L2/22-286

Proposal to Encode Latin characters for Initial Teaching Alphabet

in ISO/IEC 10646 and The Unicode Standard

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1.Introduction

English Initial Teaching Alphabet, short. ITA or I.T.A. is an initial learning alphabet that was invented by James Pitman, grandson of the inventor of Pitman cursive. It was first used in a number of British schools in 1961 and soon spread to the USA and Australia. It is designed to make it easier for English-speaking children to learn to read English. The idea is that children first learn to read using ITA, and then become familiar with standard English spelling at the age of seven. Opinions on the effectiveness of I.T.A. differ, and it has never become the main learning tool.

2.Code Charts

Latin Ext-G	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+1DF2x	ᴂ	ᶜh	ᶁ	ᶇᶇ	ᶤe							ᶯ	ᵒi	ᵒu	ᶏ	ᶬ
U+1DF3x	ʃh	ɟh	ʇh	ᵘe	wh	ɤ										

3.Characters

U+1DF20 ᴂ LATIN SMALL LETTER AU WITH DIAGONAL CONNECTING STROKE

U+1DF21 ᶜh LATIN SMALL LETTER STRETCHED CH

U+1DF22 ᶁ LATIN SMALL LETTER D WITH PROLONGED LEG

U+1DF23 ᶇᶇ LATIN SMALL LETTER DOUBLE LUNATE E

U+1DF24 ᶤe LATIN SMALL LETTER IE WITH CONNECTING STROKE

U+1DF2B ᶯ LATIN SMALL LETTER ENG WITH SMALL BOWL INSIDE

U+1DF2C ᵒi LATIN SMALL LETTER OI WITH CONNECTING STROKE

U+1DF2D ᵒu LATIN SMALL LETTER OU WITH CONNECTING STROKE

U+1DF2E ᶏ LATIN SMALL LETTER OMEGA WITH LOOP

U+1DF2F ᶬ LATIN SMALL LETTER R WITH DIAGONAL CONNECTING STROKE

U+1DF30 ʃh LATIN SMALL LETTER ESH H

U+1DF31 ɟh LATIN SMALL LETTER TH WITH LEFT TAIL

U+1DF32 ʇh LATIN SMALL LETTER TH WITH LONG TAIL

U+1DF33 ᵘe LATIN SMALL LETTER UE WITH CONNECTING STROKE

U+1DF34 ᷴ LATIN SMALL LETTER WH WITH DIAGONAL CONNECTING STROKE

U+1DF35 ᷵ LATIN SMALL LETTER REVERSED Z

4.UnicodeData

```
1DF20;LATIN SMALL LETTER AU WITH DIAGONAL CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF21;LATIN SMALL LETTER STRETCHED CH;Ll;0;L;;;;;N;;;;;
1DF22;LATIN SMALL LETTER D WITH PROLONGED LEG;Ll;0;L;;;;;N;;;;;
1DF23;LATIN SMALL LETTER DOUBLE LUNATE E;Ll;0;L;;;;;N;;;;;
1DF24;LATIN SMALL LETTER IE WITH CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF2B;LATIN SMALL LETTER ENG WITH SMALL BOWL INSIDE;Ll;0;L;;;;;N;;;;;
1DF2C;LATIN SMALL LETTER OI WITH CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF2D;LATIN SMALL LETTER OU WITH CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF2E;LATIN SMALL LETTER OMEGA WITH LOOP;Ll;0;L;;;;;N;;;;;
1DF2F;LATIN SMALL LETTER R WITH DIAGONAL CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF30;LATIN SMALL LETTER ESH H;Ll;0;L;;;;;N;;;;;
1DF31;LATIN SMALL LETTER TH WITH LEFT TAIL;Ll;0;L;;;;;N;;;;;
1DF32;LATIN SMALL LETTER TH WITH LONG TAIL;Ll;0;L;;;;;N;;;;;
1DF33;LATIN SMALL LETTER UE WITH CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF34;LATIN SMALL LETTER WH WITH DIAGONAL CONNECTING STROKE;Ll;0;L;;;;;N;;;;;
1DF35;LATIN SMALL LETTER REVERSED Z;Ll;0;L;;;;;N;;;;;
```

5.Figures

Figure 1. Basic ITA chart

Figure 2. Example from http://itafoundation.org/ showing LATIN SMALL LETTER DOUBLE LUNATE E, LATIN SMALL LETTER IE WITH CONNECTING STROKE, LATIN SMALL LETTER UE WITH CONNECTING STROKE.

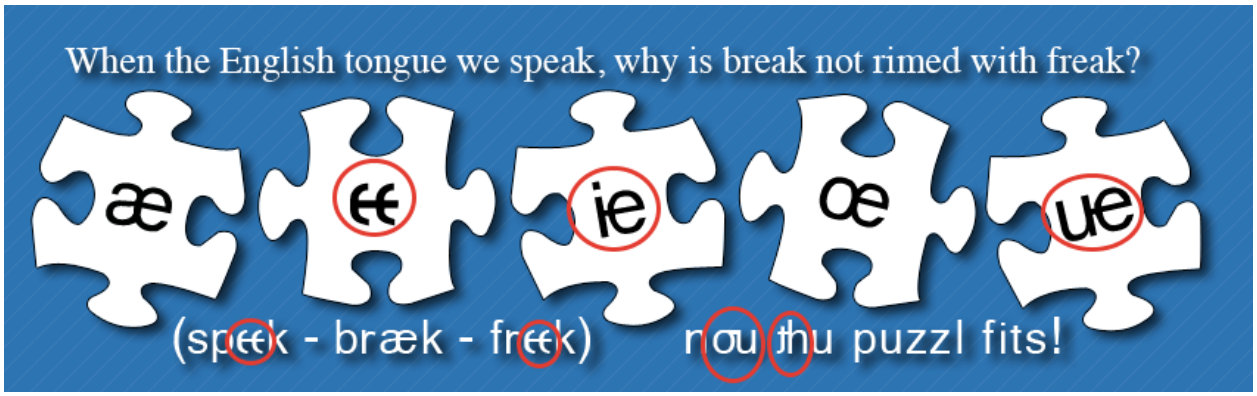


Figure 3. Example from http://itafoundation.org/ showing LATIN SMALL LETTER OMEGA WITH LOOP, LATIN SMALL LETTER R WITH DIAGONAL CONNECTING STROKE , LATIN SMALL LETTER D WITH PROLONGED LEG, LATIN SMALL LETTER TH WITH LEFT TAIL, LATIN SMALL LETTER REVERSED Z

