Dimna* as an »anonymous« text? Do we find names of »authors« attached to the text, and if so, in what form/function? Or do we rather detect »anonymous« interventions by copyists and redactors? What happens to these names and authorial positions/functions over time and when transferred to other contexts? Can we observe relevant changes?
2. *Status and literary genre:* What is the status of *Kalīla wa-Dimna* in Arabic literature? When does it start to be a »classic«, and what does that mean? Can we detect certain structural or thematic features of *Kalīla wa-Dimna* that explain its striking popularity and translatability? Does the text lose or keep its status as a foreign/translated text (or as a classic) over time, and when transferred to other contexts? What can we say about the diverse functions or »Sitz im Leben« of this text (e.g., as a »mirror for princes«, as a popular and entertaining collection of tales, as esoteric animal fables, as a cultivated fictional text, etc.)?

Regarding the first set of issues, with anonymity and authorship in *Kalīla wa-Dimna* – i.e., what we can know about the author(s), and in what sense *Kalīla wa-Dimna* can be considered an anonymous text – the following are some provisional reflections.

To start with, the authors of the Indian »original« book are mentioned as anonymous (nameless) »composers« in most versions of the preface, there described as »Indian sages«. The original book is thus presented as going back to an ancient, distant, and exotic (Indian) past, which makes the book a valuable »luxury item« imported from the East. In contrast to authorization techniques in Islamic canonical literature, names seem not to be relevant to enhance the value of this work. The reality, as far as it can be determined, is that *Kalīla and Dimna* goes back to a combination of Indian tales drawn from the *Panchatantra*, the *Mahābhārata*, and other sources, whose authors are not known by name.

The copyist-redactors of the Arabic manuscript versions, on the other hand, are creative composers and rewriters of the text, and should be regarded as true authors. However, though they are frequently known by name (conventionally recorded in the colophons of manuscripts), they are never mentioned as authors; their individual agency can be detected only by reconstructing their massive interventions (as »silent personae«) in the text. This means that their agency remains almost invisible and is not attached to their names. The situation rather resembles the work of the anonymous craftsman who has really designed a

house but stays in the background, while the architect is foregrounded. It is an important part of the project's research to uncover the copyists' »silent« activity and investigate their role in the textual history.⁴⁰

Besides, we find several names attached to the text, who appear as intermediaries and »translators« between the Indian original and the Arabic text as we have it. For instance, there is Burzoy, the physician who allegedly translated the text from Sanskrit to Middle Persian, and whose voyage to India and intellectual biography are extensively recorded in two chapters of *Kalīla and Dimna* (Sv/Lv and Bu). Second, there is Ibn al-Muqaffa', a well-known personality of early Arabic literature, famous as an Iranian convert to Islam and author of various translations from Middle Persian. He appears prominently as the translator of *Kalīla and Dimna* from Middle Persian into Arabic, and as the author of one of the prefaces to the text (Im). Both names (Burzoy and Ibn al-Muqaffa') are retained in most manuscripts and are identifiable personae, probably because they are also the protagonists of distinct chapters. Another important figure is the Persian minister Buzurgmihr – also a notable character in Arabic literature as advisor to the wise Sasanian king Khusraw Anūshīrwān – who becomes the author of the Persian frame narrative (he tells the story of Burzoy's life, i.e., Bu).

The complex reception history in Arabic culture – *Kalīla wa-Dimna* was extensively quoted, paraphrased, versified, imitated, and alluded to – shows that the text was frequently connected with the name of Ibn al-Muqaffa'. But the work is also often referred to in ways that de-emphasize authorship, e.g., as »the Indian book« (*Kitāb al-Hind*).⁴¹

