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What is Morphological Awareness and How Can You Develop it?

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Abstract

Building on Jack Richards' interest in vocabulary, this paper looks at the importance of morphology (how words are formed) in language learning and teaching. It describes why knowledge of morphology is important, and how it affects vocabulary learning. It provides clear guidelines on what word parts to focus on, how much time to spend on word parts and what a teacher (and learners) should do about word parts. Morphological knowledge involving derivational affixes becomes particularly important when learners know the first 2000-3000 words of English. One of the major activities for developing morphological awareness is cutting words into parts and relating the meanings of the parts to the meaning of the whole word. Teachers should help learners develop morphological awareness, train learners in word part strategies, and help learners to learn frequent word parts. The paper includes activities to achieve these goals in the classroom, as well as links that provide material for classroom use.

Keywords: *Vocabulary, Morphology, Affix, Flemma*

Introduction

Jack Richards' early publications, including his doctoral thesis, had a strong focus on vocabulary (Richards, 1970, 1974, 1976), and this focus included consideration of what is involved in knowing a word. Morphological awareness is one of the aspects of word knowledge and so this paper builds on one of his many areas of research.

Recent research on Japanese learners' knowledge of English word families has shown that there is a pressing need to include instruction in morphological awareness in the language-focused learning strand of language courses (Brown et al., 2022).

What is Morphological Awareness?

Morphological awareness involves conscious knowledge of the following ideas.

1 English and many other languages, including Japanese, have words that are made up of meaningful parts and these parts systematically contribute to the meaning of words.

2 Knowing the meanings of the parts can help us to understand the meanings of words and to learn new words.

3 Like other aspects of language such as vocabulary, grammatical features, and collocations, word parts differ in their frequency of occurrence. Word parts also differ in productivity, regularity of form and regularity of meaning. It is worth learning the most frequent, regular and productive items first.

4 The word parts of English are affected by the history of English.

Developing morphological awareness involves deliberately learning the following things (Apel, 2014).

1 Cumulatively learning the spoken and written forms and meanings of the most useful prefixes, suffixes and stems.

2 Learning to recognize these forms in words.

3 Learning to see how the meanings of the parts of the word contribute to the meaning of the whole.

4 Learning to recognize word parts even though there have been some changes to the forms of the parts occurring together.

5 Learning that words make up word families that have a common stem and share a common meaning as a part of their full meaning.

6 Learning the word part strategy for remembering complex words.

Research on Morphological Awareness

Morphological awareness is distinguished from morphological processing in that morphological awareness involves explicit knowledge while morphological processing involves implicit knowledge (Nagy et al., 2014). There is no shortage of evidence that morphological awareness makes positive contributions to spelling (Levesque et al., 2021), vocabulary knowledge (Chen, 2021), and reading comprehension (Görge et al., 2021) in both the first language and in a second or foreign language. There is also persistent evidence that morphological awareness in one language can positively affect morphological awareness in another language (Ke et al., 2021). This influence is particularly strong if the first language and foreign language share a similar type of morphology (Wu & Juffs, 2022).

These benefits from morphological awareness come from the increased attention that is given to words containing recognizable familiar features and from the quality of attention from analysis that is given to complex words. The transfer of morphological awareness from one language to another affects the learning burden of words, with the greater amount of similarity making learning easier.

However, short-term intervention studies with young native speakers do not show striking gains on measures of literacy (Nagy et al., 2014), largely because morphological knowledge is only one

of many components contributing to literacy, and because longer-term interventions are needed to help morphological awareness influence morphological processing. The goal of this paper is to suggest a syllabus and provide materials for such an intervention.

How Does Morphological Awareness Help Vocabulary Learning?

From a vocabulary learning perspective, morphological awareness increases the opportunity for repetition because the occurrence of any family member becomes a repetition for the whole word family. This means that instead of having to rely on only repetitions of exactly the same form or inflected forms of the same form to help learning, the occurrence of any family member that contains a recognizable stem can be a meaningful repetition of the word family. It is possible to quantify these opportunities. Knowing the inflectional affixes moves the size of a word family from a single word (Bauer & Nation Level 1) to around two or three members. When derivational affixes are included, the most frequent 1000 word families in the Level 6 BNC/COCA lists average 6.8 members per family, the most frequent 2nd 1000 average 6.4 members per family with a gradual drop for each 1000 word families, with the 10th 1000 averaging 3 members per family and the 20th 1000 averaging just under 2 members per family. If instead of family size, we look at frequency within connected text, around 22% of the words in a text are likely to be inflected forms and around 13% are likely to be derived forms. If we consider that close to 50% of the tokens in a text are function words which are unlikely to contain affixes or are irregular forms, then morphological awareness has a major effect on the repetition of content words (nouns, verbs, adjectives and adverbs) and thus the opportunity for learning them.

The occurrence of family members not only adds to repetitions but also affects the quality of those repetitions by providing varied meetings. Varied meetings of a word, that is meeting the same word in different forms, or in different contexts, or with different collocates or referents, provide better quality opportunities for learning than verbatim repetition.

Morphological awareness also helps in deliberately remembering unknown complex words if the meaning of the new word can be related to the meanings of its known parts. Deliberately applying this relationship is the essence of the word part strategy (Nation, 2022, Chapter 10).

Research with native-speakers shows that the most easily decomposed words are those where the stem is more frequent than the derived form. On the other hand, complex words that are more frequent than their stems (*especially, probably, government, conversation, situation, education, computer, dirty, teacher*) are not treated by native-speakers as being complex words. It is not absolute frequency that affects this but the relative frequency of the derived form and stem (Hay, 2001). This suggests that when teaching word parts, teachers may need to direct learners' attention to the stem of the word rather than assume it is recognized. This is particularly necessary for prefixed words (*insane*) and is also true for words with suffixes.

What Word Parts Are Worth Learning?

The Bauer & Nation (1993) list of affix levels (See Table 1 and Appendix 1) is based on the criteria of frequency (Does the affix occur in a lot of different words?), productivity (Is the affix still used

to make new family members or words), and regularity of form and meaning (Are there changes to the spelling or meaning of the parts in the complex word?).

Table 1

Summary of the Bauer & Nation (1993) Levels

Level 1

A different form is a different word. Capitalization is ignored.