Figure 4. Example from http://itafoundation.org/ showing ITA alphabet

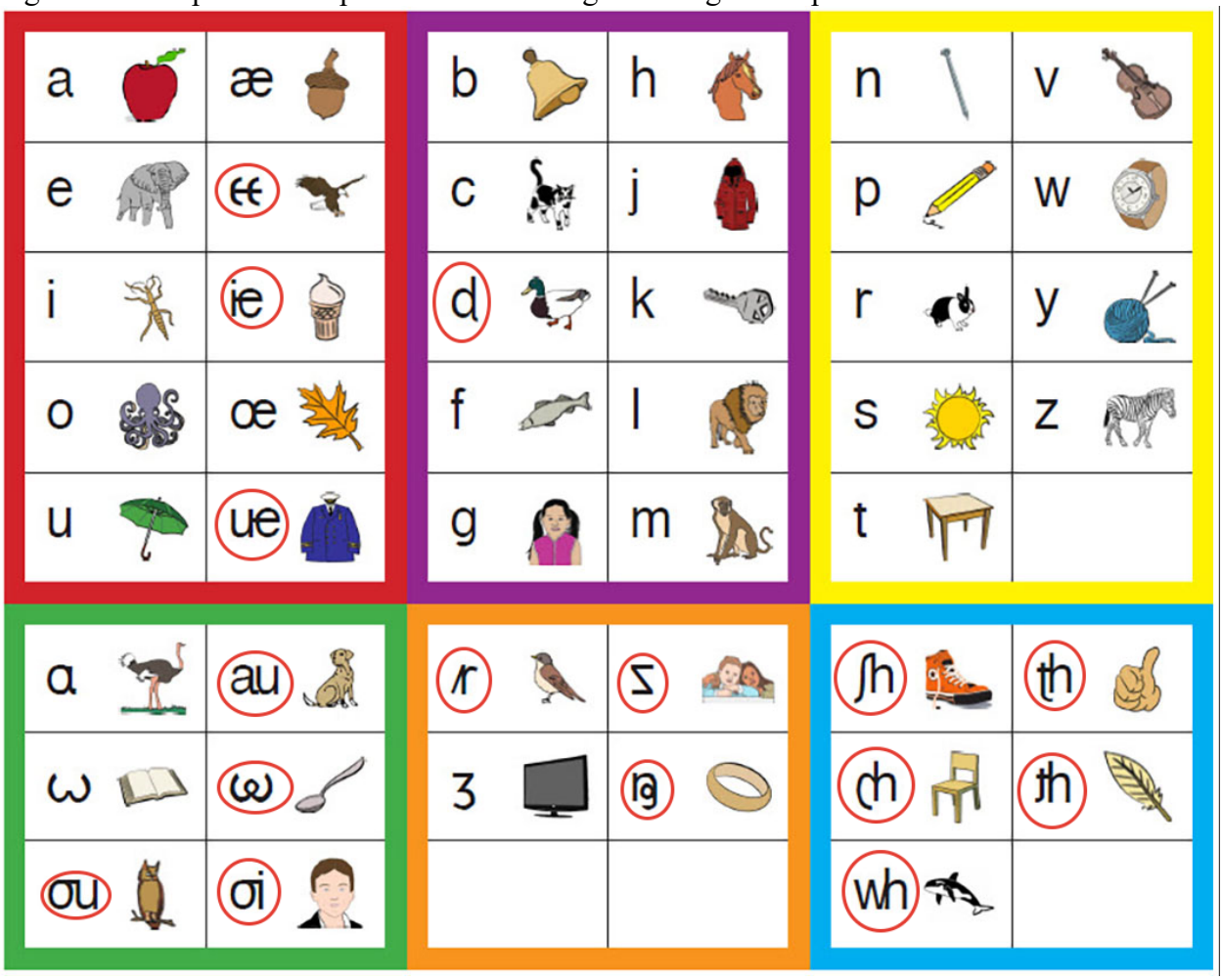
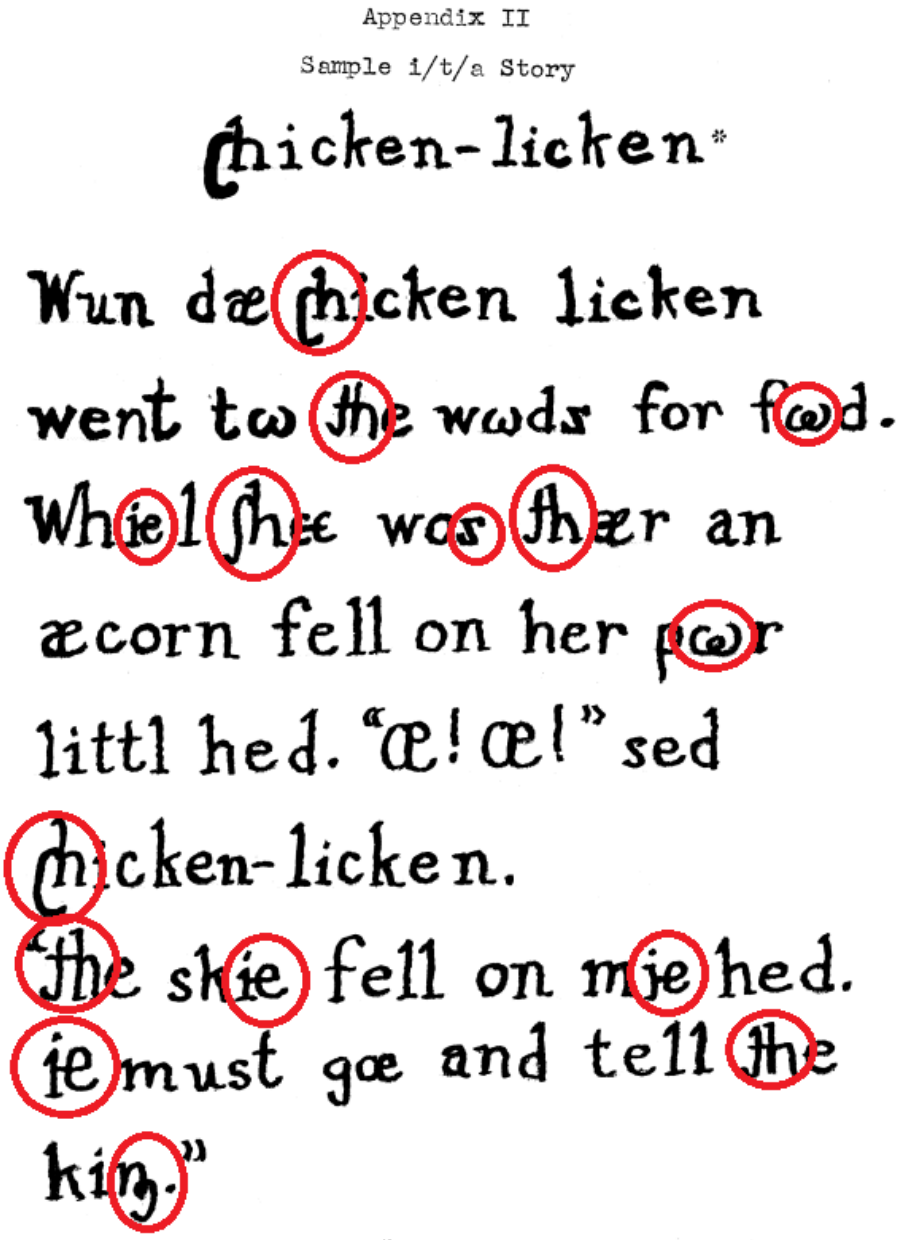


