

# Aarseth's Scriptons and Gunder's Content Spaces: Perspective and the Analysis of Textual Systems

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**ABSTRACT:** Espen Aarseth's taxonomical classification of textual systems as presented in *Cybertext: Perspectives on Ergodic Literature* relies largely upon the separation of textual storage from textual presentation. Reference to scriptons (script as presented) and textons (script as stored) define many of the relationships and variables through which Aarseth explores textual systems. However, there is a confusing shift in the perspective from which the *units* of presented script, or *scriptons*, are determined. In order to address this shift in perspective, I propose to adopt Anna Gunder's notion of *content spaces* to refer to the larger wholes into which individual mechanical units of presented script are assembled by the actions of a system user, however such wholes may be determined. Aarseth's *scripton* is then reserved for reference to units of presented script from the perspective of the media system involved. This addition to Aarseth's taxonomy broadens the utility of his approach to textual systems by removing a connotative uncertainty from this approach to textual systems.

**KEYWORDS:** cybertext, scripton, taxonomy, content space

Quantum mechanics tells us that light can be both a particle and a wave, depending upon the experiment used, the theory being tested. Similarly, in literary theory, "text" may be a series of marks on a page or a web of interconnected connotations brought into existence by an encounter with a series of verbal signs. The meaning of *text* depends upon the theories being tested, the experiments used, the perspective involved. As we seek to describe and come to terms with rapidly evolving and mutating electronic textual systems, there is a strong need to avoid similar connotative uncertainty in what is in many ways a new arena of textuality. Now more than ever, it is important to acknowledge the importance of perspective.

Espen Aarseth, in *Cybertext: Perspectives on Ergodic Literature*, sees electronic forms of textuality, or

more specifically the forms he refers to as *cybertexts*, as providing a new and unique perspective from which to view all textual systems. This perspective posits the system user, the verbal signs, and the media system as forming a literal *textual machine* [1]. Aarseth's taxonomy catalogues the relationships and activities involved in the production of verbal signs for display from the verbal signs stored in particular media systems. This approach to textual systems relies on distinguishing the verbal signs stored as part of a certain textual machine from the verbal signs produced for display by the activities and choices of the system user of that textual machine. Such a separation is an obvious reality in the multi-layered technology of electronic systems, and Aarseth usefully demonstrates that such a separation exists in print systems as well.

Aarseth's coins the terms *texton* to refer to verbal signs as stored in particular media systems, in contrast to *scripton*, the verbal signs produced for display in the media system as a result of the actions of the system user. The separation of *textons* from *scriptons* is central to Aarseth's taxonomy and as such the field of reference for these two terms must be clear. However, *scripton*, as presented by Aarseth in *Cybertext* and elsewhere, is alternatively used to refer to mechanical units of presented script as well as to the entire conglomeration into which such units are assembled by convention, authorial intention, or reading practice. This alternating perspective makes the determination of these units of presentation, the boundaries of individual *scriptons*, difficult, and this difficulty threatens to undermine the broader acceptance and use of Aarseth's approach to textual systems. His taxonomic variables are defined, in large part, in relation to the production and nature of the *scriptons* produced by a system. Therefore, any uncertainty associated with the term and concept threaten the coherence and integrity of the taxonomy as a whole.

A brief example will serve to demonstrate this issue. Raymond Queneau's *Cent mille milliards de poèmes* consists of 10 bound pages, each page cut into fourteen strips, each strip printed with a single line of metrically correct poetry [3]. Any fourteen strips when read top to bottom produce a complete and formally correct sonnet. In *Cybertext* Aarseth writes that *Cent mille* contains "only 140 textons but 100,000,000,000,000 scriptons" [1]. *Scripton* in this usage refers to each possible sonnet generated by the various combinations of the 140 strips, and not to the individual strips themselves or to any other possible combination of strips. Aarseth relies in this instance on conventional poetic form and authorial intent to determine the boundaries of the *units* of presented script possibly created by the manipulations of this textual machine. The individual strips present verbal signs that are somehow not distinct and separate units of display except when viewed as part of a larger whole.

In exploring Joyce's *afternoon a story*, Aarseth uses the term *scripton* in a way that seemingly contradicts that described above. *Afternoon* consists of 539 writing spaces or windows, linked by 951 electronic links presented in the computer program *StorySpace* [4].

Aarseth uses the term *scripton* to refer to each single writing space, each window, node or lexia displayed as a result of the actions of the system user during the course of an encounter with the textual machine, not to the whole, to the conglomerate series of such mechanical units, chosen and ordered by the system user into an authorial or otherwise determined whole [1]. Is a *scripton* then the individual units, or the conglomerate whole?

The two textual machines bear more than a superficial resemblance. Each consists of a certain number of *textons*, or stored, structurally delimited sets of verbal signs which are selected and loaded into a particular display order by the actions of the system user. In both systems, the *textons* when displayed form part of a larger whole, be these sonnets, novels, readings, or what have you. How, it is useful to ask, do the individual lexia, windows or nodes in *afternoon* differ from the individual strips of paper in *Cent Mille*? How does the term *scripton* refer to the individual mechanical units of *afternoon* and not to the whole, the authorially intended "novel" or "reading"? In contrast, how does *scripton* refer to the authorially intended whole, the sonnets in the Queneau, and not to the individual mechanical units?

