



ELINET analytic glossary of the initial teaching and learning of literacy

Greg Brooks
and
Maxine Burton

University of Sheffield, UK

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Conventions

In this analytic section, terms defined in the alphabetic list are printed in bold on first appearance (and sometimes later too).

Phonetic transcriptions, even of single phonemes, are shown between slashes, e.g. /e/. All phonetic symbols used are from the International Phonetic Alphabet (IPA) – see http://en.wikipedia.org/wiki/International_Phonetic_Alphabet.

Graphemes are shown between angle brackets, e.g. <th>.

In order to facilitate the use of IPA symbols, this document is written in Lucida Sans Unicode font, the only one within Microsoft Word which provides enough symbols.

Context

This glossary was commissioned by the European Literacy Policy Network, ELINET, in 2015 as one of the deliverables under its contract with the European Commission. It is intended to clarify the meanings of a number of key terms in *initial* literacy teaching, and therefore to assist discussions both among ELINET partners and more widely. It is not intended to be definitive, indeed cannot be – pedagogies, and the expressions used to describe them, constantly develop, and this is therefore intended to be a living document to which others are welcome to contribute. (Indeed, this version represents a revision carried out in early 2017.) We hope it will prove useful to all those in Europe and beyond who have a professional interest in initial literacy teaching and wish to explore the match (or sometimes the mismatch) between the nature of different languages and their orthographies on the one hand, and the methods used to teach literacy in them on the other. We hope also that greater clarity about terminology will reduce the amount of both misunderstanding and controversy in the field.

A clear instance of the need for clarification and agreement on terms arose during the IDEC (International Development in Europe Committee of the International Literacy Association) symposium at the 19th European Conference on Literacy at the University of Klagenfurt, Austria, in July 2015. The Czech linguistics and literacy expert, Marie Ernestová, described two approaches to the teaching of initial literacy in the Czech Republic, which she labelled the ‘analytic–synthetic’ and ‘genetic’ methods. From her descriptions and answers to questions (and from the translation of part of an official document she provided later), it became clear that the ‘genetic’ method (‘genetická metoda’) was essentially what is called ‘synthetic phonics’ in English (and therefore nothing to do with the meaning of the word ‘genetic’ in English), while the ‘analytic–synthetic’ method (‘analyticko–syntetická metoda’) resembled what would be called ‘syllabic methods’ in English (and therefore not to be confused with either analytic or synthetic phonics).

Only two previous (or at least only two previous English–language) literacy glossaries are known to us, both edited by Harris and Hodges and published by the International Reading Association (since January 2015 the International Literacy Association). *A Dictionary of Reading and related terms* (1981) was simply an alphabetic list of terms with definitions (though it did have an appendix giving equivalents of selected terms in French, Spanish, German, Danish and Swedish), but that approach inevitably separates terms which need to be compared and/or defined against each other and/or located in a web of related concepts. *The Literacy Dictionary: the vocabulary of reading and writing* (1995) dropped the translation appendix, but otherwise took a more sophisticated approach, which we have

followed: not just the alphabetic list, but also analytic essays on certain key terms, including concepts of 'literacy' itself.

The European Commission study *Initial teaching of reading in the European Union* (1999) provided very useful snapshots of official policies across Member States at that date, but its analysis was superficial and led to very weak conclusions. The Eurydice report *Teaching Reading in Europe: contexts, policies and practices* (2011) provided detailed analysis of official curricular documents across Member and associated States at that date, but no guidance on terminology.

This glossary is therefore in two parts, first an analytic section, then the alphabetic list (which contains about 320 terms). Both parts are meant to apply to all the official languages of the European Union and its associated and candidate states, and therefore cover the Greek alphabet (the first alphabet in the world strictly so called) and languages written in (variations of) two other scripts, Cyrillic and Roman. Other alphabetic orthographies, and logographic and syllabic scripts, including consonantal syllabaries (e.g. Arabic, Hebrew), are not considered because no official languages of Europe are written in such scripts. The extent to which our largely Anglophone viewpoint is applicable to other cultures and contexts is of course moot, and open to correction by professionals from elsewhere.

ELINET's remit concerns literacy at all stages of life, and the glossary is therefore intended to cover the initial teaching and learning of literacy not just to children, but also to adults – for useful discussion of terminology particularly relevant to adults and literacy, see the papers produced as a result of the ELINET Team 4 (adults) seminar held at the UNESCO Institute for Lifelong Learning in Hamburg in January 2015: <http://www.eli-net.eu/about-us/news/detail/article/detail/News/elinet-guiding-principles-for-the-use-of-terminology-in-adult-literacy/>. However, given our focus on the initial stages, we have not attempted to cover 'reading to learn', content-area literacy, or 'higher-order' reading techniques which presume basic literacy (e.g. 'close reading', 'explication de texte', 'critical literacy'); and the whole of what might be called 'literary literacy' (the art of writing, literary criticism, etc.) is omitted – this is an enormous set of topics with quite enough glossaries and dictionaries of their own.

Also, because it is meant to facilitate discussion about the most basic levels of literacy teaching and learning, the fundamentals which must be in place in every literate person's life, this glossary does not attempt to tackle the purposes for which literacy is used, and is therefore silent on the 'social' aspect. However, even the youngest beginners need to have, or be told, a concept of what literacy is for, and

that metacognitive insight and underpinning is essential for learners' progress (and its absence can impede it).

We have also not attempted to cover the initial teaching of literacy to children or adults with hearing and visual deficits. Again, these are complex areas with substantial literatures of their own, and trying to cover them could well have caused this already long document to expand to several times its present length.

Concepts of literacy

Definitions of literacy and 'illiteracy', literate and 'illiterate'

The most basic meanings of 'literacy' and 'literate' in English and other languages are:

Literacy: The ability to read and write.

Literate: Able to read and write.

Correspondingly, the basic meanings of 'illiteracy' and 'illiterate' are:

Illiteracy: Inability to read or write.

Illiterate: Unable to read or write.

But this is just a beginning, since definitions of illiteracy in developed countries also need to take account of social context, i.e. it is an inability within a culture that is broadly literate (see Burton, 2014: 6–7). (See 'Wider meanings' below for ramifying uses of 'literacy' in English; see also the 'Historical note' below.) Below are collected some of the definitions used in international contexts.

UNESCO (1951)

Literacy is the ability of a person "who can with understanding both read and write a short, simple statement on his [sic] everyday life". This is, in effect, an operationalisation of the basic definition above. Recent definitions tend to focus instead on a socially useful level, usually called functional literacy, including this later definition from UNESCO:

UNESCO (2003)

Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society.

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=edu/wkp\(2009\)13](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=edu/wkp(2009)13) p.7

IALS (International Adult Literacy Survey), 1994–98

ALL (Adult Literacy and Lifeskills Survey), 2003–08

Literacy is defined as a particular capacity and mode of behaviour: the ability to understand and employ printed information in daily activities, at home, at work, and in the community – to achieve one's goals and to develop knowledge and potential.

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=edu/wkp\(2009\)13](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=edu/wkp(2009)13) p.8

PIRLS (Progress in International Reading Literacy Study), 2011

For PIRLS, reading literacy is defined as the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment.

http://timssandpirls.bc.edu/pirls2011/downloads/P11_IR_FullBook.pdf p.11

PISA (Programme for International Student Assessment), 2012

Reading literacy is understanding, using, reflecting on and engaging with written texts, in order to achieve one's goals, develop one's knowledge and potential, and participate in society.

http://www.oecd.org/pisa/pisaproducts/PISA%202012%20framework%20e-book_final.pdf p.61

(On 'reading literacy' see 'Wider meanings', below.)

PIAAC (Programme for International Assessment of Adult Competences), 2012

Literacy is understanding, evaluating, using and engaging with written texts to participate in society, to achieve one's goals, and to develop one's knowledge and potential.

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=edu/wkp\(2009\)13](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=edu/wkp(2009)13) p.8

European Union High Level Group of Experts on Literacy, 2012

Multiple literacy: The ability to use reading and writing skills in order to produce, understand, interpret and critically evaluate multimodal texts.

Functional literacy: The ability to read and write at a level that enables development and functioning in society at home, school and work.

Baseline literacy: The ability to read and write at a level that enables self-confidence, and motivation for further development.

http://ec.europa.eu/education/literacy/what-eu/high-level-group/documents/literacy-final-report_en.pdf p.13

Terminology in France

The following definition of 'illettrisme' was formulated in 1995 and made official in 2003:

L'illettrisme qualifie la situation de personnes de plus de 16 ans qui, bien qu'ayant été scolarisées, ne parviennent pas à lire et comprendre un texte

portant sur des situations de leur vie quotidienne, et/ou ne parviennent pas à écrire pour transmettre des informations simples.

'Illettrisme' describes the situation of individuals over 16 years of age who, although they have been through formal schooling, are unable to read and understand a text concerning their daily lives, and/or are unable to write well enough to convey simple information.

This category is then contrasted with two others:

Celle des personnes adultes n'ayant jamais appris un code écrit (l'analphabétisme).

Celle des migrants qui ne parlant pas la langue française ne peuvent prouver lors des tests leur véritable niveau face à l'écrit.

That of adults who have never learnt a written code (analphabétisme).

That of migrants who do not speak French and therefore cannot demonstrate their true level of literacy in tests.

In British terms, these three categories might be labelled 'people with less than functional literacy', 'people who have no literacy at all', and 'people needing ESOL' – English for speakers of other languages. These distinctions are all too often blurred, and the emphasis on them in France is an accurate and valuable reminder that these situations have different causes and require appropriately different responses.

'Literacy' in Spanish

When the European Commission glossary on adult learning (Brooks and Burton, 2010; Litster, Brooks and Burton, 2010) was being compiled, providing a translation for 'literacy' proved problematic for Spanish colleagues, who commented: 'In Spanish there is no translation of the word "literacy" to collect all its breadth. The term is most often equated with "alfabetización" but "literacy" is often used.' The full set of equivalents compiled in 2010 is shown on the following page.

Wider meanings

In English, the term 'literacy' has acquired a set of meanings and uses well beyond reading and writing. In much of the English-speaking world it is now routinely considered to include oracy (speaking and listening skills) or numeracy (mathematical skills) – note the word 'compute' in the UNESCO 2003 definition above – or both. For the purposes of this glossary, only the basic definition, 'the ability to read and write', is used.

English	Literacy
<i>definition</i>	<i>The ability to read and write (Note: This is the basic meaning; the definition excludes the wider uses in English which can include oracy (speaking and listening skills) and numeracy; it also excludes the modern use of 'literacy' in English to mean 'capability', as in 'financial literacy', 'emotional literacy', etc.)</i>
Bulgarian	грамотност
Croatian	pismenost
Czech	gramotnost
Danish	læsning og skrivning
Dutch	geletterdheid
Estonian	kirjaoskus
Finnish	luku- ja kirjoitustaito
French	maîtrise de l'écrit, littérature
German	Literalität
Greek	γραμματισμός
Hungarian	írásbeli képesség
Icelandic	læsi
Irish	litearthacht
Italian	alfabetizzazione
Latvian	rakstpratība, lasītprasme
Lithuanian	bazinis kalbinis raštingumas
Macedonian	писменост
Maltese	litteriżmu
Norwegian	lese- og skriveferdigheter
Polish	alfabetyzm
Portuguese	literacia /alfabetismo / alfabetisação
Romanian	literație / competențe de citit-scris
Slovakian	gramotnosť
Slovenian	pismenost
Spanish	alfabetización, literacy
Swedish	läs- och skrivfärdigheter / läs- och skrivförmåga
Turkish	okuryazarlık

There has only ever been one international survey of attainment in writing, the IEA (International Association for the Evaluation of Educational Achievement) 1983 study (Gorman *et al.*, 1988). All other international surveys of literacy attainment have covered only reading. This is implied by the PIAAC definition above, and in the PIRLS and PISA definitions is made explicit by using the term ‘reading literacy’. This also serves to differentiate the reading sections of the PISA studies from those concerned with attainment in mathematics and science, which are labelled ‘mathematical literacy’ and ‘scientific literacy’. Similarly, in IALS the mathematical section was labelled ‘quantitative literacy’.

The latter usages are part of a larger trend to use ‘literacy’ as a synonym or substitute for ‘capability’, attached to any of a number of preceding nouns or adjectives. The 1995 Literacy Dictionary (p.141) lists 38 such collocations, and at least two more have since been coined: ‘emotional literacy’ and ‘financial literacy’. Of the Literacy Dictionary’s list, only the following are defined in this glossary: emergent literacy, family literacy, and (see above) functional literacy.

Historical note

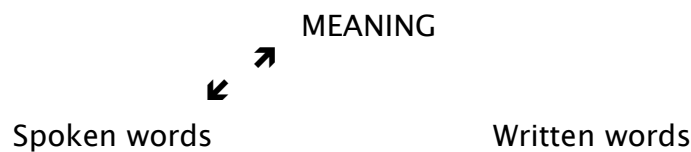
When Latin was the (western) European *lingua franca*, the word *litteratus* meant an educated person – this sense lingers in the old-fashioned English word ‘lettered’, and the ELINET Team 4 survey of current usage (Glanz, 2015) found that such associations are present for words translating ‘literate’ into Estonian, French, Greek, Hungarian, Irish and Portuguese.

In English, the term ‘illiteracy’ existed 200 years before ‘literacy’. Similarly, in Brazilian Portuguese ‘analfabeto’ and ‘analfabetismo’ appeared much earlier than ‘alfabetismo’ (*Literacy Dictionary*, p.112). The negative terms are widely misused as insults and in ‘shock, horror’ headlines claiming that literacy levels are much worse than surveys show them to be, and are now often avoided because they contribute to stigma. As Duncan and Schwab (2015, §§2.2 and 3.6) put it: “In many contexts, we have moved away from this [negativity] and the term ‘illiterate’, with its associations of ‘ignorance’ or ‘stupidity’, is rightly shunned for being offensive. But it is also inaccurate; anyone living in a literate society uses literacy to a certain degree and so is not ‘illiterate’,” and “someone with a limited command of literacy is not necessarily someone with limited thinking or other skills”.

First steps

This essay presents an analysis of the task demands made on teachers and learners by the initial teaching and learning of reading and spelling in languages written in European alphabetic orthographies.

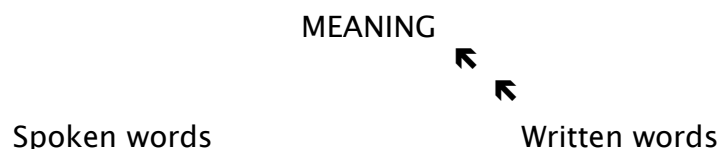
What is the task that faces children, or not-yet-literate adults, when they encounter those arbitrary and unfamiliar marks on paper or screen that we call written words? Assuming the words are in the learners' spoken vocabulary, and would therefore be understood if they were heard, the situation can be represented as follows:



That is, there is already a reciprocal connection between the spoken forms of the words and their meanings, but none yet between their written forms and either of those. So another way of putting the question is: How do we enable learners to get over the gulf between the written words and the meanings of their spoken counterparts?

Non-oral approaches

Almost all methods for the initial teaching of literacy are oral, that is, they rely on the pre-existing connection between speech and meaning. However, a very few people have attempted to get children (this appears never to have been tried with adults) over that gulf without involving speech, that is, to teach them to read silently from the beginning:



This approach originated in Belgium about 1900, flourished (mainly in parts of the United States) between about 1920 and the 1960s, and then died out (see Brooks, 1984, 2003). That it died out does not seem surprising – it is perhaps more surprising that such an approach was ever invented, at least as a teaching method, even though a very small percentage of children do seem to pick reading up virtually without instruction, and read silently from the outset spontaneously (Clark, 1976: 102). Non-oral teaching approaches can therefore safely be set aside, and it can be assumed that it is more natural and efficient for almost all learners to use the 'detour' via speech. (The main exception would be children with severe or profound

hearing loss and no cochlear implant, since they have to try to learn to read what is to them an entirely foreign language without benefit of hearing it.)

Precursors to literacy: phonemic awareness?

As soon as young children can understand the difference between words that differ in only one sound they are displaying (the beginnings of) *implicit* awareness of the distinctive sounds of their language, its phonemes. Later, they display deepening awareness of this when they play games with language, especially with rhyme and alliteration. But what children need for the early stages of learning to read and write is *explicit* awareness of phonemes. Some authors insist that this awareness only develops when learners (adults as well as children) learn the connections between sounds and letters, that is, that phonemic awareness is a result and not a cause of literacy learning. However, some teaching approaches attempt to develop this awareness with pre-literacy activities that do not involve the use of letters. Valtin (2014) shows that, for German-speaking children, there is no convincing evidence that such teaching has any benefit. The experimental evidence on English-speaking children (Ehri *et al.*, 2001a) tends to suggest that teaching phonemic awareness without using letters is less effective than teaching it with letters – the latter being the essence of phonics. Controversy over this issue will no doubt continue, but in any case it is not relevant to the rest of this analysis.

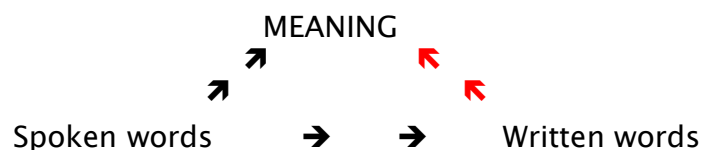
See what you say

Some children learn to read by being read to copiously, in the process that used to be called ‘Learning at mother’s knee’ – often father’s as well. As Julia Donaldson, UK Children’s Laureate 2011–13, put it:

‘A child will be able to recite a rhyming book that is read to them before they can read it. And then, when they get older, they can suddenly decipher the words that they recognise the sound of from memory. That’s very gratifying to a child and helps with reading.’

<https://www.tes.co.uk/article.aspx?storycode=6447763> accessed 11/6/15

Margaret Meek (1986) dubbed this process ‘See what you say’:

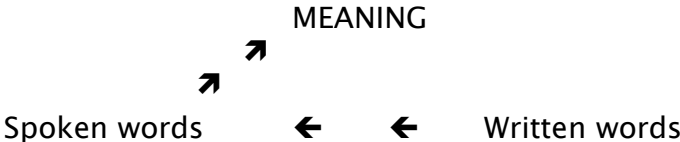


The diagram represents the fact that the learner simultaneously hears and understands the text while looking at it, and then intuits the connection (the red

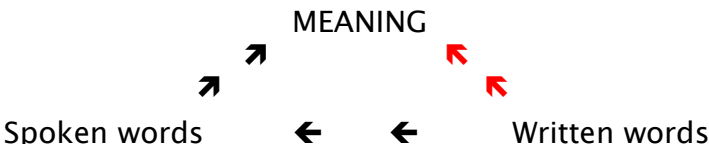
arrows) between the written words and their meaning. Almost all children who enter school already able to read have learnt this way.