Figure 5. Example from Gee, Norman W., "Initial Teaching Alphabet" (1966). Plan B Papers. 468.



Appendix II

Sample i/t/a Story

Chicken-licken*

Wun dæ chicken licken
went tω the wωds for fωd.
While she was thær an
æcorn fell on her pωr
littl hed. "Œ! Œ!" sed
chicken-licken.
"The skie fell on mie hed.
ie must gœ and tell the
king."

Figure 6. Example from Gee, Norman W., "Initial Teaching Alphabet" (1966). Plan B Papers. 468.

Appendix 1

The Initial Teaching Alphabet*

Number	Character	Name	Example	Traditional spelling
1	æ	ae	ræt	rate
2	b	bee	big	big
3	c	kee	cat	cat
4	d	dee	do	dog
5	ee	ee	meet	meet
6	f	ef	fill	fill
7	g	gae	gun	gun
8	h	hae	hat	hat
9	ie	ie	tie	tie
10	j	jae	jelly	jelly
11	k	kae	kit	kit
12	l	el	lamp	lamp
13	m	em	man	man
14	n	en	net	net
15	oe	oe	toe	toe

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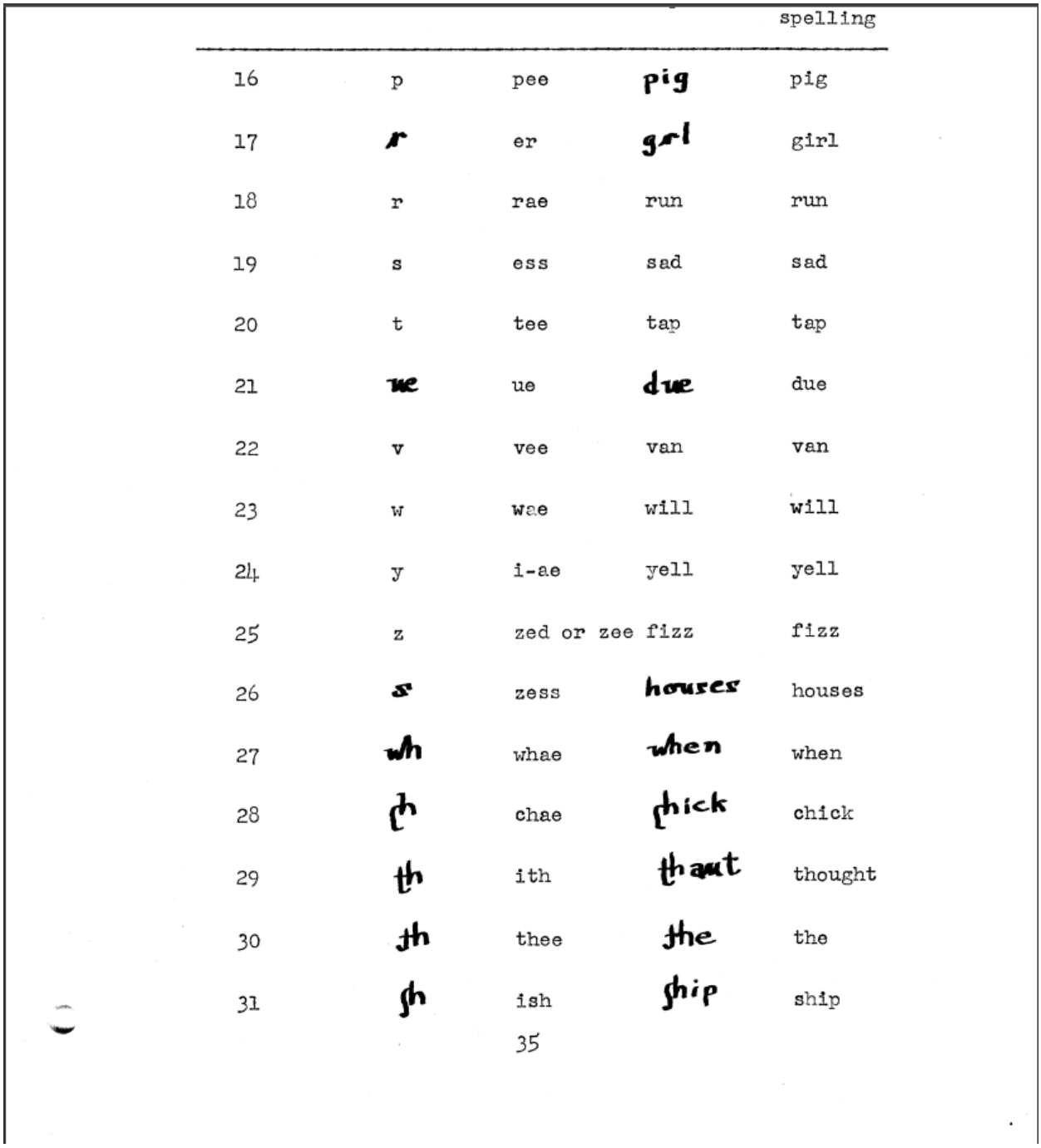
Figure 7. Example from Gee, Norman W., "Initial Teaching Alphabet" (1966). Plan B Papers. 468.



