

THE POETRY GENERATOR

by

Joan K. Shafran

Bachelor of arts, Goddard College

1973

Submitted in Partial Fulfillment
of the requirements for the
Degree of
Master of Science in Visual Studies
at the
Massachusetts Institute of Technology
September 1980

© Joan K. Shafran 1980

The author hereby grants M.I.T. permission to reproduce and to
distribute publicly copies of this thesis document in whole or
in part.

Signature redacted

Signature of Author.

[Handwritten signature]

Department of Architecture
June 1980

Signature redacted

Certified by

[Handwritten signature]

Professor Muriel Cooper, Director
of the Visible Language Workshop
Thesis Supervisor

Signature redacted

Accepted by.

Nicholas Negroponte
Chairman of Departmental Committee
for Graduate Students

ARCHIVES
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

SEP 25 1980

LIBRARIES

The Poetry Generator
by Joan K. Shafran

Submitted to the department of Architecture on
June 17, 1980, in partial fulfillment of the
requirements for the degree of Master of Science
in Visual Studies.

Abstract

Poetry is one of the oldest forms of communication.
The poet is interested in finding new ways of
expressing universal truths. Science and
technology also are looking for new ways to
communicate universal truths.

Through the use of the computer and other
technologies language can be transformed, so that
it can be perceived as well as read.

Thesis Supervisor: Muriel Cooper
Title: Associate Professor of Architecture

ZUK

THE POETRY GENERATOR

Masters of Science in Visual Studies: VISIBLE LANGUAGE
WORKSHOP, School of Architecture and Planning,
Massachusetts Institute of Technology, Cambridge,
Massachusetts, September, 1980, Joan K. Shafran.

ACKNOWLEDGEMENTS

This system is dedicated to
Muriel Cooper
who helped me find a way
I never thought possible

to Ron MacNeil
who converted me
to the Binary system

to David Goodstein
and the members of the
Visible Language Workshop
for their continued support

to Emmett Williams
who encouraged me to
change my rhythm

and to my parents...

Unable to communicate
in any language
Unable to communicate
Poetry locked inside
The language of science

Words lost in the layers
of memory
machine code
Unable to communicate

Screen magic
Screen tragic
Perspective lost within

TABLE OF CONTENTS

Introduction 6.

Concrete Poetry 8.

Mathematical Poetry 13.

Text 3 22.

Some Reflections 25.

The System 30.

Some Reactions 33.

Conclusions 40.

Bibliography 43.

Footnotes 45.

INTRODUCTION

Poetry is one of the oldest communication systems known to humanity. Traditionally it has been thought of as VERBAL and written. To break this tradition, a group of poets, sometime after the Second World War, began to free themselves from the boundaries of poetic form and experiment with new ways of treating Poetic Language. These forms became Visual as well as Verbal.

The poet is inately interested in expressing a thought or conveying information, as concisely and as clearly as possible without damaging the message frame-work. Unlike prose, it encapsulizes language and transmits synthe-

sized information into a visual form.

The Verbal/Visual poet is AMBIGUOUS, in that he/she allows for a broad interpretation of the words, and CONCRETE, in that he/she uses the base of a symbolic language or the alphabet.

The computer is a tool designed to help specialized systems to communicate information in an efficient and rapid way. It is capable of handling and storing vast amounts of unrelated data and can change this data and interchange it, instantly, with the proper software.

6. With the development of ' new

poetry ' in this century, we begin to see the need for the accessibility of the artist to more varied kinds of visual and verbal information, in order to begin the transformation of the poetic message. As society becomes more complex, so does the need of the artist, who is interested in manipulation and change in the present human message system.

THE POETRY GENERATOR is a complex system, designed to combine easy access abilities of the computer and the needs of the visual poet/artist. To use the computer, the artist must begin to understand the ' internal network' of the machine, in order for it to be used as a tool in the most effective way.

To design a system that will begin to explore the many facets of visual expression, it is important to follow the history of the changing form and to define also essential to understand what components of language can be used, that are translatable to the language of the computer.

" THE WORD IS DEAD . . .

THE WORD IS IMPOTENT

asthmatic and sentimental poetry

the ' me ' and ' it '

which is still in common use

everywhere . . .

is influenced

by an individualism fearful of space

the dregs of an exhausted era. . .

psychological analysis

and clumsy rhetoric

have KILLED THE MEANING OF THE WORD . . .

the word must be reconstructed

to follow the SOUND as well as
the IDEA

if old poetry

by the dominance of relative and
subjective feelings

the intrinsic meaning of the word is destroyed

we want by all possible means

syntax

prosody

typography

arithmetic

orthography

to give new meaning to the word and new force to expression

the duality between prose and poetry can no longer be maintained

the duality between form and content can no longer be maintained

Thus for modern writer form will have a directly spiritual meaning

it will not describe events

it will not describe at all

but DESCRIBE

it will recreate in the word the common meaning of events

a constructive unity of form and content . . ."1.