The manuscripts also evidence other authorial attributions. In L3900, as has been mentioned in earlier sections by Khoulood Khalfallah and Beatrice Gruendler, the copyist has suppressed Ibn al-Muqaffa' altogether, and, inspired by another manuscript, he assumes authorship himself. He drops his source's author and title ('Umar b. Dāwūd b. al-Shaykh Sulaymān al-Fārisī, *Siyar al-mulūk*, preserved in Istanbul, Sultan Ahmed III Library, MS 3015, dated 727/1327 – itself a redaction-retroversion from Persian) and puts himself in their place. He seems to rely in this on the earlier, similar case of Riyadh 2536, in which the (anonymous) copyist has likewise incorporated material from 'Umar al-Fārisī, but still mentions him by name. In other instances (e.g., P3466 and later manuscripts), it is Baydabā' – the philosopher from the Indian frame story – who is said to have composed the book as a collection of animal tales. Thereafter, the vizier Buzurgmihr would have added a preface on the book's benefits (Im, elsewhere ascribed to Ibn al-Muqaffa'), and another on the voyage of Burzoy (Lv).

Regarding the second set of issues, with the status of *Kalīla and Dimna* as a translated text, one may say that one of the constant features that we find in almost all versions of the work (in Arabic and beyond) is that it is presented as a *translation* from a foreign culture, namely India, and not as an original product of the respective culture. One noteworthy exception is the case of Abū 'Abdallāh al-Yamanī (d. c. 400/1009-1010), the author of an early meta-textual commentary on the book, who considers it an original creation by Ibn al-Muqaffa'.⁴² There are other translated texts in premodern Arabic literature that tend rather to *conceal or downplay* their foreign origins. One example is the *Kitāb al-Tāj fī akhlāq al-mulūk*, which

40 This issue is also discussed in part I, the section by Beatrice Gruendler.

41 See part II, the section by Johannes Stephan.

42 For more on al-Yamanī's response, see part II, the sections by Johannes Stephan and Matthew L. Keegan, respectively.

was attributed to al-Jāhīz (d. 255/868-869), but is in fact based on a creative compilation of translated texts from Middle Persian that were put together by Muḥammad b. al-Ḥārith al-Taghlibī/al-Tha'labī (d. 250/864).⁴³ Also worth noting are the Arabic versions of the Barlaam and Josaphat legend, i.e., *Bilawhar wa-Būdhāsaf*. This work was translated, again most likely from Middle Persian, and it ultimately derives from Indian stories about the life of the Buddha. Despite the clearly exotic surrounding of *Bilawhar wa-Būdhāsaf*, however, the text lacks a preface to explain whether and how it came to be translated.⁴⁴

In the case of *Kalīla and Dimna*, it was apparently important to maintain the translated status; and this circumstance might also explain why the translators Burzoy and Ibn al-Muqaffa' seem to be the real protagonists and »authors«. The significance of the trope of translation for the cultural value of *Kalīla and Dimna* raises several other important questions that we intend to address in the context of translation studies (particularly those theories that focus on the sociocultural aspects of translations and study their function and connectedness within a given cultural system).⁴⁵ Was *Kalīla and Dimna* used as a vehicle to introduce cultural innovations (e.g., the »mirror for princes« genre, fables, prose literature, even fiction itself)? Was it translated for representational objectives (i.e., the appropriation and incorporation of useful foreign wisdom)? Did the trope of translation facilitate the evasion of censorship via the transfer of authorial responsibility? If so, what might be the subversive aspects of *Kalīla and Dimna*?

Constructing a Textual Tradition: Readers of Kalīla wa-Dimna – Johannes Stephan

Kalīla and Dimna's Arabic translation from the mid-second/mid-eighth century and its wide dissemination generated a multitude of citations and cross-references within premodern scholarship in Arabic, which are of interest for a number of reasons.

First, these references carry some significance for the edition project, considering that the oldest manuscript copy of *Kalīla wa-Dimna* available dates to the early thirteenth century.⁴⁶ Hence references prior to that date may provide us with hints of what earlier versions might have looked like. Early references range from a few quotes in the *Book of Animals* by the polymath al-Jāhīz (d. 255/868-869) to the global historian al-Ya'qūbī (d. 284/897), who provides a first table of contents, up to the bookseller-bibliographer Ibn al-Nadīm (d. 380/990), who contextualizes *Kalīla wa-Dimna* among books of Indian wisdom.⁴⁷ Before the thirteenth century, one notices not only that the cross-references to similar passages diverged from author to author, but also that the book itself was referred to by different titles: some spoke of »an« or »the Indian book«; others quoted from »Indian wisdom« or simply from the »parables