				spelling
16	p	pee	pig	pig
17	ɾ	er	gɾl	girl
18	r	rae	run	run
19	s	ess	sad	sad
20	t	tee	tap	tap
21	ue	ue	due	due
22	v	vee	van	van
23	w	wae	will	will
24	y	i-ae	yell	yell
25	z	zed or zee	fizz	fizz
26	s	zess	houses	houses
27	wh	whae	when	when
28	ch	chae	chick	chick
29	th	ith	thaut	thought
30	th	thee	the	the
31	sh	ish	ship	ship

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Figure 8. Example from Gee, Norman W., "Initial Teaching Alphabet" (1966). Plan B Papers. 468.

Number	Character	Name	Example	Traditional spelling
32	ʒ	zhee	meʒuer	measure
33	ŋ	ing	siŋ	sing
34	ɑ	ah	fɑr	far
35	ɑu	au	ɑutum	autumn
36	a	at	apl	apple
37	e	et	eg	egg
38	i	it	dip	dip
39	o	ot	hot	hot
40	u	ut	ugly	ugly
41	ω	oot	bωk	book
42	ωω	oo	mωn	moon
43	ou	ow	bou	bough
44	oi	oi	toi	toy

*Albert J. Mazurkiewicz, "The Initial Teaching Alphabet (Augumented Roman) for teaching reading," New Perspectives in Reading Instruction (New York: Pitman Publishing Corportion, 1964), pp. 543-544.

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Figure 9. Example from I.t.a by O'Halloran, George

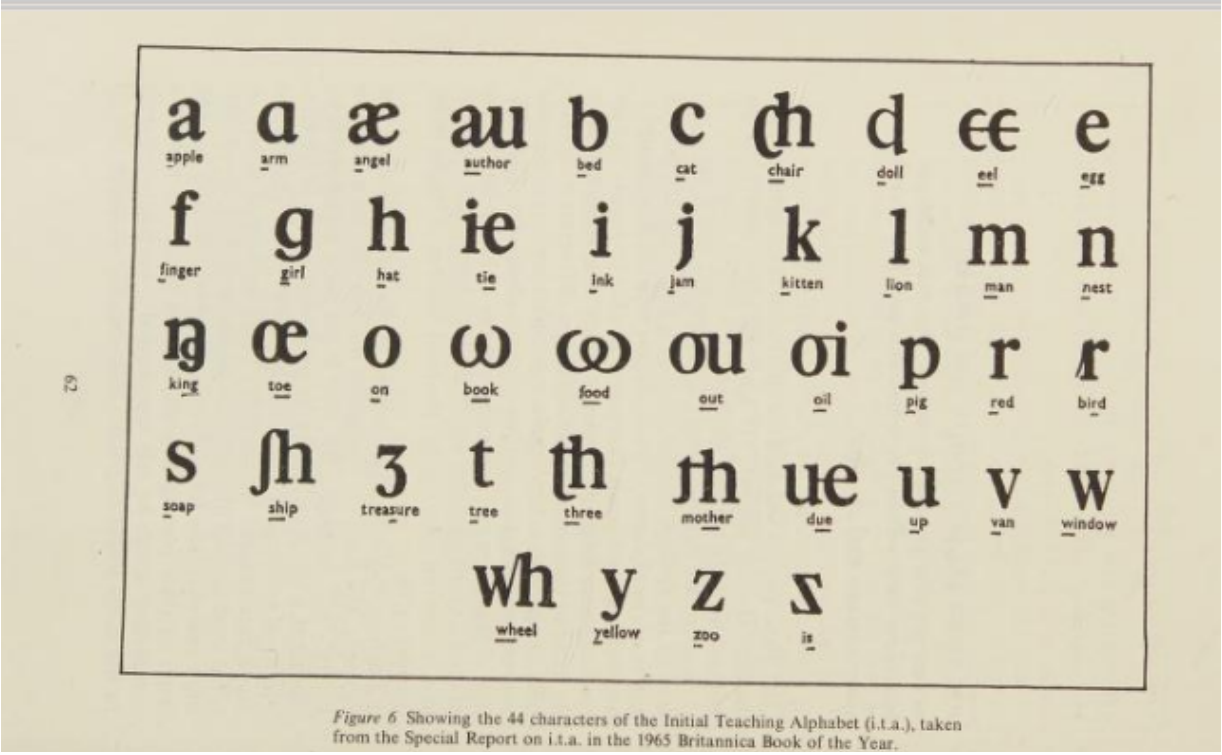


Figure 6 Showing the 44 characters of the Initial Teaching Alphabet (i.t.a.), taken from the Special Report on i.t.a. in the 1965 Britannica Book of the Year.

Figure 10. Example from I.t.a by O'Halloran, George showing LATIN SMALL LETTER STRETCHED CH, LATIN SMALL LETTER ESH H, LATIN SMALL LETTER TH WITH LEFT TAIL,LATIN SMALL LETTER TH WITH LONG TAIL

In spite of the claim that the values of the letters in i.t.a. are completely regular, I found it necessary to refer to a spelling list even after four terms. Is it not significant that the publication of a spelling list was necessary?