CONCRETE POETRY

The term " Concrete Poetry " is relatively new. It appeared following the Second World War, on a surprisingly global scale, covering many countries and continents.

The word " Concrete " refers to many different styles of revolutionary poetry. In 1966, an English critic named Mike Weaver, organized the First International Exhibition of Concrete and Kinetic Poetry, in Cambridge.

It is here we begin to see the major categories of the new poetry. 1. visual (perceived through sight) 2. sound 3. kinetic (moving) 4. mathematical (assigning of numerical value to letters).

One could argue that all of

these categories are visual, or they have some elements of movement, and somehow inter-relate with one intention. But the commonality of all these poetic forms is:

... the concentration upon the physical material from which the poem or text is made.²

The key to Concrete Poetry is the reduction of language to its essential elements.

There lies the poetic choice. The poet/artist may decide to reform letters, respond to the sound and the rhythm of the word, to fragment or reorder the linguist material and intrinsically place the information in a personal time and space.

Put another way, this means the concrete poet is concerned with making an object to be perceived rather than read.³

To the concrete poet, the old linear structures are no longer valid, and to advance the art form and establish a new way of communication, the words or poem must begin to transform to an active structure.

Figure 111 Peter Greenham

.	china	.	china				
.	china	coffee	cup				
.	china	.	china				
.	china	coffee	cup				
.	china	.	china				
.	china	coffee	cup				
oc	tober	over					
oc	tober	over					
oc	tober	over					
coffee	cup	padding	ton				
.	china	.	china				
coffee	china	cup	china				
.	china	.	china				
coffee	china	cup	china				
.	china	china					
cheese	china	coffee	cup				
cheese	china	coffee	cup				
cheese	china	coffee	cup				
.	china	china	cup				
china	cheese	china	cheese				
china	cup	china	cheese				
cup	china	china	cheese				
.	china	.	cheese	cup			
plas	tic	china	.	cheese	cup	cup	
.	china	.	cheese	cup	plas	tic	
plas	tic	china	.	cheese	cup	cup	
.	china	cheese	cup	plas	tic		
.	china	cheese	cup	plas	tic		
nibbled a	bit	nibbled a	bit				
.	china	.	cheese	cup			
plas	tic	china	.	cheese	cup	cup	
.	china	.	cheese	cup	plas	tic	
plas	tic	china	.	cheese	cup	cup	
china	cheese	cup	plas	tic			
padding	ton	padding	ton				
oc	tober	over					
china	cheese	cup	plas	tic	nibbled a	bit	
china	cheese	cup	plas	tic	nibbled a	bit	
.	china	.	cheese				
.	cup	plas	tic				
.	china	.	cheese				
.	cup	plas	tic				

Example of a Vocal Concrete Poem by PETER GREENHAM

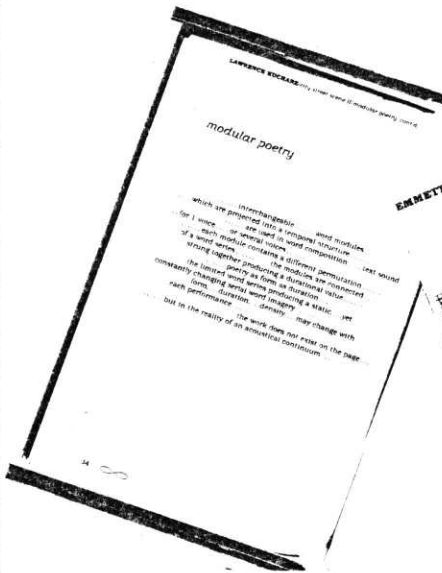
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s
s w e e t h e a r t s

