Neophilologus
https://doi.org/10.1007/s11061-026-09873-3

"Necessary Tables of Most Usefull Consequence": Graphic Devices and Title Page Promotion in Early Modern English Print

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Received: 19 June 2025 / Accepted: 9 March 2026

Abstract
This essay investigates how graphic devices—such as tables, diagrams, and images—were referenced on the title pages of sixteenth- and seventeenth-century English printed books, and how these references functioned as promotional tools. While explicit mentions of text-internal graphic devices were relatively rare, they were habitually accompanied by evaluative, quantitative, or content-based modifiers emphasizing the novelty, utility, or aesthetic value of the graphic devices within. The term "table" was by far the most frequently used of the nouns studied, largely due to its prevalence in almanacs. The study demonstrates that references to graphic devices were not merely descriptive but served to market the book's informational and aesthetic appeal, reflecting the broader trends in Early Modern English marketing of the printed book.

Keywords Graphic devices · Visual communication · Print promotion · Early modern · Title page

Introduction

Early Modern English title pages were spaces of promotion (see e.g. McConchie, 2013). The potential purchaser is assured of the quality of the work with praise for the content, or enticed with images. Previous research into late medieval and early modern title pages has found that both textual and visual practices were used as tools of title page marketing (e.g. Edwards & Meale, 1993; Olson, 2016; Suhr, 2018; Varila

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Published online: 13 May 2026

and Peikola, 2019). Even text-internal images themselves have been found to carry commercial significance (Carlson, 2003; da Costa, 2020). Yet the treatment of text-internal graphic devices on title pages remains uncharted. Promises of the exactness of the diagrams, beauty of the images, or the completeness of the tables within are made to highlight the quality and utility of the work; the presence of engravings is mentioned to advertise the use of the latest technologies (see Fig. 1).

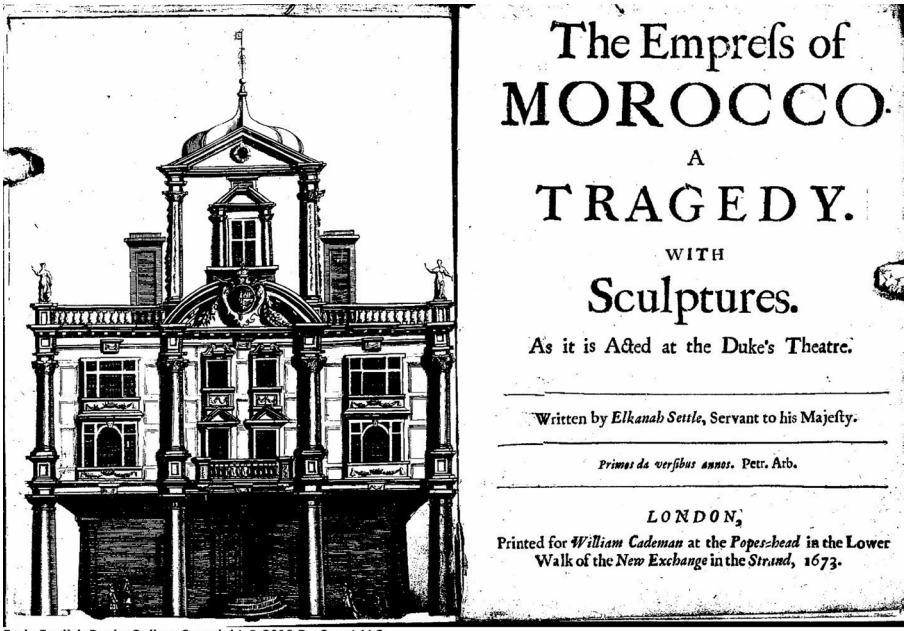


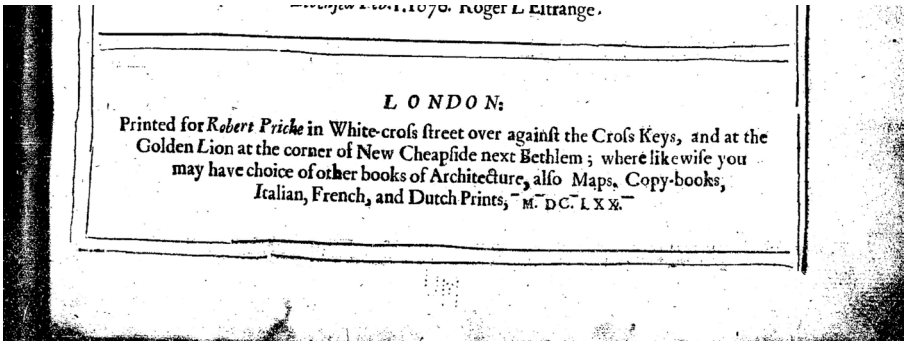
Fig. 1 *The Empress of MOROCCO. A TRAGEDY. WITH Sculptures*. (Wing S2678, 1673). Microfilm from Yale University Library via ProQuest EEBO. www.proquest.com

In this essay, we conduct concordance analyses of title page mentions of *graphic devices*, or visual objects such as images, diagrams, and tables, constructed for the transmission of information, to find out how early modern English title pages mention, describe, and evaluate graphic devices in the service of the title page's promotional purpose. We ask what kind of graphic devices are mentioned on the title pages and why; how these mentions are framed linguistically; and how the references to text-internal devices are used as tools for promoting texts.

Use and Appreciation of Graphic Devices in Early Modern England

The historical development of the title page reflects the growing understanding of the title page as a promotional tool (da Costa, 2020, 18–19; Olson, 2016; Smith, 2000; Voss, 1998, 735–37). Although initially sparse, the title page grew rapidly during the sixteenth century to include the names of the work and author, a description of

the content, and an imprint covering the time of printing and the location of the stationer, sometimes even a description of their shop sign, facilitating the prospective customer's finding of the work. Thus, when printmaker and bookseller Robert Pricke ordered *The Art of Fair Building*, the inclusion of information regarding his other products within the imprint is both practical and economical (see Fig. 2).