43 Schoeler, *Verfasser und Titel*. See also Marlow, *Advice and advice literature*.

44 See Toral-Niehoff, *Legende »Barlaam und Josaphat«*; and Forster, *Barlaam and Josaphat*.

45 See, for example, Toury, *Descriptive Translation Studies*.

46 See de Blois, *Burzōy's Voyage*, 3.

47 Al-Jāhīz, *Kitāb al-Ḥayawān*, ed. Hārūn, 6:330, 7:92-100; al-Ya'qūbī, *Tārīkh*, ed. Houtsma, 1:97-99; Ibn al-Nadīm, *Kitāb al-Fihrist*, ed. al-Sayyid, 2:325-326. See also al-Ya'qūbī, *Works of Ibn Wāḍih al-Ya'qūbī*, ed. and trans. Gordon *et al.*, 2:351-352. For more on Ibn al-Nadīm's report, see part II, the section by Matthew L. Keegan.

of *Kalīla wa-Dimna*«, often without referencing Ibn al-Muqaffa' as the book's initial Arabic translator.⁴⁸ Such amorphous treatment invites us to consider a set of questions: What is *Kalīla wa-Dimna*? How many chapters did it contain initially? How was it presented to its readers? And how did that readership delineate the textual boundaries of the »Indian book«?

Second, looking at the plurality within the rich corpus of references, the diverse semantic level is also conspicuous. In other words, the interpretations, the status, and the value ascribed to *Kalīla wa-Dimna* did diverge considerably in the first five centuries of its reception. Philosophers such as Ibn Sīnā (d. 428/1037) and Ibn Rushd (d. 595/1198), in their commentaries on Aristotle's *Poetics*, focused on the fabulistic features, hence the fictive character of its stories.⁴⁹ Some littérateurs such as Ibn Qutayba (d. 276/889), Ibn Abī 'Awn (d. 322/934), and Ibn 'Abd Rabbih (d. 328/940) concentrated on the parables and gnomic sayings, which, in their anthological works, are surrounded by quotes from the prophetic tradition and the Qur'ān, Arabic poetry, and the wisdom of other civilizations, such as the Persians and the Greeks.⁵⁰ Furthermore, some others, such as the first known *Kalīla wa-Dimna* commentator,⁵¹ Abū 'Abdallāh al-Yamanī (d. c. 400/1009-1010), recognized that the book's gnomic sayings and parables might be helpful to buttress Qur'ānic morality, but underlined that Arabs had expressed the same wisdom before Islam, albeit in verse. Also, according to al-Yamanī's view, one may even suspect that the book was altogether an invention of Ibn al-Muqaffa', adapting ancient Arabic poetry, which after all – like *Kalīla and Dimna* – carries moral messages of a universal character, accessible to different language communities.⁵² Another figure, al-Bīrūnī (d. 440/1048), chose to cast some doubt on the Arabic translator's reliability in faithfully transmitting Indian wisdom, being critical of Ibn al-Muqaffa's alleged heretical intentions and aware of the differences among the Sanskrit, Persian, and Arabic versions of the book.⁵³ In sum, whereas some authors characterize the work as consisting of fabulistic content or take it as a book of wisdom sayings, others shed light on its purportedly doubtful transmission history.

The different perspectives on the book's ontological status suit its diverse and complex structure. Part of *Kalīla wa-Dimna*'s changing nature is its framing by several prefaces which are attributed to Ibn al-Muqaffa' himself, and some rather obscure authors of allegedly Persian origin: the wise man Buzurgmihr, the physician Burzoy, and someone known as 'Alī b. al-Shāh al-Fārisī.⁵⁴ Since the different prefaces, which are interconnected in form and content, provide some historical embedding of the »Indian book«, the variegated premodern scholarly references to its place in history will not come as a surprise. With time, one may conclude, the prefaces became an integral part of the book's significance.

48 See the different titles mentioned in Werkmeister, *Untersuchungen zum Kitāb al-Iqd al-farīd*, 142-144; and Gruendler, *Versions arabes de Kalīla wa-Dimna*.

