

# Computer Support for the Rhythms of Writing

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## Abstract

The nature and frequency of the rhythms of writing are explored in relation to the external factors that influence the writer. The type of text and external representations and the writer's tools are of particular interest. The ease of writing is affected by the ease of revision with a word processor. The ease of writing is affected by the ease of revision with a word processor. The ease of writing is affected by the ease of revision with a word processor. The ease of writing is affected by the ease of revision with a word processor.

tas, and are un-erstan n e u w r t n an Kaur'er t e r ara ter st s o f f e r e n t w r t n  
too s an e a E, un r an t e s o a an or an at ona on t e x t n w r t n  
o u r s F o w e r , E e a n L u n s o r

Our own nvest at on s i ave on e n t r a t e on t h e w a y t h a t w r t e r s u s e e x t e r n a r e p r e s e n t a  
t o n s a s a n e x t e r n a e o r y a s a n i n t e r e a t e n o t a t o n b e t w e e n t h o u r t a n t e x t a n a s a  
e a n s o f s p e e f y n o n s t r a n t a n s t r u t u r e o r t h e w r t t e n t e x t

e r a v e a s o a r r e o u t e x t e n e s t u e s o f o a b o r a t v e w r t n t o e n t r y t h e s s u e s s u r  
a s t h e p a r t t o n n a n o o r n a t o n o f t a s s t h a t a r e e n t r a t o t h e e s n o f s o f t w a r e o r o  
a u t o r n o w a n G o o e t

r e a n p a t o n o f t h e s e s t u e s o r s o f t w a r e e s n s t a t e x s t n w o r p r o e s s o r s  
o f f e r o n y t e s u p p o r t t o w r t e r s t h e r e s a n e e f o r a w r t n e n v r o n e n t w r t a s s t s  
a n e n t r e e p s o e o f w r t n f r o a p t u r n e a s t o e v e r n a n s e o u e n t a n w r t  
a o w s w r t e r s w o r k a o n e o r n r o u p s t o s e t o w n a n s a r e t e r e a s p a n s a n n t e n  
t o n s e a r e e v e o p n t e r t e r s A s s t a n t a s a t o o t o n v e s t a t e t h e p r o e s s e s o f w r t n  
a n a s a p r o t o t y p e w r t n e n v r o n e n t I t o b n e s a n e a s o r a n s e r a s t r u t u r e e t o r a n  
a t e x t e t o r a n t s e s n e t o s u p p o r t a v a r e t y o f w r t n s t r a t e e s e r v e f r o a n  
e x p t o e o f t r a n s t o n s b e t w e e n e x t e r n a r e p r e s e n t a t o n s  
O t h e r a r t e s i a v e s u s s e t h e e v e o p e n t o f t h e r t e r s A s s t a n t

about anything else until we pause, return to most other activities and not  
 to be attentive and aware or reveal ourselves simultaneously or take time to be  
 creative activities such as painting may be one of the reasons but a painter and a so-  
 called novelist are busy strokes with their own conversation or thinking about what to do  
 next, it is not possible to write.

As people experiment with their style to write an easy piece of prose such as an  
 account of what I saw in two cups of corn and at the same time to be taken  
 tabe out of our senty. You will find yourself a ternation between writing and reading, it is  
 not possible to do both at once or it is possible simultaneously to write and to think about the  
 structure of the text, it is on your conscious attention that a writer can perform well in text  
 apart from speaking the text out loud to stop. It follows therefore that a writer needs a t  
 as two options to be arranged on by the flow of words perhaps not so unannounced  
 to or to a ternation between thinking and writing, most writers are unable to sustain the strain  
 of producing creative text production at a time as well as a see after a few professional  
 writers and so on and so on the words of Frank, it is when we write we weave an out of  
 ourselves.

### The Cycle of Engagement and Reflection

relationships are always engaged between an event and a reflection. An event writer  
 is evoked to attend to the task of creating text which either be notes or your essay out  
 prose, reflection consists of sitting back and reviewing a or part of the written after a  
 for an transformation as a planned what new after a to create a row to or an  
 set see future. It is usually an event in the production of text which is as  
 been creative. It is the act of writing that produces a series of an event but Boen  
 is a rule that creativity arises a sort of reflective exploration and transformation of  
 conceptual spaces. Boen is a result of an artistic act that is the very  
 event and a reflection which produces a position or a way when an event provides  
 new after a for an exploration and reflection of an interpretation of the after an  
 new plans to be enacted.