Example of Concrete Poetry from the book SWEETHEARTS
by EMMETT WILLIAMS

Three variations on Concrete Poetry

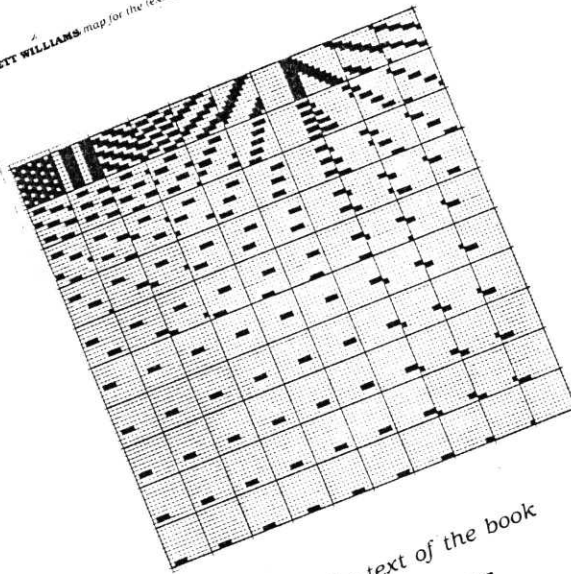


AUGUSTO de CAMPOS



LAURENCE KUCRARZ

EMMETT WILLIAMS map for the text of the book: the voyage



Map for text of the book
THE VOYAGE

EMMETT WILLIAMS

The spoken, printed and tele-dramatized word becomes
a particle of thought energy.

The drawn, photographed, painted, and kinescope-
picture becomes more of the same.

All of the devices of locomotion subterranean,
surface and aerial equally reduced.

I am at all places in all forms, at all
times.

What were books, become word sequences,
screen projected then projected, then
free floating vibrations which impinged
upon my mind as I desired them.

I TRANSFORMED THE WORD AND IN DOING SO I TRANSFORMED

M Y S E L F.4

$$\frac{f o^r [M - \frac{u}{i}] a}{C \frac{om}{p} o - s^i t (\frac{i o}{n})}$$

Example of Mathematical Poetry by BERN PORTER

MATHEMATICAL POETRY

To see the parallels between math and poetry, it is important to understand the structure of poetic language. For the purpose of this study, we will concentrate on those components translatable to the computer.

PROSODY is a general term used to describe poetic form. It refers to the science of forms, and includes quantity, accent of syllables, versification, meter and metrical composition. It is from the Greek, meaning a song sung.

PROSODIC NUMBERS are the sum of the numbers assigned to each acoustical level of pitch, force and duration of sound. Perhaps the master on

PROSODIC LANGUAGE and NUMBERS is a man named Ernest Robson. He, along with his wife Marion and several other colleagues, developed an orthographic way of writing ENGLISH prosody .

An alphabetical process for cueing readers to speak the three dimensions of sound in speech has been constructed: fundamental frequency, duration, and intensity. A scanning model based on differences in the apparent levels of three dimensions is presented.⁵

There are other considerations concerning the breakdown of poetic language. SOUND being one of the primary one.

Another being RHYTHM, which varies from person to person.

Although there are set sylla-

ble stress factors in the English language, such as regionalism, emphasis, punctuation all can change the ' beat ' of a word or line. That is why in a computer poetry system, there must be levels of interaction, so each user is able to introduce his/her own variables.

A less translatable term is ALLITERATION, which deals with the repetition of initial stress sound, usually consonants. REPETITION, the formal re-use of words and/or lines, REFRAIN, a phrase or line of verse repeated at intervals, and finally ONOMATOPOEIA, which describes something by means of sonic and rythmical devices, literally the sound of language.

both the likeness and the contrast between science and imaginative art: each communicates by employing a technique of ideas not completely describable in terms of sense experience, but the one labors to make its communications capable of identification or correlation by all individuals, while the other insists that each individual must translate the original into something peculiarly of his own creation.⁶

The mutual interests of scientist and poets has been prevalent for centuries. Poets have been reaching toward science to draw their imagery, and the scientist has looked toward the verse to romanticize the complexities of scientific knowledge.

Along with this mutual interest, there has been a divergence. Plato claimed that " the aims of geometric reasoning and poetry were inherently antithetical ". (The Republic)⁷

Perhaps Plato was close to the truth, but there still remain qualities and aims in both science and poetry.

LANGUAGE is a group of symbols (written) which have meaning. Mathematics uses number and symbols, which also have meaning (to someone). They both deal with concision, abstraction, symbol making or metaphor, analogical elaboration the connection from chaos to order, associations of varying types of relationships, the notation of hidden truth and messages through the use of the specific symbolic language.

COMMUNICATION.

The difficulty for the poet is to analyze the structure, as well as, the meaning and then find a way to express and combine in a new fashion, using the advantages of a system, such as the computer.

Perhaps the most translatable component in poetry, is that of sound and stress. How the word figures vocally.

Ernest Robson and his colleagues have developed a mathematical system that assigns values to each stressed syllable according to its position and strength in the word and/or sentence.

The prosody of poetry is essentially based on the rhythmic and sound values of the letter.
The computer is capable of responding to varying syllables, if each type of function has a mathematical value, it then has a visual element.

Another way of dealing with letters mathematically, is to understand the position and value of the letter in terms of the computer and how it can be displayed on the screen. This method involves a greater degree of interaction between the poet and the machine. In Robsons' formula, there is a need to program into the memory a vast amount of " functions " or things the computer understands and interprets and the letters would really be responding to each other rather than buffering between poet, word, and computer.