Downing's evidence to support the view that spelling irregularity is a cause of difficulty in learning to read is drawn from the successes of the earlier experiments with simplified alphabets, described at the beginning of this chapter. However, one recent investigation into the relationship between the unsystematic spelling of English and reading difficulty is that of Lee (1966), who drew up lists of regular and irregular words for the 275 children in his sample to read. Commenting on his results he says:

> As far as the words [*in his lists*] are concerned there is no correlation between the irregularity of their spelling and the extent to which they are successfully or unsuccessfully read.

Lee concluded from his experiments that irregular spellings were by no means a major cause of reading difficulty for the children who took part in them.

Downing (1962), however, questions the validity of Lee's conclusions, pointing out (and rightly so) that, as the children in the experiment were between six and ten and could read, the effects of the irregularity of the spelling may have been obscured by the frequency of occurrence of the words in the children's reading – a variable Lee had not taken into consideration. The evidence on this question provided by the main i.t.a. experiment will be discussed in a later chapter.

On the other hand, even though there may be ambiguities in the English spelling, it must be realised that there is quite a strong relationship between the spoken and written codes of our language. Hanna and Moore (1953) analysed a 3,000 basic word vocabulary list, and found that approximately four out of five of the phonemes contained in the words were spelled consistently with the same one or two letters. They also found that ten of the consonant phonemes were spelled regularly 90% of the times they occur. They write:

> We must not be so discouraged with the 20% irregularity that we fail to profit from the 80% regularity.

It has been pointed out many times that Pitman's aim of providing a systematic medium for early reading without permanent spelling reform did mean a compromise. For example, Diack (1965) writes:

> The Pitman alphabet is an easy target for those who advocate a simplification of English spelling on purely phonetic principles . . . What i.t.a. does is to provide in print a guide to the sounds of the spoken word *without confusion*.

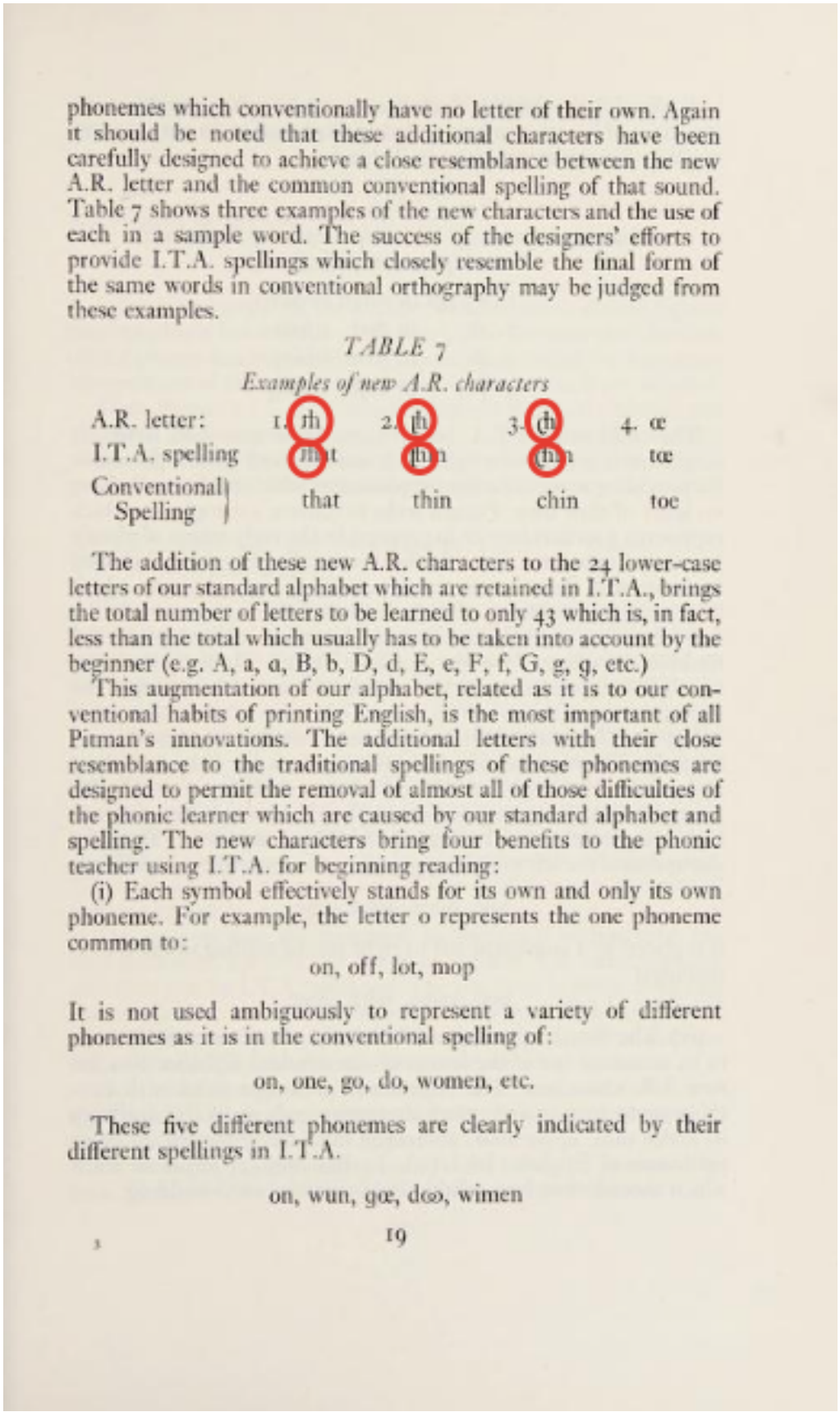
However, Stott's comments on the ambiguities of i.t.a. are helpful, as there is a common tendency to think and write in terms of a one sound – one symbol relationship when discussing i.t.a.

