THE (RELATIVELY) CONSTANT CONSONANT

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The English have no respect for their language, and will not teach their children to speak it. They cannot spell because they have nothing to spell it with but an old foreign alphabet of which only the consonants – and not all of them – have any agreed speech value.

George Bernard Shaw (Preface to *Pygmalion*, 1912)

The following conventions are used in this article.

❏ The 'sounds' of English are represented like this: /æ/ is the first sound in the word <u>apple</u>. There is some help with these in the Appendix.

❏ Letters of the alphabet are represented like this: <A> is the first letter in the word <u>apple</u>.

❏ Words in the examples are shown underlined like this: <u>apple</u>. A single word that is used to illustrate a point like this is often called a 'citation' form to make clear that it is an idealized word used in isolation. In continuous speech, the way words are spoken often varies considerably from the citation form. For example, the word <u>to</u> in citation form is pronounced /tu:/ but in continuous speech (e.g., <u>to town</u>) it will be /tə/.

Introduction

WHEN SHAW COMPLAINED ABOUT 'an old foreign alphabet of which only the consonants – and not all of them – have any agreed speech value' he had writers in mind. But the less than perfect sound-symbol system creates problems for readers as well. Of more importance here, Shaw drew attention to the fact that written consonants are relatively reliable indicators of what is said, although the same cannot be said for the written vowels. This is the theme of this *set* item.

Despite Shaw's accurate observations, those who think phonics is the only way to teach reading seem to say that the teaching and learning of reading in English is little more than knowing an 'agreed speech value' for each letter of the alphabet (as well as a few letter combinations such as **sh** and **ch**). The belief is that the learners, who can 'sound out' the letters, will be able to use this knowledge to decode (and construct) written words: '**d - o - g** says <u>dog</u>, **c - a - t** says <u>cat</u>, **sh - i - p** says <u>ship</u>.' What could be easier?

If it really is as easy as this, it would be an exceptional teacher who ignored it and we would wonder why anyone questioned its value. If learning to read is simply a matter of knowing a few 'agreed speech values' for letters of the alphabet, why do so many children and adults find learning to read such a problem? Why do books on initial reading line shelf upon shelf in any education library? Why are there reading associations and so much heated debate about how to approach the teaching of reading in the classroom? Why are there specialist journals and magazines devoted entirely to research and discussions about how to teach reading?

As all teachers of reading know, phonic approaches are very far from simple. One reason for this is that the rules of phonics are not like mathematical rules: in phonetics 2 + 2 often equals something other than 4. There are so many irregularities in the phonic 'rules' of English that various techniques have been used to postpone them, the most famous example being the use of the Initial Teaching Alphabet, devised by James Pitman in 1959.

Teachers recognise that phonic approaches are problematic and when they are using phonetics the chances are that they focus more on the *written consonants* than the *written vowels* because they 'know' that consonants are more reli-

able and because it is consonants (rather than the vowels) which 'frame' words. If you can read what follows, even though all written vowels have been removed, you will have a good idea what I mean:

H-s f-v--r-t- st-ry w-s *Th- C-nst-nt T-n S-ld--r* b- H-ns Chr-st--n -nd-rs-n. Tw-lv- t-n s-ld--rs h-d b--n m-d- fr-m -n -ld sp--n. Th-y w-r- -x-ctly th- s- m- -xc-pt f-r Th- C-nst-nt T-n s-ld--r. H- w-s d-ff-r-nt fr-m th- r-st b-c--s- h- h-d -nly -n- l-g.

Even though much of the message has been removed, readers can still make sense of it. Are there any practical implications from this for the teaching of reading?

1. Theory and practice

The use of phonics is not at all straightforward even if we accept the theory that continuous speech can be satisfactorily segmented into separate sounds – for example, the 24 consonant sounds and 22 vowel sounds which are identified in many popular theories.

1. There is a bewildering variety of sound-spelling 'correspondences' with hundreds of rules and many exceptions. Researchers studied 1-syllable words and 2-syllable words found in books for 6- to 9-year-olds. They identified at least 69 spelling units, including groups of letters such as *ch, th, bb, tt, ea, oy* ('grapheme units'). Leaving aside about 10 percent of the words (because they were *exceptions*), the researchers found **211** different spelling-sound correspondences and **166** rules for the remaining 5431 words.