49 Ibn Sīnā, *Fann al-shi'r*, ed. Badawī, 54; Ibn Rushd, *Talkhīṣ Kitāb Aristūṭālīs fī al-shi'r*, ed. Sālim, 89.

50 There are numerous references in several volumes of Ibn Qutayba, *Uyūn al-akhbār*; and Ibn 'Abd Rabbih, *al-Iqd al-farīd*, ed. al-'Aryān; and in one chapter of Ibn Abī 'Awn, *Kitāb al-Tashbihāt*, ed. 'Abd al-Mu'īd Khān, 312-318.

51 I use »commentary« in the broad Genettian sense of metatextuality, which »unites a given text to another, of which it speaks«. Genette, *Palimpsestes*, trans. Newman and Doubinsky, 4.

52 Al-Yamanī, *Kitāb Muḍāhāt*, ed. Najm, 1-5.

53 Al-Bīrūnī, *Tahqīq mā li-l-Hind*, 123.

54 On the different prefaces/introductory chapters, see de Blois, *Burzōy's Voyage*, 24-33; and Kristó-Nagy, *Pensée d'Ibn al-Muqaffa'*, 113-138. On the different »authors«, see part II, the section by Isabel Toral.

The prefaces, the multitude of references, and the diverging copies of the later full manuscript texts, along with the work's contextualization within advice literature and narratives with speaking animals, and approaches to its functionality, all together suggest a conceptualization of *Kalīla wa-Dimna* less as a book that stems from a single Arabic text, but rather as a textual tradition. This term bears first of all a methodological implication: underscoring that the numerous texts belong to one book, we tend to overlook that the very concept of »book« is a nebulous category. One usually tends to spontaneously equate the meaning of »book« with that of »text« in a totalizing material sense. Premodern writers, both commentators and copyists, however, must have had a remarkably different understanding. As a relatively open text, *Kalīla wa-Dimna* has a stable and meaningful core with a fairly stable significance, in clear contrast to its rather flexible and dynamic borders, extensions, and endings. The term »tradition« is an attempt to capture this ambiguity between two poles: stability on the one hand and textual flexibility on the other.

Our study of the indirect transmission thus attempts to disentangle the complexity between the two poles within the tradition, its transmission over centuries, and the reception history, in order to contribute to a more comprehensive history of Arabic literary ethics, as well as a more detailed conceptualization of premodern fictionality and knowledge-production within an Arabo-Islamic context.

Kalīla wa-Dimna: Genre and Literary Context – Matthew L. Keegan

As has been noted already, the text of *Kalīla and Dimna* is subject to a high degree of variation both across languages and cultures and within the Arabic manuscript tradition. Copyists acted as co-authors and, in so doing, subtly reshaped the text according to their understanding of it. Thus, what constitutes the text itself is an open question. One might legitimately wonder if this high degree of variation is typical of Arabic manuscript culture. It is not. Some Arabic texts were remarkably stable, and copyists went to great lengths to preserve what they thought the »original« text was, and to point out variants on the basis of collation with other manuscripts.⁵⁵

It might be suggested that the Arabic versions of *Kalīla and Dimna* are marked by a high degree of *mouvance* because they belong to a genre that permitted textual flexibility, while other Arabic genres did not. The problem with this theory is that no agreement exists about how to taxonomize *Kalīla wa-Dimna*. Neither premodern readers nor modern scholars seem to have agreed on what *Kalīla wa-Dimna* really was.⁵⁶ The tenth-century bookseller Ibn al-Nadīm considers *Kalīla wa-Dimna* to be amusing tall-tales (*khurāfāt*), suitable for evening entertainment like the Persian *Hazār afsān* or *Thousand Nights*, a story collection that formed the basis for the Arabic *Thousand and One Nights*. Ibn al-Nadīm takes them to be fictive stories and does not suggest in any way that they contain useful political advice or wisdom. By contrast, the twelfth-century Persian translator Naṣr Allāh Munshī (active c. 540/1146) claimed that, after the books of law, no book was more beneficial than *Kalīla wa-Dimna*. Although