Level 2

Regularly inflected words are part of the same family. The inflectional categories are - plural; third person singular present tense; past tense; past participle; -ing; comparative; superlative; possessive.

Level 3

-able, -er, -ish, -less, -like, -ly, -ness, -th, -y, non-, un-, all with restricted uses.

Level 4

-al, -ation, -ess, -ful, -ism, -ist, -ity, -ize, -ment, -ous, in-, all with restricted uses.

Level 5

-age (leakage), -al (arrival), -ally (idiotically), -an (American), -ance (clearance), -ant (consultant), -ary (revolutionary), -atory (confirmatory), -dom (kingdom; officialdom), -eer (black marketeer), -en (wooden), -en (widen), -ence (emergence), -ent (absorbent), -ery (bakery; trickery), -ese (Japanese; officialese), -esque (picturesque), -ette (usherette; roomette), -hood (childhood), -i (Israeli), -ian (phonetician; Johnsonian), -ite (Trotskyite; also chemical meaning), -let (coverlet), -ling (duckling), -ly (brotherly), -most (topmost), -ory (contradictory), -ship (studentship), -ward (homeward), -ways (crossways), -wise (endwise; discussion-wise), anti- (anti-inflation), ante- (anteroom), arch- (archbishop), bi- (biplane), circum- (circumnavigate), counter- (counter-attack), en- (encage; enslave), ex- (ex-president), fore- (forename), hyper- (hyperactive), inter- (inter-African, interweave), mid- (mid-week), mis- (misfit), neo- (neo-colonialism), post- (post-date), pro- (pro-British), semi- (semi-automatic), sub- (subclassify; subterranean), un- (untie; unburden).

Level 6

-ible, -ee, -ic, -ify, -ion, -ition, -ive, -th, -y, pre-, re-.

Level 7

Classical roots and affixes

The three appendixes to this article list what is to be learned (Appendix 1), material for learning (Appendix 2), and material for practice and testing (Appendix 3). The material is all ready for teachers and learners to use. In Appendix 2, most suffixes have not been listed for learning on flash cards because they mainly indicate part of speech. It is probably enough to get learners to look through the lists in Appendix 1 and to practice analyzing the words in Appendix 3. Learners should be able to recognise these suffixes in a complex word, and should be able to isolate the stem they are attached to. Learners need not recall what part of speech they indicate, as the context of the word will provide that information. The main focus should be on the receptive understanding of affixes.

A small number of affixes, however, can also be focused on for productive use (see Bauer & Nation, 2020, Chapter 19). These include mostly affixes at Level 3 (-er, -able, -ly, -ish, -un, -ness), along with -ation on verbs ending in -ify or -ize to make nouns.

When Should the Various Levels of Affixes be Studied?

Level 3 affixes need to be studied when learners know at least the most frequent 1000 lemmas (the base form of a word plus associated inflections, e.g. jump, jumps, jumping, jumped, etc.) of English. Level 4 affixes need to be studied when learners know at least the 2000 to 3000 most frequent words (Ur, 2022). Level 5 affixes and beyond should be learned when learners are well into learning the mid-frequency words (Nation, 2022 Chapter 1), with at least a knowledge of the 4000 most frequent word families.

Ur (2022) looked at the return for learning affixes and concluded that probably only a small number of prefixes and suffixes are worth teaching in courses for intermediate classes. She also concluded that knowledge of the meanings of most affixes would not help learners understand the words of which they form a part. These conclusions are true for the data she looked at, but she greatly underestimates the value of learning the small number of most useful affixes (Levels 3 and 4 of Bauer & Nation, which contain 22 derivational affixes), because she only examined the 5000 most frequent lemmas. A major reason for learning prefixes and suffixes is to increase the size of word families. The use of lemmas as the word family size and looking only at 5000 lemmas greatly limited the number of affixed words she could find. It also meant that the least decomposable affixed words made up a sizeable proportion of the few affixed words she found. This was because the most frequent affixed words, especially those such as *business*, *comfortable*, *usual* and *various*, tend to take on a life of their own and become less decomposable (Hay, 2001). In the most frequent 10,000 Level 6 word families, there are plenty of decomposable occurrences of affixes from Levels 3 and 4 of Bauer and Nation (see Appendix 1 for examples). *-ness*, for example, which Ur does not consider a useful suffix, occurred in over 590 word families in the first 10,000 word families. Similarly, there are around 500 families containing *-ment*.

Ur is correct that there is only a relatively small number of affixes worth learning, but she greatly underestimates their value for learners who are beginning to move into the upper intermediate level and beyond (In the CEFR levels, we could classify A as Elementary (the 1000 most frequent lemmas), B as Intermediate (the most frequent 4000 Level 3 word families), and C as Advanced (5000 and beyond Level 6 word families).

How Can Teachers Help Learners Develop Morphological Awareness?

Table 2 contains a list of activities that can be used to develop morphological awareness. It focuses on receptive knowledge in the belief that receptive morphological awareness can develop into productive awareness as learners gain control of the productive skills of speaking and writing. Each activity is described in more detail immediately after Table 2.

Table 2*A Range of Activities to Develop Morphological Awareness*

Aspects of morphological awareness	Activities
Knowledge of the form and meaning of word parts	Studying affixes and words containing them (Appendix 1) Receptive recall using flash cards (Appendix 2)
Recognizing parts in words	Cutting words into known parts (Appendix 3)
Seeing how the meanings of the parts relate to the meaning of the whole word	Tagging the parts of a given meaning Explaining how two words are related to each other
Recognizing word parts that change their spelling	Writing the full form when seeing the affix and stem Writing the separate stem and affix when seeing the whole word
Recognizing the members of a family and their form and meaning connections	Sorting words into families Recalling family members
Gaining control of the word part strategy	Applying the strategy to particular words Explaining to a partner the steps and their application to a particular word

The activities are designed to be as close as possible to what learners need to do to make use of morphological awareness, so they do not include grid-filling activities, blank-filling activities and nonsense word stems.

Studying the affixes and words in lists (see Appendix 1) involves looking at the lists which contain several example words for each affix, and noting the stem form and the affix in each example. It is useful to do this kind of study before practising breaking words into parts (Appendix 3).