Say what you see

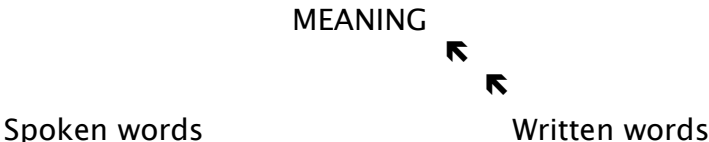
But most children arrive at school not yet reading or writing, and need to be taught, as do not-yet-(fully)-literate adults. In all cases the methods used involve getting learners to ‘lift words off the page’, that is, say them aloud, ‘Say what you see’ (also coined by Margaret Meek):



Here the support given by hearing the text in ‘See what you say’ is absent – learners have to generate the spoken words themselves and thus understand them. Gradually, the repeated association of print, sound and meaning enables learners to form direct associations between the written words and meaning:



and then to stop vocalising the words, that is, to read silently with understanding:



(Representing silent reading in this way is not intended to foreclose the question of phonological coding in silent reading: it remains logically possible that the comprehension of written words requires conversion of the visual input to an *internal* equivalent of speech. See the essay below on dual-route theory.)

At what linguistic level?

The last three diagrams represent ‘Say what you see’ methods which operate at whole-word level, but other methods in this group focus on different linguistic levels. Linguistic and phonetic theories differentiate at least the six levels of spoken language shown in the left-hand column of this table:

Speech	Writing	
	<u>Levels</u>	<u>Method(s)</u>
Utterance	Text	meaning emphasis 'learning at mother's knee', méthode globale, whole language
Tone group	Sentence	sentence methods
Word	Word	look-and-say
Syllable	'Syllable'	code emphasis alphabetic methods/syllabic methods
Sub-syllabic units	Onset, rime	onset-and-rime
Phonemes	Graphemes	phonics

The nearest written-language equivalents to those levels of spoken language are shown in the middle column. The quotation marks around 'Syllable' in the middle column indicate that (1) many linguists would maintain that written words do not have syllables; (2) even when, for pragmatic teaching reasons, written words are said to have syllables, the definition of a written 'syllable' is very different from that of a spoken one (at least in languages with complex syllable structures, such as English and other Germanic languages).

Meaning-emphasis approaches

In the teaching of reading in English (at least) some approaches avoid sub-word units (syllables, onset and rime, phonemes and graphemes) and focus from the start on whole words, first separately – a 'look and say' phase – then as soon as possible in sentences and texts – 'whole language'; those who favour these methods describe them as having meaning emphasis. Such approaches appear to be based on the assumption that, because all those who can read fluently and silently seem to be 'whole-word readers' (alternatively, that for them almost all written words are 'sight words'), therefore learners should be taught to read all words as wholes from the start. It is often pointed out that (a) it cannot be assumed that how a skill should be taught can simply be read off from how competent adults perform that skill. For reading in particular, competent adults retain the ability to revert to sub-word level strategies where necessary; (b) whole-word methods require prodigious feats of memory – every written word has to be learnt as a unit. Although fluent readers recognise thousands of known words on sight, many young children's memory load seems to be limited, initially, to about 100–200 words; if they reach this ceiling with

no technique for tackling unfamiliar words unaided, this can cause them frustration. Proponents of whole language in the teaching of initial literacy in English maintain that it is possible for children to pick reading up by being read to copiously in the classroom and being surrounded by books – effectively, reproducing ‘learning at mother’s knee’ within the school. Many also maintain that this can be done with either no or very little resort to phonics (see below).

Extreme proponents of meaning–emphasis approaches sometimes accuse their code–emphasis counterparts of ignoring the comprehension (and enjoyment) that are the aims of reading; reciprocally, extreme proponents of code–emphasis approaches sometimes accuse their meaning–emphasis counterparts of ignoring the fact that children who have not had the advantage of being read to at home need a quick start on cracking the alphabetic code and a reliable means of tackling unfamiliar printed words. In truth, the experimental evidence (at least on children learning to read and write in English) shows that children need both phonics AND whole language (Torgerson *et al.*, 2006).

Code–emphasis approaches

Other approaches do focus on sub–word units, especially the segmental level of graphemes and phonemes. Because sub–word units mainly lack meaning in themselves, these approaches are described as having code emphasis even though, as shown in the earlier diagrams and those below, the objective is always to lead the learner to meaning (comprehension).

Alphabetic and syllabic methods

Alphabetic methods were once virtually universal in Europe. Children worked their way through pages of mainly meaningless syllables (ab, eb, ib, ob, ub; ba, be, bi, bo, bu, etc. etc., all through the alphabet), naming the letters aloud and then pronouncing the syllables – and tackled real words only when all that was mastered. Syllabic methods replace the names of the letters with their sounds, and (usually) meaningless syllables with real words from the start. Marie Ernestová provided this description of the syllabic (analytic–synthetic) method (‘analyticko–syntetická metoda’):

‘Devised by J.V. Svoboda and used in the [teaching of] Czech since 1864... it starts with the spoken word and is based on the fact that Czech [orthography] is phonemic... As its name suggests, the method combines analysis – i.e. decomposition of words into syllables and speech sounds – with synthesis (connecting letters into syllables and words)... When practising a new letter, a relevant word is [chosen], and the word is then analysed into syllables and speech sounds to which letters are assigned subsequently.

Synthesizing then means connecting letters into other syllables and words, and, later on, writing those words down. It means that, simultaneously with reading, children learn to write.'

Sub-syllabic approaches

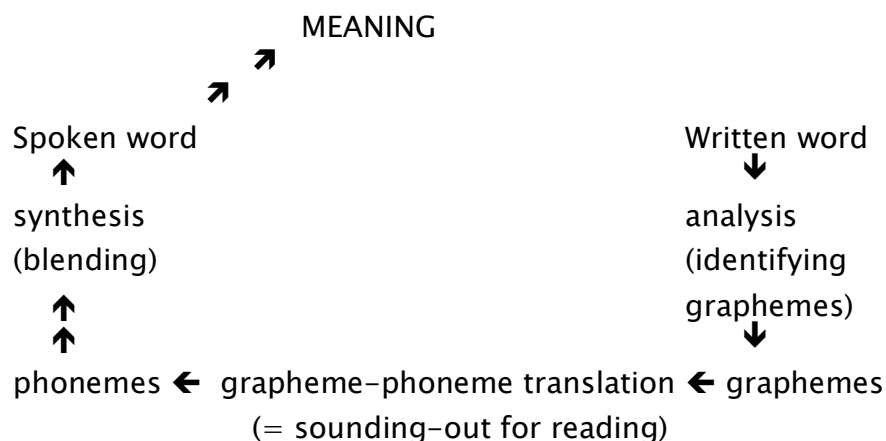
At least in the teaching of literacy in English, the main sub-syllabic units used are onset and rime. In written words, the onset of a syllable is the opening consonant letter(s) (if any), and the rime consists of the vowel letter(s) and the closing consonant letter(s) (if any). For example, in the English word *cat*, the onset is <c>, and the rime is <at>; in the French word *chat*, the onset is <ch> and the rime is again <at> even though the pronunciation of the French word /ʃa/ has (usually) no final consonant phoneme. These units may well be irrelevant to the teaching of reading in languages with shallow orthographies and those with mainly open syllables. When onset-and-rime is used in the teaching of reading in English to children (again, this method does not appear to be used with adults), it involves teaching them to notice the similar units in (for example) *cat*, *sat*, *mat*, *bat*, and similar sets of monosyllables, learn the pronunciation of the rime in one such word, and then produce ('sound out') the pronunciation of the rime in the other words by analogy. This approach appears to be unique to English: it is unnecessary for consistent orthographies (where phonic approaches are more logical), and difficult, if not impossible, to apply in languages with few short words (e.g. Finnish) or few rhyming words (e.g. Irish, Welsh).

Phonics

Phonics teaching methods focus on the segmental level, i.e. the relationships (correspondences) between graphemes and phonemes. While many (barely distinguishable) varieties of phonics have been described in the past, today the field is occupied almost exclusively by two: synthetic phonics and analytic phonics.

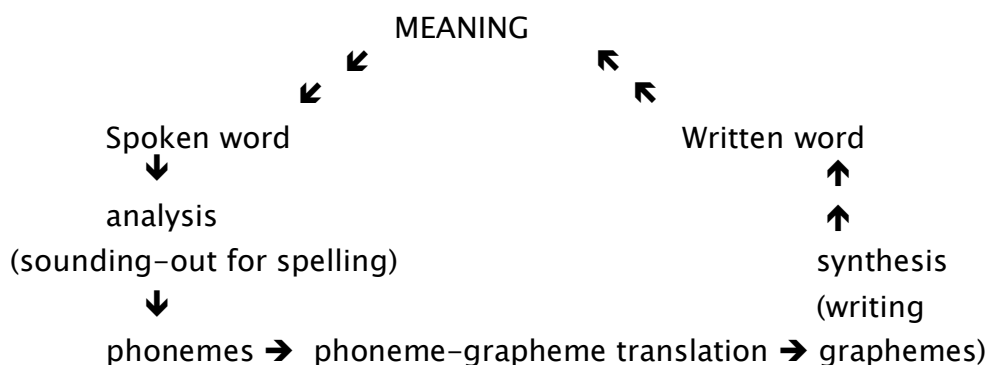
Synthetic phonics

The criterial features of synthetic phonics for reading are sounding-out (taking each grapheme in turn and producing a corresponding phoneme) and blending (synthesising the phonemes into a whole word sound; this process gives this approach its name), leading to word identification because the word is known in its spoken form:



And, as with other methods, direct bonds will gradually be made between written words and meaning, leading to silent reading.

In synthetic phonics for spelling the process is reversed. The learner sounds out the phonemes of the word to be written, chooses the appropriate grapheme for each phoneme, and writes them in sequence:



Here the loop back to meaning is complete because the meaning of the written word, once assembled, is known – and the circuit back to meaning both reinforces the growth of direct written word-to-meaning bonds in reading and leads to ‘silent writing’, with sounding-out omitted. (As noted above, in Czech the term for the equivalent of synthetic phonics is ‘genetická metoda’.)

Analytic phonics

In analytic phonics for reading, learners are guided by the teacher in studying small sets of written words, e.g. ‘pat, push, park, pen’, while listening to the teacher saying them *but not sounding them out*. The learners are led to identify the fact that the spoken words all begin with the same phoneme and their written counterparts all begin with the same grapheme, make the inference that that grapheme represents that phoneme (this process of analysis gives this approach its name), and use that knowledge both to identify words in reading and to choose graphemes in

spelling. Thus the key difference between analytic phonics as defined in English on the one hand, and the other methods just described (onset-and-rime in English, the syllabic methods described by Marie Ernestová, and synthetic phonics) on the other, is that analytic phonics forbids sounding-out, while the other methods rely on it.

Caveats

While the definitions and descriptions of synthetic and analytic phonics given here are widely accepted, other definitions are also current in the English-language literature. In particular, some authors define synthetic phonics more narrowly, by adding further features which they consider criterial, and then label as ‘analytic’ methods which by the definition above are synthetic.

Two further sources of confusion are that (1) some authors describe onset-and-rime as analytic phonics – but since it does involve sounding-out it is better classified as a ‘large unit’ version of synthetic phonics; (2) the meanings of ‘synthetic’ and ‘analytic’ when describing varieties of phonics are very different from their everyday meanings. In particular, there is nothing ‘artificial’ (one of the ordinary meanings of ‘synthetic’) about synthetic phonics, and both synthetic and analytic phonics involve both analysis and synthesis – see those words in the diagrams of synthetic phonics above.

Implications

For languages with consistent orthographies it would seem entirely logical to teach reading and spelling using synthetic phonics; indeed, it might be considered perverse not to, since generating a word-sound by sounding-out and blending is the most efficient way of identifying an unfamiliar written word. In a symposium at the 3rd Baltic Sea/17th Nordic Conference on Literacy held in the city of Turku/Åbo in Finland in August 2016, initial teaching approaches in Estonian, Finnish, Swedish in Finland and Swedish in Sweden were described. Estonian and Finnish have highly consistent orthographies; Sweden slightly less so – but some variations in Swedish appear to be fully rule-governed; for example, some consonant letters represent different phonemes before front and back vowels. Given the high degree of regularity in the three languages’ orthographies, it is not surprising that in all cases initial instruction has focused predominantly on the grapheme-phoneme level, and worked upwards through linguistic levels from there. Correspondingly, the predominant pedagogy has been phonics.

How this plays out in the case of English, with its notoriously complex orthography, is considered in the following essay on Dual-route theory.

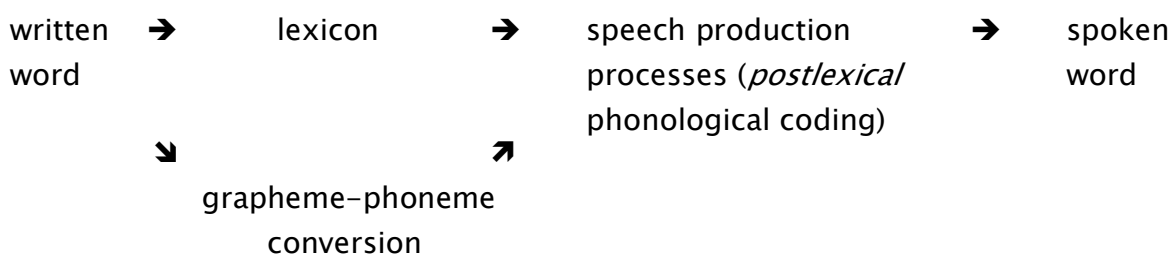
Whatever phonic approach is favoured, it only needs to be continued until learners have mastered enough of the relevant system to become independent readers and writers – which may well be earlier for most of those learning consistent orthographies (Seymour *et al.*, 2003), but not necessarily for all. Hence the Eurydice report *Teaching Reading in Europe* (2011: 57) says: “For languages with complex orthographic and syllabic structures, it would be advisable not to stop the teaching of phonics too early. Indeed, in all countries with orthographically-complex languages, teaching guidelines related to phonics instruction apply to all cycles or years of primary education.” A balance needs to be struck between the needs of learners who don’t ‘get it’ first (or second ...) time and recognising when most children have no further need of phonics.

Dual-route theory

In the English-language literature on reading, this is the predominant theory of how fluent readers manage to read aloud both real words (both regular and irregular) and non-words. It posits the existence of an internal cognitive equivalent of a dictionary or vocabulary (the lexicon), and then the argument goes like this: Non-words by definition have no entries in the lexicon, so since fluent readers can read such letter-strings aloud (provided they don't violate spelling constraints), there must be a non-lexical cognitive route for doing this. Further, it is argued that this route must rely on item-by-item conversion of graphemes to phonemes, and is therefore dubbed the phonological route.

On the other hand, irregular words (in orthographies which permit them) can't be read aloud accurately by this route because grapheme-phoneme conversion would result in the wrong word-sound – for example, the English word *listen* would come out not as /'lɪsən/ but as /'lɪstən/, like the surname *Liston* (an error actually recorded from an English-speaking adult with acquired dyslexia) – and therefore must be read aloud via look-up in the lexicon – the lexical route. Regular words, it is posited, can be read aloud by either route.

This can be summed up in this diagram:

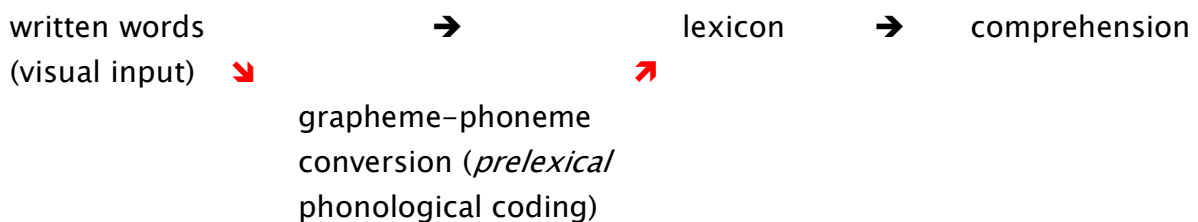


Variants of this theory, and its competitors, have spawned a huge literature in English, and both elaborate computer simulations and expensive neurological investigations to test them. Most of that is irrelevant to the initial teaching of literacy – but the idea that words can be read aloud either as wholes or by grapheme-phoneme conversion (otherwise known as phonics) definitely is relevant.

These two strategies correspond broadly to the meaning-emphasis and code-emphasis levels discussed in the preceding essay on First steps, and a great deal of initial pedagogy is devoted to enabling children to move on from phonics to reading known words as wholes (Gestalten) on sight. In learning to read English especially, and other partly inconsistent orthographies to an extent, children have to learn to read some words as wholes from the start (e.g. *the, one*), and the so-called 'reading wars' in English are fought by those with contradictory views on (a) how (ir)regular

English spelling is, and (b) whether the degree of irregularity means that phonics can't work. For languages with regular orthographies all of this must instead seem like a storm in a teacup, especially since there are several systematic reviews demonstrating that phonics *does* work in English, both for normally-developing children and for those at risk of, or already, failing (Ehri *et al.*, 2001b; Torgerson *et al.*, 2006; Stuebing *et al.*, 2008; Suggate, 2010; etc.).

It is important to distinguish dual-route theory from the question of phonological coding in silent reading, that is, whether when we read silently we necessarily or often translate the visual input into an internal equivalent of speech and/or hearing in order to comprehend. To analyse this a different diagram is needed, in which the processes specific to oral reading are dropped, and comprehension is added:



The question then becomes: Does the pathway shown by the red arrows exist? No consensus has been achieved on this. Many experimental approaches have been used to address it, and many phonological effects occurring during silent reading have been found – but all can instead be interpreted as the effects of *postlexical* phonological coding (see the previous diagram) which *a priori* arises from activation of words' entries in the lexicon (without necessarily resulting in vocalisation).

Stage theories

Unlike dual-route theory, which is based on analysis of fluent reading, stage theories begin from observations of children learning. It is obvious that they go through stages in learning both reading and writing, but how should the stages be characterised? What follows are basic summaries of two of the most influential models based on English, those of Ehri (1994; cf. Beech, 2005) and Frith (1985), and Valtin's model based on German.

Linnea Ehri's theories and models have developed considerably over the years. The following table gives only a brief outline, based on Drake and Ehri (1984) and Ehri (1994).

Ehri's four stages of word identification and spelling

Word identification in reading	Spelling
Pre-alphabetic (logographic)	Pre-phonetic
Visual cues are the primary method of word identification. Children may memorize words by their shape or 'look'. They may recognise environmental print and logos. Word identification is not yet related to letter-sound knowledge.	Children represent only one or two salient sounds with letters, usually beginning or beginning and ending consonants. They may use letters to represent their name-sounds, e.g. KR for <i>car</i> *
Partial alphabetic	Phonetic
'Phonetic cue reading', = use of some letter-sound cues, e.g. first letter of the word or just a letter or two	They adopt a sequential sounding-out strategy, and represent each sound with an appropriate letter (e.g. BAC for <i>back</i> , FET for <i>feet</i> , TABL for <i>table</i>). Mastery of the major phoneme-grapheme relations is achieved.
Full alphabetic	Transition
Children rely more on letter-sound knowledge and try to process all the letters in a word. Some become tied to letter-by-letter reading, which slows down the reading process and may even lead to reading failure.	Phonemic spellings are replaced by conditional letter patterns and morpheme spelling patterns when the latter are more appropriate, i.e. they abandon the strict principle of 'one letter for every sound'.
Consolidated alphabetic	Correct
Automatic knowledge of grapheme-phoneme relationships. Word family knowledge used.	All familiar words written correctly, though some uncertainties may remain.