Roger L'Estrange.

LONDON:
Printed for *Robert Pricke* in White-croſs ſtreet over againſt the Croſs Keys, and at the Golden Lion at the corner of New Cheapſide next Bethlem; where likewiſe you may have choice of other books of Architecture, alſo Maps, Copy-books, Italian, French, and Dutch Prints, M.DC.LXX.

Fig. 2 Sales information by Robert Pricke (Wing L1047, 1670). Microfilm from University of Michigan Library via ProQuest EEBO. www.proquest.com

The title page could be used for promotion in other ways as well. From the late sixteenth century onwards, title pages habitually contained long, prologue- or index-like textual units describing the content of the work. Here, titles could be advertised with somewhat contrasting promises of briefness, completeness, necessity, and novelty (e.g. Olson, 2016; Varila and Peikola, 2019). Graphic devices were also used to draw the attention of the potential buyer. The oldest English illustrated title pages may be found in de Worde's works from the 1490s.

For the first decades of printing in England, the graphic devices produced were primarily representative images. Much like their European counterparts, the English presses began by illustrating canonical vernacular works with simple woodcuts of biblical personages, to make visible what was already familiar (Febvre & Martin, 1984, p. 97). Medical works, especially herbals, used illustration for practical demonstrations of objects and plants, while chronicles such as *Book of Martyrs* could use images to highlight points of interest (Knapp, 2003; Neville, 2022). The inclusion of woodcut images, especially but not exclusively on title pages, has also been argued to be a genre marker of romances (da Costa, 2020, 105–111; Luborsky, 1987) and popular news pamphlets up to the mid-seventeenth century (Suhr, 2011, 2018). Other types of graphic devices began to appear more frequently by the last quarter of the sixteenth century. The first English printed diagrams were often structurally similar to representative images. Medical and horticultural works, for example, depicted biological systems, naming the parts of complex organisms. Diagrams constructed of geometric objects grew rapidly in number after the publication of the first English Euclid (1570). Experimentation with braces in the sixteenth and seventeenth century led to a number of tabular or diagrammatic structures built using brace-shaped multiline devices, and the size of alphanumeric tables grew exponentially (Peikola & al.

forthcoming). All in all, English printed graphic devices grew in number, size, and variance in the sixteenth and seventeenth centuries.

There is early evidence of conscious use of images as a selling point. Caxton's famous 1483 edition of Chaucer's *Canterbury Tales* was published with woodcut illustrations, but replicated the text of the first edition (1477) exactly, leading scholars to argue that the addition of the illustration was a mercantile impulse designed to encourage second-time buying (Carlson, 2003, 93–95). Similarly, Knapp (2003) has argued that the copious program of illustration in Foxe's *Book of Martyrs* (1563, 1570) was consciously designed to reflect market demands. The early modern reader's appreciation of graphic devices may also be witnessed in contemporary advertisements and prefaces. Edward Brown promises the reader pleasure in viewing the "cuts" in *Travels* (Wing B5111, 1685, sig. A.r). Printseller and shopkeeper John Overton, in his broadside *Catalogue of books*, *pictures*, *and maps* (Wing O616A, 1675), advertised not only graphic devices within codices, but separately printed images of flora and fauna, altogether in five hundred "pleasant" and "useful" copper plates, sold for the purpose of modelling ornaments for artisans. In addition to aesthetic pleasure and general usefulness as justifications of their existence, the authors and printers often referred more directly to the information transference aspect of graphic devices. George Wither promises that the emblems within his of *Collection* (1635, *STC* 25900a, sig. A.r) will act as teachers of children. Humphrey Moseley justifies the translation of René Descartes' *Compendium of musick* (1653, Wing D1132, sig. b.2.r) with the need to correct erroneous diagrams, and Thomas Fale added "figures", i.e., geometric diagrams, to *Horologiografia* (*STC* 10678, 1593, sig. A.3.v) to clarify the text. George Elyot (*STC* 7635, 1531, fol. 24.r–27.v) even evokes the necessity of graphicacy by pointing out that reading and producing graphical representations of information is an important skill for a young nobleman. Diagrams and figures, Elyot finds, are more expressive than text, especially when it comes to applied mathematics (1531, fol. 26.r).

Yet using visuals was not always uncontroversial. Inaccurate, immoral, or simply unnecessary images were openly scorned well into the eighteenth century, especially in professional fields such as medicine (see e.g. Kusukawa, 2006). The expense of producing illustrations also meant an increased risk for the producer, and more costs for the buyer. The title page of *Scots Arithmetician* (Wing P686, 1685) points to the cuts as a justification of the work's price, while William Bedwell complains he had trouble finding a printer for his work because of the number of diagrams (*STC* 21825, 1614, sig. A.3.r–v). The anonymous prologue author of *The Playe of the Chesse* (*STC* 6214, 1562, sig. A.ii.r–v) even complains he had to forgo illustrating the work altogether due to the expense. But despite these challenges, graphic devices were used, appreciated, and indeed, touted as achievements on the title pages of the early modern book.

Materials and Methods

To collect the vocabulary used to discuss graphic devices, we used the *Early English Books Online* (*EEBO*) database and its full text version, *Text Creation Partnership* (*EEBO TCP*). While using only one of the databases might have produced a neater methodology,

we chose to use both due to some spottiness in coverage. We discuss this decision briefly below before moving on to the discussion of the searches themselves. At the end of this section, we present the methods of analysis applied to the results of our searches.

EEBO is a digital image database attempting a full coverage of English works published in 1473–1700 in digitized microfilm. Some of the entries also contain transcriptions of the texts. Collectively titled *EEBO TCP*, these transcriptions would form an optimal source for a study of title pages, but unfortunately, *TCP* does not offer a full coverage of *EEBO*. Using the image-only *EEBO* texts, on the other hand, would mean targeting searches to the metadata field 'title'. These titles have been shortened, sometimes drastically: in the metadata of *The Fables of Aesop* (see Fig. 3), for example, the field only reads "The fables of Æsop in two uolumes : paraphras'd in verse, adorn'd with 160 copper sculptures, and illustrated with annotations / by John Ogilby, esq. …". The cut off sections contain a relevant use of *sculpture*. We have hence used *TCP* where available, supplementing the material with *EEBO* searches, transcribing the missing sections by hand.