   So the rules of phonics are very very complex. Worse than this, they cannot be relied on because there is no way of predicting when a particular correspondence applies. What is the use of a complex set of rules if there is no reliable guide for when a particular rule should be employed?

2. Letter by letter analysis of words is a very slow procedure which relies heavily on memory of phonetic rules and disregards the reading process of fluent readers.

3. Beginning readers may become locked into a phonic strategy and think of reading only as a logical and serial procedure when, in fact, it is neither. For example, the sound value of the letter <O> in the following words cannot be determined until each word has already been 'decoded' as a whole: <u>moan</u> /əʊ/, <u>mob</u> /ɒ/, <u>moist</u> /ɔɪ/, <u>molest</u> /ə/ <u>money</u> /ʌ/, <u>moon</u> /u:/, <u>more</u> /ɔ:/.

4. Phonics may give undue emphasis to the elements of words and to 'accuracy' – at the expense of 'fluency'.

5. The sound values for the written symbols, *especially* those which represent spoken vowels, vary from dialect to dialect: for example, the national accents, Welsh, Irish, Scottish, American, Australian and New Zealand all have different (and systematic) vowel systems as do local accents, Geordie, Cockney, and Liverpudlian. This raises a fundamental question about the sounds which are represented by the spelling units of English – whose sounds? For example is the letter <A> in the word <u>dance</u> pronounced /æ/ or /ɑ:/ and is the first <Y> in Sydney pronounced /ɪ/ or / i:/?

   When thinking about vowels and consonants it is necessary to distinguish between the (about) 46 *sounds* of English which are identified as *consonants* and *vowels* (see the Appendix for a list) and the 26 *letters of the alphabet* which are also referred to as *consonants* and *vowels*. The difficulties of using phonics might be reduced, and even overcome, if teachers focused on the sound values of *written*

consonants (and neglected the values of *written vowels*) when using phonics to help learners to read more effectively.

There are two reasons:
1. written consonants are relatively stable compared with written vowels;
2. written consonants carry far more information for working out the meaning of an unknown word than vowels.

If this is so, there are good grounds for teachers to concentrate on the value of written consonants and to ignore values for written vowels when teaching 'sound-symbol' correspondences (using phonics) in teaching reading:

1. as a strategy to help beginners;
2. as a strategy for helping false beginners (that is older children and adults who cannot read fluently).

To illustrate the complexity of sound and spelling correspondences and the relative stability of the symbols for consonants, we need consider only a few letters of the alphabet, say the first four.

2. Written consonants are more stable than vowels

In a written language in which each letter of the alphabet represents one sound and each sound of the language is represented by one symbol, we can say there is perfect sound and spelling correspondence, and the relationship is perfectly stable.

In English, the sound-spelling system is a very complex one: Dewey in 1971 calculated that in English there are about 13.7 spellings for every sound but only 3.5 sounds for each letter. In this sense, the writing system of English is highly unstable. However, as Bernard Shaw pointed out so provocatively, the symbols that represent spoken consonants, have a greater stability, or consistency, than the symbols used to represent spoken vowels.

3. Consonants have relative two-way stability

3.1 Symbols to sounds

Written consonants are relatively stable (in single words or citation forms). Although there are complexities, the 'sound' possibilities for any given *written consonant* or combination of consonants (spelling units) are relatively few. For example, consider the first three alphabetic (written) consonants <B>, <C> and <D>. The letter <B> can represent the sound /b/ in <u>bat</u>, and occasionally zero /ø/ (or silent 'b') in <u>numb</u>. The letter <C> represents either the sound /k/ in <u>cat</u> or /s/ in <u>ceiling</u> – and we could say there is a 'silent c' /ø/ in words like <u>scene</u> and <u>muscle</u>. The letter <D> represents only one sound /d/ and it is thus stable in value. These symbol to sound possibilities are illustrated in Figure 1.