* cf. use by Spanish-speaking children of <t> for syllable /te/

Frith's integrative theory

In Uta Frith's influential integrative theory, early reading and spelling development both go through stages, but drive each other step-wise, rather than interactively (which would mean both influencing each other continuously). Both go through stages which she labelled 'logographic' (children operate only at whole-word level),

'alphabetic' (children begin to use sub-word units, but not with full accuracy), and 'orthographic' (children master the essentials of the system). The following summary is based on Pitchford (no date;

<http://www.psychology.nottingham.ac.uk/staff/njp/lectures/3rdyear/c8clch/literacydev.pdf> accessed 10/6/15).

1. Logographic stage

Literacy development begins with logographic reading – children acquire a small sight vocabulary of written words. Word recognition is visually based, but this becomes increasingly less efficient with development, partly because of memory load, but also because children have no technique for working out unfamiliar words. Acquisition of the logographic strategy for reading results in its application to spelling, that is, marks on paper represent whole words without any clear relation to their correct form.

2. Alphabetic stage

Phonemic awareness begins to develop. Children's wish to write brings about change from logographic to alphabetic spelling. By practising this, children learn that spoken words can be broken down into phonemes that map onto letters, and they apply their sound-to-letter rules in spelling but continue to rely on visual cues for reading. The breakthrough occurs when they realise that they can reverse the letter-to-sound process, and can then attempt to read words they have not seen before. However, they may make regularisation errors when reading novel words, e.g. reading *pint* as /pInt/.

3. Orthographic stage

Through considerable practice at reading using an alphabetic strategy children learn to recognize words as wholes by accessing stored internal representations of them. These representations are precise enough to be transferred to spelling, which shifts from phonemic to correct.

That is:

Logographic reading	drives	logographic spelling
		which develops into
		alphabetic spelling
	which drives	
alphabetic reading		
which develops into		
orthographic reading	which drives	orthographic spelling.

Valtin's developmental model of reading and spelling

Level	Skills and insights	Reading	Spelling
1	Imitative behaviour	Pretend reading	Scribbling
2	Knowledge of single letters in a figurative sense, but no insight into the relationship between letters and sounds	"Naive-holistic" reading: children guess at words, orienting themselves by the context and picture cues	Logographic strategy: drawing arbitrary sequences of letters or letter-like forms ("pseudo-words")
3	Beginning insight into the function of letters Knowledge of some letters/sounds	Beginning alphabetic strategy (phonetic cue reading)	Rudimentary or skeletal writing
4	Insight into the alphabetic principle, ability to segment words into speech sounds and phonemes	Sounding-out strategy (reading letter by letter), sometimes without understanding	Phonetic-articulatory strategy (I spell as I speak)
5	Knowledge and use of orthographic patterns	Alphabetic reading with use of chunks	Phonemic strategy with first use of orthographic patterns
6	Automatized processes	Automatized word recognition	Correct spelling

Source: Valtin (2014), Table 7.1, p.149

Users of many other languages may well conclude that the stages identified, whether by Frith or by Ehri, are specific to the irregular orthography of English, though Frith, being a native speaker of German, would be unlikely to draw that conclusion, and Valtin (1997) identifies quite similar stages in German-speaking children's learning. However, it does seem clear that children learning to read and write in consistent orthographies need not go through so many stages, and may make a more rapid transition from an early partial alphabetic stage to mastery of the full system, because they do not need to learn complex inter-grapheme dependencies and/or whole words which obey hardly any rules. Seymour *et al.* (2003) found that children learning to read in languages with complex syllable structures and inconsistent orthographies (e.g. Danish, French and especially English) took longer (in the case of English, much longer) to learn to read to a criterion than those learning to read in languages with simple syllable structures and regular orthographies (in particular, Finnish).

For illustrations of how young children's writing develops in the early stages in German, see Valtin (1997), and in English, see Gorman and Brooks (1996) – many of the reproduced examples in both show remarkably similar stages of development. A boy in Renate Valtin's study produced this beautiful example of boustrophedon writing:

kenst du
die Zwillinge
Jens und Michel?
12

Kennst du die Zwillinge Jens und Michel? (Do you know the twins Jens and Michel?)

Linguistics for literacy teachers

It may seem self-evident, but a good understanding of both phonetics and grammar is essential underpinning knowledge for literacy teachers. Beginner readers and writers, in particular, need highly skilled teaching from teachers who are totally secure in their knowledge of language. It seems to be a common belief, at least in the UK, that an educated, literate, native speaker knows enough about their own language without further linguistics training. However, being a native speaker, or even a highly fluent second-language speaker, is no automatic guarantee of having a fully developed phonemic awareness, or an accurate understanding of the structures of the words, phrases and sentences of a language. Observations of teaching practice abound in examples of misunderstandings due to reliance only on teachers' native 'intuition'.

Phonetics and phonology

Effective and consistent phonics teaching demands an accurate understanding of the phonemes of the language. This is particularly the case with languages with deep orthographies, such as English, where one-to-one correspondences are in short supply. Indeed, the securely literate can even be misled by their knowledge of spelling into 'hearing' sounds that are simply not there, e.g. a final /r/ at the end of the word *floor* – not the case with most accents of English – or not hearing sounds that are, e.g. answering the question 'What is left when you take the last sound off the word *pink?*' with 'pin' instead of 'ping'.

The most effective medium for teaching phonetics is a system that has been in use since the 1880s, namely the International Phonetic Alphabet (IPA), whereby every single sound of any and every language can be represented by a symbol that provides a consistent one-to-one correspondence. The main advantage of IPA is that it provides a clear basis for analysing and discussing variant spelling choices for the same phoneme, and also differing pronunciations for the same grapheme. For English, IPA has been in routine use for many years in, for example, the *Cambridge Pronouncing Dictionary* and the *Oxford Pronouncing Dictionary*, but in materials for teachers has until recently been either absent or shown in parallel with systems using the existing 26 letters of the alphabet, alone or in combinations. These were often unhelpful systems, as they tended to be inconsistent and ambiguous. However, the most recent (2013) version of the national curriculum for English at school level in England now exemplifies and uses IPA alone, presumably with the expectation that teachers will be familiar, or familiarise themselves, with it. Similarly, a recent thorough book on the teaching of reading in England (Stuart and Stainthorp, 2016) explains IPA and uses that and no other system.

Grammar

The teaching of formal grammatical analysis (of a Latinate sort unsuited to English) fell out of favour, and was removed from examination syllabuses, in Britain in the 1960s. There is now some firm evidence that teaching English-speaking learners particular facets of grammar, of a modern sort appropriate to the language and related directly to particular purposes, does improve their writing (see especially Andrews et al., 2006; Myhill et al., 2011, 2012, 2013) – but the learners in these cases were well beyond the initial stages. There is clearly no point in teaching beginners grammar, but this does not mean that teachers of initial literacy should not be taught formal grammar. All speakers of languages instinctively ‘know’ grammar and can ‘generate’ new sentences, but do not necessarily ‘know about’ grammar (Crystal, 2004: 4). Knowledge about grammar involves learning consistent and clear terminology to describe what we know (metalanguage).

How and when to use grammatical knowledge and terminology in the classroom are matters of professional judgement, but ‘teachers can only make informed judgements if they have some grammatical knowledge in the first place’ (Cameron, 2007: x). For example, some children learning to write English go through a ‘phonemic’ stage in which they write some past tenses with regularised endings, e.g. /wɔ:kt/ (past tense of ‘walk’) as *walkt*. Most children who do this ‘grow out of’ it, i.e. notice the correct spelling of this and other past tenses and adjust theirs to suit, so do not need the teacher’s intervention. But teachers will need to be alert to those who don’t ‘grow out of’ it, and only then talk to them about ‘How do we write about things that happened yesterday?’, etc. Parallel instances will occur with children learning to write in French when they have to differentiate identical-sounding singular and plural nouns (e.g. *fille, filles*), and identical-sounding verb forms varying by person as well as number (e.g. *porte, portes, portent*).

Thus underpinning knowledge of linguistics and its metalanguage can help to ensure that literacy teaching is accurate and consistent, and give teachers the confidence and flexibility to go with ‘teachable moments’ like those just mentioned.

Regularity and consistency

All scripts are inadequate in conveying prosodic and paralinguistic features like tone of voice, facial expression, eye contact, body language, and other elements that make spoken utterances quite different from written scripts.

(Johnson, 2010: 23)

So what can scripts – or more precisely orthographies (scripts adapted to particular languages) – convey? For a language whose adult native speakers with no speech impediment all pronounce all its words the same way, with no variation according to gender, status, age or region, it would be possible to devise an alphabetic orthography in which every phoneme has a single spelling, and every grapheme has a single pronunciation. Such an orthography would be completely regular and consistent, and this appears to be what anthropologists and Christian missionaries strive for on encountering a community whose language has not previously been scripted. However, even in those circumstances it is highly unlikely that there would be no variation between adult speakers, especially according to status and age – and professional phoneticians would in any case point out that all phonemes in all languages are co-articulated, that is, influenced by adjacent ones. Also, in all known languages people have a tendency to run words together or ‘telescope’ them in normal speech (elision), so that the forms of words that would be produced in isolation (e.g. in naming objects) merge and become less distinct. A classic example is the French phrase ‘Je ne sais pas’ which is rarely heard as /ʒə nə se 'pa/, and much more often as /ʒe 'pa/.

So what does it mean to say of some orthographies that they are ‘highly consistent’, ‘completely regular’, ‘transparent’ or ‘shallow’? That the scripts represent phonemically (one spelling per phoneme) the way native speakers of the standard or prestige forms of the languages pronounce the words of the languages in isolation, or in ‘citation form’. This guarantees that such orthographies are also fully regular in the grapheme–phoneme (reading aloud) direction: each grapheme has only one pronunciation. The rest of this essay describes some of the features that alphabetic orthographies do (or do not) represent, and how regularly (or not) they do so.

Topics not covered

First it's necessary to mention two topics that are not dealt with here, and then rehearse a few points about syllables and diacritics. Intonation (the overall ‘tunes’ on which sentences are spoken) is not covered because it operates well above the level of separate words, which are the main focus, and is in any case often encoded (to an extent) by punctuation – and never (as far as we know) by diacritics (see below). Vowel harmony (all the vowel phonemes in individual words belonging to

one or other of two particular sets of phonemes) is not covered because in the only three European languages which exhibit it (Finnish, Hungarian, Turkish) it is fully encoded in the orthography. (According to <https://www.quora.com/Why-did-Estonian-lose-its-process-of-vowel-harmony> accessed 23/10/15, Estonian used to have this feature but has lost it.)

Syllables, (1): Open and closed

Open syllables end in a vowel phoneme, closed syllables in one or more consonant phonemes; e.g. in English *go* is open, *goat* and *ghost* are closed; and in most accents of English the only short vowel which can occur in a word-final open syllable is schwa /ə/ (the name derives from Hebrew, where it means ‘emptiness’). Some languages have only or mainly open syllables (e.g. Hawai’ian), often of simple consonant–vowel (CV) form; some with mainly open syllables typically tolerate very few consonant phonemes in syllable-final position (e.g. Japanese), and may also not tolerate syllable-initial consonant clusters (e.g. Estonian). The Germanic languages have much more complex syllable structures; e.g. in English, syllables can begin with between zero and three consonants, and end with between zero and four, thus creating the range between *a* (/eɪ/ in citation form, /ə/ when unstressed), and *strengths* when pronounced /streŋkθs/. It has been calculated that, as a result, English has more than 9000 monosyllabic words – though that figure counts differently-spelt homophones separately.

Syllables, (2): Light and heavy

Of the various definitions in the literature, those adopted here are:

- Light syllables contain a single short vowel phoneme and are either open, as just defined, or, if closed as just defined, end in only one consonant phoneme;
- Heavy syllables contain a long pure vowel phoneme or a diphthong and/or end in a consonant cluster, that is, more than one consonant phoneme.

In neither case do syllable-initial consonants (if present) affect a syllable’s ‘weight’. In some languages this distinction is relevant to tone or stress, or both – see the relevant sections below.

Diacritics

In the original form of the classical Greek Ionic alphabet of 24 letters, from which all other alphabets in the world ultimately descend, and in its grandchild (via Etruscan), the classical Latin alphabet of 23 letters, all the letters were written plain, that is, without any extra marks to indicate different phonemes or any other linguistic

feature. But over the centuries, as both alphabets were adapted to languages with phonemes not present in Greek or Latin, a dazzling array of distinguishing marks (the literal meaning of ‘diacritics’) was developed. These currently serve seven purposes (which frequently overlap):

- 1) purely etymological, e.g. the circumflex accent in French *être* ‘to be’
- 2) marking one of two adjacent vowel letters to show that they do not form a digraph but belong to, or constitute, different syllables, e.g. French *maïs* ‘maize’ (or, if the letter is <u> between a consonant letter and a vowel letter, that it does not represent /w/ but /u/)
- 3) marking a contracted vowel, e.g. Italian *studî* ‘studies’ (noun)
- 4) marking tones, e.g. rising tone in Lithuanian *káltas* ‘chisel’
- 5) marking stress, e.g. Greek *βουστροφηδών* *voustrophidhón* ‘like an ox turning’
- 6) differentiating words which are identical in pronunciation and/or spelling but differ in meaning, and would therefore otherwise be homonyms, e.g. Portuguese *por* ‘by’, *pôr* ‘to put’
- 7) encoding different phonemes by differentiating graphemes, as in most European orthographies.

Not all of these categories are described as diacritics by all scholars. In particular, graphemes like Scandinavian <å> may look (to some) like an ordinary letter with a diacritic mark, but speakers of the Scandinavian languages insist that it’s a separate letter – and indeed it is listed (last) in the relevant alphabets and has separate sections in dictionaries; but accented letters in French, for example, are treated for alphabetical order purposes as variants of the plain letters. On the following page is an attempted list, across the 28 official languages of the EU and associated states, plus Russian, of single letters with phoneme–differentiating diacritics which may (or may not) be considered as separate letters. However, for present purposes all seven of the categories of distinguishing marks just listed are treated as diacritics.

1) The clearest example of a diacritic with (often) no synchronic function but purely an etymological one is the French circumflex. The Académie Française has attempted, against protests, to make some of its uses optional, including telling teachers not to penalise pupils for omitting it in some circumstances. This category also applies to the three accent marks retained from ancient times in the conservative (including ecclesiastical) spelling of modern Greek called *καθαρεύουσα* *katharévouσα* ‘purified’ – this version of Greek spelling being known as *πολυτονικό* *politonikó* ‘many–accented’.

Orthography	Graphemes with diacritics which differentiate phonemes – in many cases considered to be separate letters
Bulgarian	Ѣ
Croatian	ć č đ š ž
Czech	á č ď é ě í ň ó ř š ú ů ý ž
Danish	ø å
Dutch	
English	none, except that French loanwords with <é(e)> are increasingly spelt with the accent
Estonian	š ž õ ä ö ü
Finnish	å ä ö
French	â à ç é ê è ô û ù
German	ä ö ü
Greek	
Hungarian	é í ó ö ő ú ü ű
Icelandic	á í ó ú ö
Irish	á é í ó ú (<b c d f g m p r t> are also written with a superscript dot in Gaelic type; the dot is replaced by a following <h> in Roman)
Italian	è
Latvian	ā č ē ģ ī ķ ļ ņ š ū ž
Lithuanian	ą č ę ė į š ū ž (and see also the sections on Tone and Stress)
Macedonian	í ĩ
Maltese	č ġ ħ ž
Norwegian	ø å
Polish	ą ć ę ł ń ó ś ź ż
Portuguese	á â ã ç é ê ó ô õ
Romanian	â ă î ș ț
Russian	ë ѣ
Slovak	á ä č é í ľ ĺ ň ó ô ŕ š ť ú ý ž
Slovenian	(non-tonemic) á à é ê è ì í ó ô ò ú ù ř; see the section on Tone for the tonemic diacritics which (allegedly) indicate pitch
Spanish	á é í ñ ó ú ü
Swedish	å ä é ö
Turkish	â ç ğ î ö ş û ü; also <ı, i> are distinct – <ı> is the only example in any of these languages where the <i>absence</i> of a mark is a diacritic

2) The second of the categories listed above is the simplest to describe since it contains just one item, the diaeresis, two dots over a vowel letter. It is identical in form to the Umlaut (but entirely different in function). The diaeresis is in regular use in Catalan, Dutch, French, Greek and Spanish, but rare in other orthographies.

3) Marking a contracted vowel with a diacritic seems to be confined to Italian and Portuguese. In Italian, <î> indicates that there used to be two /i/ phonemes written

separately, e.g. *studii* → *studí*, *genii* → *gení*. In Portuguese, <à> indicates a contraction of two /a/ phonemes (and two <a> letters), e.g. *àquela* ‘at that’.

Three of the other four categories of diacritic are dealt with in following sections, but the use of graphemes with phoneme-differentiating diacritics pervades much of the rest of this essay.

4) *Tone*

This term has two principal meanings. As ‘intonation’ it is not covered in this glossary, for the reasons given above. Its other meaning describes how, in many languages, differences or changes in the pitch of vowel sounds create differences in the meanings of words. Among European languages it appears that only Croatian, Latvian, Lithuanian, Norwegian, Slovenian and mainland Swedish exhibit tone. Latvian (with three tones, high, falling, and rising–falling), Croatian (with two tones, rising and falling), and Norwegian and mainland Swedish (with two tones, low and high–falling) do not mark it in their orthographies, even though Swedish, for example, is said to have 300 pairs of words with different meanings which differ only in their tones (called acute and grave in both Norwegian and Swedish, but with different meanings from the accents with those names in French).

This phonological feature is marked in only two contemporary European orthographies, Lithuanian and (possibly) Slovenian in one of its two systems of diacritics. Lithuanian has two tones, both of which occur only on stressed syllables (see below): rising, only possible on heavy syllables, and shown by a tilde on the vowel or sometimes on a following <r> (e.g. <ã, aĩ>); and falling, which can occur on both heavy and light syllables and is shown by a grave accent on short syllables and on heavy syllables spelt <ìr, ùr>, otherwise by an acute accent. Some stressed short syllables have neither tone. Various Lithuanian vowel graphemes have cedillas sometimes still indicating different phonemes (but nowadays mostly etymological, = redundant); since it is mostly vowel letters which carry the tone markings, some have both a cedilla below and a tone mark above, which neatly avoid each other. Lithuanian and Slovenian’s tonemic system (below) are the only European orthographies with both tonemic and phonemic diacritics.

Slovenian orthography (allegedly) has two incompatible systems of diacritics. The ‘non-tonemic’ system is said to be official, and uses diacritics only to distinguish phonemes (see the list on the previous page). The ‘tonemic’ system uses diacritics to mark four tones: acute accents for long, low pitch: <á é é í ó ó ú í>; circumflex accents for long, high pitch: <â ê ê î ô ô û î>; a grave accent for short, low pitch, which occurs only on <è> representing schwa /ə/; and double grave accents for short, high pitch: <à è ì ò ù>. As can be seen, within the tonemic system, two of the

vowel graphemes also have subscript dots to mark different phonemes, which again neatly avoid the tone markings (cf. Lithuanian, above). However, a Slovenian colleague says that, in practice, neither system is in frequent use; she never uses either system (why would a native speaker need them?), though some parts may be used for special reasons in poetry. This raises the question of when Slovenian-speaking students are taught the tonemic diacritics, if at all, and if so, how.