Flash cards involve the rote learning of affixes and their meanings using repeated spaced retrieval. With hard-copy flash cards, the affix is on one side and its meaning on the other. With electronic flash cards there is a useful delay between seeing the affix and the appearance of its meaning. See Appendix 2 for graded lists of affixes and stems to learn.

Learning the spelling rules (for example, *y* becomes *i*) involves joining a stem and affix (*happy* + *-ness* = ?) and separating an affix and stem (*happiness* = ? + ?). Other very common rules include doubling of consonants (*swim-swimming*), and the deletion of final silent *e* before a suffix beginning with a vowel (*come-coming*) (see Bauer & Nation (2020) Chapter 3).

Cutting words into parts involves breaking a whole word into affixes and stem *un/happi/ness*. See Appendix 3 for ready-made lists. When doing this, learners should check that the remaining stem is a word or word part that makes sense to them. Although such words have largely been avoided in Appendix 3, at advanced levels students will come across words where there is some residue. For example, *drama-t-ic*, *witti-c-ism*, *sens-u-al*, *cell-ul-ar*, *pag-in-ation* have extra non-meaningful elements between the stem and the affix. Some of these extra elements belong with the stem, some with the affix. Students may need to recognise that these occur. In addition, in words like *explanatory* or *clarify*, a little effort may be needed to recognise that the stems are *explain* and *clear*.

Tagging the parts of a given meaning involves showing how the meaning contains the meaning of the parts. Something *unknowable* is not able to be known. Arrows can be drawn from the parts

of the meaning to the affixes and stem. Cutting words into parts and tagging the parts can also be done with words that contain a bound stem which is not a word in its own right. Something *invisible* is not able to be seen.

Explaining how two words are related to each other involves finding the shared part and showing how the meaning of that part occurs in both words. For example, *vision* and *visible* both share the stem *-vis-* which means “to see”.

Recognizing the members of a word family involves being able to find the stem of a complex word and to work out whether the free stem and the stem in the complex word share the same meaning. It also involves being able to sort word forms into word families.

The word part strategy (Nation, 2022, Chapter 10) involves the steps of (1) breaking a word into parts, and (2) relating the meanings of the word parts to the meaning of the word. Note that the strategy does not involve guessing the meaning of the word by using the meaning of the parts. To use the strategy, the learners need to know the meaning of the word by guessing from context or looking it up, and they already need to know the meaning of the parts. The strategy is simply a mnemonic technique to make the form and meaning of the previously unfamiliar word stick in the memory.

It is worth developing morphological awareness for advanced learners beyond Level 6 of Bauer & Nation to include words with bound stems (Wei & Nation, 2013) because this knowledge can help as a mnemonic in remembering many new words. Around 2000 of the 8000 words from the 3rd to 10th 1000 (8000 word families) share common stems with words from the most frequent 2000 high-frequency word families, for example, *inspect* and *spectator*. Wei & Nation (2013) include a list of the 25 most frequent stems and the words containing them. Here is an example using the most frequent stem *-spect-*.

Table 3

An Example of a Word Stem and Related Words

The word stem, its meaning, a high frequency word containing it, and an example of its connection to an unfamiliar word	Mid-frequency words containing the word stem
<p>- spec(t)-, -spic-, -scope- = “look” as in <i>respect</i> “to look upon sb with admiration”.</p> <p>A <i>perspective</i> is a particular way of <i>looking</i> at things.</p>	<p>aspect, inspect, prospect, suspect, spectacle, speculate, perspective, spectrum, respective, spectacular, retrospect, spectator, inspectorate, spectre, specify, specimen, despicable, conspicuous, microscope, kaleidoscope, telescope, stethoscope, sceptic, spy</p>

When using the word part strategy with bound stems, the meaning of the word may have to be reworded to include the meaning of the parts. For example, when using the strategy with the word *composition*, the meaning of *composition* may need to be expressed as “putting the parts together to make a piece of writing, a piece of music or a painting” so that “put” and “together” are included in the definition. Wei & Nation (2013) present lots of examples of this.

Morphological awareness involves deliberate attention and deliberate learning, so it fits into the language-focused learning strand of a course. As well as having its own slot in the language-focused learning strand, morphological awareness can also be developed as a part of intensive reading. Around 60% of the vocabulary of English comes from French, Latin or Greek, and these languages make use of word parts. There is therefore plenty of opportunity to draw on the skills developed through morphological awareness when learning and using English.

Developing morphological awareness has to share the time in the language-focused learning strand with other deliberate learning activities such as intensive reading, learning vocabulary with flash cards, training in language strategies and the principles of learning, memorization of sentences and dialogues, pronunciation, spelling, and feedback on writing. As a result, not a lot of time can be spent on morphological awareness, and this is likely to be less than 2% of the total course time. This time thus needs to be well spent, focusing on the essential aspects of morphological awareness (see Table 2), focusing on the most useful word parts, and providing enough repetition to make sure that what is studied is learned.

Giving attention to word parts during intensive reading can be part of a general word focus procedure which involves putting words from the text on the whiteboard while working through the text, and then coming back to them to practice their pronunciation, to consider their spelling, to break them into parts, to recall other members of the word family, to look at their collocates, and to put them in different sentence contexts.

The Barriers to the Development of Morphological Awareness

The greatest barriers to the development of morphological awareness are the lack of systematic attention to word parts in course books, and the small amount of attention given to them in teacher training (Dang & Li, forthcoming). There has been a long interest in the use of word part knowledge in language learning, but this interest is usually not realized in practice. Ur's (2022) study suggests one of the reasons for this, namely that word part knowledge involving stems and derivational affixes is most relevant for high intermediate and advanced learners. That is, learners with a vocabulary size beyond the 2000-3000 high-frequency words of English. For these learners, we know which word parts are the most useful to learn (see Table 1 above), we know the activities that can help learn these word parts, and we know what activities will help learners make the best use of word parts (see Table 2). Teachers now need to put this knowledge to use.

Conclusions

There are good reasons for giving a small amount of sustained, deliberate and regular attention to word parts, especially for learners who already know the most useful words of English. This attention should systematically focus on the most useful affixes (those that are regular, frequent and productive) and should involve developing awareness of word families and developing skill in using the word part strategy for vocabulary learning. Besides the deliberate learning of some affixes and stems, the most effective activity is likely to be breaking complex words into parts and seeing how the meanings of the parts contributes to the meaning of the whole word. This article

has appendices of ready-made material at several levels that teachers and learners can use for this purpose.