55 See Keegan, Commentators, collators, and copyists.

56 Robert Irwin claims that it consists of »beast fables«, although he notes that no such term exists in Arabic. He is nevertheless certain that »the medieval reader could open a book of beast fables confident that his expectations would not be disappointed«. Irwin, Arabic beast fable, 36.

he admits that the style is full of jest, he deems it obvious that the book contains beneficial wisdom about how to manage one's affairs for rulers, élites, and commoners alike.⁵⁷ Still other readers interpreted *Kalīla wa-Dimna*'s stories as allegories of the soul's descent into and subsequent extrication from the material realm.⁵⁸

Some authors attempted to claim that *Kalīla wa-Dimna* did not originate in Middle Persian (let alone Sanskrit) but was Ibn al-Muqaffa's creation. The aforementioned al-Yamanī, who wrote a critical commentary on *Kalīla wa-Dimna* that takes the form of a sort of »counter-anthology«, accuses Ibn al-Muqaffa' of prosifying the wisdom found in Arabic poetry and then packaging it in animal stories of his own invention. Even though he criticizes Ibn al-Muqaffa', al-Yamanī considers the book's wisdom to be highly beneficial when it comes to ethics, justice, and politics.⁵⁹

Taking these divergent taxonomizing claims into account, it becomes problematic to assert that *Kalīla wa-Dimna* actually belongs to one genre and is then appropriated by others. Rather, this promiscuous text came to be interpreted by its readers as a book that might be wise or foolish, superficial or symbolic.⁶⁰

Part III – Digital Infrastructure

An Online Reader App for Published Versions of Kalīla and Dimna – Theodore S. Beers

The main task of the AnonymClassic project is to build a synoptic digital edition of the Arabic text of *Kalīla wa-Dimna* attributed to Ibn al-Muqaffa'. This means collecting manuscripts, transcribing their contents, integrating them into a bespoke software suite, identifying recensions, creating data visualizations, and so forth. But it is also important for us to develop a general understanding of the *Kalīla and Dimna* tradition, which spans dozens of languages and several historical periods.

Indeed, one of the ironies of *Kalīla and Dimna* is that there has never been a proper critical edition of the Arabic text – hence the mission of our team – but there is a daunting number of published versions of works within the broader tradition. Apart from non-critical editions of the Arabic (e.g., those carried out by Louis Cheikho and 'Abd al-Wahhāb 'Azzām),⁶¹ this includes the medieval Persian adaptations of Muḥammad al-Bukhārī (c. 544/1149) and Naṣr Allāh Munshī (c. 540/1146); two Syriac translations, one of which is based on the lost Middle Persian text; the Sanskrit *Panchatantra*, as far as it can be reconstructed;⁶² a number of versifications; and much else. We have, furthermore, scholarly translations of many of these sources into European languages.

57 Naṣr Allāh Munshī, *Kalīla wa Dimna*, ed. Mīnuvī, 18.

58 See al-Rāzī, *Mafātiḥ al-ghayb* 2, 249.

59 See al-Yamanī, *Kitāb Muḍāhāt*, ed. Najm, 3-4.

60 For more on the divergent receptions of *Kalīla wa-Dimna*, see Keegan, *Its meaning lies elsewhere*.

61 See *Version arabe de Kalilah et Dimnah*, ed. Cheikho; and *Kitāb Kalīla wa-Dimna*, ed. 'Azzām.

62 See *Tantrākhyāyika*, ed. Hertel.

It is often necessary for us to consult various published versions. For example, the Persian adaptations of Bukhārī and Naṣr Allāh – both of which, again, date to the sixth/twelfth century – have some relevance for the textual history of the Arabic work on which they are based, since they have survived in exceptionally early copies.⁶³ (The lack of Arabic manuscripts from before the seventh/thirteenth century has been noted several times throughout this article.) The task of cross-referencing different *Kalīla and Dimna*-related texts, whether in the form of printed books or a library of PDF files, can become rather cumbersome.