5) *Stress (syllable emphasis)*

This is also a feature which very few languages mark systematically. In some languages, word stress, the syllable which is most emphasised, is entirely or largely predictable, e.g. first syllable in Czech, Estonian, Finnish, Hungarian, Latvian and Slovak, last syllable in French (in so far as French has word stress) and Turkish, mainly the penultimate syllable in Maltese, Polish, Portuguese and Welsh. These languages therefore need little or no written indication of word stress, except that Portuguese words with stress on the antepenultimate syllable are marked with an acute accent there, and acute and circumflex accents always indicate stress (but also, on <a e o>, different phonemes). Most German words are stressed on the first syllable, but there are enough exceptions to make reading the language aloud slightly problematic for the non-native speaker.

In the non-Indo-European Finno-Ugric (or Uralic) languages, Estonian, Finnish and Hungarian, which all have first-syllable stress, that feature is independent of syllable weight, that is, main stress falls on that syllable even if it is light and followed by a heavy syllable. For example, the Finnish name of the city of Turku (Åbo in Swedish) has that form when simply named, and is relatively easy for non-Finnish speakers to pronounce; but to express 'in Turku' the form is *Turussa* /'turussa/ (see how phonemic the spelling is? The transcription needed only the stress mark), which is more difficult for speakers of languages where the heavy second syllable would naturally attract the stress – as in classical Latin.

In classical Latin, word stress was entirely predictable, even though it could fall on different syllables: monosyllables were not stressed, disyllables were stressed on the first syllable, and longer words were stressed on the penultimate syllable if heavy in the sense defined above, otherwise on the antepenultimate syllable. Traces of this can be found in some Romance languages, and even in the Latinate part of English vocabulary, but without providing anything like the same degree of predictability. In Spanish, word stress is largely predictable in a different way: almost all words ending in /s/, /n/ or a vowel phoneme are stressed on the penultimate syllable, almost all other words on the last syllable. And since Spanish spelling is highly regular in the grapheme-phoneme direction (see below), word stress is also largely predictable from the written forms. Words with irregular stress have it marked in

writing with an acute accent on the vowel letter, thus making the non-native speaker's task even easier.

At the other end of the scale are Lithuanian, Russian and modern Greek, in which stress is entirely unpredictable ('dynamic'). As shown above, the tone marks in Lithuanian double as stress marks except on some light syllables. The only quasi-reliable indication of stress in Russian is that the vowel /ɔ/ following /j/ is always stressed; this two-phoneme sequence is usually written <ë> in lower case, but the umlaut is sometimes omitted, and not always written in upper case anyway, so this is not much help.

In the predominant spelling of modern Greek called δημοτική 'demotic' only one vertical stress mark is used, and this version of Greek spelling is therefore known as μονοτονικό monotonikó 'single-accented'. For the non-native speaker this alleviates the unpredictability of word stress because every polysyllabic word is written with a vertical accent above the vowel letter of the stressed syllable (or the second letter of a digraph; this even extends to the letter <υ> representing the consonants /f, v/ where this and a preceding vowel letter are etymologically derived from a digraph representing a diphthong). Such a system would greatly assist non-native speakers of other languages with unpredictable stress, but is unlikely ever to be introduced into English and Russian, for example. Two Greek letters <ι υ> can bear not only a stress mark but also a diaeresis <ϊ ü>; Greek is the only European orthography which allows two superscript diacritics on the same letter.

In English and Italian, stress is largely unpredictable. There are some useful generalisations for English (e.g. that every word ending in /'eɪʃən/ spelt <-ation> is stressed on the heavy penultimate syllable – cf. the note about classical Latin above), but not enough to give non-native speakers overall guidance (or native speakers, on some words); for a list of the few reliable rules for predicting the main stress in English polysyllables from the written forms see Brooks (2015: 471–6). In Italian, polysyllables may be stressed on the last, the penultimate or (if long enough) the antepenultimate syllable. An accent indicating stress is required only on polysyllables bearing final-syllable stress (e.g. *città*, *caffè*, *felicità*, *virtù*), and is sometimes marked on words which have different stresses and could otherwise be confused, e.g. *príncipi* ('princes'), *princípi* ('principles'). But there is in general no system for indicating which words are *piano* (stressed on the penultimate) or *zdrucchiole* (stressed on the antepenultimate), though many verb forms are predictable in this respect.

6) *Diacritics and homonyms*

In many languages there are homonyms, words which have the same pronunciation but different meanings. In fully consistent orthographies they also have the same spelling – and mostly do not appear to attract any method of differentiating them. But in less-than-fully-consistent orthographies homonyms may take three forms: words with the same pronunciation but different meanings and spellings (homophones), words with the same spelling but different meanings and pronunciations (homographs), and words with the same pronunciation AND spelling but with different meanings (in less-than-fully-consistent orthographies these might have to be called ‘full homonyms’).

(The richly inconsistent nature of English orthography allows the creation, for purposes of psycholinguistic research, of pseudohomophones, letter-strings which are not real words but which, if read aloud using the most regular grapheme-phoneme correspondences for their graphemes, would sound like real words, for example *brane* (cf. *brain*). Some such letter-strings can even be double pseudohomophones – their sound would be the same as that of two written words, e.g. *grone* (cf. *groan*, *grown*) – or even triple pseudohomophones, e.g. *porze* which sounds like two real words in the General American accent, *pores*, *pours*, but three in British RP, those plus *paws*. Given that English orthography is such a distant outlier from the generality, caution would be advised in applying conclusions from experiments with it to other languages or the whole of humanity.)

In less-than-fully-consistent orthographies, therefore, various measures may (or may not) be taken to differentiate written words that could otherwise cause ambiguity; and, in keeping with the nature of such orthographies, differentiation may well be done less than consistently. In Slovak, for instance, which is largely consistent, *krásne* /'kra:ʂne/ ‘beautiful’ and *krásne* /'kra:ʂne/ ‘beautifully’ differ in pronunciation and meaning but not in spelling, even though other word pairs in that orthography are differentiated.

As usual, English is the world leader here: there is a book called *Homophones and Homographs: An American Dictionary* (Hobbs, 2006) which is 370 pages long and contains 9,026 homophones and 2,127 homographs. For example, in English there are four words pronounced /raɪt/ (*right*, *rite*, *wright*, *write*), and in French there are at least six pronounced /sɑ̃/ (*cent*, *cents*, *sang*, *sans*, *scent*, *scents*) – or seven, if you count the surname *Sand*. In those languages some (but not all) ambiguities are reduced in writing by having a range of graphemes for some phonemes (and in French also by encoding some morphemes – see below). For English, it could be argued that the inconsistencies in its orthography are necessary to provide ways of

visually differentiating homophones, and that this is a sort of consolation prize – but it is limited because some homophones can only be spelt one way, e.g. *bank, bill*.

Some other languages instead use an acute accent on vowel letters. In the example from Italian mentioned above, *príncipi/princípi*, the words are not homonyms in speech because of the different stresses, but would be homographs if the stresses were not marked. Similarly, in Romanian acute accents can be (but not always are) used to distinguish words which would otherwise be homographs, e.g. *cópii* ‘copies’ and *copíi* ‘children’, *éra* ‘the era’ and *erá* ‘was’. There are a few cases in Italian where homophones are differentiated in writing, e.g. *geni* ‘genes’ v. *genî* ‘geniuses’. Similarly, in Portuguese *por* ‘by’ contrasts with *pôr* ‘to put’, *pode* ‘[he/she/it] can’ with *pôde* ‘[he/she/it] could’. Norwegians can use variously <â é ê è ó ô ò> for this purpose, but none of these are compulsory. French differentiates *ou* ‘or’ and *où* ‘where’ (compulsorily) and a few other pairs of words.

All these uses of accents to show tone and stress and to differentiate homonyms are therefore entirely different from the use of the acute and grave accents in French (and those and many other diacritics in other orthographies) to distinguish phonemes.

7) Phonemes

All alphabetic orthographies are based on a (more or less complete/accurate, sometimes well out-of-date) inventory of the distinctive speech sound contrasts in (a standard or prestige form of) the language. For a newly-scripted language, phoneticians in principle establish the phoneme inventory by finding minimal pairs, words which differ in meaning and by only one phoneme, e.g. *pit/bit* in English, *cour/coeur* in French, *Hand/Hund* in German. For languages with established orthographies, there is a strong tendency that, the longer it is since the language achieved a standard written form, the less well its standard spelling matches the current pronunciation (and the fiercer the resistance to spelling reform), whereas more recently devised scripts tend to be more consistent. Two examples: When the religious reformer Jan Hus standardised Czech orthography in the late 14th/early 15th century it is said to have been very consistent, but is less so now. Similarly, when the Korean alphabet was designed in the reign of King Sejong (1418–50) it was fully consistent and, some would say, the world’s best designed orthography ever, but it has not kept up with changes in pronunciation.

Graphemes

Graphemes come in various sizes: one letter, two letters (digraphs), three letters (trigraphs); some orthographies even have four-letter graphemes, e.g. <tsch> spelling /tʃ/ in German, <ngue> spelling /ŋ/ in *tongue* and <ough> spelling /u:/ in

through in English. Arguably, some spellings in French could also be analysed this way, e.g. <lles> representing only /l/ in *ficelles*, etc. There are some unexpected digraphs around: Welsh has <ch, dd, ff, ll, rh> representing /x, ð, f, ɸ/ and something close to French /ʁ/; and modern Greek, because of sound changes over the centuries, no longer has single letters to represent /b, d, g/ (in classical Greek these were spelt <β, δ, γ>, which now represent /v, ð, x/), so uses <μβ, ντ, γκ>. In Romanian, some spelling patterns could be analysed this way, e.g. in word-final <ți> the <i> is not heard separately but indicates palatalization of the word-final consonant. English, as might be expected, has an embarrassment of graphemes: besides the 26 letters of (its version of) the Roman alphabet, on the latest count (Brooks, 2015) it has 171 digraphs, 67 trigraphs, and 20 four-letter graphemes (total 284 graphemes).

In fully consistent orthographies there is one grapheme for every phoneme, and one pronunciation for every grapheme, so the number of graphemes is the same as the number of phonemes, which also entails that the number of phoneme-grapheme and grapheme-phoneme correspondences also equals the number of phonemes and graphemes. In such orthographies, graphemes are also independent of each other, that is, the way each phoneme is spelt is unaffected by how to spell adjacent phonemes, and the way each grapheme is pronounced is unaffected by the adjacent graphemes. These features appear to be true of Estonian and Hungarian and (largely) of Finnish and Welsh. The rest of this essay describes how the one-to-one and independence principles are embodied, and often modified or even ignored, in various orthographies.

Phoneme duration

This is, roughly speaking, the ‘length’ of a phoneme, the amount of time it takes to say. Long versus short vowels, and single versus double consonants (even triple consonants in Estonian), differ in duration. Such differences are phonemic in some languages, e.g. for both consonants and vowels in Estonian, Finnish, Hungarian, Maltese (e.g. <qq> for the double glottal stop /ʔʔ/ in Maltese); only for consonants in Italian (where vowels have only one duration). In those languages, many of the vowels are pure, i.e. not diphthongs, with the long vowels (where relevant) sounding like the short vowels drawn out, and in some of those languages’ orthographies (in particular Estonian and Finnish) the length distinctions are shown by doubling the relevant (consonant or vowel) letter.

Other orthographies do it differently. In Hungarian, doubled consonants are written double (but when consonant digraphs need doubling, only the first letter is doubled, e.g. <sz> = /s/, <ssz> = /ss/), but long vowels are mostly written as the short vowel with an acute accent (except that, where the short vowel spelling already has

a diacritic <ö, ü>, the long vowel is shown by a double acute accent <ő, ű>). In Slovak, the long form of any vowel (except <ä>) is shown by an acute accent, as are doubled /ll, rr/: <ĺ, ř>. In Finnish, the phoneme /ŋ/ is written with the digraph <nk>, but its doubled form /ŋŋ/ is written <ng>.

In other languages, e.g. English and French, there are no long/short vowel or single/double consonant contrasts. In English the phonetically long vowels are qualitatively different from the phonetically short vowels, and doubled consonants are rare and occur only at the morpheme boundary in compound words or derived forms, e.g. *penknife* (/ˈpenˈnaɪf/), *coolly*, *solely*, *wholly* (/ˈkuːlɪz, ˈsəʊlɪz, ˈhəʊlɪz/). The last three words' contrasts with *coolie*, *Soley* (a surname), *holy* (/ˈkuːlɪz, ˈsəʊlɪz, ˈhəʊlɪz/) provide the only double/single consonant minimal pairs in English. In French, the distinction between nasal and oral vowels is much more important than any consideration of vowel length, and it seems that vowel letters are never written double. In Swedish, vowel length is partly determined by stress – short vowels do not occur in open stressed syllables. However, in some languages with no short/long vowel or single/double consonant contrasts, consonant or vowel letters or both are written double, with quite different functions (see below).

Vowel reduction

In languages with strong stress patterns, the vowel phonemes in unstressed syllables may lose distinctiveness. This is a feature of Russian, German, and especially English. In Russian, there are many occurrences of unstressed /a/ or /ə/ which are written <o>, presumably because they were once pronounced /o/ (and apparently still are, in some accents). In German many unstressed word-final vowels are written <e> but pronounced /ə/, or written <er> but pronounced /ə/. In English, the schwa vowel /ə/ is the most frequent phoneme – 10% of all phonemes in running speech – but it has no dedicated spelling. In the phoneme–grapheme direction, 35% of its occurrences are written <a>; this is predominant in initial position (where the only alternative is <o> in Latinate words with remnants of the Latin prefix <ob>; <o> provides 19% of the spellings of /ə/ overall), but is less predominant in medial positions, and rare in word-final position, where the most frequent spelling of /ə/ is <er> (which provides 15% of the spellings of /ə/ overall). But the other 31% of spellings of /ə/ are provided by about 30 different graphemes, posing systematic problems for writers of English, so that (for example) *seperate* (which should be *separate*) is one of the most frequent misspellings in the language.

Two-phoneme graphemes

Many orthographies have adopted the practice of representing a sequence of two phonemes with a single letter. This began with (mainland) classical Greek <ξ> spelling /ks/ and <ψ> spelling /ps/. In the western part of the ancient Greek world

(Sicily, southern Italy) /ks/ was instead spelt <χ> (which in mainland Greece represented aspirated /k^h/), and <χ> spread to Latin (via Etruscan) as the letter <x> and then to other languages (which <ψ> didn't, though many words with Greek elements preserve the <ps> spelling, whether or not the <p> is pronounced).

Modern Greek of course still has <ξ, ψ>. For an attempted list of the two-phoneme graphemes in the 28 official languages of the EU and associated states, plus Russian, see the following page. From that list it's clear that the two-phoneme sequences most often spelt with single letters are /ks, ts/. The reason for /ks/ is obvious - descent from <ξ> - but the reason for /ts/ is obscure.

Doubled spellings

These are sequences of two letters which represent a single phoneme, but not a 'doubled' phoneme such as a long vowel or doubled consonant. Doubled vowel letters: in consistent orthographies, as already stated, these represent long pure vowels. In other orthographies, they have no single description. In English, for example, <uu> is vanishingly rare; the sequence <ii> is also rare, with the two letters always belonging to separate syllables, as in *radii, skiing*, and <aa> is rare but always represents <a: >; but <ee, oo> are frequent and mainly pronounced respectively <i: > (with /eɪ/ in a few French loanwords) and either /ʊ/ or /u: /.

Doubled consonant letters: several Germanic orthographies use, for instance, <bb, dd, ff, gg, ll, ss>, etc. to represent the single consonant phoneme in particular circumstances. English and German extend this practice to <ck> representing /k/, mainly in stem-final position in monosyllables with a short vowel; and for that position English also uses <dge, tch> to spell /dʒ, tʃ/.

'Marker' graphemes, dual-functioning and split digraphs

'Marker' graphemes affect the pronunciation of an adjacent grapheme and therefore breach the 'independence of graphemes' principle. In English, the doubled consonant spellings just listed, including <ck, dge (or <dg> within a word), tch>, almost always indicate that a preceding single vowel letter <a, e, i, o, u, y> is pronounced 'short', i.e. as /æ, e, ɪ, ɔ, ʌ (or sometimes ʊ), ɪ/ respectively - there are very few exceptions. Sadly, no such rule works in English for single vowel letters before other consonant clusters or single consonant letters, though some other Germanic orthographies (especially German) are more consistent about this.

Orthography	Two-phoneme graphemes
Bulgarian	я ю ц щ /ja:, ju:, ts, ʃtʃ/
Croatian	с /ts/
Czech	с ě x /ts, je, ks/
Danish	х /ks/
Dutch	
English	36, e.g. <x> (/ks, gz, kʃ, gʒ/ as in <i>extra, example, luxury, luxurious</i>), <oire> (/wa:ɪ/ in <i>conservatoire</i> , etc.), <u> (probably the most frequent, e.g. /ju:ɪ/ as in <i>union</i> , /jə/ as in <i>regular</i>). English has six ‘split digraphs’ spelling vowel phonemes (see below), and even has a three-phoneme grapheme: <oir> representing /waɪə/ only in <i>choir</i> - both of these phenomena appear to be unique to English orthography
Estonian	с х /ts, ks/
Finnish	х z /ks, ts/
French	e.g. oin (/wɛ̃/ as in <i>point</i>), oy (/waj/ as in <i>voyelle</i>), x (/ks, gz/ as in <i>expansion, exulter</i>); several others could arise from different analyses
German	с x z /ts, ks, ts/; also t /ts/ before i and another vowel letter, as in <i>Station</i>
Greek	ξ ψ (/ks, ps/)
Hungarian	с x /ts, ks/
Icelandic	
Irish	
Italian	z (/ts, dz/), zz (/tts, ddz/)
Latvian	с /ts/
Lithuanian	
Macedonian	ц (/ts/)
Maltese	
Norwegian	х /ks/
Polish	с /ts/
Portuguese	
Romanian	ț (/ts/), х (/ks, gz/)
Russian	ц щ (/ts, ʃtʃ); я е ё ю (/ja:, jɛ, jɔ, ju:/), which usually have /j/-glides preceding the vowel phonemes, contrast with <а э о y>, which don’t
Slovak	с х /ts, ks/
Slovenian	с /ts/
Spanish	ñ /nj/, х /ks/ between vowels (<x> also represents /x, s/ in some words)
Swedish	х /ks/
Turkish	

In the other, phoneme–grapheme, direction, there is a strong tendency in English for consonant phonemes to be written single after long vowels and diphthongs, but again, sadly, no such rule works for writing consonant phonemes after short vowels. This explains some of the besetting spelling errors in English, e.g. *accomodation, occuring* for *accommodation, occurring*. (In the 10th century, an English monk named Orm composed a long ‘poem called the Ormulum, because Orm wrote it’ in which he advocated that (old) English should always be written with double consonant letters after short vowels and single consonant letters after long vowels; he wrote the poem in that fashion, but his system never caught on, and would not have survived the Norman French impact on the language and its orthography anyway.)