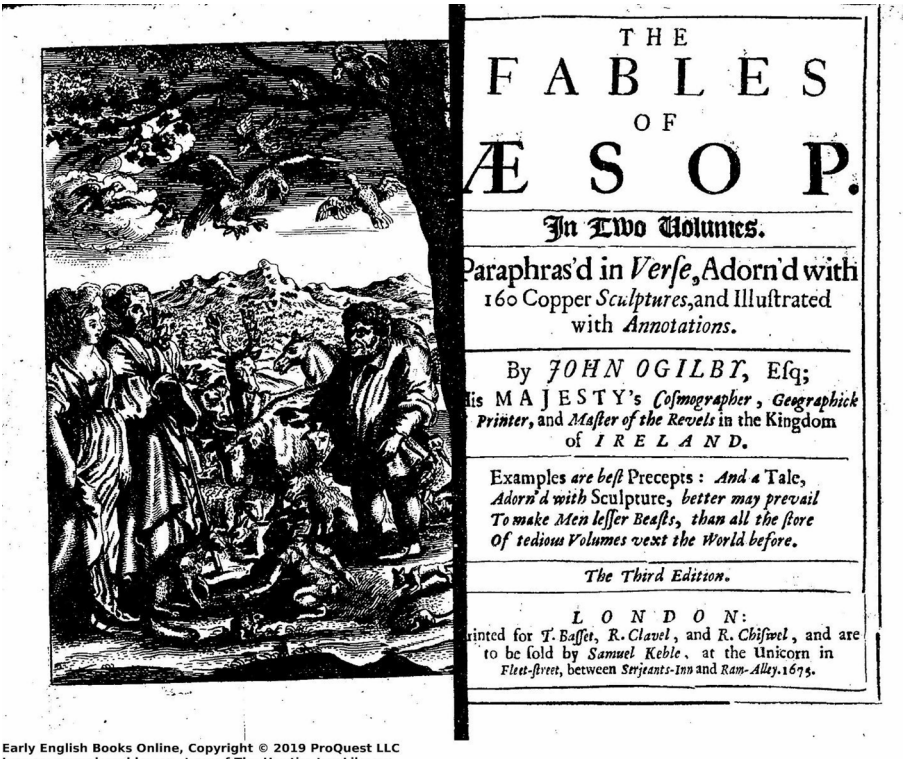

THE
FABLES
OF
ÆSOP.
In Two Volumes.
Paraphras'd in *Verſe*, Adorn'd with
160 Copper *Sculptures*, and Illuſtrated
with *Annotations*.
By *JOHN OGILBY*, Eſq;
His MAJESTY's *Coſmographer*, *Geographick Printer*, and *Maſter of the Revels* in the Kingdom of *IRELAND*.
Examples *are beſt* Precepts: *And a* Tale,
Adorn'd with Sculpture, *better may prevail*
To make Men leſſer Beaſts, than all the ſtore
Of tedious Volumes vext the World before.
The Third Edition.
LONDON:
Printed for *T. Baſſet*, *R. Clavel*, and *R. Chiſwel*, and are to be ſold by *Samuel Keble*, at the Unicorn in *Fleet-ſtreet*, between *Serjeants-Inn* and *Ram-Alley*. 1675.

Fig. 3 *The fables of Æsop* (Wing A702, 1675). Microfilm from The Huntington Library via ProQuest EEBO. www.proquest.com

We initially focused our title page text searches on sixteen nouns: *chart*, *cut*, *diagram*, *draught*, *drawing*, *figure*, *illustration*, *image*, *map*, *picture*, *plate*, *portrait*, *scale*, *scheme*, *sculpture*, and *table*. Although we used the ProQuest platform to access both sets of texts, the searches conducted for data collection differed slightly for works with full text and those without. The TCP searches targeted title pages with the field code TPG, in works published 1500–1699, with variant forms and spellings options active. An example search string might read "tpg(diagram)". The complementing EEBO search targeted the field code TITLE, with the same time limiters. We further modified the search string to exclude verb forms of search terms. We began by conducting a simple search with the search term, with all variants active. As EEBO displays the variant terms found in the results at the top of the results page, we were thus able to form a list of relevant forms, from which we excluded verb forms to create our list of search terms. Finally, we wished to exclude the TCP title pages from the search results, as these had already been collected. This was done by including a random frequently used word such as "be"—which may be reasonably expected to appear in every TCP entry—as a limiter. We were able to exclude all titles with a full text version. The search string resulted as, for example, "title(table) OR title(tabyll) OR title(tables) NOT fulltext(be)". This search was then conducted with only the variant spellings option active. The EEBO and EEBO TCP search results were then collected into an Excel spreadsheet and pruned for homonyms and references outside the work.

We ruled out broadsheets (which have no title pages), fragments, and doubles. A "double", in this context, refers to title pages whose textual content is identical to another variant, aside from spelling, grammar, punctuation, or the imprint. For example, Richard Grafton's *A litle treatise*, *conteyning many proper tables and rules* (*STC* 12154, 1572) has been deleted as a double, as the earlier edition, *A litle treatise*, *conteyning many proper Tables and rules* (*STC* 12153, 1571), has the same title page contents, except for spelling and imprint. Later editions of the work have been included, as the title page changes: in 1573, the title reads *A brief treatise*; in 1591, the end of the title page sees additions proclaiming the work has been "Perused, corrected, and augmented by W.W." (*STC* 12155, 1573). Similar changes to the edition information may be found in three further versions (*STC* 12162, 1596; 12163, 1599; 12164, 1602), all of which have been included. This approach to doubles allowed us to include variants where changes were made to the marketing of the work, and leave out titles whose content was changed or corrected during the print run without any changes to the title page.

