# 02 The Basics

## What is a text?

A text is a collection of words and words are composed of letters. In order to read a text, we make use of a variety of layout aids. The most simple and basic of these is the use of spaces between words. Classical Greek and Roman texts (cut in stone) were written in 'continuous script' . This was not considered a problem, since reading was a craft which only a few people mastered. These people knew the words and thus were able to read aloud, just try: *\*Icanreadthiseasilyaloud\**.

Eventually, the craft of reading became a common skill and an increasing number of design and layout aids were introduced: not only spaces between words but also capital letters at the beginning of sentences, line breaks, and a variety of punctuation marks such as commas, semicolons, colons and periods.[^hist] Also, concepts such as paragraphs, chapters and so forth, developed into a standardized system that allowed the structure provided by the authors to be seamlessly transmitted to the readers familiar with these standards, thus enabling ease of reading and the possibility of reading silently.

This structure of hierachically ordering words into sentences, sentences into paragraphs and so on, as well as further reading aids such as exclamation marks, bold text, and underscored text is made possible by inserting special codes. This process is called **\*\*markup\*\*** and the codes are called markup elements. It goes without saying that all these markup elements require stable definitions and clear relationships. Everybody is in principle free to invent their own rules (for example, the first letter of every new chapter is an elaborately decorated small picture). In the days of handwritten manuscripts many such 'free style' inventions were introduced, some of which remained to the present day and became part of the expanded alphabet. Think for example of the ampersand '&', which originated from the fusion of the letters e and t: we call such fusions *\*ligatures\**. In order to establish which markup is allowed and how it should be used, **\*\*markup languages\*\*** were defined.

Markup languages are grammars that define the markup and the relationships between markup elements. With the emergence of computer networks and the increasing need to standardize texts for multiple usages, an international ISO standard was defined in 1982, known as Standardized General Markup Language (SGML). This logically structured markup language was an important step forward, as it established a fundamental split between the text structure as such and the final representation of that structure. For example, SGML defines only functions or roles, as opposed to markup languages used in word processors such as **\*\*TeX\*\***, **\*\*LaTeX\*\***, Microsoft Word, WordPerfect or ODF (OpenOffice document format), where presentation and text structuring are mixed: when we type a word in **\*\*bold\*\*** in the text using a word processor we in fact type 'start bold' -\> type the word -\> 'end bold'.

![](images/03\_4\_boldstrong.png)

What is happening here is a mixture of **\*\*layout\*\*** and structure. Layout is presentation of a text for a specific medium, such as a paper page. SGML and its derivatives, the simpler **\*\*HTML\*\*** (HyperText Markup Language) and the expanded **\*\*XML\*\*** (Extensible Markup Language) make a strict distinction between structure and representation. A markup language allows for concepts such as 'bold text', 'chapter heading' or 'quotation' to be linked to a specific layout or function type (1, 2, 3...). This makes it possible to define, for example, chapter headings as type 1 and quotations as type 4. For each specific output you can then define in the layout phase how exactly this will look like. For instance, chapter headings will be rendered in a certain font and and font size and centered on the page (described with type 1), while quotations will be rendered in the same font and size as the running text, but in italics (type 4 in this example).For another output, for example a display screen, we could instead define chapter headings as pink text and quotations as yellow text.

This freedom in layout is defined using what is known as a **\*\*style sheet\*\*** , a list of elements linking layout definitions to markup definitions. This approach is an essential requirement if a source text is to be represented in several different ways on various media of various sizes. Note that in many applications, these conversions are done in a way which is fairly invisible to the user. If we convert an .odt file into a .docx file, all markup is converted one-to-one. However, as we will see in the following, conversion between two file types is not always symmetrical. Therefore the golden rule is to *\*always make sure that the source text is as systemically structured as possible\**.

An important notion is that all digital texts and accompanying coding are written in simple letters and numerals, this is called **\*\*plain text\*\***. This is a stripped-down text without layout; the most elementary token. It goes without saying that the flexibility of this process is limited by the specific plain-text character set we are using. In the 'old' days this was **\*\*ASCII\*\*** based on and limited to the possible number of distinct signs (letters, numerals, commas, etc.) of a binary computer text. Slowly but surely, a new elaborated list of allowed signs, extending ASCII is making inroads. This collection of signs is called **\*\*Unicode\*\***. Unicode aims to include all alphabets and letter systems including common signs and ligatures, such as the aforementioned *\*&\** and diacritical marks such as accents. Again, this is a step forward to guarantee a clean source file for all kind of usages, even those we don't consider or even imagine today.

### What is an electronic text?

An electronic text is generally understood as a text which is represented on a screen of some sort. Of course this is sloppy language. The key issue is that an electronic text became a structured file in which the emotions and intentions of the author are translated into notions like highlighted text of a certain type through the work of said author. Due to this markup, we become able to make different layouts, expressions, onto different media. It is of great importance to note that electronic publishing introduces a big shift away from the page centered culture of book printing. Book printing allows for various printing sizes depending on the wishes of the author, designer and publisher. For example, when making an art book based on a collection of paintings or drawings, a decision can be made on what the ideal book size is and whether or not it will be printed in oblong size or not. In the world of screens these types of decisions are different as we have very different screen sizes. No screen can be cut to the demanded size like with paper book publishing.