Forming and transforming  
 ideas, "exploring  
 conceptual spaces"

Re-reading  
 the written  
 material

Planning what  
 material to create and  
 how to organize it

Creating the  
 written material

riters set up st n t v e r y t h s o e n a e e n t a n r e e t o n , r e p e r o o f t h e s e n y t h s  
ay be s i o r t a s w r e n a w r t e r o o s b a , o v e r e a r s e n t e n e a s t s w r t t e n o r o n w r e n a  
w r t e r r e r e a s a n e n t r e p e e o f w r t n a n p a n s a a o r r e v s o n , o r a y t h e r e w b e  
s o e x t u r e o f t h e s e a n t h e n a t u r e a n f r e q u e n y o f t h e n y t h s e p e n o n a o n o t h e r  
f a t o r s t h e s p o s t o n o f t h e w r t e r t h e t y p e o f t e x t t h e r e p r e s e n t a t o n s u s e n w r t n a n  
t h e w r t e r s t o o s

## The Writer's Disposition

A n u m b e r o f r e s e a r c h e r s B r w e B o w e s e t a , G r a n e r r a v e e s r b e t w o  
t y p e s o f w r t e r t h e a n n e r a n t h e D s o v e r e r , a n n e r s t e n t o u s e w r t n a s a m e a n s o f  
r e o r n o r o u n a t n e a s w r i t e r y a v e a r e a y o r e w r e D s o v e r e r s u s e t h e  
a t o f w r t n a s a w a y o f f n n o u t w r a t t h e y w a n t t o s a y G a b r a t u s e s a s a r  
r o t o y n r a r a t e r s n a a e t h e o r e s o f w r t n , r e a s s a p o s t o n s u e s t s t a t  
a w r t e r u n e r s t a n s a n e v e o p s t h e t o p b y a r r y n o u t e n t a p r o b e a n a y s s t o p r o  
u e e a s w r i a r e t h e n e x p r e s s e a s t e x t , r e r o a n t p o s t o n r o s t a t o n y t h r o u r  
t h e a t o f w r t n a n a w r t e r u n e r s t a n r e s e r a n r e r t o p , B y e n a n r e t y a n  
e a t e y w t h t h e t e x t w t h o u t p r e p a n n n a w r t e r a o w s e a s t o r o w p a s t t h e b a r r e r s o f  
r a t o n a t h o u r t , O n e t h e e a s a r e s e t o w n n p r y s a f o r t h e y a n a t e r b e r e w o r e a n  
p o s t e

G r a n e r s u e s t s t a t a n n e r s a n D s o v e r e r s a r e e x t r e e s a n t a t n v u a  
w r t e r s e s o e w r e b e t w e e n t h e p o e s b u t r e o e s n o t n a t e r o w w r t e r s a n e r e t h e  
t w o a p p r o a c e s e n t a p s t h e y o n y p a r t a y e n a e w t h t h e t e x t w r e w r t n o r a r e a b e t o  
o r a n s e t h e r e a s a t t h e s a e t e a s p u t t n t h e o w n o n p a p e r B u t a s w e r a v e s e e n  
w r t n s n o t e t a t r e a t o f w r t n e a n s u a t t e n o n I t s n o t p o s s i b l e t o r a v e y o u r  
n s o e w r e e s e w r e p e r o r n t h e a t v t y n o r s u t a n e o u s y t o w r t e a n r e e t  
r a t s t u a t e s a w r t e r b e t w e e n t h e t w o p o e s o f D s o v e r e r o r a n n e r s w t h e r t h e w r t e r s  
o r e n t e t o w a r s r e e t n o n o r e n a n w t h t h e t e x t

r t e r s w t h a a n n e r o r e n t a t o n a r e r v e n b y r e e t o n f o r t h e s e p e o p l e w r t n  
f o w s r o u n e r s t a n n , r e y s p e n a a r e p r o p o r t o n o f t h e r t e o n e x p o r n e a s a n  
o n e n e r a t n p a n s a n o n s t r a n t s t o u e t h e r o p o s n , r e n t h e y w r t e t s n a n  
a t t e p t t o a r r y o u t a p r e p a r e p a n , r e r n y t h s t y p a y o n e o f r a p a t e r n a t o n  
b e t w e e n w r t n a n r e e t n a , n n o r r a n e s a n a u s t e n t s t o e e p p a n a n t e x t  
n r a n o n y C o n v e r s e y t h o s e w t h a D s o v e r e r o r e n t a t o n a r e r v e n b y e n a e e n t w t h  
t h e t e x t f o r t h e u n e r s t a n n a r s e s r o w r t n , r e y a y p r e e r t o b e n a w r t n  
t a s , b y s r b b n o u t a r a t w r i r e v e a s t h e r t h o u r t s t o t h e a n t h e y t h e n s e e o a t  
t o e a v e t h e r t e x t s a o n e G r a n e r p i t w r i a y n v o v e t h e n r e r e a n t o a n  
e a s w r i a r e t h e n n o r p o r a t e n t o t h e t e x t , r e r n y t h s t y p a y o n e o f o n e r p e r o s  
o f e n a e e n t f o o w e b y r e r e a n a n e x t e n s v e r e v s o n