Figure 1

Symbols to sounds

```
        <B>
        - /b/ in BAT
        - /ø/ in NUMB

        <C>
        - /k/ in CAT
        - /s/ in CELL
        - /ø/ in SCENE

        <D>
        - /d/ in DOG
```

3.2 Sounds to symbols

When we consider ways in which a particular *consonant sound* is spelt, again, the analysis is relatively straightforward. The sound /b/ is realized by the letter <B> and sometimes <BB> – and arguably by <P> in <u>spin</u>. The sound /k/ is realized by <K>, <C>, <CK>, and sometimes <QU>. The sound /d/ is represented by <D>, <DD>, or <ED> (though <ED> as a past tense marker is pronounced in three ways: loved /d/, hated /ɪd/, walked /t/). The symbols used to spell the sounds /b/, /k/ and /d/ are illustrated in Figure 2.

Figure 2

Sounds to Symbols

```
    /b/ - <B> in BED
        - <BB> in RUBBER

    /k/ - <K> in KING
        - <C> in CAT
        - <CK> in LUCK
        - <QU> in QUAY

    /d/ - <D> in DOG
        - <DD> in RUDDER
        - <ED> in SAVED
```

4. Vowels have relative two-way instability

Each of the *written* vowels (<A>, <E>, <I>, <O>, <U> and <Y>), both singly and in many combinations, can represent over 20 *spoken* vowel sounds (see the Appendix) and there is a complex network of possibilities because each *vowel sound* can be represented by many different letters or combination of letters and each *vowel letter* can represent many different vowel sounds (see Figure 6 for an illustration of a small part of that network, or web of sounds).

For convenience, and by convention, all the illustrations of sound and spelling correspondences in this paper are based on what is usually known as *Received Pronunciation* (RP) or *the Queen's English*. However, only a small proportion of children speak English in this way. Wherever they are, most children do not speak a 'prestige' or 'educated' variety of English when they begin to learn to read: when they speak English they use a vowel system which does not match the analysis below. Nevertheless, though analyses of different accents vary in detail from dialect to dialect, the overall complexity of the analysis (whatever the accent used by the learner) remains.

To illustrate the complexity of the vowel system consider the letter <A> in Figures 3 and 4 (spelling to sound) and Figure 5 (sound to spelling).

4.1 The letter <A> and the sound it represents

Figure 3

Sounds realized by letter <A>

```
    <A> - /ə/ and /æ/ in A CAT
        - /eɪ/ in PAPER
        - /iː/ in QUAY
        - /ɑː/ in FAR
        - /eə/ in BARE
        - /ɪ/ in VILLAGE
        - /e/ in MANY
        - /ɒ/ in WAS
```

Figure 4

The sounds realised by the letter <A> in combination with other letters

```
<EA> - /iː/ in LEAF
      - /e/ in DEAD
      - /ɑː/ in HEART
      - /ɪə/ in NEAR
      - /eə/ in BEAR
<AI> - /æ/ in PLAIT
      - /eɪ/ in WAIST
      - /aɪ/ in AISLE
      - /eə/ in FAIR
<AR> - /ɑː/ in PART
      - /eə/ in CARE
<AL> - /ɑː/ in CALM
<AU> - /ɑː/ in AUNT
      - /ɒ/ in BECAUSE
      - /ɔː/ in FAULT
<AW> - /ɔː/ in SAW
<OA> - /ɔː/ in BOARD
      - /əʊ/ in ROAD
<AY> - /iː/ in QUAY
      - /eɪ/ in DAY
```

4.2 The sounds /eɪ/ and the symbols used to represent it

Figure 5

Symbols used to realize the sound /eɪ/

the letter <A> is pronounced /eɪ/ in the alphabet

the letter <A> is pronounced /eɪ/ in MAKE
the letters <AI> are pronounced /eɪ/ in RAIN
the letters <AY> are pronounced /eɪ/ in PAY
the letters <EI> are pronounced /eɪ/ in EIGHT
the letters <EY> are pronounced /eɪ/ in THEY
the letters <EA> are pronounced /eɪ/ in GREAT

4.3 A complex sound symbol network

Simply by using the sounds realised by the letter <A> (see Figure 3) and some of the sounds realised by the letter <E>

/ə/ in MOTH_E_R; /iː/ in P_E_TER; /ɪ/ in WOM_E_N;
/e/ in _E_GG; /ɜː/ in H_E_R; /ø/ in SPARS_E_

it can be seen that the web of relationships between spoken vowels and their written representation is very complicated indeed. Figure 6 is an illustration of such sound-spelling (sound-symbol) relationships. It is a fragment of a much larger map or complex web of sounds.