With this in mind, we have developed a simple web application, which allows the user to select any chapter of *Kalīla and Dimna*, and then any of the versions in which it is available, and the relevant PDF is displayed in the browser window. This is fast, easy, and accessible to members of the team wherever they may be (provided they have an Internet connection). If we happened to be working on the story of »The Owls and the Crows«, for example, and we wished to see how it is rendered in the Arabic versification of Ibn al-Habbāriyya (d. c. 509/1115),⁶⁴ finding the appropriate passage would require just a few clicks (see *Fig. 6* at the end of this section). To examine multiple versions for a comparative reading, one can simply open new instances of the reader app in browser tabs or windows. The utility is designed to be as lightweight as possible.

As of the beginning of May 2020, we have incorporated twenty-five versions of *Kalīla and Dimna* (and related works) into the online reader, including adaptations or translations in the following languages: Arabic, Persian, Ottoman Turkish, Greek, Old Castilian, Hebrew, Latin, German, French, and English. More will be added over time, depending on the needs of AnonymClassic team members and collaborators.

I would like to make two final observations based on this effort. First, work that is ancillary to the main project can be surprisingly useful. The online reader app began as a convenience feature, but it has grown to a point at which it would be a valuable resource for any researcher interested in *Kalīla and Dimna*. Second, it is worth remembering that the digital humanities are not restricted to massive undertakings. We have countless opportunities to build tools, however small, that can benefit our textual scholarship.

63 See al-Bukhārī, *Dāstān-hā-yi Bīd-pāy*, ed. Khānlari and Rawshan; and Naṣr Allāh Munshī, *Kalīla va Dimna*, ed. Minuvi.

64 See Ibn al-Habbāriyya, *Natā'ij al-fitna*, ed. al-Asmar.



Fig. 6: A screenshot of the Kalila Reader app.

*Toward Usable and FAIR Software for Arabic Textual Scholarship:
An Outline of the Digital Support for the AnonymClassic Project –
Mahmoud Kozae and Marwa M. Ahmed*

The *Kalila and Dimna – AnonymClassic* project seeks to assess the range of variation among selected Arabic manuscripts of this work, dating from the thirteenth to the nineteenth century, through a synoptic critical edition of chosen passages. This comprehensive study of *Kalila and Dimna* poses a twofold challenge for the software engineering team: (a) how to tackle the sheer volume of the data in a sensible and relatively fast manner, and (b) how to then process these data, both to mirror the continual updates in related research activities, and to create the online digital edition(s) which is the aim of the project.⁶⁵

On a meta level, the AnonymClassic project serves as a pilot enterprise for an urgent question in the digital humanities: how to create tools compatible with Arabic script, and easily customizable for other non-Latin scripts (NLS). Our *conditio sine qua non* is adhering to FAIR principles – Free, Available, Interoperable, and Reusable – in support of a world-wide academic community.

⁶⁵ We are indebted to Andreas Kaplony for permission to reuse, in part, the presentation given by Mahmoud Kozae and Rima Redwan at the *International Society of Arabic Papyrology (ISAP) VII Conference*. See Kozae and Redwan, *Digital approaches*.

The methodological approach of the project focuses on the juxtaposition and comparison of versions: AnonymClassic is about observation, not reconstruction. The goals of the project consist in documenting the history of the text in its preserved state and its given variants, and the analysis of the context and factors of textual development. Because of a high degree of variation within the text data, a structured procedure needs to be implemented to make the process of analyzing large numbers of manuscripts possible at all. This analysis is ultimately enabled via the digital synoptic edition. The individual steps to achieve this range from digitizing to structuring the data to analyzing.

In order to understand the structure of the workflow of digital support for the project, a good start is to try to grasp the sheer data volume as such: the *Kalīla and Dimna* text corpus appears as multi-faceted versions, embedded in multiple languages and cultures. So far, the project has actively processed more than 90 different manuscripts; this number increases on a regular basis. We currently know of some 140 manuscripts in Arabic alone. Additional language versions will be incorporated over time; our »activated« versions cover the Arabic, the Syriac, and (to an extent) the Persian traditions. The challenges thus are threefold: first, keeping the multifaceted data saved in a consistently well-formed structure; second, finding computational methods for analyzing the data according to our research questions; third, and most importantly, optimizing the aforementioned elements for a streamlined workflow. Practices from corpus linguistics, computational linguistics, data science, and software development have been adopted to model a digital infrastructure of data and tools for the project.