Our study focused on vocabulary items whose referent was a diagram, table, or image within the book.[1] If the referent of the term was unclear, we used further contextual clues. For example, we verified that the work indeed contained graphic devices, or that the work referred to the devices with the same term in the immediate textual context. References to lists, indexes or tables of contents were excluded from the study. Although these are important as a part of the early modern developments in information structuring, they utilize verbal communication and linear reading, making them, at minimum, borderline cases as graphic devices. Finally, we checked and corrected the title transcriptions. We were left with 1855 tokens referencing graphic devices in 1354 works (see Table 1).

[1] This division of graphic devices was established in Ruokkeinen et al. (2024). It relies on a division of graphic devices to groups according to their form: representational, schematic, and tabular structures.

Table 1 Nouns used in reference to graphic devices

Noun	16th c.	17th c.	Total
Table	64	918	982
Figure	13	175	188
Map	10	170	180
Plate	0	139	139
Sculpture	0	114	114
Cut	0	69	69
Picture	4	49	53
Portrait	4	31	35
Scale	0	22	22
Scheme	0	20	20
Draught	0	19	19
Chart	1	14	15
Illustration	0	8	8
Image	3	3	6
Diagram	0	4	4
Drawing	0	1	1
Total	99	1756	1855

The number of relevant uses of each term found in the material may be seen in Table 1. Of the sixteen nouns studied, only seven had over 50 relevant title page uses. These seven nouns—*table*, *figure*, *map*, *plate*, *sculpture*, *cut* and *picture*—are the focus of this essay. The most frequently used term is *table*, appearing a total of 982 times. This is a substantially larger number of tokens than is found for any other lexeme and hence, given its prominence, *table* is discussed separately below.

Each token was analyzed in its context to map out the additional, potentially promotional information used to modify the terms. We conducted a concordance analysis of the tokens, with the entire title page text forming the concordance line for each search term. Based on close reading, we identified six types of modifiers for the tokens: *evaluation*, *quantity*, *content*, *use or purpose*, *production process*, and *statement of existence*. The frequencies of items in each category were calculated to provide information on the functions and the promotional potential of each search term (see Fig. 4 below). We present these function-based categories here before moving to the analysis and discussion.

The tokens classed as evaluation are primarily those with adjectival modifiers of novelty or quality ("proper tables", *STC* 12162, 1596; "New Pictures", Wing H2145, 1682), while tokens with quantity modification are those with, for example, numerals, adjectives, or determiners in the co-text ("150 Copper Cuts", Wing D2411, 1672; "many FIGURES", E3105A, 1680). Both quality and quantity of referents may of course be expressed using more complex syntactic structures, but premodification is prototypical.

The following three types are less likely to appear through premodification. The content of the device is usually expressed in full clauses, although shorter constructions may also appear especially in relation to maps ("Vnto which are adjoyned certaine tables, wherein the square root is extracted to 25000" *STC* 1100, 1635; "with a Map of GREEN-LAND", 19566, 1631). The use or purpose of the device is also

likely to be expressed using clauses ("With two mappes annexed heereunto for the plainer vnderstanding of the whole matter", *STC* 12624, 1582). References to the graphic device's production process may utilize several strategies. Simple premodification is used especially often in relation to *plate* and *cut*, where the production is referenced simply by stating the metal used. However, longer narratives are prototypical ("By Iohn Blagraue of Reading … who hath cut all the prints or pictures of the whole worke", *STC* 3119, 1585). Finally, the reference to a graphic device may also appear as a bare statement of existence ("WITH Sculptures", Wing S2678, 1673).

In the below analyses, rather than counting the noun tokens, we focus on the number of occurrences of a certain type of modification in relation to the lexeme. Even if, for example, evaluative modification manifests through two separate adjectives ("exacte and beneficiall Table", *STC* 15417, 1578), we have only counted it once. Of course, the token may also have different types of modification attached. *Plate* is particularly prone to taking multiple types of modification: the production process is near-always present as the metal used is identified in 94% of the token's uses ("exactly Engraven on a Copper-Plate", Wing D1878, 1684). There is also discourse semantic overlap. The expressions of purpose, for example, are also counted among evaluative expressions when the purpose given relates to enjoyment ("For the Readers greater delight Figures are annexed to most of the Relations", Wing B5470, 1654); both use or purpose and evaluation modification are counted targeting *figure*. The tokens simply stating the existence of a graphic device are treated somewhat differently, however. These are bare statements with no modification, and can therefore only be counted once.

Several tokens in one sentence also pose methodological challenges, affecting the quantifications conducted below. In "Both Parts Illustrated with Maps and Figures" (Wing H1450, 1698), for example, the evaluative word "illustrated" refers to both *map* and *figure*, and evaluation is therefore counted twice, once for each lexeme. Conversely, the lexemes *plate* and *cut* are often found not as part of a parallel structure, but modifying other lexemes. In "Curiously Engraven in 62 Figures on Copper Plates" (Wing B1686, 1692), for instance, "on Copper Plates" specifies the production process of *figure*. In these cases, the modification was counted only once: for *figure*, evaluation ("curiously"), production process ("engraven"), and quantity ("62"); for *plate*, production process ("copper"). This has the effect of underrepresenting production process for some lexemes, but we consider this method of counting to more accurately represent the meaning conveyed by the grammatical structure than the other option—counting all tokens of premodification towards the totals of both *figure* and *plate*.

Referencing Graphic Devices

We estimate that approximately 7% of the printed books containing graphic devices had any sort of mention of those devices on their title pages.[2] There was some growth in the relative number of mentions, types of devices referenced, and the number of

[2] This estimate is derived by cross-referencing the number of relevant mentions with unpublished data on the number of graphic devices in early English books (Early Modern Graphic Literacies (EModGraL) project.).

different lexemes used to reference them from the sixteenth to the seventeenth century. This growth and expansion in use may be taken as a general acknowledgement of the promotional potential of the title page, and the mentions within. In this section, we discuss how these mentions were realized.