On one analysis, the most prominent marker grapheme in any orthography is probably the letter <e> in English, with two functions: (1) to show that a preceding <c, g> is pronounced ‘soft’, i.e. as /s, dʒ/ and not /k, g/, e.g. in *fence, large*; (2) to show that a single vowel letter two letters ahead has its English ‘letter–name’ pronunciation /eɪ, iː, aɪ, əʊ, juː/, e.g. in *cake, eve, time, hope, cute*. However, both of the functions of <e> just mentioned are more neatly analysed as digraphic, i.e. that word–final /s, dʒ/ in *fence, large* are spelt <ce, ge>, the letter–name vowels in *cake, eve, time, hope, cute* are spelt with the split digraphs <a.e, e.e, i.e, o.e, u.e>, and in (for example) *ice, puce, rage, deluge* both types of digraph occur, and the <e> belongs to both of them; a sixth split digraph, <y.e> spelling /aɪ/ (e.g. in *style*) is rare. Dual–functioning of this sort is a pervasive feature of English orthography, but would be too complicated to illustrate further (for details, see Brooks, 2015). The <e> in graphemes <a.e, e.e, i.e, o.e, u.e> has traditionally been called ‘magic <e>’ by teachers, but even five–year–olds in England are now confidently talking about ‘split digraphs’ (and startling their parents).

‘Silent’ letters

‘Magic <e>’ is the classic example of what have traditionally, in English–speaking pedagogy, been called ‘silent letters’. (Aren’t all letters silent?) Other well–known examples in English are initial <g> in *gnash, gnaw, gnome*; initial <k> in *knife, knight, know*; initial <w> in *wrap, write, wrong*; final in *climb, comb, thumb*; final <n> in *autumn, column, hymn, solemn* – but there are less noticed ones, such as <ea> in *beauty* (compare *duty*). Most analysts of English spelling now prefer to consider all ‘silent’ letters as part of graphemes, e.g. the digraphs <gn, kn, wr, mb, mn>, etc., and <eau> in *beauty* (for example) as a trigraph spelling the two–phoneme sequence /juː/.

Can this analysis according to the ‘every letter belongs to a grapheme’ exhaustiveness principle be applied to other orthographies? It seems that it would

be irrelevant to every other European orthography except French. For French orthography, the ‘every letter belongs to a grapheme’ principle would be unusual, but parallel to the analysis in Brooks (2015) from which the figures for all English graphemes and digraphs have been quoted. Within the Wikipedia page on French orthography http://en.wikipedia.org/wiki/French_orthography the section on ‘Sound to spelling correspondences’ lists 125 possible graphemes, of which just eight are said to correspond always to no phoneme, = are ‘silent’, in conventional terms, and a ninth (word-final <es>) is said to be usually silent. All appear to be susceptible to a re-analysis (not undertaken here) according to the exhaustiveness principle, but that would (a) substantially increase the total of grapheme–phoneme correspondences; and (b) fail to recognise that most of the ‘silent’ letters in French orthography are present for grammatical reasons – they indicate morphemes, units of meaning, such as plural number, feminine gender.

Morphemes

Thus all third person plural verb forms in French are spelt with final <(e)nt>, and all second person singular verb forms with final <(e)s>, for etymological reasons – <nt> and <s> were the corresponding endings in Latin, where they were, however, pronounced (e.g. *amas, amant* /'amaɪs, 'amant/). And almost all French plural nouns and plural forms of adjectives are marked with final <s>, reflecting Latin masculine and feminine accusative plural case endings, all of which ended in <s>.

Morphemic influences are present in other orthographies. The spellings of regular plural nouns and third person singular present tense verbs in English end in <(e)s>, regardless of the three phonologically-conditioned pronunciations /s, z, ɪz/, and the past tense and past participle ending of all regular verbs in English is spelt <ed>, again regardless of the three phonologically-conditioned pronunciations /d, t, ɪd/. (By contrast, the past tense ending of Dutch regular verbs is spelt <te> if the stem ends in a voiceless consonant, otherwise (that is, if the stem ends in a vowel or voiced consonant) <de>. The rule is often summarised with the mnemonic *'t kofschip* (‘the merchant ship’): if the verb stem ends with one of the consonants <t, k, f, s, ch, p>, then the past tense will have <te>. However, it also applies for <c, q, x>, which also represent voiceless phonemes.)

Many derived forms of English words retain the spelling (and appearance) of the stem even when suffixes shift both the stress and the vowel phonemes, e.g. *photograph, photographer, photographic* /'fəʊtəgrɑ:f, fə'tɒgrəfə, fəʊtə'græfɪk/ – note particularly the changing stress placement and the three values of the letter <a>. (The German umlaut also sometimes has the effect of largely preserving word-shapes, e.g. in *Apfel, Äpfel*.) Some authorities consider these features to be advantages of English spelling, or even maintain that they make English orthography

'logographic', which is taking the analogy with scripts that are genuinely logographic too far.

The principle of maintaining the spelling of stem words takes a different form in German. In many German nouns, cases other than the nominative singular have a voiced consonant in stem-final position, e.g. /'hɛndə, 'hʊndə/, and this is of course shown in the spelling, *Händer, Hunde*. But through a process called word-final consonant neutralisation (shared with several other languages, including Czech, Maltese and Russian), when that consonant is word-final it is devoiced, so the nominative singular forms of these words are /hant, hʊnt/ – but <d> is kept in the spellings *Hand, Hund*. As a further consequence, some homophone pairs have different spellings, e.g. *tot* 'dead', *Tod* 'death', both pronounced /to:t/, but with the stem-final consonant becoming /d/ only in suffixed forms of *Tod*, e.g. *Todesgefahr*. Orthographies in which maintaining the spelling of morphemes overrides strictly phonemic consistency can be described as 'morpho-phonemic'.

None of this is tolerated in consistent orthographies. To continue the example of Finnish *Turussa* meaning 'in Turku': in theory, this could be spelt *Turkussa* to show the stem form – but then people would have to remember that the <k> is 'silent'.

Etymology

In some orthographies another reason for non-phonemic spellings is etymology. In effect, this is why written French third person plural verb forms end in <nt> and plural nouns and adjectives end in <s>, even though the <t> and <s> are rarely pronounced, and the <n> never, though it sometimes indicates nasalisation of the preceding vowel, as in *sont* (and would therefore be better analysed as forming a digraph with the vowel letter). The in the English words *debt, doubt* and the <p> in *receipt* were inserted by antiquarians to reflect Latin *debitum, dubitum, receptum* when the earlier spellings *det, dout, receipt* were perfectly adequate; and all the word-initial and -final 'silent' letters of English listed above (and others) are also there for etymological reasons, though some help to differentiate homophones (e.g. *rite, write; hour, our*), and some 'surface' when words are prefixed or suffixed (e.g. *know/acknowledge, solemn/solemnity*). Russian has a genitive singular ending pronounced /əvə/ but spelt <oro> which presumably represents a (much) earlier pronunciation /ogo/. Modern Greek preserves two spellings for /o/ (ο, ω), two for /e/ (ε, αι), six for /i/ (ι, ι, υ, ει, οι, υι) and, on one analysis, two for /f/ (φ, and υ between α, ε and a voiceless consonant), and two for /v/ (β, and υ between α, ε and a voiced consonant or vowel), all of which reflect classical spellings. Again, none of this is tolerated in consistent orthographies.

Regularity and consistency in which direction?

Consider the English word *ocean* /'əʊʃən/. This is partly irregular in the phoneme–grapheme direction: every other word which ends in the sound of the word *ocean* is spelt <-otion>, so in *ocean* the spellings of /ʃ/ as <ce> and /ə/ as <a> are unusual. However, in the grapheme–phoneme direction *ocean* is entirely regular: all words ending in <-cean> have the stress on the preceding vowel, which has its 'letter-name' pronunciation, /əʊ/ in this case, and the <-cean> ending, though rare, is always pronounced /ʃən/. Similarly, the four English words pronounced /raɪ/, *right*, *rite*, *wright*, *write*, are all predictable in the grapheme–phoneme direction: <r, t> have their usual values, initial <wr> is always pronounced /r/, <igh> after a consonant letter is always pronounced /aɪ/, and the regular pronunciation of the split digraph <i.e> is also /aɪ/ – but choosing the correct spelling when writing is a problem for many young children (and for some older learners). However, these are isolated cases in English: given that the 44 phonemes of the RP accent are spelt with nearly 300 graphemes, giving rise to a net of over 500 correspondences in both directions, it is no surprise that English is thoroughly irregular and inconsistent in both directions. The rule about the grapheme <igh>, for example, is one of the very few 100% rules in English – but there are only about 25 words in the entire language which fit this description, and in the other direction there are many more words fitting the description 'consonant phoneme followed by the diphthong /aɪ/' in which that phoneme is not spelt <igh> than in which it is.

That is by way of preamble to saying that some orthographies are consistent in both directions, some are inconsistent in both directions, and a few are consistent in the grapheme–phoneme direction but not in the phoneme–grapheme direction. (It is difficult to conceive how an orthography could be the reverse of that, consistent in the phoneme–grapheme direction but not in the grapheme–phoneme direction, since consistency from sound to spelling would produce just one grapheme for each phoneme.)

Modern Greek and Spanish fit in the 'consistent in one direction' category. Even though, as listed above, modern Greek has five phonemes with variant spellings, and is therefore somewhat inconsistent in the phoneme–grapheme direction, it is highly consistent in the grapheme–phoneme direction.

Similarly with (Castilian) Spanish: There are two possible spellings for a few phonemes /b β θ x ɲ k r s i/, some entirely context-dependent and therefore hardly to be counted as irregular (e.g. /θ/ as <c> before <i, e>, <z> otherwise), and a few words (e.g. *hoy*) must be written with initial <h> even though they have no initial /h/ sound.

So anyone with a knowledge of Greek or Spanish grapheme–phoneme correspondences, and of the stress rules and marks, and a good ear for the contrasts and cadences of the languages, should be able to read them aloud fairly plausibly.

Unwritten phonemes

Even with all the complexities mentioned so far, orthographies can still spring this surprise: not all phonemes are represented at all. This is most obvious in the English words *once, one* /wʌns, wʌn/, where either the /w/ is ‘unwritten’ (if a parallel with ‘silent’ letters is preferred), or (if the ‘every letter belongs to a grapheme’ approach is preferred) you could say that the two–phoneme sequence /wʌ/ is here and only here written <o>, and the letter <o> is here and only here pronounced /wʌ/. Also in English, many intervocalic /w/ and /j/ glides are not written, e.g. in *going, seeing* /'gəʊwɪŋ, 'si:ɪŋ/, because this would complicate the rules for spelling stem–final vowels and/or suffixes beginning with vowels. In Turkish, the grapheme <ğ> neatly encodes two aspects of phonology: the preceding vowel letter is pronounced long, and (where the following letter is a vowel) there is an intervening consonant phoneme, a /j/ glide between front vowels, a glottal stop /ʔ/ between back vowels. This and the automatic /w/ and /j/ glides in English fill the hiatus (which is not really a gap) between the vowel phonemes (English–speakers who imagine that they can say ‘go – ing’ without a /w/–glide or other intervening sound are failing to notice that they are instead inserting a glottal stop – easily overlooked, since the glottal stop is never a contrastive consonant phoneme in English). And in several orthographies /ŋ/ is written merely as /n/ when the next phoneme is /k, g/, however spelt, and only written out as <ng> elsewhere – compare English *think, thing* /θɪŋk, θɪŋ/, German *denke, Ding* /'denkə, dɪŋ/.

And the prize goes to ...?

For bidirectional regularity and consistency, the group prize goes to the non–Indo–European languages of Europe, i.e. Estonian, Finnish, Hungarian, Maltese and Turkish. (Basque is also non–Indo–European but is not dealt with here; so was Etruscan, but that has been dead for 2000 years.) These all have highly regular correspondences in both directions; also highly predictable word stress, thus avoiding the need to mark this, and allowing non–native speakers to assign stress very accurately from the written forms of words.

Among the Indo–European languages, the individual prizes for minimal variation in the phoneme–grapheme direction, plus 100% grapheme–phoneme consistency and helpful stress marking, go to Greek and Spanish.

And the wooden spoon, as always, to English – no surprise there, then.

Dyslexia

N.B. This essay concerns developmental dyslexia as it affects children and adults, not acquired dyslexia resulting from stroke or brain injury.

The European Union High Level Group of Experts on Literacy called for a ‘change of mindset’ about dyslexia, and this essay is intended as a contribution to that.

Etymologically, the word itself is the result of a confusion. Its modern meaning of ‘difficulty with reading/literacy’ does not correspond fully with its Greek roots $\delta\upsilon\varsigma$ (dys) ‘poor/impaired’ + $\lambda\acute{\epsilon}\xi\iota\varsigma$ (lexis) ‘speech’. It would seem that the Greek verb $\lambda\acute{\epsilon}\gamma\epsilon\iota\nu$ (legein) ‘to speak’ was confused with the Latin verb *legere* ‘to read’. The alternative German term Legasthenie (legasthenia, ‘reading weakness’) incorporates the same error, or Greco–Latin hybridisation.

And the usage of ‘dyslexia’ today also suffers from a besetting confusion: is it a description or a diagnosis? That is, is it simply a way of speaking about any and every reading (and writing) difficulty, or does it refer to an identifiable condition (or group of conditions)? If the latter, there ought to be both

(1) an agreed set of diagnostic criteria by which dyslexics can be distinguished from what are called (rather dismissively) in English ‘garden–variety poor readers’, and

(2) experimental evidence that differing treatments for dyslexics and other poor readers produce different and opposite effects.

Neither of those exists.

(1) In English there are at least 28 definitions of the symptoms of dyslexia, and at least 57 items mentioned in screening checklists for the condition (Rice with Brooks, 2004: 147, 154–6). Of the definitions, only two have identical criteria, and one, bizarrely, omits ‘reading accuracy deficit’, that is, a poor score on a test of naming words aloud.

(2) At least in English, the amount of reliable experimental evidence on interventions for developmental dyslexia as a whole is small (Singleton, 2009), and for developmental dyslexia in adults is minute (Rice with Brooks, 2004: 82). More particularly, there appear to be no studies at all in which a group of dyslexics and a group of other poor readers have each been split for experimental purposes into two subgroups, such that one received an intervention intended to be appropriate, and the other received an inappropriate intervention – namely the intervention designed for the other group. In such a cross–over design the hypotheses would be

that (a) the subgroup of dyslexics receiving the intervention for dyslexics would make better progress than the non-dyslexics receiving that intervention, and (b) vice versa: the non-dyslexics receiving the intervention for non-dyslexics would make better progress than the dyslexics receiving that intervention. An outcome of this form is called an Aptitude by Treatment Interaction (ATI). There are no such results in the literature on dyslexia (and they are rare to the point of virtual non-existence in educational research as a whole).

Valtin (2012) presents compelling arguments against the concept using German-language evidence, including references to empirical studies showing no difference in outcomes for 'dyslexics' and non-dyslexics receiving the same remediation.

Upshot: Currently, the term dyslexia has no diagnostic or therapeutic value (Elliott and Grigorenko, 2014; Valtin, 2012), and techniques that do or may help to alleviate literacy difficulties should be used with all those who need them, without differentiation according to being 'dyslexic' or not. Some children (and adults) receiving a 'diagnosis' of dyslexia feel relieved – 'I'm not thick!' – but others become fatalistic:

'In a small interview study Naegele and Valtin (2003) asked children diagnosed as dyslexic how they explained their difficulty. Here are some answers: "Legasthenie kommt vom Herrn" or "von Gott" (dyslexia comes from the Lord or from God) – "I think I have mushrooms in my brain" – "My parents had false sexual intercourse". These answers point to anxieties and great emotional disturbance, often resulting in resignation ("You are a dyslexic forever")' (quoted in Valtin, 2012).

In direct contrast to 'I'm not thick!', Laurentien of the Netherlands (personal communication to High Level Group, 2011) reported once reassuring a child that dyslexia is not incurable, to the child's great relief: 'I'm not sick!'

Another problem with taking 'dyslexia' to be a diagnosis is that it can tempt the unwary into thinking that it requires a medical solution, when it is an educational problem requiring pedagogical approaches. In Germany, Renate Valtin has been making these points for over 40 years. In 1978 the (then West German) federal Standing Conference of Ministers of Education and Cultural Affairs recommended that the term Legasthenie be abandoned, and the neutral term Lese-Rechtschreib-schwierigkeiten (reading and spelling difficulties) be used instead. This position held until 2001, when Bavaria re-introduced the concept of Legasthenie as an incurable illness; children there 'diagnosed' as dyslexic by a medical doctor are entitled to remedial education, are exempt from being given grades in reading and spelling,

and may be recommended for admission to a Gymnasium regardless of their literacy difficulties.

In Britain, there seems now to be less insistence that dyslexia 'exists' in some diagnosable sense, and, to reduce that supposition, the term is now frequently coupled with the abbreviation of the phrase 'specific learning difficulty' in the expression 'dyslexia/SpLD'. The even more generic term 'literacy difficulties' is also in use, and (some think) should replace all others. Even within professional organisations with 'dyslexia' in their names, there is a growing tendency to adopt operational/pragmatic rather than theoretical/conceptual definitions. For example, at the British Dyslexia Association's 10th International Conference, held in Oxford in March 2016, it was noticeable that speakers' stated or implied criteria for children included in research studies tended to converge on: 'Any child (or adult) with reading and/or spelling attainment at least 1.5 standard deviations below the national norm'. Thus 'an unexpected difficulty' or 'a discrepancy from IQ' have been abandoned, and the focus is on word-level difficulties – with problems in reading comprehension and the authorial aspects of writing being hived off for separate investigation and treatment (though of course some of those who struggle the most have both word-level and text-level difficulties).

For the avoidance of doubt: Many people suffer literacy difficulties, some very severe and resistant to amelioration, and they all urgently need help to alleviate or manage their problems; none of what has been written in this essay is intended to deny that. But acquiring the label 'dyslexic' may be less useful to many people than getting professional help. And it does those whose literacy difficulties are severe a disservice to 'diagnose' famous people retrospectively (or even posthumously) as dyslexic – most such claims have been debunked – or to suggest that dyslexics are disproportionately creative – this is based on misleading statistics which ignore counter-instances. As one adult literacy learner put it, reacting to the book title *The Gift of Dyslexia*: 'Dyslexia's a gift? You can have it back!'

Proficiency levels and scales

Various scales and associated descriptors are used across Europe for reporting literacy (and numeracy) and/or general education/qualification levels. When relating the attainments of people, especially adults, to these scales it is essential to remember that ‘People are not at levels, skills are’ (Duncan and Schwab, 2015, §3.5). These scales sometimes cause confusion, hence this essay, which mainly presents a compendium of the scales used in recent rounds of the three international series of literacy surveys, plus one example of a national scale used for adults, with only a modicum of comment on all of this at the end.