The number of word parts to be learned is relatively small and needs to be spread over several years of language learning. Because of this, the time involved in giving attention to word parts is not great at any particular stage of language development. This attention however will be well repaid by the positive contribution this attention makes to reading comprehension and vocabulary growth.

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Appendix 1: A Graded List of Affixes and Words Containing Them

The words containing the derivational affixes in this appendix are from the most frequent 10,000 word families of the BNC/COCA lists, using frequencies in a 15 million token corpus. The italicised words are in 1st 3000 of the BNC/COCA lists. The following are not complete lists but include the most frequent items plus other words for word part analysis activities. For more detailed information on each of these affixes, see Bauer & Nation (1993) and Bauer & Nation (2020). Bauer & Nation (2020) list lots of examples where the meaning is not (or is no longer) easily derived from the meanings of the parts. In some cases, for example *historian* and *truism*, being able to recognize the affix can help in recognising the stem and in helping the word stick in memory.

Note that the words in the various thousands are in a particular thousand level because their family occurs in that thousand level not because the frequency of the affixed form places them in that thousand level. The words are in order according to the 1000 word lists.

What was notable when making these lists of affixed words is how the very high frequency items in the lists (typically when the complex word is more frequent than the stem form) become more than a stem plus affix and take on a meaning and status that make them different from the less frequent forms which are more like stems plus affixes. For example, we no longer see *business* as being *busy+ness*. *Usual* is not seen as being *use+al*, and the same is true of words such as *later*, *computer*, *information*, *conversation*, *really*, *realize*, *comfortable*, *various*, *particular*. This means that the few very high frequency words are probably not the best examples for introducing learners to stems plus affixes. These very high frequency words are only a relatively small group of words, but they represent a phenomenon that is common in the storage and use of language items such as complex words, compound words, multiword units, and phrases. That is, very high frequency items get stored and used as if they were single units and tend to take on a meaning which is more than the meaning of the parts. It seems though that for complex words these very high frequency items are relatively few in number and for each affix typically consist of only two or three words.

Level 3

-er: (makes nouns from verbs) *computer, teacher, leader, officer, speaker, driver, manager, writer, owner, employer, player, lover, farmer, reader, reporter, worker, buyer, killer, seller, winner, maker, hunter, singer, potter, dealer, recorder, cleaner, user, loser, walker, runner, freezer, carrier, heater, rider, roller, starter, cooker*

-ness: (makes nouns from adjectives) *goodness, darkness, happiness, awareness, fitness, willingness, sadness, madness, sickness, usefulness, fairness, sweetness, readiness, emptiness, greatness, stillness, seriousness, whiteness, brightness, friendliness, lightness, relatedness, softness, coldness* (there are over 590 *-ness* words in the first 10,000 word families of English)

-able: (makes adjectives from verbs, adding the meaning “able to be ~ed” where the swung dash is the verb in the stem) *acceptable, suitable, unbelievable, enjoyable, agreeable, honorable, unreasonable, unacceptable, understandable, questionable, taxable, unmistakable, affordable, unbearable, dependable, movable, imaginable, usable, workable, manageable, laughable, lovable, uncontrollable, unsuitable, believable, profitable, disposable, sustainable*

-ish: (adjectives from nouns, numbers and adjectives): *selfish, childish, boyish, reddish, greenish, greyish, biggish, girlish, yellowish, hellish, bluish, brownish, youngish, babyish, mannish, newish, modish, feverish, amateurish, bullish, devilish, nightmarish,*

-less: (makes adjectives from nouns adding the meaning 'less, without') *useless, homeless, endless, restless, helpless, hopeless, careless, doubtless, needless, pointless, meaningless, voiceless, breathless, countless, worthless, powerless, fearless, childless, painless, mindless, senseless, lifeless, nameless, priceless, thoughtless, timeless, expressionless, heartless, headless, jobless, selfless, sleepless, topless, spotless, colorless, tasteless, bottomless, motionless, humorless, ceaselessly, stainless, aimless*

-like: (makes adjectives from nouns, meaning 'resembling ~') *businesslike, childlike, dreamlike, ladylike, lifelike, ghostlike*

-ly: (makes adverbs from adjectives) *probably, actually, usually, exactly, especially, certainly, nearly, finally, particularly, quickly, absolutely, suddenly, definitely, simply, recently, obviously, generally, apparently, clearly, quietly, slowly, completely, easily, totally, normally, surely, possibly, merely, frequently, virtually, essentially*

-th: (makes ordinal numbers) *sixth, seventh, eighth, ninth, tenth, eleventh, twentieth, sixty-fourth, hundredth, millionth* etc.

-y: (makes adjectives from nouns) *funny, lucky, hungry, scary, healthy, sunny, lazy, sexy, worthy, noisy, windy, sleepy, rainy, rocky, tasty, thirsty, messy, arty, shaky, icy, woody, milky, unlucky, hairy, smelly, bitty, classy, smoky, snowy, bony, unhealthy, grassy, wealthy, chilly, silky, sweaty,*

un-: (makes negatives with adjectives and adverbs) *unclear, unfortunately, unemployed, unable, unlike, unusual, unfair, unknown, uncertain, unhappy, unfortunate, unexpected, uncomfortable, unbelievable, undoubtedly, uncertain, unnecessary, unusually, unrelated, unreasonable, unexpectedly, unwilling, unaware, unacceptable, unsafe*

non-: (makes negatives with nouns) and adjectives *nonstop, nonsmoking, nonmarket, nonhuman, nonexistent, nonstandard, nonviolent, nonpolitical, nonspecific, nonfiction, nonprofit, nonviolence, nonsense* (Note: there are many hyphenated forms e.g. *non-smoking*).