"Adorn'd with Above a Hundred Several Sculptures": Quantifying References

The different types of modification may be found cross-referenced with the lexemes in Fig. 4. We have only included lexemes whose token count exceeded 20 (see Table 1). The different colors reflect types of modification, while each column represents the relative number of times a lexeme takes a certain modification. For example, Fig. 4 shows that 46% of tokens of *cut* are modified using quantity expressions.

As a token may take several types of modification, and in fact, 43% of the tokens do, many of the columns in Fig. 4 approach or exceed 150%. For example, the item discussed above, "Illustrated with several Copper-Plates", is counted among quantity, evaluation and production process, contributing to the *plate* column's total of 208%. Thus, these column totals express proportion rather than frequency and the likelihood of the lexemes to take more than one type of modification.

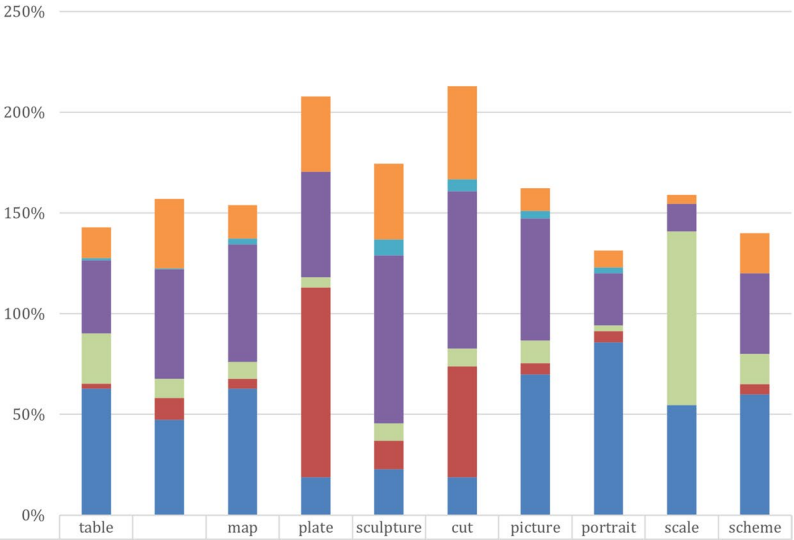


	table		map	plate	sculpture	cut	picture	portrait	scale	scheme
quantity	15%	34%	17%	37%	38%	46%	11%	9%	5%	20%
stating the existence	1%	1%	3%	0%	8%	6%	4%	3%	0%	0%
evaluative	36%	54%	58%	53%	83%	78%	60%	26%	14%	40%
use or purpose	25%	10%	8%	5%	9%	9%	11%	3%	86%	15%
production process	2%	11%	5%	94%	14%	55%	6%	6%	0%	5%
content	63%	47%	63%	19%	23%	19%	70%	86%	55%	60%

Fig. 4 Types of modification by lexeme

All lexemes in Fig. 4 may take modification based on content, quantity, and evaluation. Narratives of the production process or use or purpose, on the other hand, may not be found for all lexemes. Bare statements are even rarer. *Plate* and *cut* are especially likely to collect several types of modification. The lexeme most frequently used to refer to graphic devices is *Table 63*% of these references were made in contexts discussing the content of the graphic device. References to *table* also often contain evaluations (36% of the tokens), while the use or purpose of the device is mentioned in relation to 25% of the tokens. But despite the frequency with which tables are mentioned, the quantity of tables within the work is referenced relatively rarely (15%). *Figure*, *map*, and *picture* are primarily of a similar profile to *table*. They are found modified mostly according to their content (47–70%) and evaluation (54–60%). They all also have smaller frequencies of references to quantity (11–34%), use or purpose (8–11%), and production process (5–11%).

Plate, *sculpture*, and *cut* form another group of lexemes whose use resembles one another. This is understandable especially in relation to *plate* and *cut*, as they may be found used synonymously ("there is added very many Copper Cuts far larger than is printed in any Book written in the English Tongue. Also Explanations of every particular expressed in the Copper Plates", Wing V287, 1677). The similarities in the modification between *sculpture*, *plate*, and *cut* include the relative prominence of evaluation (53–83%) and quantity (37–46%), and the underrepresentation of content modification (19–23%). The only major difference between the three may be found in the use of *sculpture*, whose production processes are narrated less often (see Sect. 4.3).

Evaluation is consistently present as a possible modification type for the lexemes studied, and the evaluative language targeting the graphic device reflects the title page's promotional language in general (cf. Varila and Peikola, 2019). Claims of the novelty and quality of the graphic device and those of the work as a whole are quite similar, and the two are conflated in the title page discourses. Evaluation is especially likely to be found modifying *sculpture* and *cut* (83%; 78%), and also likely to be found with *figure*, *map*, *plate*, and *picture* (53–60%). *Table* takes modification based on evaluation relatively rarely (36%).

Although nearly all lexemes studied may be found taking quantity modification, modifiers of quantity are not particularly common in relation to any of the lexemes studied. Interestingly, the three lexemes most likely to take quantity modification are the ones carrying senses related to production: *plate*, *sculpture* and *cut* (37–46%). Modifications of content appear almost inverse. They may be found attached to any of the lexemes observed, and are overall more common than the quantity tokens, but are rarer in connection to *plate*, *sculpture*, and *cut* (19–23%). Most often, content modification may be found in relation to *portrait*, *picture*, *table*, *map*, and *scheme* (60–70%). Notably, quantity modification rarely appears alone in our materials.

Nearly all lexemes may sometimes be attached to narratives related to the production process or use or purpose of the device, but there are outlier lexemes which are especially likely to contain these types of modification. For example, *scale* stands out in Fig. 4 in terms of the frequency of its modification according to the device's use or purpose (86%). *Plate* and *cut*, in turn, stand out from the other lexemes observed

for their frequent references to the production process of the graphic device. This markedness is partially due to our chosen method of analysis, explained above.