PIRLS (Progress in International Reading Literacy Study, 4th grade), 2011

The achievement results are reported on the PIRLS scale, which has a range of 0–1,000 (although student performance typically ranges between 300 and 700). PIRLS uses the centre point of the scale (500) as a point of reference that remains constant from assessment round to assessment round. PIRLS reports achievement at four points along the scale as international benchmarks:

Advanced International Benchmark (scale score of 625)

When reading literary texts, pupils can:

- integrate ideas and evidence across a text to appreciate overall themes;
- interpret story events and character actions to provide reasons, motivations, feelings and character traits with full text-based support.

When reading information texts, pupils can:

- distinguish and interpret complex information from different parts of the text, and provide full text-based support;
- integrate information across a text to provide explanations, interpret significance, and sequence activities;
- evaluate visual and textual features to explain their function.

High International Benchmark (scale score of 550)

When reading literary texts, pupils can:

- locate and distinguish significant actions and details embedded across the text;
- make inferences to explain relationships between intentions, actions, events and feelings, and give text-based support;
- interpret and integrate story events and character actions and traits from different parts of the text;
- evaluate the significance of events and actions across the entire story;
- recognise the use of some language features (e.g., metaphor, tone, imagery).

When reading information texts, pupils can:

- locate and distinguish relevant information within a dense text or a complex table;

- make inferences about logical connections to provide explanations and reasons;
- integrate textual and visual information to interpret the relationship between ideas;
- evaluate content and textual elements to make a generalisation.

Intermediate International Benchmark (scale score 475)

When reading literary texts, pupils can:

- retrieve and reproduce explicitly stated actions, events and feelings;
- make straightforward inferences about the attributes, feelings and motivations of main characters;
- interpret obvious reasons and causes and give simple explanations;
- begin to recognise language features and style.

When reading information texts, pupils can:

- locate and reproduce two or three pieces of information from within the text;
- use subheadings, text boxes and illustrations to locate parts of the text.

Low International Benchmark (scale score 400)

When reading literary texts, pupils can:

- locate and retrieve an explicitly stated detail.

When reading information texts, pupils can:

- locate and reproduce explicitly stated information that is at the beginning of the text.

http://timssandpirls.bc.edu/pirls2011/downloads/P11_IR_FullBook.pdf

PISA (Programme for International Student Assessment, age 15)

Summary descriptions for the seven levels of proficiency in reading, 2012:

Level	Characteristics of tasks
6	<p>Tasks at this level typically require the reader to make multiple inferences, comparisons and contrasts that are both detailed and precise. They require demonstration of a full and detailed understanding of one or more texts and may involve integrating information from more than one text. Tasks may require the reader to deal with unfamiliar ideas, in the presence of prominent competing information, and to generate abstract categories for interpretations. Reflect and evaluate tasks may require the reader to hypothesise about or critically evaluate a complex text on an unfamiliar topic, taking into account multiple criteria or perspectives, and applying sophisticated understandings from beyond the text. There is limited data about access and retrieve tasks at this level, but it appears that a salient condition is precision of analysis and fine attention to detail that is inconspicuous in the texts.</p>
5	<p>Tasks at this level that involve retrieving information require the reader to locate and organise several pieces of deeply embedded information, inferring which information in the text is relevant. Reflective tasks require critical evaluation or hypothesis, drawing on specialised knowledge. Both interpretative and reflective tasks require a full and detailed understanding of a text whose content or form is unfamiliar. For all aspects of reading, tasks at this level typically involve dealing with concepts that are contrary to expectations.</p>
4	<p>Tasks at this level that involve retrieving information require the reader to locate and organise several pieces of embedded information. Some tasks at this level require interpreting the meaning of nuances of language in a section of text by taking into account the text as a whole. Other interpretative tasks require understanding and applying categories in an unfamiliar context. Reflective tasks at this level require readers to use formal or public knowledge to hypothesise about or critically evaluate a text. Readers must demonstrate an accurate understanding of long or complex texts whose content or form may be unfamiliar.</p>

Level	Characteristics of tasks
3	<p>Tasks at this level require the reader to locate, and in some cases recognise the relationship between, several pieces of information that must meet multiple conditions. Interpretative tasks at this level require the reader to integrate several parts of a text in order to identify a main idea, understand a relationship or construe the meaning of a word or phrase. They need to take into account many features in comparing, contrasting or categorising. Often the required information is not prominent or there is much competing information; or there are other text obstacles, such as ideas that are contrary to expectation or negatively worded. Reflective tasks at this level may require connections, comparisons, and explanations, or they may require the reader to evaluate a feature of the text. Some reflective tasks require readers to demonstrate a fine understanding of the text in relation to familiar, everyday knowledge. Other tasks do not require detailed text comprehension but require the reader to draw on less common knowledge.</p>
2	<p>Some tasks at this level require the reader to locate one or more pieces of information, which may need to be inferred and may need to meet several conditions. Others require recognising the main idea in a text, understanding relationships, or construing meaning within a limited part of the text when the information is not prominent and the reader must make low level inferences. Tasks at this level may involve comparisons or contrasts based on a single feature in the text. Typical reflective tasks at this level require readers to make a comparison or several connections between the text and outside knowledge, by drawing on personal experience and attitudes.</p>
1a	<p>Tasks at this level require the reader to locate one or more independent pieces of explicitly stated information; to recognise the main theme or author's purpose in a text about a familiar topic, or to make a simple connection between information in the text and common, everyday knowledge. Typically the required information in the text is prominent and there is little, if any, competing information. The reader is explicitly directed to consider relevant factors in the task and in the text.</p>
1b	<p>Tasks at this level require the reader to locate a single piece of explicitly stated information in a prominent position in a short, syntactically simple text with a familiar context and text type, such as a narrative or a simple list. The text typically provides support to the reader, such as repetition of information, pictures or familiar symbols. There is minimal competing information. In tasks requiring interpretation the reader may need to make simple connections between adjacent pieces of information</p>

PIAAC (Programme for International Assessment of Adult Competences, 2012)

Description of proficiency levels in literacy

Level	Types of tasks completed successfully at each level of proficiency
Below level 1	The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. Tasks below Level 1 do not make use of any features specific to digital texts.
1	Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Some tasks, such as those involving non-continuous texts, may require the respondent to enter personal information onto a document. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognising basic vocabulary determining the meaning of sentences, and reading paragraphs of text is expected.
2	At this level, the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks at this level require respondents to make matches between the text and information, and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to <ul style="list-style-type: none"> • cycle through or integrate two or more pieces of information based on criteria; • compare and contrast or reason about information requested in the question; or • navigate within digital texts to access and identify information from various parts of a document.
3	Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures become more central to successfully completing tasks, especially navigating complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or perform multi-step operations in order to identify and formulate responses. Often tasks also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information.

Description of proficiency levels in literacy in PIAAC, cont.

Level	Types of tasks completed successfully at each level of proficiency
4	Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret, or synthesise information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform the task successfully. Many tasks require identifying and understanding one or more specific, non-central idea(s) in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information.
5	At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information is frequently a requirement. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialised background knowledge.

Levels used in UK, and the discrepancy between them and international levels

Frameworks of levels for assessing and reporting adults' basic skills evolved separately and differently in Britain and the USA in the 1980s. The bottom level of the main scale in Britain was called 'Foundation' (later, 'Entry') level, with other levels numbered upwards from 1 above that. In contrast, the bottom level of the main scale in the USA was called 'Level 1', with higher levels numbered upwards from 2. The US scale was incorporated into international surveys beginning with IALS in 1994-98, but the British scale continued in use nationally, except for reporting British results in international surveys. The possibilities for confusion are obvious, so this table shows the alignment of the two scales:

US and international level *	UK level
5	4
4	3
3	2
2	1
1	Entry level 3
	Entry level 2
	Entry level 1
Below 1	Pre-Entry

* To judge by the LEO-Studie (Level One study), this scale is also in use in Germany

As shown, the British scale has the added complication of three sub-divisions of Entry level, which have no counterparts in the other scale.

Descriptions of levels of proficiency in reading in the *Skills for Life* surveys of adult basic skills in England, 2002-03 and 2011-12

An adult classified

at this (UK) level...

... has these skills

Level 2 or above

- Understands a range of texts of varying complexity accurately and independently
- Can obtain information of varying length and detail from different sources

Level 1

- Understands short straightforward texts of varying length on a variety of topics accurately and independently
- Can obtain information from different sources

Entry level 3

- Understands short straightforward texts on familiar topics accurately and independently
- Can obtain information from everyday sources

Entry level 2

- Understands short straightforward texts on familiar topics
- Can obtain information from short documents, familiar sources and signs and symbols

Entry level 1

- Understands short texts with repeated language patterns on familiar topics
- Can obtain information from common signs and symbols

Despite the proliferation of terminology there does appear to be a basic correspondence between the PISA, PIAAC and *Skills for Life* criteria listed above at the levels where they are most easily compared, International levels 2 and 3 (UK Levels 1 and 2). The detailed descriptions in PISA seem like slight expansions of those in *Skills for Life*, and those in PIAAC seem like more elaborate versions of both of those. International Level 2 (UK Level 1) can be seen as basically competent comprehension of not very complicated information, and International Level 3 (UK Level 2) as somewhat more competent comprehension of rather more complex information.

The comparisons also reveal that International Level 1 (UK Entry level) betokens weakness in reading comprehension. People at this level can handle only simple texts and straightforward questions on them where no distracting information is adjacent or nearby. Making inferences and understanding forms of indirect meaning (e.g. allusion, irony) are likely to be difficult or impossible. This is less than the

functional literacy needed to partake fully in employment, family life and citizenship, and to enjoy reading for its own sake. And International 'below Level 1' and the lower levels of UK Entry level represent the most basic forms of response to printed words. UK Pre-entry level (not shown in detail here) essentially describes attainments for children and adults who can interpret a certain amount of other forms of symbolic visual communication (e.g. Makaton), but only a few socially useful printed words.

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Alphabetic section

Based mainly on: Harris and Hodges (1995) *The Literacy Dictionary*; and
Burton, M. (2011) *Phonetics for Phonics* and (2012) *Grammar for Sentence Combining*

Term	Definition
A	
accent	1. Pronunciation particular to an individual or region; cf. dialect 2. Diacritic consisting of a small vertical or diagonal line above a vowel letter; cf. tone. Greek: τόνοϛ 3. In speaking, prominence or emphasis given to a word or syllable; see stress
acquired dyslexia	See the essay on Dyslexia
additional language	See second language
agreement	A grammatical relationship in which the form of one element requires the corresponding form of another, e.g. (1) between subject nouns and the verbs in the same clause; (2) between nouns and articles and/or adjectives and/or participles
alliteration	Repetition of (usually) initial consonant phonemes in neighbouring words. Much used in poetry in languages which have few or no possibilities of rhyme, e.g. Old English, and Irish and Welsh of all periods; cf. rhyme, rime and see the essay on First steps
alphabet	1. A writing system (orthography) in which single letters or groups of letters (graphemes) represent the speech sounds (phonemes) of a language 2. The complete set of letters used to write a language
alphabetic methods	Teaching approaches (now mainly obsolete) which began with single letters and progressed through (mainly meaningless) syllables and then words of increasing length, using only the names of the letters, not their sounds (contrast phonics), and see analyticko-syntetická metoda and the essay on First steps
alphabetic principle	The key insight, which children must be enabled to learn, that letters represent sounds
alphabetic stage	See the essay on Stage theories
alphabetics	Superordinate term covering (the teaching of) phonemic awareness and phonics
analphabétisme, analphabète (French)	See illiteracy, illiterate and the essay on Concepts of literacy
analytic phonics	An approach to the teaching of reading and spelling whereby sight words are taught first and then patterns are deduced from the study of word families; no sounding-out is involved, at least in the early stages; cf. phonics, synthetic phonics, and see the essay on First steps
analyticko-syntetická	'Used in the [teaching of] Czech since 1864... it starts with the

metoda (Czech; literally 'analytic-synthetic method', but better translated as 'syllabic method')	spoken word and is based on the fact that Czech [orthography] is phonemic... The method combines analysis – i.e. decomposition of words into syllables and speech sounds – with synthesis (connecting letters into syllables and words)... When practising a new letter, a relevant word is [chosen], and the word is then analysed into syllables and speech sounds to which letters are assigned subsequently. Synthesizing then means connecting letters into other syllables and words, and, later on, writing those words down. It means that, simultaneously with reading, children learn to write.' (Description provided by Marie Ernestová) Not directly equivalent to any current phonic method used in English; cf. analytic phonics, genetická metoda, onset and rime, phonics, synthetic phonics, and see the essay on First steps
andragogy	(Much contested) Term devised in the 1970s to describe theories of adult learning that take account of the perceived differences between children and adults that might make literacy learning distinctive and/or more difficult for adults; cf. pedagogy
assonance	Repetition in words of the same or similar vowel sound, often for literary effect
auditory perception	Ability to discriminate sounds. Impairment of this ability (e.g. by otitis media) may cause literacy learning difficulties
augmented alphabet	See i.t.a.
aural	Relating to hearing
automaticity; automatisaion	Fluent, effortless processing of information, e.g. sight word recognition (cf. RAN); learning this to automaticity
awareness 1. phonological 2. phonemic 3. metalinguistic	1. Implicit knowledge of the sound structure of a language, shown by (e.g.) being able to tell which of three words is the odd-one-out when two of them rhyme or alliterate. Awareness of words and phonemes as language units does not develop of itself, but has to be taught, because these units are not phonologically salient. However, syllables are phonologically salient – children can easily learn to tap or clap out the number of syllables in a word or phrase 2. Ability to hear and identify phonemes; subset of phonological awareness 3. Explicit knowledge of language as an entity and of the terminology used for describing it (metalanguage) See the section on Precursors to literacy in the essay on First steps
B	
barking (at print)	Reading which involves sounding out but without comprehension; decoding without meaning
basal reading program(me)/scheme	Collection of student texts and workbooks, teachers' manuals and supplementary material for developmental reading and writing instruction; cf. primer, reading scheme
basic skills	Cognitive and language-related skills, such as speaking, listening,

	reading, writing, mathematics and IT skills
beginner reader	A learner (of any age) who is not able to read fluently
bilingual	Able to speak and understand two languages, including one's mother tongue
biliterate	Able to read and write in two languages
blend	1. Sequence of phonemes resulting from blending 2. In English, often used (but this usage is now discouraged) to mean a cluster of consonant letters
blending	Combining (synthesizing) the sounds (phonemes) represented by letters (graphemes) in order to pronounce a word and identify it. One of the defining features of synthetic phonics; cf. segmenting
block capitals	Form of handwriting consisting entirely of upper-case letters, e.g. BLOCK CAPITALS; sometimes specified for use on official forms. Contrast cursive writing, print writing
boustrophedon Greek: βουστροφηδών German: Umlaut	Writing in which the direction of the text is reversed in alternate lines (literally 'like an ox turning')
buddy reading	See paired reading
C	
capital (letter)	Version of letter used at beginning of a word for the names of people, towns, countries, etc., and when starting a sentence; in German also for all nouns. Also known as upper case letter, majuscule (cf. lower case)
capitalisation	Use of capital letters as above
catch-up (scheme)	Informal English term for an intervention
citation form	The way a word is pronounced when native speakers are asked to do so slowly and carefully, or when reading a list. See the essay on Regularity and consistency
clause	A group of connected words which must include a verb, and forms part, or the whole, of a sentence
closed syllable	Ends with one or more consonants; cf. open, syllable
closed word class	A class of words is closed if its members' function is primarily grammatical, it has a finite number of items and it is 'closed' to the addition of new items; words in such classes are also known as function words; cf. content word
cloze (procedure, test)	A way of measuring a learner's ability to complete portions of text that have been omitted, as a proxy for comprehension
code (see also decode, encode)	1. (verb) To change information into a code or communication system 2. Sociolinguistic term for any system of linguistic communication, such as a dialect
code emphasis	Label for initial teaching approaches which focus (partly or wholly) on sub-word units which are not meaningful in themselves; cf.

	meaning emphasis, and see also the essay on First steps
compound word	A combination of two or more words that function as a single unit of meaning
comprehension	Accurate understanding of the intended meaning of a communication
consistent (orthography, spelling)	Spelling system in which each phoneme is regularly represented by the same grapheme, and each grapheme regularly has the same pronunciation; also called shallow, transparent; cf. deep, and see also regular(ity)
consonant	1. A speech sound (phoneme) made by partial or complete closure of part of the vocal tract (cf. vowel) 2. A grapheme representing a consonant phoneme, also called (in English) a consonant letter
consonant cluster	Group of consonant phonemes occurring together at the beginning (onset) or end of a syllable; in English, also applied to the graphemes representing them
consonant neutralisation	Tendency in some languages for stem-final consonant phonemes which are voiced when suffixed to be devoiced (become voiceless) when word-final, e.g. German <i>Händer</i> , <i>Hunde</i> are pronounced /'hændə, 'hʊndə/, but the nominative singular forms <i>Hand</i> , <i>Hund</i> are pronounced /hant, hʊnt/
content word	A word that has an independent 'dictionary' meaning, such as nouns, adjectives, verbs and some adverbs (cf. function word)
context	Stretch of language (spoken or written) adjacent to another. In some approaches to the teaching of reading (especially in English) learners may be urged to 'use the context' to identify an unknown written word
contraction	1. The shortening of a spoken or written expression by the omission of one or more sounds or letters, e.g. (English) /aɪm/ <i>I'm</i> , /ju:l/ <i>you'll</i> , (Italian) <i>studî</i> from <i>studii</i> 2. Especially in English, the spelling convention of marking the omission of a letter with an apostrophe, e.g. in <i>don't</i> , <i>aren't</i> . N.B. In some such English contractions, the number of letters is reduced but the number of phonemes is not, because the /v/ of <i>not</i> is replaced by a schwa vowel in front of the /n/, e.g. <i>doesn't</i> , <i>hasn't</i> are pronounced /'dʌzənt, 'hæzənt/; in others, the number of phonemes is also reduced but some may alter, e.g. in /dəʊnt/ <i>don't</i> versus <i>do not</i> /du: nɒt/, /jɔ:/ (in current RP, earlier /jʊə/) <i>you're</i> versus <i>you are</i> /ju: ə:/; cf. elision, vowel reduction
correspondences (grapheme-phoneme, phoneme-grapheme)	The relationships that hold between speech sounds and their written representations (phoneme-grapheme) or between graphemes and the sounds they represent (grapheme-phoneme)
cue	A prompt or stimulus that helps with the processing of information, such as identifying a word
cursive (writing)	Form of handwriting in which letters are joined; in English also