The Workflow

The object that is undergoing digitization is the corpus of *Kalīla wa-Dimna* manuscripts. Work begins with data collection and curation. This means transcribing the text of a manuscript in a line-by-line manner, juxtaposing the original (i.e., images of pages) and the transcription. Codicological information must also be entered into our database: dating, state of preservation, type of script, and many other parameters.⁶⁶ In order to ensure accurate documentation of all features of the text, a markup language, XML,⁶⁷ is used rather than raw text. Markup texts offer more versatility in annotating and structuring documents. Initially, XML files encoded according to the TEI standard were the main format for saving the digitized text.⁶⁸ As our corpus grew and became more complex, however, we began using an SQL database, which is easier to back up and maintain.⁶⁹ Furthermore, a relational database is better suited to serve as a back end for websites and APIs,⁷⁰ both of which are in the making. Additional text corpora and lexical resources are collected from public domain sources, as these are needed to test, develop, and operate machine learning algorithms for producing automated text analysis software. In addition to the manually entered data, certain information can be automatically extracted or aggregated. The most basic examples of this are word counts and lists of features notated in XML.

66 For details on manuscript description, part I, the section by Khoulood Khalfallah.

67 An abbreviation for Extensible Markup Language, which is a standard maintained by the World Wide Web Consortium. For more information, see: <https://www.w3.org/XML/>.

68 The »Text Encoding Initiative« provides a set of guidelines for the use of XML in philological practices. For more information, see: <https://tei-c.org/>.

69 An abbreviation for Structured Query Language, which is an ISO/IEC standard for data management.

70 An abbreviation for »Application Programming Interface«, which is a procedure for automated data exchange.

A second step then involves the identification of semantic and lexical elements of the transcribed data corpus. Lexical microanalysis, i.e., lemmatization, is necessary in order to process data in Arabic. In many cases, non-Latin scripts need substantially different processing in comparison to the methods used for data provided in Latin script. (This is a difficult problem, and our work to address it remains at an early stage.) Semantic segmentation consists of identifying small semantic »units« of the text. These units are labeled individually in order to facilitate comparison. Both levels – i.e., transcriptions and manuscript parameters, and unit sequencing – are subject to ongoing updates and corrections. To streamline updating processes, for human and machine alike, is vital to the project and a core task in our software engineering.

As a third step, data are bundled into *ad hoc* »editions«, prospectively to become our digital synoptic edition and be presented online. These are visualizations created with the help of the LERA platform. A clear representation of the data is needed to gain insights into patterns and variations. There is no predetermined hierarchical way to organize the data or visualize it, but the researcher's eye is better suited to recognizing similarities and differences among aligned portions of text.⁷¹ In addition, visualizations created from the numerical information of the units in a given passage across multiple manuscripts are helpful in making observations (which, however, may not always lead to a definite conclusion). *Fig. 7* is a screenshot of the LERA platform developed at Martin Luther University of Halle-Wittenberg.⁷² LERA is used by the project for collating manuscripts and aligning passages. This allows the project team to perform microanalysis of the text, either in group seminars or individually. This has resulted in identifying manuscripts that have near-verbatim similarity; others that are close to each other but with frequent paraphrasing; and still others that appear to have cross-copied from several sources.⁷³ LERA offers automatic detection of text variations, which has been successful for English, German, and French. Adjusting this functionality for Arabic is a task addressed in close cooperation between data scientists in Halle and Berlin.

71 See Few, Data visualization.

72 The LERA home page: <https://lera.uzi.uni-halle.de/>. See also Schütz and Pöckelmann, LERA.

73 For more information on microanalysis, see Gruendler, Arabic anonymous; and, for a sample study, *id.*, Rat and its redactors.