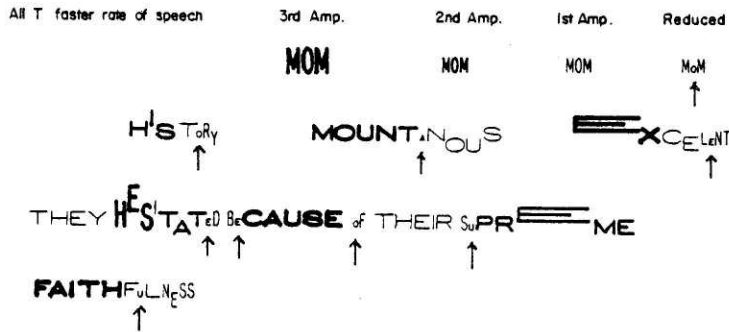


Figure 2.
The graphic cue for reduced vowels or syllables. Although this "schwa" cue is needed, arithmetically, to specify four stress levels and is a readable cue, speakers seldom articulate a reduced A→o, T, P →o vowel differently from an A, T, P. See note under Figure 5 for arithmetical operations that support a value of 1 for reduced vowels.

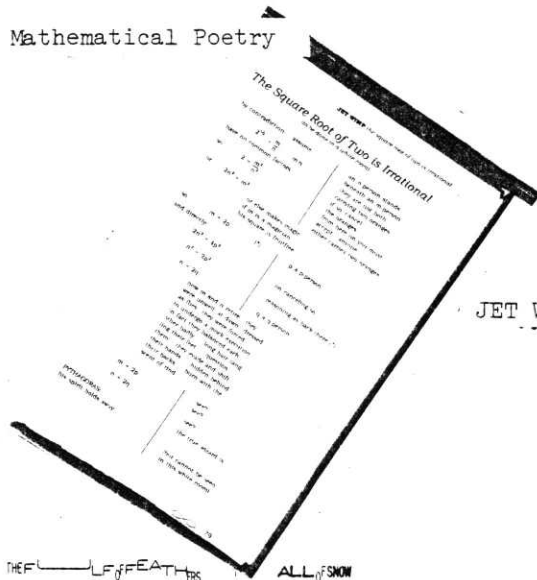
Figure 3.
Qualitative associations between numbers of stress levels and numbers of prosodic levels.

	Stress Level	Stress Quality	Amp. T P Number	Prosodic Quality
A	1	Minimum Detectability	0 + 1 + 0 = 1	Reduced
CAN	1	Inconspicuous	1 + 1 + 1 = 3	Weak
TEST	2	Inconspicuous	1 + 2 + 1 = 4	Weak
BE	2	Between inconspicuousness and prominence	1 + 1 + 3 = 5	Between Weak and Rich
DANCE	3	Prominent	2 + 1 + 3 = 6	Rich
CON	3	Prominent	2 + 2 + 3 = 7	Rich
ONE	4	Most Conspicuous	3 + 2 + 3 = 8	Powerful
WILD	4	Most Conspicuous	3 + 3 + 3 = 9	Powerful
B <small>ll</small> LL	4	Most Conspicuous	3 + 3 + 3 ⁺ = 9 ⁺	Rich and Powerful

DANCE CONTEST CAN BE ONE WllLD BllLL

The Formula for Mathematical Poetry by Ernest Robson

Examples of Mathematical Poetry



JET WIMP

THE FLUFF OF FEATHERS ALL OF SNOW
 IS LULLED IN SURFACE AREAS
 WHERE IT BEARS THE HUSH OF SOME NUMB NIMBUS LAYER
 FILTERING ITS DIM THISTLES IN THE RIFTS OF THINNING LAYERS
 SWIMMING UNDER DRIFTING BY
 GIVING THIS FLUFFED UNDULANCE AN EDGELESS SEMBLANCE
 OF SOME INNER HESITANCE AMONG THE TUMBLING HEAVENS
 WHEN WEDDING THEMSELVES STILL ONCE AGAIN WITH THEIR OWN AIR
 THEY BRUSH THE TUFTS OF EARTH
 WITH PALE DISPERSIONS OF THE SKY
 THIS SNOW'S FRESH WHITENESS
 IS FROST'S AIR PHASE
 OF LATTICE-SCATTERED LIGHT
 AMONG THE PORTICOES OF DAWN
 WHEN DAYLIGHT WITH ITS SHIMMUR FLAME
 GARNISHES THE CORNICES OF MORN
 AND THIS IS SO WHETHER HEAVED IN WET WEATHER'S HAZE
 WITH CONTINUOUS SIFTED HISSINGS IN SIBILANCE SUGGESTING
 EVIDENCE OF HEAVEN'S LISPING OF ITS AIR'S DIMENSIONS
 IN ITS SAILING LACE