	called, informally, joined-up writing. Contrast print writing, block capitals
D	
decodable (texts)	Especially in English, able to be read aloud accurately using phonic rules (grapheme-phoneme correspondences); books for young readers so designed
decode/decoding	In reading, to identify words by analysing them letter-by-letter (grapheme-by-grapheme) rather than recognising the word as a whole
decontextualised	Reading or writing that is done without reference to any context, especially social
deep (spelling, orthography)	Spelling system distinguished by a lack of 1-to-1 grapheme-phoneme and phoneme-grapheme correspondences; also called an opaque orthography (cf. consistent, shallow, transparent), and see the essay on Regularity and consistency
derived form	Any form of a word that is not the simple stem but has one or more prefixes and/or suffixes
developmental dyslexia	See the essay on Dyslexia
diacritic	In many European orthographies, a mark above or below or even through a letter. Diacritics serve six purposes (which frequently overlap): 1) marking one of two adjacent vowel letters to show that they do not form a digraph but belong to, or constitute, different syllables 2) marking a contracted vowel 3) marking tones 4) marking stress 5) differentiating words which are identical in pronunciation and/or spelling but differ in meaning, and would therefore otherwise be homonyms 6) encoding different phonemes by differentiating graphemes. See the section on Diacritics in the essay on Regularity and consistency
diaeresis French: tréma Greek: δια ρεσις	A type of diacritic consisting of two dots above a vowel letter and indicating a separate syllable; cf. Umlaut
dialect	A language variety in which use of grammar and vocabulary identifies the regional or social background of the user (cf. accent)
dictation French: dictée	A text spoken by one person (teacher) to be transcribed in writing by others (learners); cf. language experience, scribing
digital (literacy, text)	Computer-mediated
diglossia	Use of two varieties of a language, one (HI) for formal use in writing and restricted speech situations, the other (LO) for colloquial or informal use, e.g. in Arabic (especially, where Qur'anic

	norms prevail in writing), Hebrew, and Greek – though in Greek there was an official shift in 1976 to δημοτική (demotic) and away from καθαρεύουσα (katharevousa, ‘purified’), except in the Greek Orthodox church
digraph (see also split digraph, trigraph)	Pair of letters, usually adjacent (but in English orthography sometimes separated by one or occasionally two letters, hence split digraph), representing a phoneme (or sometimes, in several orthographies, a sequence of two phonemes). Not to be confused with diphthong; see the essay on Regularity and consistency
diphthong	A vowel phoneme in which there is a movement from one vowel to another during a syllable. Not to be confused with digraph; see the essay on Regularity and consistency
dual-route theory	See the essay on this
dynamic tripod	Way of holding a pencil or pen between thumb and first two fingers, such that the implement rests just behind and above the nail of the second finger; cf. pencil grip
dyslexia	See the essay on this
E	
early (fluent) reader	A learner who is able to read before starting school
elision	Omission of a sound in connected speech, e.g. English <i>and</i> is routinely pronounced /ən/ except when pronounced in isolation (as the citation form /ænd/) or for special emphasis, and English spelling tends to retain letters that do represent phonemes in stem forms in related written forms where they are not pronounced, e.g. <i>different</i> , <i>favourite</i> pronounced / ^l dɪfrənt, ^l feɪvɪt/; cf. contraction, vowel reduction
embedding	Especially with respect to adult literacy, teaching one set of skills (literacy) through the medium of another discipline
emergent literacy	Development of the association with print (and digital texts) with meaning before the start of conventional literacy learning
emphasis	See stress
encode	In spelling, to change oral language into graphemes
Entry level	See the essay on Proficiency levels and scales
environmental print	Print and other graphic symbols that are found in the physical environment, e.g. street signs, advertising posters, etc.
etymology	(Study of the) history and development of the structures and meanings of words
exclamation mark	See sentence
eye-rhymes	In English, words which have similarly-spelt endings but do not rhyme, e.g. <i>couch/touch</i>
eye-voice span	The distance by which the eye is ahead of the voice in oral reading, as shown by the number of words which can still be spoken if the text is suddenly covered
F	

family literacy	Term coined in 1983 to mean, originally, ‘literacy practices that occur in families’; it swiftly came to mean research on such practices, and then programmes designed to promote them – which became, and remains, the predominant and virtually sole meaning. Therefore family literacy programmes can now be defined as ‘programmes to teach literacy that acknowledge and make use of learners’ family relationships and engagement in family literacy practices’. The full German equivalent is ‘Familienorientierte Schriftsprachförderung’; hence the English term is often used in German texts instead
first language	See mother tongue
flashcard	A teaching tool of cards on which letters, words, etc., are written and displayed briefly for learners to recognise and name
fluency (oral reading)	Freedom from word–identification problems that might hinder comprehension in silent reading or expression of ideas in oral reading
foreign language	See second language
font	Any of a number of styles for printing words, e.g. Calibri, Times New Roman. Differences in letter forms between fonts may cause confusion for some learners, e.g. a a g g
free writing (US. Freewriting)	Writing that is unrestricted in form, content, style and purpose
full stop (US, period)	See sentence
function word	A word whose main role is to express a grammatical relationship rather than an independent meaning, cf. closed word class, content word
functional literacy	A level of literacy that enables an adult to function effectively as an individual, a member of society and a family, and a citizen and worker
G	
GA (General American pronunciation of English)	The accent of American English which does not have marked regional characteristics (cf. RP)
geminate	In spelling, a doubled consonant letter; in pronunciation, the production of the same speech sound twice in succession
gender	A grammatical category (‘masculine’, ‘feminine’, ‘neuter’, ‘personal’ or ‘impersonal’) in many languages for which articles, nouns, adjectives, pronouns are required to be specifically marked and show agreement; in some languages (e.g. Czech, Russian) also requires modification of past tense forms, and in others (e.g. French, Italian) of past participles in some circumstances. Does not necessarily map onto gender in the biological sense; e.g. the German words for ‘child, girl, young woman’ are all grammatically neuter: das Kind, das Mädchen, das Fräulein
genetická metoda	Method for teaching Czech initiated in 1913 by Josef Kožíšek with

(Czech; literally 'genetic method' but better translated 'developmental method'; akin to 'synthetic phonics')	his primer „Poupata“ („Buds“), used until 1951, revived in 1995. Based on correspondences of single letters with phonemes; does not have a syllabic stage, and delays formal instruction in writing until second half of grade 1; contrast analyticko–syntetická metoda, and cf. analytic phonics, onset and rime, phonics, synthetic phonics, and see the essay on First steps
glue ear	Informal English term for otitis media
grammar	1. The structures of the words, phrases and sentences of a given language, traditionally divided into morphology and syntax; cf. story grammar 2. In English, sometimes used informally to mean correct usage
grapheme (see also digraph, split digraph, trigraph)	A letter or combination of letters that represents an individual phoneme (or sometimes, in various orthographies, a sequence of two phonemes); the smallest contrastive unit in the writing system
grapheme–phoneme translation	Hypothesised cognitive process by which written or printed words are converted into an internal equivalent of speech or hearing based on phonemes and then pronounced (= read aloud). Unlike phonological coding, it is postulated to be non–lexical (= not involving access to the internal dictionary) and, within dual–route theory, to be part of the phonological route to reading aloud; cf. phonological coding in silent reading and see the essay on Dual–route theory
H	
handwriting	Writing done with pen or pencil, rather than using a (real or electronic) keyboard; a particular style of writing, e.g. cursive (joined–up) writing
heavy syllable	Syllable which contains a long vowel phoneme or diphthong and/or ends in a consonant cluster; cf. light syllable, syllable and see also the essay on Regularity and consistency
hiatus	In phonology, the 'gap' between a vowel phoneme at the end of one syllable and another vowel phoneme at the beginning of the next syllable. In reality, there is never a gap – there is always an unavoidable consonant phoneme between the vowels. See the paragraph on Unwritten phonemes in the essay on Regularity and consistency.
holistic	In literacy teaching, a unified approach; see whole language
homograph	In less–than–fully–consistent orthographies, a word with the same spelling as another word but with a different meaning and pronunciation (theoretically impossible in fully consistent orthographies); cf. next two entries
homonym	1) In fully consistent orthographies, a word with the same spelling and pronunciation as another word but with a different meaning; In less–than–fully–consistent orthographies, either 2) a word with the same spelling OR pronunciation as another word but with a different meaning;

	or 3) superordinate term for words which fit the second definition and those in the preceding and following entries. To distinguish them, those with same pronunciation AND spelling may be called 'full homonyms'; cf. diacritic
homophone	In less-than-fully-consistent orthographies, a word with the same pronunciation as another word but with a different meaning and spelling (theoretically impossible in fully consistent orthographies); cf. preceding two entries
hygiene of reading	The study of the physical factors that affect the legibility of texts and may cause reading fatigue, e.g. type size, spacing, line length, print/paper contrast; cf. readability
I	
ICT (skills)	Information and communications technology (and the ability to use it)
illiteracy, illiterate French: analphabétisme, illettrisme, analphabète	Inability, to a greater or lesser extent, to read and write within a culture that is literate; describing someone who is unable to read and write. (Note that nowadays the English terms 'illiteracy' and 'illiterate' tend to be avoided by literacy educators as being patronising oversimplifications.) See also the essay on Concepts of literacy
inconsistent (orthography)	A spelling system in which one phoneme can be represented by several different graphemes and one grapheme can represent several different phonemes. Also see deep orthography, regular(ity) and the essay on Regularity and consistency
initial literacy	The first experience of teaching and learning literacy; usually refers to schoolchildren, but could also apply to adult learners
intonation	See tone and the essay on Regularity and consistency
intervention (scheme)	An educational initiative designed to improve poor skills. In literacy, many such schemes use the same methods as initial teaching, and the terms in this glossary therefore also apply to them
invented spelling	Unconventional spelling which is based not on spelling already known to the writer, but on the writer's knowledge of conventional spelling patterns and/or letter names
IPA (International Phonetic Alphabet)	A standardized system of graphic symbols whereby every single sound of any and every language can be represented by a symbol that provides a consistent one-to-one correspondence
irregular(ity)	1. Word forms which deviate from the standard pattern in a language, e.g. past tenses of English verbs whose written forms do not end in <-ed> 2. Spellings which do not conform to standard phoneme-grapheme correspondences, e.g. Széchényi in Hungarian (<ch> should be <cz>), Vase in German (<V> should be <W>) 3. Of an orthography, containing multiple inconsistent correspondences; especially true of English and French and, to an

	extent, of Danish. See the essay on Regularity and consistency
i.t.a. (Initial Teaching Alphabet)	A supplementary (augmented) English alphabet devised to increase grapheme–phoneme consistency for beginner readers by using additional letters, e.g. ‘æ’ for the phoneme /eɪ/ (name of the letter ‘a’ in English). In use in about 10% of primary schools in Britain in the 1960s; now almost extinct; cf. spelling reform
italics	Typographic term describing letters that slope to the right (e.g. <i>right</i>); used for emphasis, titles of publications, etc.
J	
joined-up writing	See cursive
K	
L	
language experience	Teaching strategy in which students’ oral compositions are transcribed and used as the basis for teaching and learning literacy; cf. dictation, scribing
LDD (learning difficulties and disabilities)	Term that refers to a group of disorders manifested by significant difficulties in the acquisition and use of literacy (and numeracy)
legasthenia German: Legasthenie	See the essay on Dyslexia
legibility	Quality of handwriting or print making it easy to read; cf. hygiene of reading, readability, letter formation
letter	1. Graphic symbol, one of the units of an alphabet, grapheme 2. Type of written or printed communication
letter formation	The strokes, curves, hooks, etc., necessary to form handwritten letters legibly, sometimes (formerly) called penmanship, and in some systems still practised through special exercises. See also handwriting
letter–naming	Defining feature of alphabetic methods
letter–sound correspondences	See correspondences
levels	See the essay on Proficiency levels and scales
lexical	Semantic, to do with meaning; ‘lexical word’ is another way of expressing content word
lexical route	One of two hypothesised cognitive pathways by which written words can be read aloud, the other being the non–lexical or phonological route; cf. grapheme–phoneme translation, and see also the essay on Dual–route theory
lexicon	1. The vocabulary of a language (also called lexis) 2. The hypothesised internal cognitive dictionary; cf. grapheme–phoneme translation, phonological coding, vocabulary; see also the essay on Dual–route theory
light syllable	Syllable which contains a single short vowel phoneme and does not end in a consonant cluster; cf. heavy syllable, syllable and see also

	the essay on Regularity and consistency
literacies	see New Literacies
literacy	1. The ability to read and write within a culture that is literate 2. By extension to other fields of knowledge, a skill or capability, e.g. digital literacy, emotional literacy
literacy practices	All uses of reading and writing, especially considered within cultural context. For adult literacy learners, increased literacy practices may lead to improved achievement
literate	1. Able to read and write 2. Of writing, well-expressed 3. By extension, skilled in another field, see literacy
loanwords	Words introduced – ‘borrowed’ – from one language into another. Some languages (e.g. Icelandic) actively resist borrowing words, even for new items or concepts, preferring to create neologisms from existing native roots; by contrast, English has adopted words from several hundred languages, and Albanian is said to have only about 200 native words
logographic stage	See the essay on Stage theories
logography	Writing system in which symbols represent whole words or morphemes of the spoken language, with little or no reference to its phonology, e.g. the ‘characters’ (logograms, logographs) used in the Chinese languages and their derivatives used within the orthographies of Japanese and (south) Korean
long (vowel)	1. Describing the duration of vowel sounds, shown in IPA by /ɜː/ following the vowel symbol; cf. phoneme duration, short. Not to be confused with diphthong 2. In English-language pedagogy, often used to refer to the ‘letter-name’ pronunciations of the five ‘vowel letters’, i.e. <a, e, i, o, u> as /eɪ, iː, aɪ, əʊ, juː/. Of these, only the name of <e>, / iː/, is a long vowel in the phonetic sense, above. The names of <a, i, o> are diphthongs, and the name of <u> is a sequence of two phonemes
look-and-say	See the essay on First steps
look – (say –) cover – write – check	A strategy for teaching spelling using practice and memory
lower case (letter), minuscule	A letter form that is smaller than, and sometimes of different appearance from, the capital (upper case) form; cf. font
M	
‘magic <e>’	Informal name given in English to a word-final letter ‘e’ which is the second element of a split digraph; cf. silent letter
‘marker’ grapheme	Grapheme which modifies the pronunciation of an adjacent grapheme. See the essay on Regularity and consistency
meaning emphasis	Label for initial teaching approaches which focus (partly or wholly) on linguistic units which are meaningful in themselves, i.e. texts,

	sentences, words; cf. code emphasis, and see also the essay on First steps
metalanguage, metalinguistic awareness	See awareness
méthode globale	<p>La méthode globale (analytique) : Contrairement aux méthodes syllabiques (synthétiques), le déchiffrage n'est plus au centre de l'apprentissage, car on considère que le sens est primordial. On part donc de situations de communication, de textes, de phrases, de mots que les élèves doivent mémoriser et dont ils découvrent les unités plus petites (mots, syllabes, lettres) par un procédé d'hypothèses. La base de cette méthode est la logographie, la mémorisation de l'image et du sens d'un mot. Ici, la correspondance de l'écrit avec l'oral (correspondances graphèmes-phonèmes) n'est pas étudiée de façon méthodique.</p> <p>(Definition supplied by Annette Lafontaine)</p> <p>The global (analytic) method: Unlike (synthetic) methods based on sub-word units, decoding is not central to learning, because meaning is considered fundamental. The starting-point is therefore texts, sentences or words which the pupils must memorise and discover the smaller units of (words, syllables, letters) by a process of inference. The basis of this method is logographic, memorising the appearance and meaning of a word. Thus, the correspondence of writing with speech (grapheme-phoneme correspondences) is not studied systematically.</p> <p>Thus méthode globale is essentially the French equivalent of 'whole language'. Also, despite the alternative label 'analytic', it is quite distinct from analytic phonics.</p> <p>English orthography has also occasionally been described as 'logographic', on the (exaggerated) grounds that the pronunciation of some words can only be ascertained as a whole within a context; this has been used as a justification for sentence methods.</p>
minimal pair	Two words differing in meaning and in one phoneme. See the essay on Regularity and consistency
monoglot, monolingual	Able to speak and understand only one language, cf. bilingual, multilingual, plurilingual
monosyllabic	Of a word, containing only one syllable; of a person, saying very little
morpheme	The smallest unit of grammar, i.e. the smallest meaningful part of a word, not capable of being divided further
morphology	The branch of grammar which analyses the internal structure of words and how they can be analysed into morphemes; cf. syntax
mother tongue/ first language	The first language a person learns to speak and understand
mother tongue	UNESCO has adopted the principle that all children have the right

education	to be educated in their mother tongue. This is partly based on research evidence that children from linguistic minorities who learn to read first in their mother tongue make better progress in the national language when they transfer to it than if they are taught in the national language from the start (Benson, 2004). However, this principle may well conflict with practicality: for example, over 300 languages other than English are spoken by schoolchildren in London (von Ahn <i>et al.</i> , 2010). More practical in many circumstances is the principle that every child should enter school speaking the language of the school (High Level Group report, pp. 24–25), whether or not it is their home or mother tongue. For this, effective preschool provision is the principal precondition. And much of the argument here about young children also applies directly to newly arrived migrants, both older children and adults.
multilingual	Able to speak and understand two or more languages in addition to one's mother tongue. In EU/EC usage, describes a society or country with more than one official and/or widely used language rather than an individual; cf. plurilingual
multimodal approaches	Teaching methods which add (live or recorded) non-linguistic sound and images to speech and text
multisensory approaches	Teaching methods which add movement to speech and text, e.g. VAKT – visual, auditory, kinaesthetic, tactile. Thought to be especially effective for dyslexic learners
N	
naming	See letter-naming, RAN
national language	A language designated as the principal language of a country for cultural, ethnic or political reasons
new literacies, New Literacy Studies	Approach to the study of literacy which argues that more than a set of autonomous (purely mechanical or operational) skills is involved and emphasises the importance of the social, cultural and historical contexts in which literacy is practised
non-oral approaches	See the essay on First steps
non-words, nonsense words, pseudo-words	Invented words which can be pronounced, as they obey the spelling constraints of a language's orthography, but which do not exist within the lexicon of the language; sometimes used as a test of phonics knowledge
number	The grammatical category that expresses such contrasts as singular/plural/dual and requires agreement; not to be confused with everyday uses of the term
O	
onset (and rime)	1. The consonant(s), if any, preceding the vowel of a syllable; onset and rime are constituent parts of a syllable 2. Teaching methods akin to synthetic phonics but focusing on sounding-out and blending these larger units rather than the segmental level of phonemes and graphemes; sometimes