A t t h e p o a r e x t r e e s a r e t h e p a t h o o a s p o s t o n s o f w r t e r s w i o a r e a u r t n p r o  
o n e e n a e e n t o r r e e t o n , t h e r n y t h r a s o e t o a r a t A t o n e p o e a r e w r t e r s w i o s e  
f u a t t e n o n s f o u s e o n t h e a t o f w r t n f o r o n p e r o s o f t e e a v n n o o p p o r t u n t y  
f o r o n t o r n o r r t a a p p r a s a , r e q u o t a t o n b e o w s r o t h e a u t h o r i o a s o f e

I w r o t e t o o u r a a n I n o t o n y w r o t e w r a t w a s e s s e n t a b u t t e a n t e a a n  
y e n t u s a s f o r a o o s e n e o n e o f t h o s e e n r a n t n v s t a s w r i a n o p e n u p s o  
a a y t o a a n n t h e u f o w o f r e a t o n w o u o v e r p o w e r e a n I w o u w r t e  
t h o u s a n s o f w o r s o n a s e n e w r i o n t r b u t e n o t n o f v t a p o r t a n e t o a b o o ,  
w i o s e r e a t e s t n e e a r e a y w a s r u t h e s s o n e n s a t o n G r s e n

A t t h e o t h e r p o e a r e t h e o v e r y r e e t v e w r t e r s w i o a n n o t t u r n o n t h e r o w o f w o r s  
r y n t o t h n , t o o r a r a b o u t t h e p a n s a n e t a o f a t e x t a n r e s u t e t h e r n a o p e t e  
b r e a , o w n o f a t v t y o r t o n t e r n a b e t n , e r n w t h e a s a n t e x t

Dorothy are reported that often too, it is often to write a story. It is not out  
an then write the sentence by sentence nor first rate. I am not writer's work but I  
in a seven. Br we Bowes et al. p.

## The Text Type

For most writers a common or a Davis every approach to writing is not as the psycho-  
trauma. In general writers are adaptable and they are a different approach to the writing task.  
For any articles in our era rapidly as seen in a content reflection, they are generally on  
structure by the need to construct a balanced and interesting text into a conventional  
or usually as a research report.

arrange the writing nor a year in our era as on the period of an event because the  
writer needs to relate an event or to create a scene and allow a narrative to be told.  
For this is important that the narrative works, except that an in progress. A break, or  
reflection may destroy the entire play.

## The Type of Representation

utterances as shown onto paper is not a matter of empty nature but of a very real  
structure.

utterances into words is a necessary and conscious work that is not been  
usually so.

External analysis usually notes top structures top aspects  
and the raw text itself are both representations of content and in the sense  
new structure is so affected from the content of the production and available for interpretation  
and for an structure of the different types of representation in our era is not the  
they are as they are created and revised.

Paragraph supports a unit of writing that is a positive or a text present  
ation. It is enough to be a top or a unit but is not enough to represent a  
unit of ease. The writer can easily stop and start over a paragraph and react as a  
sequence unit. Both Br we Bowes and as usual found that the writers  
they study pause regularly at paragraph breaks.

more relevant structure out there have been developed to provide an overview of the  
overall structure and a review of the writer's structure plan. They are generally on the  
infrequent pauses within the writer assesses how the writing fits a general structure.

notes etwors, Harpes Goo et al. berton, r. u. an. an.  
aps. But an are often as interrelated representations allow a writer to visualize  
relationships between content points before or after the text. They allow a writer  
to build up a map of the top to be used in a text and to show an easy visual for the  
relationships between ease and top structure. They offer a new way of working. A writer  
and an ease with an explore ease as external objects without the need to express the  
written text. They also provide a visual review of the ease and content to be referred to  
the writing. Instead of taking a complete break from writing to assess whether the  
progress is the content a writer can add an external theory to relate an idea or an  
a new note to the network to reorganize the text as a series of writing notes etwors,  
an other interrelated representations usually as a unit trees lead to new they are as the  
writer moves between text and a range.

note in the same a writer assesses that it is often a ternate between a  
range and tree in the ease on paper and writing. Br we Bowes et al. p.



in the area of computer-aided writing, the next generation of tools and work

### The Writer's Assistant

The effects of new technology on the writing process cannot be assessed in the abstract, there are far too many individual factors and differences of writing practice that need to be taken into account. The extent to which a writer's activities are affected by new writing environments will depend on the writer's own use of an aspect of writing that is a matter of attention to the writer's own environment between the writer and the text. It suggests that these new tools should be studied by teachers of writing and designers of new tools for writers. In particular we should now be able to encourage a new potentially productive way of writing and a new environment to support the writer's own writing and to a particular strategy in writing.