Level 4

-al: (makes adjectives from nouns) *national, personal, central, natural, normal, usual, sexual, additional, educational, historical, musical, arrival, managerial, governmental, parental, rental, unnatural, renewal, postal, continual, situational, conversational, frontal, financial, industrial, editorial, professional, original, cultural, critical, formal, intellectual, substantial*

-ation: (makes nouns from verbs) *information, conversation, explanation, consideration, imagination, taxation, preparation, presentation, expectation, continuation, generalization, realization, centralization, specialization, computation, administration, interpretation, foundation, implication*

-ess: (female nouns) *princess, actress, goddess, manageress, lioness, murderess, hostess, priestess, authoress, waitress, heiress, patroness, countess*

-ful: (makes adjectives from nouns adding the meaning 'full') *beautiful, wonderful, (awful), careful, useful, powerful, helpful, painful, meaningful, doubtful, thankful, thoughtful, hopeful, fearful, mouthful, plentiful, lawful, hateful, truthful, colourful, playful, needful, unlawful, forceful, rightful, watchful, youthful, insightful, resourceful*

-ism: (makes nouns describing a way of thinking or belief) *nationalism, realism, protectionism, perfectionism, collectivism, favouritism, absolutism, ageism, localism, humanism, tourism, individualism, professionalism, criticism, racism, liberalism, Catholicism, imperialism*

-ist: (makes nouns describing a person with a particular belief or job) *artist, specialist, nationalist, centrist, naturalist, sexist, perfectionist, leftist, humanist, protectionist, collectivist, realist, absolutist, druggist, generalist, journalist, communist, racist, feminist, terrorist, novelist, Marxist*

-ity: (makes nouns from adjectives) *security, responsibility, ability, possibility, reality, probability, humanity, inability, continuity, sexuality, stupidity, impossibility, normality, acceptability, insecurity, suitability, centrality, oddity, generality, finality, speciality, activity, minority, electricity, productivity, stability, curiosity, popularity, equality, reliability, availability, intensity, majority, liability, personality, accountability*

-ize: (makes verbs) *realize, specialize, centralize, computerize, generalize, localize, hospitalize, finalize, nationalize, normalize, characterize, standardize, victimize, industrialize, commercialize, stabilize, memorize, popularize, equalize, politicize, economize, legalize, energize, stylize, apologize, criticize, emphasize, summarize*

-ment: (makes nouns from verbs) *government, management, employment, agreement, movement, statement, treatment, judgment, unemployment, payment, settlement, arrangement, involvement, excitement, placement, enjoyment, imprisonment, advertisement, amazement, pretreatment, mismanagement, development, argument, environment, punishment, requirement, equipment, commitment, investment, amendment, achievement, enforcement* (There around 500 word families containing *-ment* in first 10,000 word families)

-ous: (makes adjectives) *dangerous, continuous, spacious, wondrous, mountainous, studious, beauteous, gaseous, various, famous, ridiculous, nervous, marvellous, glorious, mysterious, advantageous, adventurous, joyous, murderous, poisonous, desirous, outrageous, disastrous, prosperous, courageous*

in-: (negative) *inability, incomplete, indefinite, inexpensive, indefinitely, insecure, inexperienced, inaction, insecurity, inexcusable, inhuman, inexpressible, inexact, incredibly, inequality, incapable, invariably, injustice, incorrect, instability, independent, invisible, inadequate*

impossible, improper, imperfect, improbable, immovable, imperfection, impractical, imbalance, impure, immeasurable, impolite, impurity, immortal, immature, imprecise, immobility, illegal, illegitimate, illogical, illiberal, illiterate, illegible

irresponsible, irregular, irreplaceable, irrecoverable, irrelevant, irrational, irrespectively, irreversible, irreligious

Level 5

-age (makes nouns from verbs: *marriage, coverage, package, storage, stoppage, blockage, linkage, drainage, dosage*), **-al** (makes nouns from verbs: *arrival, rental, renewal, proposal, survival, removal, denial, refusal, burial, referral*), **-ally** (makes adverbs: *idiotically*), **-an** (makes nouns showing a job or regional origin: *historian, musician, librarian, Russian, Asian, Californian, republican, American*), **-ance** (makes nouns from verbs: *insurance, appearance, acceptance, allowance, appearance, remembrance, continuance, admittance, performance, assistance*), **-ant** (makes nouns from verbs: *servant, informant, dependant, coolant, assistant, variant, attendant, claimant, defendant, consultant*), **-ary** (makes adjectives: *secondary, imaginary, momentary, honorary, commentary, disciplinary, planetary, missionary, dietary, parliamentary*), **-atory** (makes adjectives from verbs: *explanatory, preparatory, investigatory, regulatory, exploratory, discriminatory, obligatory, compensatory, participatory, celebratory*), **-dom** (makes nouns *freedom, kingdom, boredom, stardom, wisdom, officialdom, dukedom, martyrdom, serfdom*), **-eer** (person: *mountaineer, black marketeer, engineer, auctioneer, mutineer, musketeer, charioteer*), **-en** (makes adjectives from nouns: *earthen, rotten, woollen, sunken, oaken, golden, wooden, silken, ashen, waxen*), **-en** (makes verbs from adjectives: *straighten, soften, shorten, lessen, harden, brighten, quicken, deepen, flatten, widen*), **-ence** (makes nouns from verbs: *difference, existence, reference, preference, excellence, occurrence, insistence, conference, interference, correspondence*), **-ent** (makes adjectives from verbs: *different, dependent, nonexistent, insistent, independent, persistent, emergent, absorbent, deterrent, coherent*), **-ery** (nouns usually indicating a collection or group: *machinery, pottery, finery, cookery, fishery, slavery, robbery, scenery*), **-ese** (makes nouns indicating an inhabitant or language: *Vietnamese, Chinese, Japanese; legalese, officialese*), **-esque** (added to proper names indicating a style: *Tolstoyesque, Reaganesque, Romanesque; statuesque, picturesque*), **-ette** (marking small size: *kitchenette, cigarette, diskette, launderette, statuette, cassette*), **-hood** (indicating a state of being: *neighborhood, childhood, manhood, brotherhood, womanhood, boyhood, motherhood, nationhood, parenthood, fatherhood, girlhood, sisterhood*), **-i** (indicating nationality: *Iraqi, Israeli, Pakistani, Bangladeshi, Yemeni*), **-ian** (largely added to proper nouns indicating inhabitants, places of regional origin, and languages or to common nouns to indicate jobs: *historian, musician, politician, magician, librarian, electrician, mathematician, comedian, statistician, guardian; Darwinian, Johnsonian*), **-ite** (added to proper nouns to indicate an inhabitant or supporter: *Trotskyite, Dunedinite; also chemical meaning*), **-let** (nouns meaning "little": *booklet, coverlet, eyelet, droplet, starlet, piglet*), **-ling** (nouns largely indicating a young animal: *yearling, duckling, weakling, seedling*), **-ly** (makes adjectives: *lovely, daily, friendly, monthly, weekly, quarterly, deadly, costly, yearly, bodily, orderly, manly, timely, nightly, sickly, worldly, earthly, brotherly*), **-most** (adjectives indicating extreme: *innermost, topmost, northernmost, uppermost, foremost*), **-ory** (makes adjectives from verbs: *explanatory, advisory, contributory, investigatory, regulatory, contradictory, discriminatory, obligatory, compensatory*), **-ship** (nouns indicating a state of being: *relationship, membership, leadership, ownership, friendship, hardship, dealership, fellowship, township, governership, partnership; lordship, ladyship*), **-ward(s)** (makes adverbs indicating direction: *towards, forward, afterwards, backwards, downward, outward, inward, westward, windward*),