5. Consonants have a high information value

The written system for representing spoken consonants is more stable than the written system for representing the spoken vowels of English. To add to the consonant examples already given, the sound /p/ is regularly spelt with a <P> or <PP>; /t/ with <T> or <TT>; and /g/ with <G> or <GG>. For this reason, *written consonants* have a far higher information value than *written vowels*. This is reflected in speech for when we listen to spoken English the consonants carry a great deal of the message. For example, when listening to speakers with different accents we have little difficulty in understanding them even though the vowel system – but not the consonant system – that they use may vary greatly from accent to accent.

In a similar way, when we read English the information value of the written consonants is especially high. This is best illustrated with an example. Figure 7 is part of a reading passage (with a title to help the reader) in which the written consonants have been omitted. About 60 percent of the message has been removed. The message cannot easily be reconstructed by a reader. Further, without the surrounding consonants it is impossible to predict the value of the vowels with any degree of certainty. It is as though the written vowels are switched on by the consonants.

Figure 7

Reading passage – vowels only

```
READING
--ea-i-- i- a -o---e--a--. A--e--, a --
o--e--e o- --o-i-- -a- o--y -ui-e --e
--ea-e-. --o-i-- -a- -e -e-y -o--u-i--
-o- -ea-- -o -ea- a-- --e '-o-i-' o-
--o-i-- -a- -e -i--ea-i-- -e-a--e i- -
a -
-ea- -o -ea-i-- ---a-e-ie --i-- -a- -oo
-u-- a--e--io- -o -e--e-- a-- -o--- a-
--e e--e--e o- -ea-i-- a-- --ue-y.
```

(about 60 percent of the message has been omitted)

Figure 8 is part of the same reading passage but the symbols used to represent the vowel sounds have been omitted, leaving the consonant symbols intact. About 40 percent of the message has been omitted. Despite this, fluent readers are able to reconstruct the message quite easily by guessing what comes next, using their understanding of the topic (world knowledge), and their knowledge of English syntax, idiom and vocabulary.
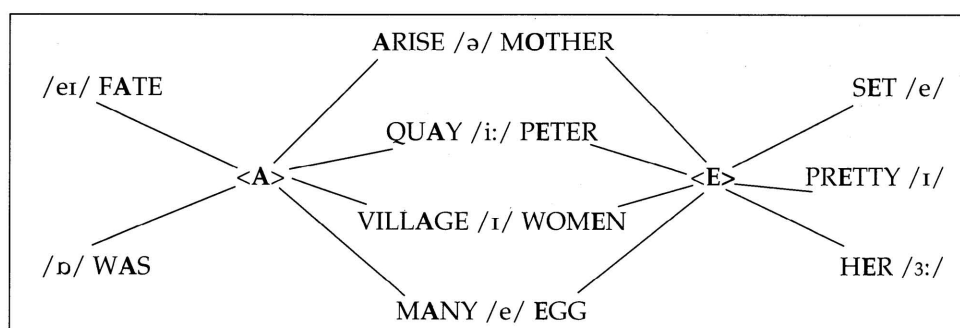
Figure 6

A complex web of sounds

ARISE /ə/ MOTHER
/eɪ/ FATE
SET /e/
QUAY /iː/ PETER
<A>
<E>
PRETTY /ɪ/
VILLAGE /ɪ/ WOMEN
/ɒ/ WAS
HER /ɜː/
MANY /e/ EGG

Figure 8

Reading passage consonants only

```
READING
R--d--ng  -s  -  c-mpl-x  t-sk.  -t  b-est,  -
kn-wl-dg-  -f  ph-n-cs  c-n  -nly  g--d-  th-
r--d-r.  Ph-n-cs  c-n  b-  v-ry  c-nf-s-ng  f-r
th-s-  r--d-rs  wh-  -r-  b-g-nn-ng  t-  l--rn
t-  r--d  -nd  th-  'l-g-c'  -f  ph-n-cs  m-y
b-  m-sl--d-ng  b-c--s-  -t  c-n  l--d  t-
r--d-ng  str-t-g--s  wh-ch  p-y  t--  m-ch
-tt-nt--n  t-  l-tt-rs  -nd  w-rds  -t  th-
-xp-ns-  -f  m--n-ng  -nd  fl--ncy.

(about 40 percent of the message has been  omitted)
```

The complete text is shown in Figure 9.