2. i.t.a. is much less complex

t.o.	*i.t.a.*
chat	ʧat
hash	haʃh
when	when
then	ðen
thin	ðin

In i.t.a. the pupil is provided with an individual printed symbol for each of the phonemes which have no character of their own in our standard Roman alphabet. The child learns these new characters, for example, ʧ and ʃh, as single letters in their own right, each representing a particular phoneme. This process is felt to be much less complex than the conventional medium, where the child must learn that multiple character spellings such as 'ch' and 'sh' do not signal the sounds which initially they learned to associate with the individual letters 'c', 'h', 's' and 'h'.

Figure 11. Example from The i.t.a. reading experiment : three lectures on the research in infant schools with Sir James Pitman's initial teaching alphabet showing LATIN SMALL LETTER STRETCHED CH, LATIN SMALL LETTER TH WITH LEFT TAIL, LATIN SMALL LETTER TH WITH LONG TAIL



phonemes which conventionally have no letter of their own. Again it should be noted that these additional characters have been carefully designed to achieve a close resemblance between the new A.R. letter and the common conventional spelling of that sound. Table 7 shows three examples of the new characters and the use of each in a sample word. The success of the designers' efforts to provide I.T.A. spellings which closely resemble the final form of the same words in conventional orthography may be judged from these examples.

TABLE 7

Examples of new A.R. characters

A.R. letter:	1. ɪh	2. ɭh	3. ɕh	4. œ
I.T.A. spelling	ɪhat	ɭhin	ɕhin	tœ
Conventional Spelling	that	thin	chin	toe

The addition of these new A.R. characters to the 24 lower-case letters of our standard alphabet which are retained in I.T.A., brings the total number of letters to be learned to only 43 which is, in fact, less than the total which usually has to be taken into account by the beginner (e.g. A, a, ɑ, B, b, D, d, E, e, F, f, G, g, ɡ, etc.)

This augmentation of our alphabet, related as it is to our conventional habits of printing English, is the most important of all Pitman's innovations. The additional letters with their close resemblance to the traditional spellings of these phonemes are designed to permit the removal of almost all of those difficulties of the phonic learner which are caused by our standard alphabet and spelling. The new characters bring four benefits to the phonic teacher using I.T.A. for beginning reading:

(i) Each symbol effectively stands for its own and only its own phoneme. For example, the letter o represents the one phoneme common to:

on, off, lot, mop

It is not used ambiguously to represent a variety of different phonemes as it is in the conventional spelling of:

on, one, go, do, women, etc.

These five different phonemes are clearly indicated by their different spellings in I.T.A.

on, wun, ɡœ, dɷ, wimen

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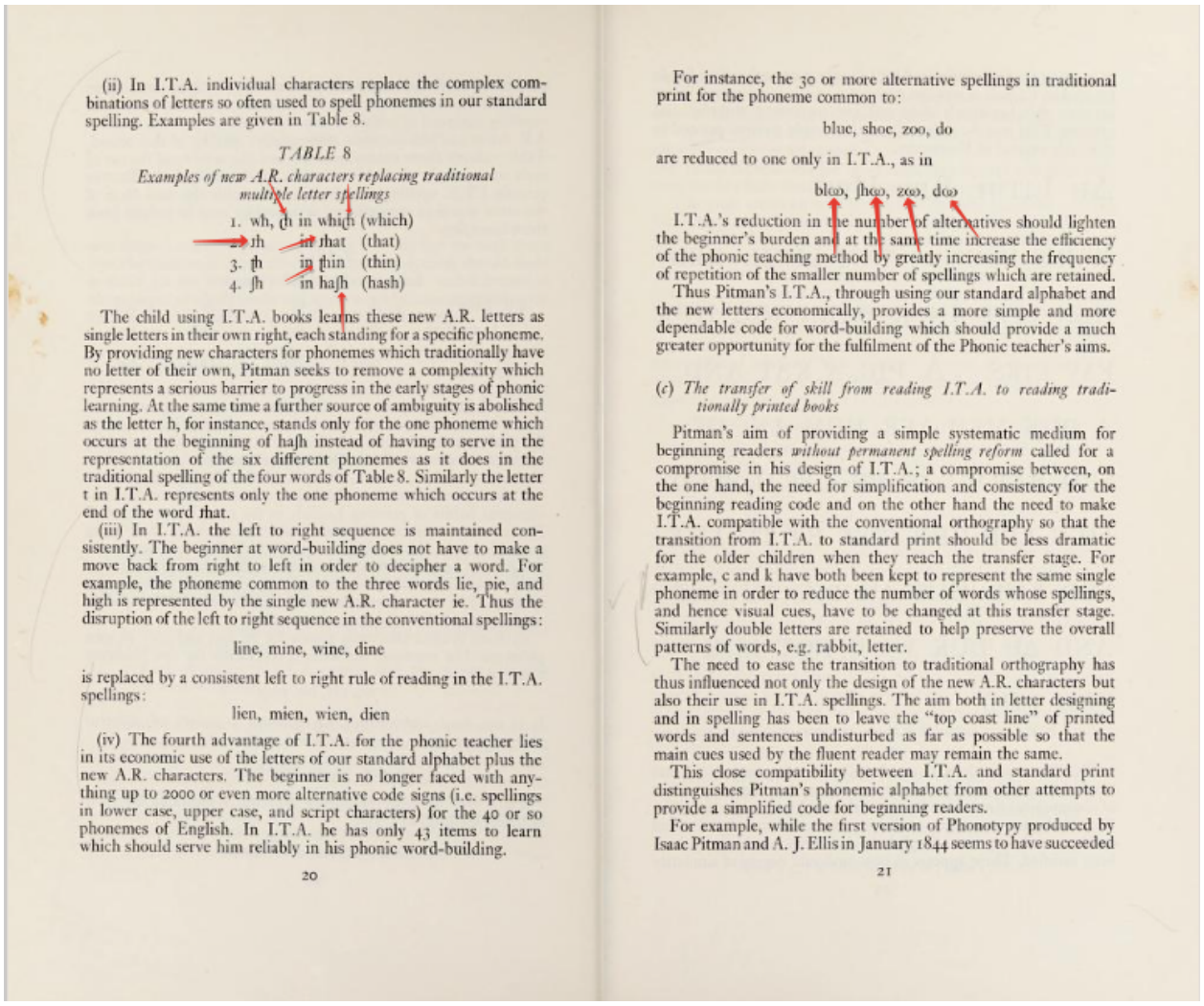
Figure 12. Example from The i.t.a. reading experiment : three lectures on the research in infant schools with Sir James Pitman's initial teaching alphabet showing LATIN SMALL LETTER STRETCHED CH, LATIN SMALL LETTER ESH H, LATIN SMALL LETTER TH WITH LEFT TAIL,LATIN SMALL LETTER TH WITH LONG TAIL, LATIN SMALL LETTER OMEGA WITH LOOP