homeward), **-ways** (makes adverbs indicating direction: *always, sideways, edgeways, lengthways*), **-wise** (makes adverbs indicating manner or ‘from the point of view of’ *crosswise, stepwise, endwise, edgewise, otherwise, lengthwise, likewise, clockwise, anticlockwise*; discussion-wise)

Note that several of the following Level 5 prefixes are often followed by a hyphen, making the prefix and stem easier to recognise. Where there are few examples listed below, this is usually because the prefix is typically followed by a hyphen, for example *ante-*, *ex-*, *post-* and *pro-*. **anti-** (against: *antitrust, antisocial, antidepressants, antitank, antipollution, anticommunist, antibacterial, antimissile, antibiotics, antibodies*), **ante-** (before: anteroom), **arch-** (most important: archbishop, archduke, archdiocese, archdeacon), **bi-** (two: bicycle, bipolar, bipartisan, bilateral, binoculars, bilingual, bisexual, bicentenary, biennial, biplane), **circum-** (around: circumnavigate), **counter-** (in opposition to: counterproductive, counterfactual, counteract, counterespionage, counterbalance, counter-attack), **en-** (verbs from nouns: *endanger, entrust, encourage, encircle, enable, enforcement, ensuring, enrage, encage; enslave*), **ex-** (out, moving away: ex-president), **fore-** (in front of: *forefront, foreground, forecast, forehead, foremost, foresee, forenoon, foregone, foremen, forefinger, foresight*), **hyper-** (too much or very large: hyperinflation, hypertension, hyperactive, hypersensitive), **inter-** (between, back and forth: *interpersonal, intergroup, interrelated, intermarriage, interstate, interdisciplinary, intercultural, interbreeding, interconnected, interplanetary*), **mid-** (middle: *midwest, midday, midway, midterm, midsummer, midlife, midair, midweek, midpoint*), **mis-** (wrong: *misleading, misunderstood, misuse, mismanagement, misread, mistreat, mishandled, misjudge, misinformation, miscalculation*), **neo-** (new: *neoclassical, neo-colonialism*), **post-** (after: *postwar, postmodern, postgraduate, post-date*), **pro-** (in favour of: pro-British), **semi-** (half: *semicircle, semiconductor, semigloss, semi-final, semi-skilled, semi-automatic*), **sub-** (under: *subgroup, subheading, subtype, subsystem, subtotal, subcommittee, subsection, substandard, subculture, subspecies*), **un-** (with verbs indicating reversal of an action: *undo, uncover, unlock, undress, unload, unpack, untie, unroll, unstuck, unseat*)

Level 6

-ee (a person who is ~ed: *employee, trainee, addressee, interviewee, appointee, divorcee, attendee, escapee, returnee, mortgagee*), **-ible** (makes adjectives, a version of *-able*: *forcible, inexpressible, accessible, defensible, convertible, indestructible, reversible, collapsible*), **-ic** (makes adjectives: *basic, realistic, artistic, historic, problematic, photographic, nationalistic, economic, dramatic*), **-ify** (makes verbs: *simplify, beautify, intensify, glorify, solidify, clarify, classify, terrify, notify, diversify*), **-ion** (makes nouns: *education, situation, action, television, expression, protection, collection, suggestion, perfection, completion*), **-ition** (makes nouns: *addition, competition, opposition, repetition, definition, acquisition, composition*), **-ive** (makes adjectives: *expensive, collective, supportive, protective, expressive, suggestive, progressive, active, massive, attractive*), **-th** (makes nouns: *truth, growth, length, depth, width, strength, warmth, breadth*), **-y** (makes nouns: *safety, honesty, difficulty, jealousy*), **pre-** (before: *preschool, prerecorded, prepaid, prearranged, pretax*), **re-** (again: *reunify, refresh, repay, reactivate, reclassify, regain, recycle, reunion, reproduce*).

Appendix 2: Affixes to Learn on Flash Cards

Only affixes which have a meaning which goes well beyond marking part of speech are listed here for deliberate learning.

Level 3

un- and *non-* can be learned on flash cards, but all the Level 3 affixes should be carefully taught and returned to with plenty of examples, word cutting activities and tests.

Level 4

-ess, *-ful*, and *in-* can be learned on flash cards, but all Level 4 affixes should be carefully taught and tested.

Level 5

Most Level 5 affixes can be learned by studying the examples in Appendix 1 and by doing the word analysis activities in Appendix 3. The following affixes can also be learned on flash cards.

-eer (person) mountaineer, *-ette* (small) cigarette, *-ite* (supporter) Johnsonite, *-ward(s)* (direction) downward

arch- (leader, most important) archbishop, *anti-* (against) anti-war, *bi-* (two) bicycle, *ex-* (out, moving away) ex-wife, *fore-* (in front of) foreman, *hyper-* (more than usual) hyperactive, *inter-* (between) international, *mid-* (middle) midday, *mis-* (wrong) mishear, *neo-* (new) neoclassical, *post-* (after) postgame, *pro-* (in favour of) prolife, *semi-* (half) semicircle, *sub-* (under) subheading

Level 6 and beyond

The prefixes beyond Level 6 which are listed below draw on research by Stauffer (1942) and are listed in Bauer & Nation (2020, Chapter 18). They are often attached to bound stems. A bound stem is not a word in its own right, for example, *-fer-* in *transfer*.