The fall of feathers in the fall of snow
 is lulled in surface areas where
 it bears the hush of some numb nimbus layer
 filtering its dim thistles in the rifts of thinner
 layers.
 Swimming under, drifting by:
 Giving this fluffed undulance an edgeless
 semblance
 Of some inner hesitance among the tumbling
 heavens when,
 Wedding themselves still once again with
 their own air,
 They brush the tufts of earth with pale
 dispersions of the sky.
 Thus snow's fresh whiteness is frost's airy
 phase
 Of lattice-scattered light among the porticoes
 of dawn
 When daylight with its shimmer flame
 Garnishes the cornices of morn.
 And this is so—whether heaved in wet
 weather's haze
 With continuous sifted hissings in sibilance
 suggesting
 Evidence of Heaven's lispings of its air's
 dimensions in its sailing lace.



ERNEST ROBSON

TIRED
drive
very
full circle

I don't know what to say. I am tired.
of the humming of machines. Tired of the
that forces me into realms that confuse the
structure of my brain pattern. Around
again and again. CONFUSION.

Who are these people.
Who do I confront.
I am dizzy with sound.

And fascinated.
With the possibilities
Drunk with the thoughts
of independence of the
very system that makes
me dependent.

March 1980

Joan Shafran

TEXT 3

Like any artist trying to understand a new technique or tool, it is important to begin simplistically before approaching the more complex issues. The creation of a new poetry methodology, depends greatly on the understanding of the equipment being used and its capabilities.

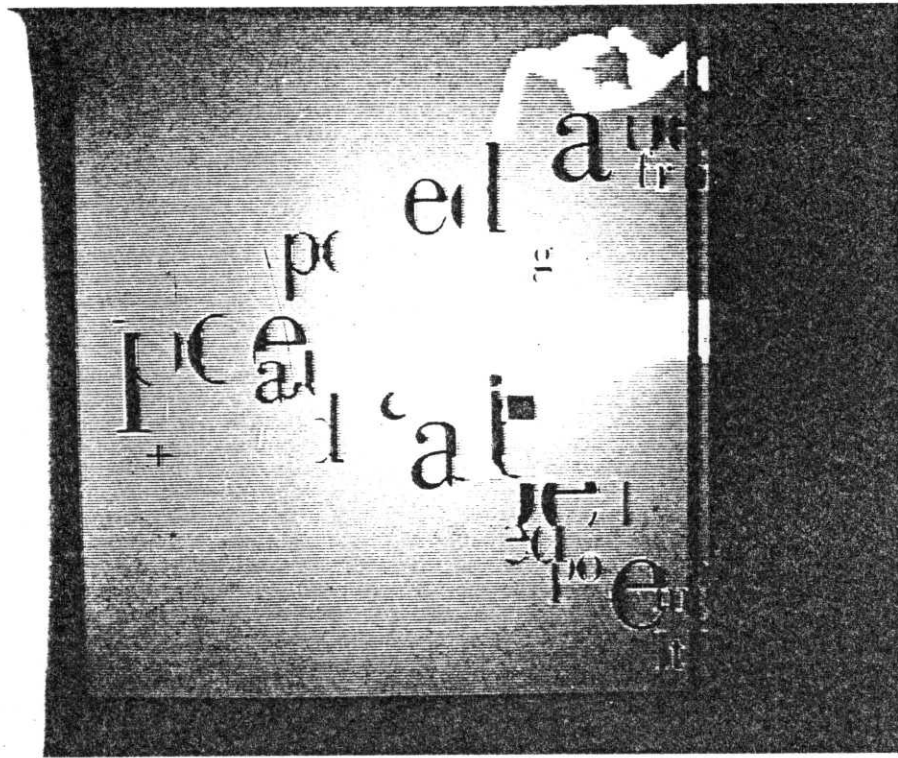
To explore the computer and its design possibilities, a series of programs called TEXT, TEXT2, and TEXT3 were designed. These bits of software were put into the memory of a perkin Elmer 3220 Computer which uses a Grinnel Color Display Screen.

Computer jargon gets fairly complex, but it is important to know that the Grinnel displays graphic information in full color by using a series of small squares called PIXELS. So any image is simply many of these squares or pixels put together to form a picture,

Contained within the Grinnel is a type font called GRIN\$-TEXT. It has four sizes. By writing software, using this font system, the Text programs were created. TEXT3, the most sophisticated one, allows the user to do a type of CONCRETE Poetry, letter by letter, by using the TABLET and PUCK, which allow for interaction between the artist and the machine.

The Fonts, because they live
the overlay planes, or to
three layers of memory, can
be used in any combination
of the four sizes.

Also because of this they
block out any color that is
underneath them, such as
placing the word over a pic-
ture. Any picture that is in
memory is available to the
user, as well as, a picture
that might be put in by the
artist. (What will become
of the copyright laws?)
After ' bringing up a pic-
ture ' and writing poetry
over it, the color of the
words may be changed by
assigning numerical value to
the color.



Example of Computer Generated Poetry and Imagery
by Joan Shafran



SOME REFLECTIONS
Poetry by Joan Shafran

To Nasa Inventions Waiting for Licensing

The point perspective
of an age Gone by
you would be FATHER
farther into black
of unknown sky

Before the piece be welded
Before the system converts
transparent
cell power

becomes
the phantom beasts
of science fiction

Before

leave the land to us
who inhabits beauties dream
leave the memories
optical

Before

The war is waged
between
beyond the cloud
now covering the sun

Beyond

Beware

When micro monster turns
on you searching
for its own
freedom

Imperfections in Scenario #1

Impressions
on a Saturday
night
IM
pressions

What was
I
to you
When we last tried
to PROVE
our
point

To one
another
Soft light
guise
We dance our
sep
arate dance
checking out the rhythm

IMPRESSIONS
IM
pressions
Top
wave analog

elegant only
in separate
Frames
Carefully chosen
for Effect

Hung around your space
too long
Sat immobile too much
time
OUT
a member of a team
no rules
to relate to
no spot
COMFORTABLE

This
 is
 w
 h t
 a
 I
 am
in
outline F
 o
 r
 m

With each flicker
of each light
passing 30 times
a second

SCREEN MAGIC
SCREEN TRAGIC

Perspective lost
within the screen

Alternate signals
bit by bit
with each flicker
with each flash

GAME

on personal film

Same Images

like yesterday

Stories different

TIME

you

play

it

back to me

fill

I

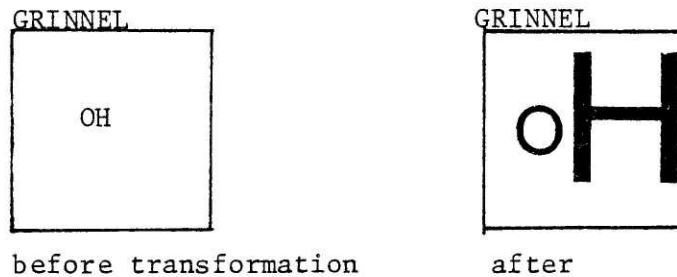
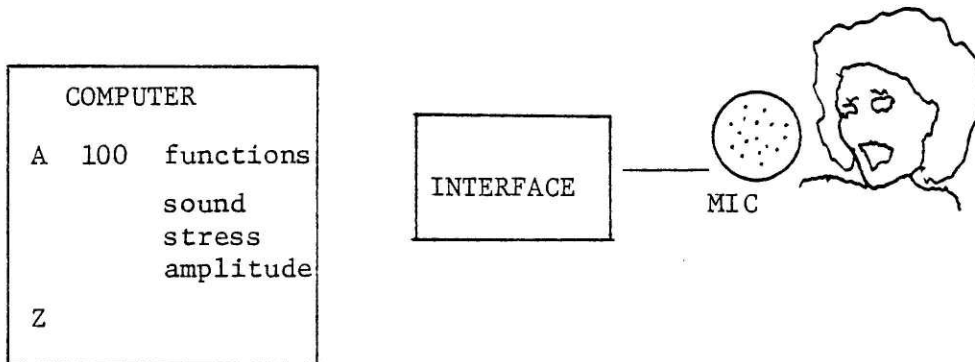
in We entertain each other
the space

the artist being sensitive to impressions from nature and human nature, only acquires his significance for society by communicating his vision through a Pattern of formal structure which his technique can impose upon some selected medium. Whether musical sound, material shape, manipulated colour, or verbal imagery, the character of the medium itself matters little and the resemblance of his art to any scene or sound or object matters little, compared with this essential function of becoming a channel of communication.⁸

THE PROPOSED SYSTEM

As we have seen through Ernest Robsons' work, words can have a life of their own. The poet conceives the message intent and the word then responds to itself by reacting to sound, stress, and prosodic value. After carefully studying the computer and its natural capabilities, it became apparent that SOUND was the key to connecting poetry to the computer system.

In order to have an interactive system using the computer with human sound, an interface must be built. This box-like hardware connects a small microphone, which carries the voice tone and level, from the mic through the interface box and converts the sound to digital signals. This is done, because the computer can only understand this type of signal. The translated sound then reads into the computer.