Finally, we have statements of existence. These tokens are very rare across all lexemes. Simply mentioning the device ("with [device]") occurs occasionally with *table*, *figure*, *map*, *sculpture*, *cut*, and *picture* (1–8%), and *portrait* (3%), but leaving the device unexplained was clearly not the favored strategy of the title page compositors. An interesting parallel may be observed in the tokens modified for quantity, where the number of devices is rarely expressed alone ("with diverse tables"), and rather occurs in coordination with other modification types ("set forth In fourtie pictures for the greater profite of soules", Wing P1581, 1649). Despite its rarity, we wish to note this strategy due to the existence of examples such as those in Fig. 1, where size and positioning are utilized to visually highlight the reference. While it may not be apparent in the lexico-semantics, the *mise-en-page* makes clear that the visualizations are considered an important, promotionally significant part of the print product. Perhaps further description of the "sculptures" would have been simply considered redundant in the immediate context of the frontispiece. Notably, however, this use appears to be somewhat of an outlier. Despite the apparent promotional potential, no clear systems of visual highlighting of the referent lexemes could be found.

"A Table of Houses More Correct and Demonstrable [than] Those Commonly Used": References to Tabular and Visual Devices

Table is the most often-used term for graphic devices on the Early Modern English title pages (see Table 1). There are several reasons for this. The term has multiple relevant senses, and it appears frequently on almanack title pages. Almanacks were the early modern bestseller, with several yearly, competing versions by different mathematicians, cosmographers, and printers.[3] They tend to have several tabular devices such as tide tables or longitude/latitude tables of notable locations. Many of these are advertised on the title pages.

As with all tokens, our interest lies in terms referencing devices arranging information visually—arrangements of illustrative, textual, or geometric elements in specific ways. The table referents in our materials include tree diagrams, lists, and other non-tabular devices, in addition to alphanumeric tables. Consulting *OED* reveals the early modern breadth of use for the term: a "schematic arrangement of information" (*OED table* II.). More specifically, *OED* identifies the early modern table as a "systematic arrangement of numbers, words, symbols, etc., in a definite and compact form so as to show clearly some set of facts or relations; esp. an arrangement in rows and columns, typically occupying a single page or sheet. Formerly occasionally: †an orderly arrangement of particulars, a list (obsolete)." (*OED table* II.14.a.). Notably, the senses also encompass lists, but we do not include these references in our materials (*OED table* II.14.b; see also II.16). We also leave out references to concordances or prose synopses (*OED table* II.15).

[3] For an overview of the history of almanacks in sixteenth to seventeenth-century England, see Capp (1979).

The fact that *table* is used, throughout our materials, to refer to alphanumeric lists, tables of contents, *itineraria* or textual strip maps, indices, concordances or lists in prose, leads us to believe that the primary sense in which the word is used is 'a collection of information'. The conceptualization of *table* as we understand it now—a cell structure created by cross-sectional information categories—appears to be of some concern, but not a definitional part of the use. The "arrangement" is an important factor, as the physical organization of information according to a specific standard appears as a throughline—but we do not view these arrangements "schematic" as a rule (*OED table* II.). Thus, when a prose text establishes itself as a *concordance*, or uses numbered paragraphs to create a *table*, we have discounted it from further study, as it falls outside our focus of terms referencing devices of visual information transmission or visual arrangements of information. But admittedly, restricting our observations to the uses only referring to certain types of graphic arrangements is somewhat contrived. It is clear that the conceptual difference between these visualizations was not apparent in the early modern era.

Table 1 shows that the number of relevant references to "tables" ran close to a thousand in the observed period. Figure 4, in turn, shows that the title page discussions on these devices relate primarily to the quantity, evaluation, content, and use or purpose of the device mentioned. The production process is rarely mentioned. Simple statements of existence are exceedingly rare, but this is common across materials. Mentions of content are most frequent (63%), which we find quite logical: with the multitude of senses, specification is necessary. Content is indicated both by one-word premodifiers like the rather ubiquitous "tide tables" and postmodifiers describing more unusual content, often as prepositional phrases ("Mr. Ogilby's Tables of his Measur'd Roads", Wing O182, 1676).

The next largest category, with about 350 instances, is evaluation. Evaluations of tables are varied and correspond roughly with the evaluation targeting the book in general: novelty, size, ease of use, and utility are frequent themes. Instructions for the use or purposes of the table are slightly less common (ca. 250 instances), but nevertheless frequent ("A plaine and easie table, whereby any man may bee directed how to reade ouer the whole Bible in a yeere", *STC* 25143, 1613). Notably, references

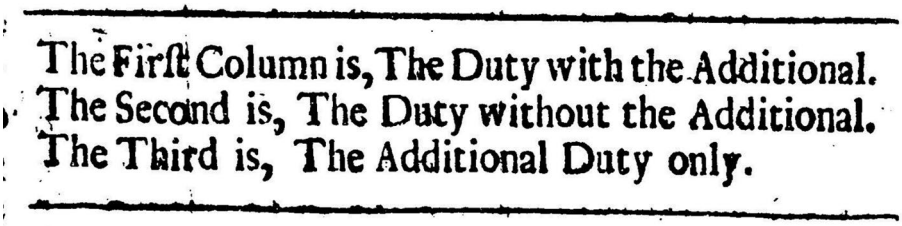

The First Column is, The Duty with the Additional.
The Second is, The Duty without the Additional.
The Third is, The Additional Duty only.

Fig. 5 Operationalizing the table (Wing T71A, 1690). Microfilm from The Folger Shakespeare Library via ProQuest EEBO. www.proquest.com

to a table's use relate to the knowledge to be gained or other outcomes of said use, rather than the technical process of accessing the information within the table. Only

one instance of the latter may be found in the materials (see Fig. 5). These types of comments are more naturally attached to the table itself—rather than the promotional space of the title page.

Finally, in about 150 instances, tables are modified by references to the quantity of tables ("Diuers little Tables", *STC* 14444, 1633; "with two useful tables", Wing O504A, 1688). Much like with the other tokens, quantity modification of *table* usually appears in coordination with other strategies, such as evaluation.