(ii) In I.T.A. individual characters replace the complex combinations of letters so often used to spell phonemes in our standard spelling. Examples are given in Table 8.

TABLE 8

Examples of new A.R. characters replacing traditional multiple letter spellings

1. wh, ʈh in whiʈh (which)
2. ɹh in ɹhat (that)
3. ʈh in ʈhin (thin)
4. ʃh in haʃh (hash)

The child using I.T.A. books learns these new A.R. letters as single letters in their own right, each standing for a specific phoneme. By providing new characters for phonemes which traditionally have no letter of their own, Pitman seeks to remove a complexity which represents a serious barrier to progress in the early stages of phonic learning. At the same time a further source of ambiguity is abolished as the letter h, for instance, stands only for the one phoneme which occurs at the beginning of haʃh instead of having to serve in the representation of the six different phonemes as it does in the traditional spelling of the four words of Table 8. Similarly the letter t in I.T.A. represents only the one phoneme which occurs at the end of the word ɹhat.

(iii) In I.T.A. the left to right sequence is maintained consistently. The beginner at word-building does not have to make a move back from right to left in order to decipher a word. For example, the phoneme common to the three words lie, pie, and high is represented by the single new A.R. character ie. Thus the disruption of the left to right sequence in the conventional spellings:

line, mine, wine, dine

is replaced by a consistent left to right rule of reading in the I.T.A. spellings:

lien, mien, wien, dien

(iv) The fourth advantage of I.T.A. for the phonic teacher lies in its economic use of the letters of our standard alphabet plus the new A.R. characters. The beginner is no longer faced with anything up to 2000 or even more alternative code signs (i.e. spellings in lower case, upper case, and script characters) for the 40 or so phonemes of English. In I.T.A. he has only 43 items to learn which should serve him reliably in his phonic word-building.

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For instance, the 30 or more alternative spellings in traditional print for the phoneme common to:

blue, shoe, zoo, do

are reduced to one only in I.T.A., as in

blɷ, ʃhɷ, zɷ, dɷ

I.T.A.'s reduction in the number of alternatives should lighten the beginner's burden and at the same time increase the efficiency of the phonic teaching method by greatly increasing the frequency of repetition of the smaller number of spellings which are retained.

Thus Pitman's I.T.A., through using our standard alphabet and the new letters economically, provides a more simple and more dependable code for word-building which should provide a much greater opportunity for the fulfilment of the Phonic teacher's aims.

(*c*) *The transfer of skill from reading I.T.A. to reading traditionally printed books*

Pitman's aim of providing a simple systematic medium for beginning readers *without permanent spelling reform* called for a compromise in his design of I.T.A.; a compromise between, on the one hand, the need for simplification and consistency for the beginning reading code and on the other hand the need to make I.T.A. compatible with the conventional orthography so that the transition from I.T.A. to standard print should be less dramatic for the older children when they reach the transfer stage. For example, c and k have both been kept to represent the same single phoneme in order to reduce the number of words whose spellings, and hence visual cues, have to be changed at this transfer stage. Similarly double letters are retained to help preserve the overall patterns of words, e.g. rabbit, letter.

The need to ease the transition to traditional orthography has thus influenced not only the design of the new A.R. characters but also their use in I.T.A. spellings. The aim both in letter designing and in spelling has been to leave the "top coast line" of printed words and sentences undisturbed as far as possible so that the main cues used by the fluent reader may remain the same.

This close compatibility between I.T.A. and standard print distinguishes Pitman's phonemic alphabet from other attempts to provide a simplified code for beginning readers.

For example, while the first version of Phonotypy produced by Isaac Pitman and A. J. Ellis in January 1844 seems to have succeeded