Inside the computer memory certain pieces of software have been written, so as soon as the sound reaches the memory, it will translate the word into numerical value. On the screen of the Grinnel, the word or words being spoken have been placed there by the poet, by using a TEXT program or something similar. By placing the cursor on the portion of the word or the whole word, the poetry will be transformed, as the sound transmits through the microphone. The computer and the poet are now working together to create a new form of interactive poetry.

The software necessary for this process is fairly complex. It is necessary that the computer understands certain functions, so it can respond to

the input of the sound. These functions are the STRESS level of the voice, the change in volume or pitch, and the pitch, and the LENGTH of the sound. As these qualities are heard, the computer can respond in several ways. 1. Increase in height. 2. Decrease in height. 3. Thicken the letter or letter or letters. 4. Make them thinner. 5. Change the color matrix.

Because of the nature of the entire system, this poetry can overlay on to any picture stored in the picture directory. It will also be possible to connect the picture to the word functions and as the letters transform so would the pictures.



SOME REACTIONS
Poetry by Joan Shafran

Programming dost not lovers make

Wrote a story once
Before the world opened
into space modules
of u go to loop
before it happened

About a you and I
Before the trans
formation
Before I dcl
what it meant
In num
erical
Configuration
and lost
sight, Onto

Form
Characters
that Sym
Bolize the
Relationship

Far more
clearly than
it really is
Should be simpler
Now

than before the
happen
stance
of figur
ative speech

Our Num
erical value
should be
the same
But different

Variabls/fix/does
Not compute

a fault in the
sYstem

Not Ours

The root of the matter
lies deep within
the heart

SYSTEMS ANALYZED

to a
sm a₁
po i_{nt}

I found myself competing In an
ENVIRONMENT so alien it made me
numb with fear

It SEEMED impossible to fight
TECHNOLOGY

the scientist

how could I begin to translate
my feelings into DATA that
seemed relevant

and why

IT IS NOT A POET'S JOB TO JUDGE GOOD

or bad

it is merely TO COMMENT

Polarized Once Again
Love song
for computer and human voice

In software night

SOUND

humming

Light emitting diodes

Dark night

Software night

Alone silent flicker

With the memory of you

In software night
t h r e e dementions
Space transmitting
through micro levels
of memory

Gone are the finite bonds
a friendship true
mapped between the levels
with the memory of you

All the tri-level intervals
All that is cosmic space
all that IS cannot erase
The color matrix
We held as true
Ah, the memory of you

'those Media Technology Blues
for computer aided guitar and human hackers voice

alienation
across the station
Oh those Media technology blues
Think in 'tran
When I can
Oh those tech nology blues
the only verbal
in a terminal
can't stop those media
maddening blues

I long for your voice
not left with a choice
I put you on my private disk
and play you back without a risk
To stop those Media technology blues

RAM\$PASS
Oh up your ass
with those crazy
lazy blues

There is no time
for everyday rhyme
HELP my mag taping blues
I've interfaced
my entire space
God what next
to stop my blues

Poetic reactions to an age

Approaching
Or how I rationalized my
existence for the coming
Decade
But floated still
In an unseen rhythm
By my scientific neighbor

Or better still
Confessions of
276-46-3037
Hidden under an electric blanket
Set at 9

Reading Gothic romances
and Scientific American
Simultaneously
to the rhythm of my personal
Molecular battle

CONCLUSIONS

Even contained within the confines of a technological environment, the poet/artist continues to search for a TRUTH that can express and explain understanding of the universe. Mirroring the technologist, who explains through numbers and symbols, the poet responds with words and images, but neither message system evokes understanding.

Communication through the use of technology offers the poet a new way to explore words and their meaning. In order to do this, certain unspoken boundaries must be confronted and transcended.

The nature of the computer, defies the freedom and ambiguity present in most

poetic structure. As a poet to assign numerical value to something of weighted meaning is an almost impossible task. The first problem was to establish a verbal communication between myself and the programmers. To try and tell them what must happen, what must be said, in order for the transformation from the language of the soul, to the language of the machines was a difficult one...PATIENCE is a virtue that both the artist and technologist must learn.

Upon establishing a way of communication with the systems analyst a rapport between poet and machine was the next step. There are several ways to learn about the computer.

For my purposes UNDERSTANDING was the essential component. It became apparent that I could not devote the amount of time necessary to learning everything there is to know about computers and programming, and continue in my original pursuit. The object was poetry, and machine code was not the answer.

I also became aware of the importance of the PERSON, for without the personal input, interactive poetry does not exist. The initial fear being, that the machine would become the artist, and the artist a mere button pusher. Just by realizing that, it became more comfortable for me to know what the computer was all about.