The answer, I believe, is determined by the perspective from which the system is being explored. From the perspective of the media system, each mechanical display unit is, I believe, a *scripton*, a delimited unit of presented script separated from other such units by the paradigms, characteristics, and structures of the media system involved. However, from other perspectives, as in that of bibliographic convention or authorial intention, these individual mechanical units combine into larger wholes of displayed script, into sonnets, or books, or hypertext novels. Aarseth's taxonomy fails to provide a means of addressing this shifting perspective.

Anna Gunder, in *Forming the Text, Performing the Work - Aspects of Media, Navigation, and Linking* defines "texts [as] structured in one of several units of textual elements," and she adapts the notion of "content spaces<sup>1</sup>" for use in her analysis and discussion of textual systems [4]. The perspective from which one discusses a textual system is foregrounded by the direct statement of the *content spaces* delimiting factor [4]. A printed literary anthology can be discussed as an *editorial content space*, while the individual creative works within it are *authorial content spaces*, and the individual pages upon which these stories are printed similarly are *bibliographic content spaces*. In electronic systems, despite the fact that a great deal goes on behind the closed door of the operating system, the web-browser and server, from the perspective of the user, the act of following a digital link in a HTML web-based document from one textual element to another is the movement from one delimited textual unit to

another, from one *content space* to another, across the moat separating the two [4].

I have added Gunder's notion of *content spaces* to Aarseth's taxonomy in order to clarify the field of reference for the term *scripton*. This addition of *content space* provides a means of discussing the mechanical units of a produced textual stream separately from the overall whole into which such units are assembled by either intention, convention, media practice, or technological activity.) The use of *content space* to refer to intentional, conventional or otherwise delimited wholes reserves *scripton* for the individual mechanical or technological units of presentation of which the larger whole of a particular reading experience is formed. Additionally, by directly indicating the perspective from which these larger wholes are defined, by acknowledging the subjectivity inherent in so many approaches to textual systems, the declared subjectivity associated with *content spaces* foregrounds the importance of acknowledging perspective.

This addition to Aarseth's taxonomy allows us to consider the mechanical or technological units of presented script, or *scriptons*, separately from the overall whole into which such units are combined, *content spaces* however determined. In this way, we can avoid the confusion invited by the use of a single term, without modification, to refer to all units of presentation. A single page of a book is in this formulation a mechanical unit of textual presentation, a *scripton* as well as a *bibliographic content space*. Basic literary competence provides the requisite knowledge allowing us to assemble larger wholes or *content spaces* from such units, one such unit to the next, recto to verso and verso to recto, strips into sonnets or pages into novels, depending on how we approach the textual system and how the stored information is structured in that system. In an electronic system, a series of web pages with a single exlink [4] from the bottom of each page to an anchor at the top of the next provides the system user with only one reading pathway, much the same as a conventionally structured printed book. These individual web pages are *scriptons*, units of presented script, and the larger series of web pages can be discussed as *authorial*, *editorial*, or otherwise determined *content spaces*, depending upon the perspective from which one wishes to explore the system.

When we discuss the mechanics involved in the production of verbal signs from particular media systems, we need to be able to discuss both the individual units of presentation and the larger wholes into which they are assembled. As our textual forms and practices rapidly evolve and mutate there is a very real need for a system and a language that enables us to discuss, with connotative clarity, just what it is we are doing when we read or explore textual systems. Following the addition of *content spaces* to the terminology established by Aarseth, I believe his taxonomy provides us with a system and a language suitable for such discussions. Aarseth's terminology is gaining some acceptance in the critical

<sup>1</sup> Gunder adopts the term from Johan Svedjedal. Publications from the Section for the Sociology of Literature at the Department of Literature, Uppsala University, 62. (2000).

community.<sup>2</sup> This being the case, the clarification I propose here is not only worthwhile but also essential.

The perspective provided by cybertextual systems and described by Aarseth promises a host of new insights into the nature of textual systems in general. At this stage in the development of electronic textual systems and the languages used to discuss them, I believe that we need to establish a framework upon which to build these future insights, a framework that provides a terminological consistency demonstrably lacking from much of the textual and critical analysis in our literary critical heritage. One has only to ask a group of literary critics to define "text" to see a spectacular instance of a term so freighted with meaning as to be essentially meaningless. Perspective is everything, whether discussing *text* or *cybertext*. We are now in a period when new perspectives, new approaches, new forms of textuality seemingly arise overnight, only to be disappear the next day. Exciting as this may be, a consistent terminological and conceptual approach will help the work we do now form a solid foundation upon which the analysis of systems not yet even imagined may build.

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<sup>2</sup> See, for example, Markku Eskelinen and N. Katherine Hayles. Hayles is an interesting example, in that she uses the term *texton* to refer to the stored magnetic pulses on a hard drive, rather than to their symbolic meaning, another instance where perspective determines the field of reference.