Figure 9

Complete text

```
READING
Reading is a complex task. At best, a knowledge of
phonics can only guide the reader. Phonics can be
very confusing for those readers who are beginning
to learn to read and the 'logic' of phonics may be
misleading because it can lead to reading strategies
which pay too much attention to letters and words at
the expense of meaning and fluency.
```

6. Some implications for the teaching of reading

The vowel system is an especially complex network of values; on the other hand, the consonant system seems relatively straightforward. For this reason, and because consonants have a high information value, phonic work can profitably focus on consonant values in the early stages. After all, there are alphabetic writing systems which do not have symbols for vowels and there are others where the inclusion of symbols for the vowel sounds is optional – for example, the earliest known alphabet (North Semitic) c. 1700 BC consisted of 22 consonant letters and no symbols for the intervening vowel sounds; the consonantal alphabets of Arabic and Hebrew mark vowels, optionally, with diacritics.

Here are some practical suggestions for the classroom. All aim to encourage beginning readers to use consonants as a guide for reconstructing the written message, to 'go for meaning' and to develop reading fluency.

The teacher could use a well-known story, topic or an event experienced by the reader(s), as the basis of a reading game (e.g., 'Find the hidden message'). The activities can be used for individual or group work. The material can be presented on a chalkboard, an overhead projector, in worksheets, or on a computer. It is assumed that the learners have done phonic work which focuses on the values for consonants only (**b** for <u>box</u>, **c** for <u>cat</u>, **d** for <u>dog</u>, **ch** is for <u>chopper</u>, **sh** is for <u>ship</u> etc).

6.1 Omit all vowels from the text (see Figure 10)

The example below is the beginning of a story. The only modification is all vowels have been removed.

Figure 10

All vowels omitted from a text

```
T-M  TH-  T-RR-BL-  C-T
L-ng,  l-ng  -g-  th-r-  w-s  -  w-ck-d  -nd
b---t-f-l  w-tch.  Sh-  l-v-d  -n  -  l-ttl-
h--s-  -n  th-  m-ddl-  -f  -  f-r-st.  Sh-  h-d
n-  fr--nds  t-  k--p  h-r  c-mp-n-  b-t  sh-
h-d  -  bl-ck  c-t  wh-ch  sh-  c-ll-d  T-m.
Th-r-  w-s  n-  -th-r  c-t  l-k-  T-m  f-r  h-
w-s  v-r-  f-t  -nd  -gl-.  H-s  --rs  w-r-  t-rn
-nd  h-  c--ld  n-t  p-rr.  H-s  t--l  w-s  b-nt
-nd  h-s  cl-ws  w-r-  l-ng.  H-  w-s  -
t-rr-bl-  c-t.
```

6.2 Omit vowels but retain them in the grammatical words such as articles, pronouns, prepositions (see Figure 11)

In this example, the modification is less severe: all the grammatical words (e.g., <u>the</u>, <u>a</u>, <u>and</u>, <u>in</u>, <u>she</u>) are left intact.

Figure 11

All vowels omitted – grammatical words intact

```
T-M  THE  T-RR-BL-  C-T
L-ng,  l-ng  -g-  there  was  a  w-ck-d  -nd
b---t-f-l  w-tch.  She  l-v-d  in  a  l-ttl-
h--s-  in  the  m-ddl-  of  a  f-r-st.  She had
no  fr--nds  t-  k--p  her  c-mp-n-  but  she
had  a  bl-ck  c-t  which  she  c-ll-d  T-m.
There  was  no  other  c-t  l-k-  T-m  for  he
was  v-r-  f-t  and  -gl-.  His  --rs  were  t-rn
and  he  c--ld  not  p-rr.  H-s  t--l  was  b-nt
and  his  cl-ws  were  l-ng.  He  was  a
t-rr-ble  c-t.
```

6.3 Keep whole text intact but highlight consonants using colour or bold print (see Figure 12)

The final possibility is perhaps the most attractive because the only modification to the text which is required is to highlight the consonants using colour or bold print. This application is thus most easily exploited when children have access to computers with colour monitors or someone has access to printing in colour.