It is a laboring task, to

analyze information and then retranslate it, so that the machine can compute. A task painful and frustrating.

Throughout the experience, the question WHY kept repeating itself. Why should an artist care to involve personal, emotional work, with a cold, calculating machine.

The computer is unlike any other artists tool, in that it stores vast amounts of information, and can feed them back to you, as does the brain, and can also find links.

The 'hands on' control is suddenly eliminated, and an abstract or intangible control takes over. The artist now works in soft design, with nothing to touch: the image, gone in seconds, transformed.

The alienation of the artist to machine is an obvious yet intense reality. They are difficult to operate, to understand.

Today most of the world experiences the same estrangement. The old forms of communication are becoming less valid, and media through technological advances grows in importance as the major way to convey information both private and public. The problem arises in that fewer understand the operational processes of these new tools.

That is why the artist must CONFRONT and resolve. For left in hands of systems analysts the obscure will become more unintelligible. It is

the job of the poet whose interest is communication, not new machines to find a new way.

It is a long road. But this is the POETRY GENERATOR, the beginning of the redefinition of language, a retranslation. It has been yet another step from the CONCRETE poets of the forties who aptly stated that the Word is Dead and it should truly be perceived rather than read.

BIBLIOGRAPHY

1. Against Infinity, ed. Robson, Ernest & Wimp, Jet, Pottstown, Pa., Primary Press, 1979.
2. Art and Scientific Thought, Johnson, Martin, London, Faber and Faber Limited, 1944.
3. Batteau, Dwight W., Exp004 Information Communication & Knowledge, Cambridge, Ma., Windward House, 1966.
4. Concrete Poetry A World View, ed. Solt, Mary, Bloomington, London, Indiana University Press, 1968.
5. De Bord, Guy, Society of the Spectacle, Detroit, Black & Red Press, 1970.
6. Jacobs, Roderick A. & Rosenbaum, Peter S., Grammar 2, Boston, Ginn and Co., 1967.
7. Menninger, Karl, Number Words & Number Symbols, Cambridge, MA, MIT Press, 1973.
8. Porter, Bern, I've Left, a manifesto & a testement of Science and Art, N.Y., Something Else Press, 1971.

9. Processing Visible Language, ed. Kolars, Paul A., Wrolstad, Merald A., Bouma, Herman, N.Y., Plenum Press, 1979.
10. Robson, Ernest & Marion, Prosodynic Print, An Orthographic Way of Writing English Prosody, Parker Ford, Pa., Primary Press, 1975.
11. Robson, Ernest, Transwiches, Chester Springs, Pa., Dufour Editions Inc., 1969.
12. Rosemont, Franklin & Duvall, Schlechter, The Apple of the Automatic Zebra's Eye, Chicago, Surrealist Research and Development Monograph Series, 1970.
13. Rosemont, Penelope, Anthamor, Black Swan Press, 1971.
14. Shahn, Ben, The Shape of Content, N.Y., Vantage Books, 1957.
15. Spicer, Jack, The Collected Books of Jack Spicer, Los Angeles, Black Sparrow Press, 1975.
16. Wakoski, Diane, Smudging, Los Angeles, Black Sparrow Press, 1972.
17. Welsh, Lew, How I Work as a Poet, Bolinal, Grey Fox Press, 1973.
18. Welsh, Lew, Ring of Bone, Collected Poems, 1950 - 1971, Bolinas, Grey Fox Press, 1973.

FOOTNOTES

1. Concrete Poetry, A World View, ed. Solt, Mary, Bloomington, London, Indiana University, Press, 1968, p.7.
2. IBID. p. 1
3. IBID. p.7.
4. I've Left, Porter, Bern, New York, Something Else Press, Inc., 1971, p. 1.
5. Prosodynic Print, Robson, Ernest and Marion, Primary Press, 1975, Parker Ford, P.A., p. 357.
6. Art and Scientific Thought, Johnson, Faber and Faber Ltd., 1944, London, p.12.
7. Against Infinity, ed. Robson, Ernest & Wimp, Jet, Pottstown, Pa., Primary Press , p. 9.
8. Art and Scientific Thought, Johnson, Martin, Faber and Faber, Ltd., London, 1944, p.12.

THE TYPE AND GRAPHIC LAYOUT OF THIS
WORK WAS MACHINE CONCEIVED AND
EXECUTED ON THE CPT 8000 AT THE
SCHOOL OF ENGINEERING WORD PROCESSING
CENTER AND THE VISIBLE LANGUAGE
WORKSHOP, MASSACHUSETTS INSTITUTE
OF TECHNOLOGY, CAMBRIDGE, MA.