	mislabeled in English as ‘analytic phonics’
opaque orthography	See deep
open (syllable, word)	Of a syllable or a word, ending in a vowel phoneme, not a consonant phoneme; cf. closed syllable, syllable
oracy	Speaking and listening skills. See the essay on Concepts of literacy
oral (reading fluency)	Spoken aloud; oral reading fluency means reading aloud to one or more or more people in a rapid, accurate and expressive way with the momentum unbroken by the need to decode; cf. reading aloud
orthographic stage	See the essay on Stage theories
orthography	Spelling system of a language
otitis media	An inflammation of the middle ear, often accompanied by fluid (effusion) and causing reduced acuity of hearing. May cause delay or difficulties in literacy learning because it most often occurs in children at the crucial age for making phonemic discriminations
P	
paired reading	One of a number of reading partnership or ‘buddy reading’ approaches in which a more proficient reader helps a less proficient one learn
part of speech	In grammar, a more informal/less linguistic way of referring to a word class
pedagogue	In English, an obsolete word for teacher; but in some European educational systems ‘pedagog’ is the title of a specific role distinct from (school) teacher
pedagogy	(Study of) Teaching methods and strategies; cf. andragogy
pencil grip, penhold	Any of the ways in which a writing implement can be held, some more and some less comfortable, some (held to be) more, some less efficient. In English-speaking countries the grip known as the ‘dynamic tripod’ is often advocated as best
penmanship	See handwriting, letter formation
period	See full stop, sentence
phoneme	A distinctive speech sound, that is, one which makes a difference to the meaning of a word
phoneme duration	See the essay on Regularity and consistency
phonemic	(1) Pertaining to phonemes and their study (2) In English, often used to describe regularised spellings of unpredictably spelt words, e.g. <i>elifant</i> for <i>elephant</i>
phonemic awareness	See awareness
phonetic	(1) Pertaining to the science of speech sounds (2) Often misapplied in English when phonemic or phonic is meant
phonetic transcription	A transcription of all distinguishable phonemes in an utterance, using special symbols; cf. IPA
phonetics	The science of speech sounds
phonics	An approach to the teaching of reading and spelling which focuses on letter-sound relationships, i.e. the association of phonemes

	with particular graphemes; cf. analytic phonics, synthetic phonics, and see also the essay on First steps. Adjectival form: phonic
phonogram	See rime
phonology	The study of the sound system, i.e. the way the sounds are organised in a language
phonological awareness	See awareness
phonological coding in silent reading	Hypothesised cognitive process by which written or printed text is converted into an internal equivalent of speech or hearing based on phonemes. May be pre-lexical (occurring before the internal dictionary is accessed) or post-lexical (occurring after and as a result of lexical access). Post-lexical phonological coding is taken to exist <i>a priori</i> , since all fluent readers can name words aloud on sight, and can subjectively 'hear' their sounds if asked just to 'think' them. But whether pre-lexical phonological coding is a necessary or frequent requirement for lexical access and therefore for silent reading with comprehension, or whether it exists at all, has been researched for many years without agreement; cf. grapheme-phoneme translation, and see also the essay on Dual-route theory
phonological core deficit	Hypothesised major cause of most cases of dyslexia; see the essay on Dyslexia
phonological route	One of two hypothesised cognitive pathways by which written words can be read aloud, the other being the lexical route. See the essay on Dual-route theory
phrase	1. (English) A string of words which form a grammatical unit; smaller than a clause and need not contain a verb 2. (French) Sentence
PIAAC (Programme for International Assessment of Adult Competencies)	See the essay on Proficiency levels and scales
PIRLS (Progress in International Reading Literacy Study)	See the essay on Proficiency levels and scales
PISA (Programme for International Student Assessment)	See the essay on Proficiency levels and scales
pitch	The auditory sensation of the height of a sound; cf. tone (second definition) and the section on Tone in the essay on Regularity and consistency
plurilingual	In EU/EC usage, describes an individual who can use more one language, even though not necessarily fluent in them; cf. multilingual
polyglot	Another word for multilingual

polysyllabic	Containing more than one syllable
pre-alphabetic stage	See the essay on Stage theories
Pre-entry level	See the essay on Proficiency levels and scales
prefix	A grammatical element attached to the beginning of a word
primer	Initial reading book (term now old-fashioned in English); cf. basal, reading scheme
print writing	A form of handwriting in which letters are not joined. Contrast cursive writing, block capitals. This meaning is to be distinguished from more general meanings of 'print' referring to all forms of language on paper
proficiency levels	See the essay on Proficiency levels and scales
proofreading	Careful reading of written text in order to correct errors
pronunciation	The way speech sounds of a language are spoken, e.g. RP (Received Pronunciation)
pseudohomophone	Non-word which, if pronounced according to regular grapheme-phoneme correspondences, would sound like a real word. Possible only in orthographies (such as English, French) with multiple spellings for particular phonemes; impossible to construct in fully consistent orthographies
pseudo-words	See non-words
punctuation	The use of a set of graphic marks in written text to separate sentences, phrases, etc. and generally clarify meaning; see sentence and notes there
pure vowel	A vowel phoneme that consists of only one vowel sound. May be long or short; cf. diphthong, phoneme duration
Q	
question mark	See sentence
R	
RAN (rapid automatized naming)	Ability to name strings of words (read them aloud) at speed without hesitation or error. Often used as a measure of fluency
rate (of reading)	See reading rate
readability (formulae)	How easy text is to read with understanding; objective methods of estimating the difficulty level of reading materials
reading	1. See reading aloud 2. Creating meaning from text
reading aloud	Vocalising a text audibly; cf. eye-voice span, subvocalisation. Thought to have been more frequent than silent reading for millennia, until perhaps the early modern period
reading circles	Groups of people who gather to read and discuss books (often novels) communally. Also known as 'book groups'
reading comprehension	Person's understanding/accurate interpretation of what is read
reading difficulty	Reading achievement that is significantly below both chronological age and expectation for an individual's reading potential

reading for pleasure	Voluntary reading for personal satisfaction
reading rate	How fast a person reads, whether aloud or silently; cf. fluency
reading readiness	Readiness/preparedness to profit from beginning reading instruction
reading scheme	(A plan to facilitate reading development, mainly in children, based on) graded reading materials/books; cf. basal, primer
reading skills/ subskills	Set of abilities thought by some (disputed by others) to contribute to fluent reading and able to be trained separately
real books	Authentic reading materials, i.e. not part of a reading scheme; cf. basal
rebus	Use of picture or symbol that suggests a word or syllable
reciprocal teaching	Approach where learners are taught to assume the roles of tutor and student, often in turns, as a way of supporting their learning, e.g. of comprehension strategies. Also known as 'peer tutoring' and 'cooperative learning'
regular(ity)	1. In a linguistic sense, conforming to patterns or rules of a language 2. Concerning orthographies, having a consistent spelling (grapheme) for each phoneme, and a consistent pronunciation for each grapheme. See the essay on Regularity and consistency
remedial, remediation	In terms of literacy teaching, giving additional help to a student who performs below expectations after regular instruction
reversal	Misreading or miswriting of letters or words by the rotation of a graphic symbol or an error in the direction of word identification
rhyme	Similar or identical recurring final parts of words; in English, running from the vowel of the only, or the last stressed, syllable to the end of the word; cf. eye-rhyme and see the essay on First steps
rime, phonogram	The vowel and any following consonants of a written syllable (sometimes spelt as 'rhyme'); see the essay on First steps
root	See stem
RP (Received Pronunciation of English)	Regionally neutral prestige accent of British English, sometimes known as 'BBC/Queen's English'. Not to be confused with a dialect of English (although it is usually associated with the dialect known as Standard English)
S	
scaffolding	Providing a learner with support, which is gradually reduced as skills and confidence grow. In supporting writing, scaffolding can take the form of a writing frame
schwa (vowel)	Name (derived from Hebrew) of a particular vowel phoneme (IPA symbol: /ə/) which, in English, occurs only in unstressed syllables (with very few exceptions); in English orthography can be represented by a large range of graphemes; cf. short vowel, whole language
scribing	Writing down text dictated by another person, in order to help that

	learner with the early stages of composition. Defining feature of the language experience approach; cf. dictation
script	1. Set of graphic forms used in a writing system 2. Text used to guide speech, prompt for reading aloud; often used in connection with drama (script of a play)
second language/ additional language	In English, these terms usually refer to a language of wider communication (such as English, French, Mandarin, Portuguese, Russian) which many non-native speakers need to learn and be able to use fluently for educational and employment purposes. It contrasts both with mother tongue/first language, which is the language people speak 'natively' from infancy, and with foreign language, which refers to one which is learnt for cultural and/or touristic purposes, often to a less fluent degree than a second language
segmental level	Phoneme and grapheme level of analysis of spoken and written words respectively and their correspondences
segmenting	Splitting up spoken words into their constituent phonemes, or written words into their constituent graphemes. One of the defining features of synthetic phonics; cf. blending
semantic	See lexical
semi-literate	Literate to an extent; not fully literate
sentence	Grammatical unit consisting of one or more clauses. Has internal structure and is complete in itself. In English, often said to 'Begin with a capital letter and end with a full stop (US: period)'. Can also end with a question mark (?) or exclamation mark (!) - in Spanish, these marks must also appear inverted at the beginning of the relevant sentence
sentence boundary	In writing, indicated by the space between conventional closing and opening punctuation marks (see sentence). In speech, less easily distinguished, but may be marked by a pause
sentence methods	See the essay on First steps
shallow (orthography, spelling)	A writing system where the correspondences are mainly one-to-one, i.e. where each phoneme is represented by one grapheme and each grapheme represents one phoneme. Also known as a transparent system; cf. deep
short vowel	1. Describing the duration of the vowel sound; cf. long, phoneme duration 2. In English-speaking pedagogy, often used to refer to the 'short' pronunciations of the five 'vowel letters', i.e. <a, e, i, o, u> as /æ, e, ɪ, ɒ, ʌ/, thus overlooking the other two phonetically short vowel phonemes /ʊ, ə/ (the latter being the schwa vowel) present in most accents of English; also overlooks the fact that /ɒ/ (as in the RP pronunciation of 'on') does not occur in the GA accent
sight word	A word that is immediately recognised as a whole and does not require further analysis or decoding

silent letter	A (misleading) description of a letter used in the spelling of a word but not directly representing any sound in the corresponding position in that word, e.g. (English) 'w' in 'write' (more accurately described as phoneme /r/ represented by grapheme <wr>) or (French) 't' in 'sanglot' (also perhaps more accurately described as phoneme /o/ represented by grapheme <ot>); cf. 'magic <e>', split digraph
silent reading	Reading without overt vocalisation, and (by implication) with comprehension; cf. subvocalisation and see the essay on First steps
sounding-out	In reading, saying the sounds represented by the graphemes of a word in sequence before blending them to produce a word-sound and identify the word; in spelling, separating the phonemes of a spoken word in order to choose and write down the corresponding graphemes. One of the defining features of synthetic phonics; cf. analytic phonics, phonics, whole language
special education	Provision for children whose disabilities or learning difficulties make it difficult or impossible for them to access schooling as effectively as others. May be provided in separate establishments (e.g. schools for the deaf and partially hearing, or for the blind/visually impaired), or in special classrooms within mainstream schools, or by inclusion (with support) in ordinary classes
speech and language therapy	The study and correction of speech, language and voice disorders
speed (of reading)	See reading rate. Not to be confused with speed reading
speed reading	Reading that is faster than the normal rate of reading, sometimes achieved through special training
spelling	<ol style="list-style-type: none"> 1. Process of representing a language by means of a writing system (orthography) 2. The way a word is written on a particular occasion, whether correct or not 3. Saying the letters of a word out loud in order
spelling reform	Change to the standard or official orthography of a language, e.g. Bulgarian (1945), Danish (1948), Dutch/Flemish (1946/47, 1996, 2006), French (1990, resisted but from 2004 gradually coming into use), German (1901; 1944, failed; 1996, resisted, modified in 2004 and 2006, now apparently working), Greek (1982), Latvian (1946), Norwegian (1907, 1917, 1938, 1941, 1981, 2005), Portuguese (1990, so far implemented only in Portugal), Romanian (1904, 1953, 1965, 1993), Russian (1918), Spanish (2010, minimally), Turkish (1928). In English, Noah Webster's initially radical proposals for US spelling were eventually whittled down to the few current differences from British spelling, Dewey's attempt in the early 1900s to introduce a few more changes in the US were unsuccessful, and all other initiatives have come to nothing, even though English spelling is the most inconsistent in the world (latest

	estimate is that it is 77% regular at the phoneme–grapheme level); cf. i.t.a.
SpLD (specific learning difficulty)	See the essay on Dyslexia
split digraph (see also digraph, trigraph)	In English orthography, any of the pairs of letters <a.e, e.e, i.e, o.e, u.e y.e> representing a single phoneme (or sometimes a sequence of two phonemes) but separated by one (or occasionally two) letters
stage theories	See the essay on this
stem	Basic part of a word that carries the main meaning and cannot be analysed further; also called root, and see morpheme
stigma	Mark or sign of disgrace; often used in describing the low esteem in which people with poor literacy are held
story grammar	In text analysis, a formal system for analysing the relationships among episodes in a story and for formulating rules for generating new stories; applicable even to children’s early written attempts
stress French: accent Italian: accento	Degree of force with which a syllable is uttered; marked by accents (i.e. diacritics) in some orthographies, e.g. throughout in modern Greek, only where irregular (= not predictable by rule from the written forms of words) in Spanish, for special reasons in Italian, overlapping with tone markings in Lithuanian. Sometimes also known in English as accent. Contrast emphasis, and see the section on stress in the essay on Regularity and consistency
sub-syllabic units	See onset, rime and the essay on First steps
subvocalisation	Small movements of the lips, tongue and larynx during silent reading, less obvious than mouthing or mumbling; usually detectable only by electrical apparatus but apparently always present to some extent. Sometimes thought to impede fluent reading with comprehension if excessive
suffix	A grammatical element attached to the end of a word
syllabic methods	See analyticko–syntetická metoda, genetická metoda and the essay on First steps
syllable	1. Element of speech consisting of a vowel phoneme with or without an accompanying (preceding and/or following) consonant(s); acts as a unit of rhythm; cf. closed, light syllable, heavy syllable, open, stress and see the essay on Regularity and consistency 2. Difficult to define for written words, but essential to the analysis of words for onset–and–rime methods, which therefore concentrate (initially) on one–syllable words
symbol–sound correspondences	See correspondences
syntax	The branch of grammar which studies sentence structure and word order; cf. morphology

synthetic phonics Czech: genetická metoda	An approach to the teaching of reading whereby learners are taught to sound out the letters (graphemes) of written words, then blend the resulting phonemes into word-sounds, and thus identify and understand the words. For spelling the process is reversed: learners are taught to sound out the phonemes of words they wish to write, and then write down the corresponding graphemes; cf. phonics, analytic phonics, and see the essay on First steps
T	
text	Written communication sequence; as a unit of analysis, can be contrasted with sentence and word; cf. utterance
tone	(1) Sequence of pitch levels in an utterance, also called intonation (2) In some languages (e.g. Croatian, classical Greek, Latvian, Lithuanian, Mandarin, Norwegian, Slovenian, mainland Swedish, which are therefore called tone (or tonal) languages), change (or not) of pitch on vowel sounds indicating differences in meanings of words and therefore constituting different phonemes. Sometimes marked in orthographies (e.g. the acute, grave and circumflex accents of classical Greek), but the only current European orthographies which mark it are Lithuanian and (possibly) Slovenian (Croatian, Latvian, Norwegian and Swedish do not); cf. stress and see the section on Tone in the essay on Regularity and consistency. Neither meaning is to be confused with 'tone of voice' (e.g. friendly, threatening, anxious)
tone group	Nearest equivalent in speech to the sentence in writing
τόνος (Greek)	See accent
transparent orthography	See shallow
trigraph (see also digraph, split digraph)	A sequence of three letters representing a single phoneme (or sometimes, in English orthography, a sequence of two phonemes)
two-phoneme grapheme	Grapheme which represents a sequence of two phonemes rather than one, e.g. <x> spelling /ks/. See the essay on Regularity and consistency
U	
umlaut German: Umlaut	A type of diacritic, represented by two dots above a vowel letter and indicating a change in the vowel sound (for another meaning of the German word, see boustrophedon); cf. diaeresis
upper case (letter)	Form of a letter that is usually larger and often a different shape from its lower case equivalent. (The term is derived from printing and location of the drawers or 'cases' in which the letters were held.) See capital letter
utterance	Oral production of a meaningful sequence of words; cf. text
V	

vocabulary	<p>1. The words of a language; cf. lexicon</p> <p>2. In the literacy context, the number of words understood receptively and/or used productively by an individual; in young children, the richness of their vocabulary is a strong predictor of the ease with which they will learn to read and write</p>
vocalic (intervocalic)	Pertaining to a vowel (describing a consonant between two vowels)
voice	<p>1. In phonetics, the auditory result of vocal cord vibration, producing voiced sounds, e.g. /b, d, g/; cf. voiceless sounds /p, t, k/; also called voicing</p> <p>2. In grammar, the distinction between active and passive (in some languages, e.g. classical Greek, Icelandic and Swedish, also 'middle'); in some languages the passive voice requires agreement between subject and past participle.</p> <p>Both meanings are distinct from the everyday meaning of 'an individual's characteristic speech sound'</p>
vowel	<p>1. A speech sound (phoneme) made with no closure or friction in the vocal tract, cf. consonant</p> <p>2. See vowel letter</p>
vowel harmony	The requirement that all the vowel phonemes in individual words belong to one or other of two particular sets of phonemes; see the essay on Regularity and consistency
vowel letter	In English usage, mainly defined as the letters <a, e, i, o, u>, and sometimes <y>, which has both vocalic and consonantal pronunciations; this overlooks the fact that in English <i> and <u> also have consonantal pronunciations, e.g. in <i>onion, language</i> . In other orthographies other letters may be vowel letters, e.g. <w> in Welsh (representing /u/)
vowel reduction	Tendency in some languages for vowels which have a full pronunciation when stressed or word-final to become less differentiated when unstressed, e.g. the letters <o> in English <i>photo</i> are both /əʊ/ in that stem form, /əʊ, ə/ in <i>photograph</i> , /ə, ɒ/ in <i>photographer</i> (in the RP accent), and the first <e> in <i>effect</i> is usually pronounced /ɪ/. In German many unstressed word-final vowels are written <e> but pronounced /ə/. In Russian вода /va'da/ 'water' the /o/ is reduced to /a/ – but re-surfaces as /o/ in водка /'vodka/; cf. contraction, elision
W	
weak (form, syllable)	The unstressed form of a word or syllable in connected speech. In grammar, an old-fashioned term ('regular' is now preferred) describing an English verb that forms its past tense by adding an inflexion to form its past tense and participle, rather than by a change of the stem vowel ('strong' verbs, now preferably called 'irregular')
whole language	Initial literacy teaching approach, mainly practised in English-speaking countries, predicated on the notion that all language

	systems are inter-related and should therefore be taught holistically and not separately. In particular, phonics is taught (if at all) only in context and when thought to be needed, partly on the grounds that attempts to sound out many consonant phonemes produce syllables ending in a schwa vowel, thus hindering blending
word	The smallest unit of grammar that can stand alone as an utterance; consists of one or more morphemes; in written language is separated by spaces or punctuation either side
word-by-word reading	A non-fluent type of reading with slow rate of word identification and poor comprehension
word class	Set of words defined by grammatical characteristics, i.e. members of the same class, e.g. nouns, adjectives, share the same possibilities of occurrence in sentence positions. Informally known as a part of speech
writing	1. Creating meaning in text 2. The product of that process
writing approach to reading	Approach that encourages children to write in order to help them understand that words are written-down speech; stresses meaning over grapheme-phoneme correspondences; cf. scribing
writing frame	A text with some key features provided, e.g. beginnings of sentences, as a basic structure for the student to learn from and build on; a form of scaffolding
X	
Y	
young fluent reader	A young reader whose performance exceeds normal expectation with respect to age; cf. early reader
Z	