References to tables exhibit a tendency to appear multiple times on one title page. This pattern is not observed to the same extent with the other lexemes we studied—although discussions below show that some similar convergence may be observed in instances of *map*. Almanacks were especially prone to stacking table references, as they group together condensed representations of geographical and astrological information according to the needs of the presumed audience and the location of printing. For example, *The sea-mans kalender* includes "a table of the longitude and latitude … Tables of the sunnes equall motions … New exact tables of the north-starre. New tables of 77 of the principall fixed starres" (Wing T160, 1648). Despite the promises of novelty, however, the almanacs—and the title pages thereof—remained largely unchanged from year to year. The 1648 edition is already the "twentieth impression", and three decades later, the *kalendar* uses nearly exact phrasing to promise its readers novel tables of the north star, new tables of 65 fixed stars, and tables for high tides (Wing T163B, 1680). Such fidelity was not exceptional. The "commercial safety of the reprint", combined with title page promises of novelty, Olson (2016, 624) finds, was a reliable feature of the early print market. A new table or two tacked to the end of a previously successful work, or a review of the calculations involved in the production of the existing tables, was the manner in which this tactic was applied in almanacks. And as several yearly, competing editions of almanacks were published through our observation period, astrological works constitute approximately 20% of all titles studied. The profusion of almanacks, and their tendency to stack references to tables, together result in the disproportionately high number of *table* tokens observed in Table 1.

"With Several Figures, and a Map": Terms of Reference

Six other lexemes appear in the material more than 50 times: *figure* (188 instances), *map* (180), *plate* (139), *sculpture* (114), *cut* (69) and *picture* (53) (see Table 1). Of these, *figure*, *map*, and *picture* have a similar profile to *table* when it comes to types of modification, as mentioned in Sect. 4.1, so they are discussed together here. Similarly, *plate*, *sculpture*, and *cut* form their own profile group.

Figure, *map*, and *picture* are used to denote graphic representations. Of these, *picture* has the broadest use, as it simply refers to a "visual representation on a surface" (*OED picture* I.1.a). *Figure* refers to an "artificial representation of an individual or of a human form generally … esp. a likeness or depiction of a person as a subject in art … a representation or depiction of an animal or other being" (*OED figure* II.5.a). A *map* represents the earth's surface or a part of it, often showing the distribution of physical or geographical features, or the positions of stars in the sky or the surface of a planet. In addition, a *map* can refer to "a plan of the form or layout of something, as

a route, a building, etc." (*OED map* I.1a). *Figure* can refer to general representations or individuals: an anatomical figure in a medical book, for example, refers to a human but not any particular human, whereas history books include figures representing particular individuals –despite the frequent reuse of the matrices (Knapp, 2003). *Map*, on the other hand, almost always refers to graphic devices depicting locations faithfully. All three lexemes encourage further specification of content, whether of generic figures or of particular named entities, which accounts for the high proportion of modification describing the content denoted by *figure*, *map* and *picture*. Most commonly, the content is described in post-modifying prepositional phrases following the lexeme ("A Most Exact and Accurate MAP OF THE Whole World", Wing L3492, 1676) or as the objects of passive constructions ("A nevv book of architecture wherein is represented fourty figures of gates and arches triumphant composed of different inventions according to the five orders of columnes", Wing F2056, 1669).

Figures, *maps*, and *pictures* also have a high frequency of modification related to the evaluation of the graphic devices. Figures and pictures "illustrate", "adorn", "embellish" or "beautify", they are "lively" or "elegant", that is, they are aesthetically pleasing. To a lesser extent, evaluation can also refer to the novelty, size, or accuracy of the figures or pictures. Maps, too, adorn and beautify, but they are much more commonly evaluated for their novelty, their accuracy, or their utility. This is understandable, as the advances in mensuration and surveying over the seventeenth century allowed maps to become more detailed and precise, and therefore more likely to be useful in terms of their informational value in different contexts. In the example below, maps are first described in terms of their content and quantity, followed by their use or purpose. Finally, the maps are evaluated for their size and quality.

> (1) The kingdome of England & principality of Wales, exactly described whith every sheere & the small townes in every one of them in six mappes, portable for every mans pocket. …. the small prikes boundeth euery shire and the dubell lines sheweth the rodes from place to place. Usefull for all comanders for quarteringe of souldiers, & all sorts of persons, that would be informed, where the armies be; neuer so commodiously drawne before this (Wing H2448, 1671).

The content of each of the six maps is described in detail, thus repeating the lexeme several times on the title page in a stacking effect, similar to that observed with *table*. The stacking of the tokens and the accompanying modification gives the maps space and visibility on the title page, emphasizing their value to the potential buyer. On some title pages, the quality, novelty, or increased quantity of maps, figures, and pictures are mentioned specifically as additions or upgrades to earlier editions, thus encouraging second-time buying.

Plate, *sculpture*, and *cut* are used in similar senses in our material: they all refer to impressions (images made from engraved metal plates or woodcuts), or to matrices (the plates or woodblocks from which the impressions are made) (*OED cut* I.4.a; *plate* II.17.b; *sculpture* 3). It is the link to the production processes and printmaking techniques—rather than the type of visual information structuring or content—which sets these three lexemes apart from the others. *Plate*, and to a lesser extent *cut*, is almost always accompanied by a reference to metal, "copper" or "brass", reflecting

the production process. Interestingly, *sculpture*, despite the similarity in meaning, hardly ever collocates with these types of modifiers, perhaps due to the term's connection to carvings of stone or other hard materials (*OED sculpture* 2a, 2b). The more specific sense of an engraving or an engraved block only appeared in the 1650s, which coincides with the appearance of the term in our material. Engravings allow for more detail; they are also more expensive to produce and add an extra step to the printing process. The inclusion of plates, sculptures, and cuts could therefore be interpreted as a marker of high quality and value, well worth a mention in the promotional spaces of the book.