In electronic books we have to work around things in a completely different way to the paper world. This means that the transposition from an existing work to an electronic representation is rife with difficulties if the structure of the texts and, in particular when the relation between illustrations and running text, is important. In the world of text based publications (novels, research publications) there is generally only running text. For these publications the page size is less important and this is part of the reason why e-readers are becoming increasingly popular. On electronic reading devices the text can always be made to fit the size of the device, this is called **\*\*reflowable\*\*** text. In all other cases, the creator (publisher, designer, etc.) has to consider how to design the work and under what conditions content and meaning are represented. This will be discussed in the following chapters for various outlets, as one might opt for various versions of the original work. It goes without saying that in the coming years, authors and designers will try and develop digitally conceived works that intrinsically allow for a variety of representations depending on the reading device whether electronic or not.

## What are some electronic possibilities?

Book scanning is a process used in past, and still being used to convert physical books into digital media such as images, electronic texts, or an ebook by using an image scanner. **\*\*Optical character recognition\*\*** (OCR) is often used to convert a book into a digital text format like ASCII. To convert the raw images is used to turn book pages into a digital text format like ASCII. After this conversion which reduces not only the file size, it also allows the user to reformatted the text, search through it, and make it processed by other applications. Examples of book scanning by organizations on large scale are projects like: Project Gutenberg[^Project-Gutenberg], Million Book Project[^Million-Book-Project], Google Books[^Google-Books], and the Open Content Alliance scan books on a large scale.

Novel electronic capabilities enable a great number of possible publication outlets. Before entering into the problematic aspects of such a plurality of presentations of the same message, we investigate the possibilities. As with all technological possibilities; the coin has two sides (leaving aside the unstable rim) which exclude each other. The printing press introduced pagination and indexing, allowing many thousands of identical texts to be read and compared by an expanding group of readers over the years, independently of location. In an electronic world with non-fixed screen sizes this is complicated. On paper text is fixed, this allows for comparisons and interactions between different readers separated in space and time. In an electronic version the fixity of the text remains, as the text file is independent from its final substrate (**\*\*e-ink\*\***, **\*\*LCD\*\***, paper), but its presentation on the final substrate can vary substantially. Think about the introduction of numbering phrases in the Bible, which came along when Bibles became printed books in very different formats and the priest wanted everybody in the audience to read the same text. As the formats of the Bibles were non standardized, page numbers were of no help, hence the numbering of the phrases. In an electronic environment, where page numbers are unstable, we are confronted with the same problem.

The challenge becomes even greater if we widen our ambition to pictures, audio and video, hyperlinks, etc. In the Toolkit project, we deal with the field of books in the arts. This category of books integrates all aspects of text-only publications but expands it with visual information that can be explanatory of the text and, more importantly, to visual information which can be a 'standalone' statement. In such cases, text, helps the 'reader' (viewer) to have an understanding of and have a deeper appreciation for the object. It is clear that various forms of art books demand and enable different electronic representations. In these books we witness a crossover between the primary importance of text and image.

As cultural standardization over the centuries rendered, for example, a detective, religious or an educational book instantly distinguishable by its typography and layout, – this too will also become a fact for electronic books. Apart from the electronic (or paper) book as a *\*object d'art\**, electronic art book publishing will have many commonalities as a genre despite its differences per book. A major issue is that the electronic sub-structure makes all files just bitstreams (streams of binary code: zeros and ones). The digital files containing the various kinds of information are all equal on this level of digital bitstreams in the computer memory: merely standardized code. The great new thing in the world of electronic art books is that based on standardized, though well-tailored structures, the creative message can be published in a great variety of ways. This not only depends on the capabilities of the output (reading/viewing/listening) device, but also on the function of the book for the author in an actual context, such as a dictionary, a study, a reference, a coffee table book, or a leisure book. The same source can and will be represented differently under different circumstances. All these vistas demand a thorough and more labor-intensive editorial and production strategy. Not only because the same source can express itself in various output forms but even more so because once properly edited and stored electronically, information and its constituting parts can be reused and used in different ways, to be decided upon given a specific environment of goal, now and in the future.

## Summing up

The essential issue is henceforward that the start is a clean plain text file. Within this text markup coding is added. This coding has to adhere to standardized rules. In the most advanced case this would be according to the XML standard, but this very demanding grammar is too demanding for small publishers. Simple HTML coding is frequently used but is mainly useful for web design. The advanced version HTML5 is a promising, but also not simple option. In this Toolkit we opt for Markdown as a coding language as it is very simple and straightforward, however it is unfit for elaborate publications. From Markdown we can then convert to a HTML version, provided that we have a clear table that translate lay-out coding to the various outlets, such as paper, e-ink or LCD screens. Such a table is named a style sheet.

[^hist]: Guglielmo Cavallo and Roger Chartier (eds.), A History of Reading in the West, Polity Press 1999.

[^Project-Gutenberg]: Project Gutenberg, https://www.gutenberg.org.

[^Million-Book-Project]: Million Book Project, https://archive.org/details/millionbooks

[^Google-Books]: Google Books, http://books.google.nl/

[^Open-Content-Alliance]: Open Content Alliance, www.opencontentalliance.org/