-ee (a person who is ____ed) employee, trainee; *pre-* (before) pretest, *re-* (again, back) renew.

ad- (to, towards) admit, advertise, attention, advance; *com-* (with, together) communicate, complete, connect, community; *de-* (down, away) depress, decline, deficit, destruction; *dis-* (not) dislike, displeasure, dissimilar, disagree, disabled, disorder, disbelief; *mono-* (one) monopoly, monotonous, monoxide, monologue; *ob-* (against) oppose, obstruct, oppress; *over-* (above) overpower, overcome, overwhelm; *per-* (through) perfect, perceive, perspective, permit, perforate; *trans-* (across, beyond) transport, transfer, transact, translate, transform, transit, trans-alpine.

The Most Useful Stems

See Wei & Nation (2013, Table 1) for the 25 most useful stems with examples. This article is freely available from Paul Nation's resources page under Publications. The stem and an example can be on one side of the card, and the meaning on the other.

Appendix 3: Words for Practice and Testing

The words in this appendix are taken from Appendix 1. These groups of words (around 50 in each group) can be used for getting learners to recognize prefixes and suffixes in high frequency and mid-frequency words. After some explanation and study of the affixes at a particular level, the learners can then practice recognizing them in words. It is best if the learners practice on a group of around fifty words, get feedback, and then a week or so later, practice on another group of words at the same level. When working on the first one or two groups, the learners as a class can work with the teacher, getting feedback after each word. Later, the learners can work in pairs and then individually on at least five different occasions.

There is also an answer sheet for these groups of words on this web site.

Where the placement of the cut could vary, as with the doubling of consonants, the cut should be made to preserve the form of the affix rather than the stem. For example, *runn/er* rather than *run/ner*.

Permission is not needed to use these lists in teaching, research or publications, including course books. Feel free to use them.

Here is the instruction for the activity: *Cut these words into affix and stem. Check that the stem is a word that you know. The first one has been done for you. Note that the stems and affixes of some words change their spelling when they are joined together.*

Words for Level 3 Word Part Analysis (only Level 3 affixes are separated. The stem must be a free form.)

absolute/ly, nonexistent, acceptable, unlucky, unwilling, accountable, actually, affordable, agreeable, aimless, amateurish, apparently, arty, awareness, babyish, believable, unmistakable, biggish, bitty, bluish, unaware, nonhuman, bony, bottomless, unnecessary, boyish, breathless, brightness, brownish, bullish, buyer, careless, carrier, ceaselessly, unsafe, certainly, childish, childless, nonpolitical, chilly, classy, cleaner, clearly, coldness, colorless, completely, computer, cooker, countless, darkness, dealer, definitely, dependable, devilish

un/reason/able, disposable, doubtless, driver, easily, eighth, eleventh, employer, emptiness, endless, enjoyable, especially, essentially, exactly, expressionless, fairness, farmer, fearless, feverish, finally, fitness, freezer, frequently, friendliness, funny, generally, girlish, nonstandard, goodness, grassy, wealthy, greatness, greenish, nonprofit, greyish, hairy, happiness, unfortunately, headless, healthy, heartless, heater, hellish, helpless, homeless, nonsense, nonspecific, honorable, hopeless, humorless, hundredth, hungry, nonsmoking

hunt/er, unemployed, icy, imaginable, nonstop, jobless, unknown, killer, laughable, unhealthy, lazy, leader, lifeless, nonfiction, lightness, likeness, loser, lovable, uncontrollable, lover, unhappy, lucky, madness, maker, manageable, manager, mannish, meaningless, uncomfortable, understandable, undoubtedly, merely, messy, milky, millionth, mindless, unfair, modish, unexpected, motionless, movable, nameless, nearly, needless, newish, nightmarish, ninth, noisy, nonviolence, normally, unclear

un/fortunate, nonviolence, uncertain, obviously, officer, owner, painless, particularly, player, pointless, possibly, potter, powerless, priceless, probably, questionable, quickly, quietly, rainy,

reader, readiness, recently, recorder, reddish, relatedness, reporter, restless, rider, rocky, roller, runner, sadness, scary, selfish, selfless, seller, senseless, seriousness, seventh, sexy, shaky, sickness, silky, simply, singer, sixth, sixty-fourth, sleepless, sleepy, slowly, smelly, smoky, snowy, unexpectedly, softness, speaker, spotless,

stain/less, starter, stillness, suddenly, suitable, unbelievable, sunny, surely, sustainable, sweaty, sweetness, unbearable, tasteless, tasty, taxable, teacher, unable, tenth, thirsty, thoughtless, unacceptable, topless, totally, twentieth, unlike, usable, usefulness, useless, user, usually, virtually, voiceless, walker, whiteness, selfishness, willingness, windy, unusually, timeless, winner, woody, workable, worker, unsuitable, worthless, worthy, writer, yellowish, unrelated, youngish, unwelcome, restless, reddish, diver, smelly, doable, gently

Words for Level 4 Word Part Analysis (only Levels 3 and 4 affixes are separated. The stem must be a free form.)

Catholic/ism, ability, absolutism, absolutist, acceptability, accountability, achievement, activity, inaction, actress, impurity, actual, additional, administration, adventurous, advertisement, ageism, improper, agreement, amazement, impossible, apologize, arrangement, arrival, artist, impure, incomplete, incredibly, authoress, availability, beauteous, indefinitely, beautiful, careful, central, inability, centrality, centralization, centrist, characterize, impossibility, collectivist, colourful, commercialize, invisible

commit/ment, inexpressible, centralize, communist, inadequate, computation, consideration, indefinite, continual, continuation, continuous, conversation, conversational, countless, courageous, critical, criticism, inhuman, cultural, curiosity, dangerous, illegal, desirous, improbable, development, disastrous, doubtful, druggist, incorrect, argument, economize, editorial, educational, electricity, emphasize, employment, energize, enforcement, enjoyment, environment, equality, inexcusable, equalize, equipment, incapable, excitement