Specifications of content are rather rare for *plate*, *sculpture*, and *cut* (around 20% for each). In the case of *plate* and *cut*, this may be explained by the practice of using these lexemes to modify other lexemes referring to graphic devices (see Sect. 3). However, the three lexemes are often modified with evaluations (*plate* 53%, *sculpture* 83%, *cut* 78%). These evaluations most commonly "illustrate", "adorn", or "beautify" the work at hand, which implies an appreciation of the aesthetic qualities of the graphic device (usually representative image) denoted by the lexeme. Between 37% and 46% of the tokens of *plate*, *sculpture* and *cut* indicate a quantity. Large numbers, such as "above a hundred", are favored. The promotional strategy used when referring to "plates", "cuts", and "sculptures" hence differs from the one utilized in relation to "tables" and "maps". The tokens are not stacked on the title page. Instead, the title pages emphasize the value of these works as repositories of beautiful and high-quality images.

Discussion

We set out to answer three questions: (1) What kind of graphic devices are mentioned on the title pages and why; (2) How are these mentions framed linguistically; and (3) How are the references to text-internal graphic devices used as tools for promoting texts? Our quantitative analysis indicates that *table* is by far the most commonly utilized term of reference, followed by *figure*, *map*, *plate*, *sculpture*, and *cut*. Additionally, a number of other lexemes with smaller frequencies may be found. However, mentions of graphic devices in title pages are rather rare in proportion to the number of printed titles, which indicates that the promotional potential of visual communication was not properly recognized. Even works known for their programmatic illustration schemes, such as Caxton's *Canterbury Tales* or Foxe's *Boke of Martyrs*, did not mention the visuals on their title pages. Perhaps the printers and stationers relied on the customer's ability to browse the works in their shops, or similar functions were achieved by the use of frontispieces or title page decoration. Nonetheless, there is some increase in the mentions of graphic devices on title pages in the seventeenth century in comparison to the previous century, which may indicate a slight increase in the growth in publication numbers appears proportional. A more detailed quantitative analysis would be useful to verify whether or not there is a rising trend. It might also be interesting to see if the promotional patterns of specific printing houses or networks of printer-stationers display greater awareness of the promotional potential

of the graphic device by referencing them on the title page, or if the practice of referencing and describing graphic devices is sporadic throughout the profession.

The overwhelming number of *tables* is to a large extent explained by the prevalence of astrological texts. As perennial best-sellers, their promotional practices were refined by yearly reprints and fierce competition by several simultaneous printers. Combined with the other practices of the print market, such as the tendency to republish works with minor revisions or small additions and tout those revisions on the title page, the uses of *table* dwarfed the number the other lexemes studied. The familiarity of the concept may also have played a role. Unlike the more fashionable, novel terms such as *sculpture*, *table* as a device for information structuring or offering things in brief had been a part of English book culture well before the introduction of print.

The other graphic devices often mentioned on title pages have two distinct profiles. Like *table*, *figure*, *map*, and *portrait* are most commonly accompanied by further specification of content and evaluative statements of their novelty, size, or accuracy. *Figures* and *pictures* are mostly evaluated for their aesthetic qualities, whereas *maps* are evaluated for their novelty and accuracy. Mentions of the quantity or use or purpose of the devices is rarer. *Plate*, *sculpture* and *cut* have a different profile, stemming from their shared reference to impressions as the results of particular production processes rather than as visualizations. This also explains why *plate* and *cut* are typically accompanied by mentions of copper or brass, and why they are so often used to modify other lexemes studied. These three lexemes are frequently found with evaluative phrases, especially about the aesthetic quality of the devices, as well as references to large quantities, thus signaling an appreciation of both quality and quantity rather than usefulness. What is noticeable is that graphic devices are hardly ever mentioned in title pages without modification of some kind.

Our findings show some parallels with an earlier study that focuses on the modification for promotional purposes of verbs and nouns related to textual processes and textual products in early English title pages. Varila and Peikola (2019) classified such verbs and nouns as references to time, scope, and quality. They found that over 80% of verbs had modifications of time (novelty as well as age), whereas nouns, modified to a lesser extent, favored modifications of scope and quality. These findings, which concern title pages up to 1550, align with the findings of Olson (2016), who has pointed out the early modern printers' practice of producing new, augmented, or revised editions of texts and promoting them in the title pages. Many of the modifying expressions are similar to the ones used to modify graphic devices. In our study, mentions of novelty and quality are subsumed into the category of evaluation, which makes direct comparison of our findings difficult, but our closer analysis of that category indicates that evaluations of novelty and quality are associated with different lexemes. *Tables* and *maps* are more frequently modified by mentions of novelty, whereas *figures*, *pictures*, *plates*, *sculptures*, and *cuts* are typically modified with evaluations of their aesthetic quality. Scope, in the sense of brevity or enlarging, is not as evident in our material, though there are some references to the size of graphic devices, which we have also classified as evaluation. Our findings indicate that graphic devices are generally modified in similar ways to their texts, although

it seems that graphic devices are less commonly highlighted for novelty. The relative infrequency of promotional mentions of graphic devices in title pages, combined with the similarities of the promotional strategies, indicates a general tendency to view the devices as a part of the textual product as a whole, rather than as additional costs, stages of production, or tools of promotion.

Conclusion

This study has focused on the promotional uses of references to graphic devices in early modern English printed title pages. While referencing visuals was not a common practice, our findings indicate that promotional references to graphic devices operated in a relatively similar manner to that of the texts themselves. But in addition to quality, novelty, and usefulness, graphic devices were also assessed for their content, quantity, and production. The practices of stacking references and highlighting the quantity of graphic devices were particularly interesting promotional strategies, as they attached themselves to specific lexemes, namely to *table*, *plate*, *sculpture*, and *cut*.

There is still much work to be done on this topic. Our findings indicate that there is quite a lot of variation in the references to graphic devices in title pages and in the types of modification that they invite, and this merits further research into, for example, the practices of individual printers, and possible genre differences. Finally, many of the lexemes investigated in this study would also benefit from a closer analysis of their semantic development, which might shed light on the conceptualizations of knowledge and knowledge transfer via visualizations in this period.

Funding Open Access funding provided by University of Turku (including Turku University Central Hospital). Research for this essay has been produced as a part of the Early Modern Graphic Literacies (EModGraL) project, funded by the Research Council of Finland (grant number 340005) and Based at the University of Turku, Finland. PI: Professor Matti Peikola, University of Turku.

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