Figure 1. The Writer's Assistant

We are developing the Writer's Assistant as a test environment for studying the processes of writing. The Writer's Assistant offers three views of the environment see Figure

a notes network, view writer allows the writer to set own eas as notes and to n, the  
 to enter into a network, of association a structure view writer sets the writer create an a  
 nputate a structure out ne of the text and a Lnear view writer enables the writer to type n  
 text with the n u of intererene A writer and ove rap y between the views by for  
 exa pe reatn a rou r out ne n nso e text u pn eas as notes n, n these  
 notes into a network, for n the network, into a str n of text and er n tw t the out ne,  
 re pro ra s es ne to ass st w t ov n between the v ews by for exa pe auto at  
 a y travers n the otes etwor, for or a near text and n n an appropriate pa e n  
 the out ne stru ture to pa e the text e e ents Harpes Cutterbu, an Goo et n press,

One a of the rter s Ass stant s to eve op an nte rate wr t n env ron ent for peo  
 pe wr o reate o p ex o u ents as part of the r professiona ves but t an a so be use to  
 nvest ate the e e to new too s an representat ons on the wr t n pro ess, tu es of wr ters  
 us n t s an s ar too s su r as the r t n Env ron ent Lans an t eber  
 an E IA Haa, e an son ou re p to answer quest ons su r as Is t portant for  
 a wr ter to a nta n a re u ar n y t of en a e ent an re e t on? Does the prov s on of  
 u t p e v ews srupt a wr ter s n y t or oes t a tate wr t n by of er n new ways of  
 re e t n on the stru ture an eas be n a text? r at s t e re at ons p between a wr ter s  
 spos t on an the new o puter too s?

re rter s Ass stant s on y ar rst step towar s ore enera support for wr t n er  
 n pen an paper w t o puter, re D ta Des, be n eve ope by Xerox Euro A C  
 ew an e ner sa e at prov n sea ess ove ent between paper an s reen,  
 For the prototype a v eo a era an a pro e tor are suspen e above an or nary es, so  
 t at e e tron o u ents an be pro e te onto the es, an paper ones an auto at a y be  
 t se nto o puter text, otware onne te to the a era w be ab e to re o n se r an  
 estures so t at a person wor, n at the es, an ove the pro e te o u ents arou ust  
 as they wou pus s ects of paper A wr ter w be ab e to o b ne the r for a ty of wr tten  
 s, et r es an notes w t the re u ar ty of o puter base out nes pans an o u ents,  
 r ch r su r syste s w berate the wr ter to s over new patterns of wor, n or wr ch r  
 they w ust ause the wr t n pro ess to be o e or use an s ar on ous w open  
 on r ow we they are ab e to support an au ent the a ar n y t s of wr t n,

## References

- Bo en i re Creative n y t s an e r ans s Lon on e en e an o son  
 Br we Bow es L Jo nson an Bra e Co pos n an o puter s ase stu es  
 of exper en e wr ters, In A ats u as i e r t n n o n pro ton  
 pro ss s i orwoo J Ab ex  
 Bu an s Yo r ev se E t on E t on, Lon on BBC Boo, s  
 Gr an er D re p re no eno o y of wr t n by r an nt nt tor n
- Co ns A an Gentner D i Ar ra ewor, for a o n t ve t eory of wr t n, In L Gre  
 E te nber E s Co nt pro ss s n r t n, n ntr s p n r ppro  
 H s a e J Lawren e Er bau  
 Da ute C sy r o n ust roun at ons of the wr t n pro ess, s r nt n  
 o En s  
 E e L an Luns or A i S n r ts, p r A t ors, p rsp t son Co or t r t  
 n Carbon a e out ern I nos  
 E, un r K robe s n a r ev n a o ba perspe t ve n o puter base wr t n,  
 nstr t on, S n  
 Fower L an Hayes J i re yna s of o pos n a, n pans an u n  
 onstra nts, In L Gre E te nber e s Co nt pro ss s n r t n, n ntr s p,  
 n r Appro H s a e J Lawren e Er abu



Fower L Co n t o n o n t t n t o r n - O as ona paper Centre or t e tu y  
o r t n n vers ty o Ca r orn a at Ber e ey an Carne e e on n vers ty  
Ga bra t D Con t o n s o r s o v e r y t r o u r w r t n In t a r p e s E s Co p t  
r s n r t n s s n p n t t o n s Dor re t Ku wer A a e u b s e r s  
G r s e n B Cr t p r o s s n vers ty o Ca r orn a r e s s  
Gre L an t e n b e r E Co n t p r o s s s n r t n