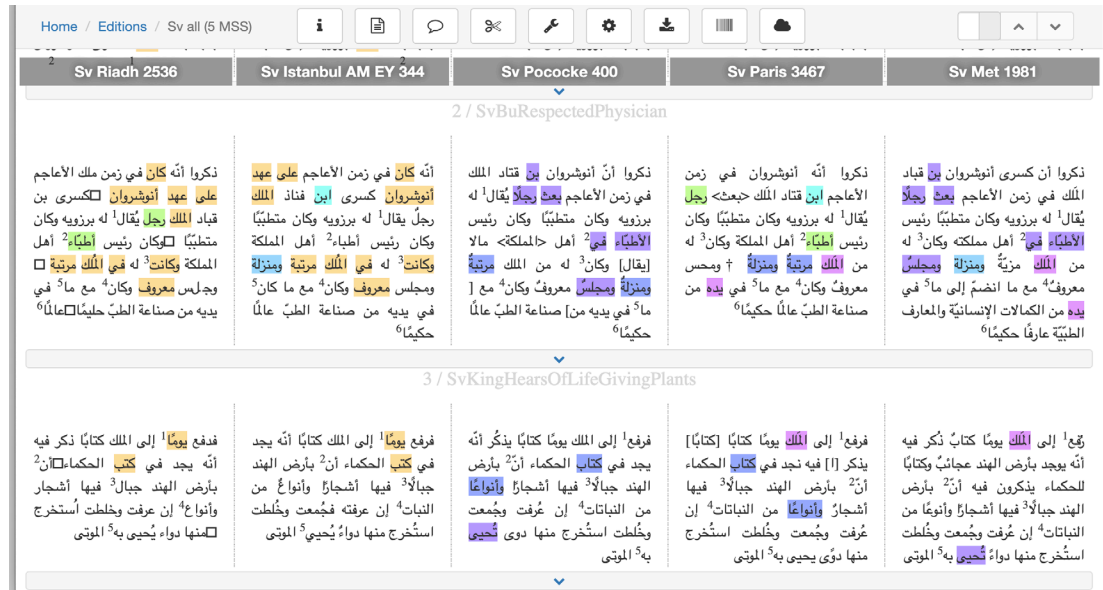


Fig 7: A screenshot of the LERA platform.

For our software engineering, there are a number of challenges to confront. Traditional editing programs tend to establish one textual witness as the »master« or »lead« text, and then provide comparisons on changes in filial witnesses. This is different in LERA and the *Kalila wa-Dimna* edition project: all text witnesses are treated as equal, and the corpus is seen as a *network* of different manifestations. Digital challenges are thus encountered in how to tackle a large volume of data. Not only are there many versions in Arabic and in other languages, but comparative work must be made possible both within a given language and the boundaries of languages or translations. Future expansion of the project to further languages and/or script systems must be built in from the start.

In response to these challenges, research activities and software usage in AnonymClassic are based on a high degree of human-machine collaboration. Currently available software and methods are complemented by work on designing and building new specialized software. Human-only activities focus on discovering continua, detecting text variants, segmentation, describing manuscripts, analyzing image cycles, and beyond. Machines complement human activity in tasks related to transcription, data archiving, gathering manuscripts, and processing text annotations. Humans complement machine activity when segmenting text for collation and analysis. Machine-only activities consist mainly of the automated compilation of synoptic editions.

The basic software programs used in the project are operating systems for file management, and Microsoft Office for word processing, spreadsheets, and presentations. This is complemented by LERA and further aided by the automation of repetitive tasks using various programming languages. While searching for specialized software for editing practices, we identified a number of problems. Of the few options available, most are XML-oriented and predominantly monolithic, with user interfaces that could be better. Simple practical issues also may become time- and energy-consuming: source code is not always available, nor always intended for collaborative development. A major challenge consists in the fact that many ready-made tools are incompatible with Arabic script. Workarounds need to be developed, or digital tools created from scratch that are suited to the project. These should

be able to interact with other projects, while ensuring longevity, both for implemented tools and for the accessibility of results.

In the AnonymClassic project, we are following an approach that could benefit the broader community of researchers. Our technology is meant to be agnostic, featuring modular architecture, and paying special attention to user interface design and usability. We aim at a solution that is compatible with Arabic and easily customizable for other non-Latin scripts, while adhering to the FAIR principles. It will take time to reach this goal, but we are on the way.

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