expect/ation, impractical, explanation, famous, fearful, feminist, finality, finalize, financial, forceful, formal, foundation, frontal, gaseous, generalist, generality, generalization, generalize, industrial, glorious, goddess, government, governmental, imprecise, hateful, heiress, helpful, historical, irrecoverable, hopeful, hospitalize, hostess, humanism, humanist, humanity, illegible, imagination, imperfection, continuity, advantageous, computerize, imperialism, amendment, implication, impolite, imprisonment, independent

in/equal/ity, individualism, industrialize, inexperienced, criticize, information, injustice, insecurity, insightful, instability, intellectual, intensity, invariably, investment, irresponsible, interpretation, involvement, irreversible, journalist, joyous, judgment, lawful, leftist, legalize, insecure, liability, liberalism, lioness, localism, localize, majority, management, irregular, poisonous, manageress

il/legitimate, managerial, marvellous, possibility, normal, memorize, minority, mismanagement, immobility, mountainous, mouthful, movement, murderess, inexpensive, murderous, musical, mysterious, national, nationalist, illiterate, nationalize, natural, naturalist, needful, nervous, normalize, novelist, immature, oddity, original, outrageous, illiberal, painful,

parental, patroness, payment, perfectionist, imbalance, immortal, personal, placement, playful, illogical, plentiful, politicize

im/measur/able, popularity, postal, powerful, preparation, sexual, presentation, priestess, princess, probability, inexact, normality, meaningful, professional, professionalism, prosperous, irrelevant, protectionist, sexist, punishment, racism, realist, reality, realization, reliability, renewal, rental, requirement, productivity, resourceful, responsibility, irreligious, ridiculous, rightful, security, personality, settlement, sexuality, popularize, imperfect

situation/al, spacious, specialist, speciality, irrational, specialization, specialize, stability, stabilize, statement, studious, unnatural, stupidity, racist, stylize, irrespective, substantial, suitability, summarize, taxation, realize, unlawful, thankful, irreplaceable, thoughtful, terrorist, tourism, treatment, truthful, unemployment, useful, usual, various, victimize, waitress, watchful, wonderful, standardize, immovable, wondrous, youthful

Words for Level 5 Word Part Analysis (Only level 3, 4 and 5 affixes are separated. The stem must be a free form.)

en/able, sunken, interplanetary, midway, misinformation, subtotal, archduke, Yemeni, uncover, counter-attack, yearly, antitank, yearling, worldly, stardom, woollen, womanhood, wisdom, winery, windward, widen, anticommunist, westward, weekly, waxen, Vietnamese, variant, semicircle, township, towards, topmost, Tolstoyesque, antisocial, timely, survival, straighten, archdeacon, wooden, storage, stoppage, archdiocese, stepwise, statuette, statistician, foreground, starlet, weakling, soften, slavery, sisterhood

silk/en, sideways, renewal, sickly, shorten, hypertension, subculture, lordship, servant, enslave, serfdom, seedling, secondary, scenery, Russian, antipollution, rotten, Romanesque; statuesque, robbery, republican, rental, misleading, removal, remembrance, relationship, regulatory, refusal, referral, reference, Reaganesque, quicken, quarterly, proposal, preparatory, preference, uppermost, pottery, postage, undress, politician, planetary, piglet, picturesque, persistent, performance, partnership; participatory, parliamentary, parenthood

Pakistan/i, Paisleyite, manhood, package, ownership, outward, otherwise, orderly, musketeer, officialese, bicycle, occurrence, obligatory, oaken, counterfactual, northernmost, nonexistent, nightly, nationhood, mutineer, musician, forehead, dependent, mountaineer, midpoint, motherhood, edgewise, monthly, momentary, interbreeding, officialdom, missionary, subheading, Japanese, entrust, membership, mathematician, martyrdom, marriage, manly, binoculars, magician, antitrust, machinery, interdisciplinary

counter/act, neighborhood, lovely, linkage, foreman, likewise, librarian, foresight, lessen, lengthways, leadership, launderette, kingdom, Johnsonian, legalese, Israeli, inward, investigatory, bipartisan, interrelated, interference, insurance, biennial, insistent, insistence, innermost, midair, informant, independent, imaginary, idiotically, kitchenette, honorary, ladyship, homeward, neo-colonialism, historian, hardship, Iraqi, midweek, lengthwise, misunderstood, harden

guard/ian, friendly, encage, Darwinian, governership, golden, interconnected, bilingual, friendship, foregone, hyperactive, freedom, forward, foremost, untie, flatten, fishery, fellowship, fatherhood, eyelet, contradictory, exploratory, semigloss, existence, excellence, midlife, engineer,

endwise, forecast, unload, emergent, electrician, intermarriage, finery, edgeways, earthly, counterespionage, mismanagement, Dunedinite, dukedom, duckling, droplet, drainage, downward, explanatory, dosage, diskette, earthen, misjudge, different

discriminat/ory, bicentenary, circumnavigate, disciplinary, difference, hypersensitive, dietary, bisexual, enrage, intercultural, deterrent, mishandled, forenoon, dependant, denial, antidepressants, defendant, midday, unroll, deepen, girlhood, dealership, deadly, semi-automatic, post-date, daily, crosswise, coverlet, unseat, forefinger, coverage, costly, correspondence, encourage, misuse, coolant, cookery, contributory, substandard, continuance, consultant, forefront, mistreat, conference, compensatory

compensate/ory, commentary, antibacterial, comedian, assistance, coherent, clockwise, claimant, cigarette, Chinese, childhood, charioteer, celebratory, cassette, Californian, subsection, burial, brotherly, brighten, postwar, boyhood, boredom, antimissile, booklet, bodily, blockage, Bangladeshi, semi-final, bakery, midterm, trickery, backwards, midsummer, auctioneer, brotherhood, attendant, assistant, subspecies, postmodern, Asian, ashen, arrival, appearance, anticlockwise, discussion-wise, American, miscalculation

allow/ance, unstuck, afterwards, advisory, admittance, acceptance, absorbent, subsystem, antibiotics, unpack, anteroom, archbishop, unlock, bipolar, circumference, counterproductive, endanger, antibodies, ensuring, ex-president, foremost, hyperinflation, interpersonal, biplane, intergroup, semiconductor, black marketeer, encircle, interstate, midwest, counterbalance, midweek, enforcement, misread, neoclassical, postgraduate, pro-British, semi-skilled, subgroup, foresee, subtype, bilateral, subcommittee, undo

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