Figure 12

Text intact but consonants highlighted

```
TOM THE TERRIBLE CAT
Long, long ago there was a wicked and beautiful
witch . . .
```

6.4 Applications in teaching and research

Teachers may wish to explore the relative merits of each of the three techniques illustrated above. Learners can reconstruct texts (like those shown in Figures 10 and 11) and read their solutions aloud to the teacher, or to one another in pairs or in small groups. The challenge of reconstructing texts can also be used as a whole class activity.

The technique (which I have used with a teenager to develop fluency and to break down an over-reliance on phonic analysis and synthesis) might also be investigated in small-scale research in the classroom. I would be very happy to hear from anybody who is planning or conducting an inquiry of this kind.

Notes

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A longer and more detailed version of this paper can be found in Vol.27, No.3, November 1993 of *Reading*, a publication of the International Reading Association (UK).

The 24 consonant sounds and 22 vowel sounds usually identified, with International Phonetic Alphabet symbols are detailed in the Appendix.

The research on 1-syllable and 2-syllable words in books for 6- to 9-year-olds is found in

> Berdiansky, B., Cronnell, B. and Koehler, J. (1969) *Spelling-Sound Relationships and Primary Form-Class Description for Speech-Comprehension Vocabularies of 6-9 Year Olds,* Southwest Regional Laboratory for Educational Research and Development, Technical Report No. 15.

The unreliability of phonics because there is no way of predicting correspondences between spelling and sound is discussed in

> Smith, F. (1988) *Understanding Reading,* 4th ed., Hillsdale, N.J.: Lawrence Erlbaum Associates.

The problems of phonics giving undue emphasis to the elements of words and leading to guessing from grammatical context can be read about in several places, including *set.* For example, see:

> Nicholson, Tom, (1986) Good Readers Don't Guess. *set* No.2, 1986, Item 13 and Item 14.

and

> Rummelhart, D. (1977) Towards an interactive model of reading. In S. Dornic (Ed.) *Attention and Performance VI,* Hillsdale, N.J.: Lawrence Erlbaum Associates.

and

> Smith, F. (1985) *Reading,* 2nd ed., Cambridge: University Press.

The calculations of 13.7 spellings for each sound and 3.5 sounds per letter comes from:

> Dewey, G. (1971) *English spelling: roadblock to reading,* New York: Columbia University Press.

A fascinating book on language in general which has excellent sections on reading and spelling including George Bernard Shaw's alphabet and a description of North Semitic (mentioned in this item) is:

> Crystal, D. (1987) *The Cambridge Encyclopaedia of Language,* Cambridge: University Press.

Appendix

The following table is from a list in the *Longman Dictionary of Contemporary English.* It indicates by use of examples (key words) the values of the symbols used to represent sounds (phonemes).

CONSONANTS		VOWELS	
symbol	**keyword**	**symbol**	**keyboard**
p	pen	iː	sheep
b	back	ɪ	ship
t	tea	e	bed
d	day	æ	bad
k	key	ɑː	calm
g	gay	ɒ	pot
tʃ	cheer	ɔː	caught
d	jump	ʊ	put
f	few	uː	boot
v	view	ʌ	cut
θ	thing	ɜː	bird
ð	then	ə	cupboard
s	soon	eɪ	make
z	zero	əʊ	note
ʃ	fishing	ɑɪ	bite
ʒ	pleasure	ɑʊ	now
h	hot	ɔɪ	boy
m	sum	ɪə	here
n	sun	eə	there
ŋ	sung	ʊə	poor
l	led		
r	red		
j	yet		
w	wet		

Note: the five tripthongs (all ending in /ə/) in **player**, **lower**, **tire**, **tower** and **employer** are not included above.