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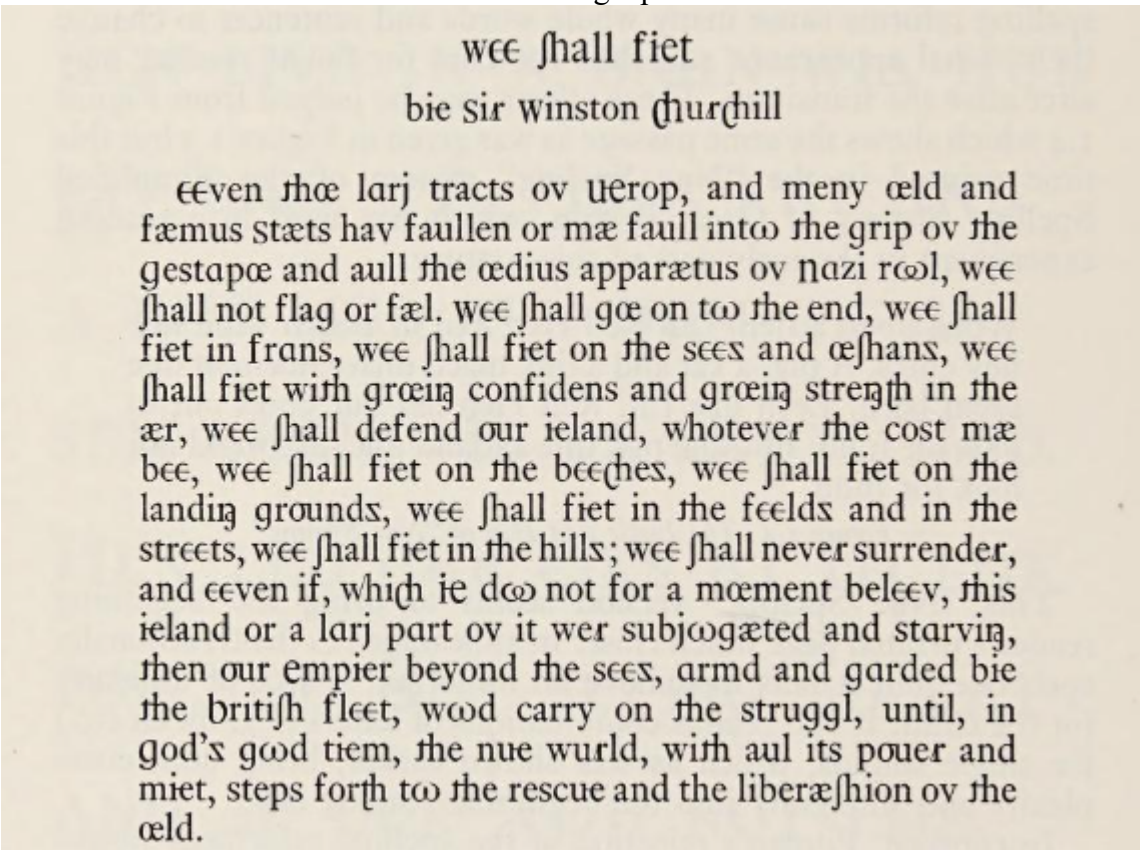
Figure 13. Example from The i.t.a. reading experiment : three lectures on the research in infant schools with Sir James Pitman's initial teaching alphabet



wee ſhall fiet

bie sir winston churchill

eeven thœ larj tracts ov uerop, and meny œld and fæmus stæts hav faullen or mæ faull intœ the grip ov the gestapœ and aull the œdius apparætus ov nazi rœl, wee ſhall not flag or fæl. wee ſhall gœ on tœ the end, wee ſhall fiet in frans, wee ſhall fiet on the seeș and œſhanș, wee ſhall fiet with grœing confidens and grœing strength in the ær, wee ſhall defend our ieland, whotever the cost mæ bee, wee ſhall fiet on the beeches, wee ſhall fiet on the landing grounds, wee ſhall fiet in the feelds and in the streets, wee ſhall fiet in the hills; wee ſhall never surrender, and eeven if, which ie dœ not for a mœment beleev, this ieland or a larj part ov it wer subjœgæted and starving, then our empier beyond the seeș, armd and garded bie the britiſh fleet, wœd carry on the struggl, until, in god's gœd tiem, the nue wurld, with aul its pouer and miet, steps forth tœ the rescue and the liberæſhion ov the œld.

6.References

1.http://itafoundation.org/

2.Gee, Norman W., "Initial Teaching Alphabet" (1966). Plan B Papers. 468.

3.I.t.a by O'Halloran, George

4.The i.t.a. reading experiment : three lectures on the research in infant schools with Sir James Pitman's initial teaching alphabet

5.https://en.wikipedia.org/wiki/Initial_Teaching_Alphabet

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]
Please fill all the sections A, B and C below.
Please read Principles and Procedures Document (P & P) from http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html **for guidelines and details before filling this form.**
Please ensure you are using the latest Form from http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html **.**
See also http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html **for latest *Roadmaps*.**

A. Administrative

1. **Title:** *Proposal to Encode Latin characters for Initial Teaching Alphabet*
2. Requester's name: *Nikita Manulov*
3. Requester type (Member body/Liaison/Individual contribution): *Individual contribution*
4. Submission date: *2022-11-14*
5. Requester's reference (if applicable):
6. Choose one of the following:
   This is a complete proposal: *X*
   (or) More information will be provided later:

B. Technical – General

1. Choose one of the following:
   a. This proposal is for a new script (set of characters): *No*
      Proposed name of script:
   b. The proposal is for addition of character(s) to an existing block: *Yes*
      Name of the existing block: *Latin Extended-G*
2. Number of characters in proposal: *16*
3. Proposed category (select one from below - see section 2.2 of P&P document):
   A-Contemporary *X* B.1-Specialized (small collection) B.2-Specialized (large collection)
   C-Major extinct D-Attested extinct E-Minor extinct
   F-Archaic Hieroglyphic or Ideographic G-Obscure or questionable usage symbols
4. Is a repertoire including character names provided? *Yes*
   a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?
   b. Are the character shapes attached in a legible form suitable for review? *No*
5. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?
   If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:
6. References:
   a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided? *Yes*
   b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached? *Yes*
7. Special encoding issues:
   Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)? *No*

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also see http://www.unicode.org/Public/UNIDATA/UCD.html and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

[1] Form number: N3152-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? *Yes*
   If YES explain *L2/08-428*
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)? *Yes*
   If YES, with whom? *"Initial Teaching Alphabet Foundation"*
   If YES, available relevant documents:
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? *See text*
   Reference:
4. The context of use for the proposed characters (type of use; common or rare) *Rare*
   Reference:
5. Are the proposed characters in current use by the user community? *Yes*
   If YES, where? Reference:
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP? *Yes*
   If YES, is a rationale provided?
   If YES, reference:
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence? *No*
   If YES, is a rationale for its inclusion provided?
   If YES, reference:
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? *No*
   If YES, is a rationale for its inclusion provided?
   If YES, reference:
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character? *No*
    If YES, is a rationale for its inclusion provided?
    If YES, reference:
11. Does the proposal include use of combining characters and/or use of composite sequences? *No*
    If YES, is a rationale for such use provided?
    If YES, reference:
    Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?
    If YES, reference:
12. Does the proposal contain characters with any special properties such as control function or similar semantics? *No*
    If YES, describe in detail (include attachment if necessary)
13. Does the proposal contain any Ideographic compatibility character(s)? *No*
    If YES, is the equivalent corresponding unified ideographic character(s) identified?
    If YES, reference: