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Manner/Result Complementarity: A View from *Orphan* Verbs and *Captain* Verbs[1)]

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1. Introduction

The series of works by Beth Levin and Malka Rappaport Hovav in the last few decades (Levin and Rappaport Hovav 1991, 2013, 2014; Rappaport Hovav and Levin 1998, 2010) have created considerable discussion in lexical semantics. They proposed that Present-day English non-stative (and monomorphemic) verbs are generally classifiable into manner verbs (e.g. *flutter*, *kick*, *laugh*, *nibble*, *pour*, *rub*, *run*, *scribble*, *sweep*, *swim*, *wipe*), which describe the manner of carrying out an action, and result verbs (e.g. *arrive*, *clean*, *cover*, *die*, *empty*, *enter*, *faint*, *fill*, *freeze*, *kill*, *melt*, *open*), which encode the resulting state of an event. Crucially, manner verbs do not specify the result of the action, while result verbs do not specify the manner. The following sentences are entirely acceptable (adopted from Levin and Rappaport Hovav 2013: 52):

(1) I just wiped the table, but it's still dirty/sticky/covered in crumbs.
(2) I cleaned the dress by soaking it in hot water/pouring bleach over it/saying "abracadabra".

A wiped table does not necessarily produce a clean table even though the manner involved in wiping the table may be conventionally associated with making it clean as a consequence. Likewise, no particular manner is entailed in the result of cleaning a dress. Manner and result are thus supposed to be in complementary distribution. Levin and Rap-

paport Hovav claim that this manner/result complementarity holds true because a verb never lexicalises manner and result at the same time: only one of them is "entailed in all uses of (a single sense of) a verb, regardless of context" (Rappaport Hovav and Levin 2010: 23).[2] Over the years some counterexamples to and alternative accounts for manner/result complementarity have been suggested, most notably by Beavers and Koontz-Garboden (2012, 2017),[3] yet the hypothesis has remained essentially tenable to date.

This paper will revisit manner/result complementarity with special reference to *orphan* verbs and *captain* verbs, which are introduced as Present-day English verb classes in Levin (1993: 184–85) and feature the following members:

(3) *orphan* verbs
apprentice, canonize, cripple, cuckold, knight, martyr, orphan, outlaw, pauper, recruit, widow

(4) *captain* verbs
boss, bully, butcher, butler, caddy, captain, champion, chaperone, chauffeur, clerk, coach, cox, crew, doctor, emcee, escort, guard, host, model, mother, nurse, partner, pilot, pioneer, police, referee, shepherd, skipper, sponsor, star, tailor, tutor, umpire, understudy, usher, valet, volunteer, witness

Orphan verbs can be paraphrased with *make*, as in "to make (someone) an orphan," where the noun *orphan* appears as its surface object. *Orphan* verbs in Levin's list are far outnumbered by *captain* verbs, which are paraphrasable with *act*, as in "to act as a captain for/toward," where the noun *captain* serves as its surface subject. These semantic distinctions notwithstanding, the two verb classes are both "zero-related" (Levin 1993: 184) to human nouns, except for *canonize* among *orphan* verbs. Regarding their syntactic features, Levin notes that *orphan* verbs are favoured in adjectival passive (e.g. *The soldier was knighted (by the king)*), whereas *captain* verbs are not necessarily transitive, and the target of their action may be a direct object (e.g. *Miriam tutored her brother*) or a prepositional object (e.g. *Her cousin clerked for Judge Davis*).

Clark and Clark (1979), a seminal work on Present-day English denominal conversion verbs, classifies members of *orphan* verbs and *captain* verbs respectively as goal verbs and agent verbs and defines them based on their parent nouns. The parent nouns of goal verbs express "roles conferred on people by external forces, sometimes against their will" and represent "results," while those of agent verbs denote "roles or professions that people take on deliberately," or "agents" and "receivers" in short (Clark and Clark 1979: 775, 791). Given the account by Levin and by Clark and Clark, *orphan* verbs may well correspond to result verbs, and *captain* verbs to manner verbs. Indeed, Sakai (2015: 312) assumes that verbs converted from nouns of a resultant state lexicalise a result and that verbs converted from agent or instrument nouns are manner verbs.[4)] This may inevitably lead to the idea that verbs converted from human nouns are grouped into manner verbs and result verbs, just like non-stative verbs in general.

However, the classification of, or the boundary between, *orphan* verbs and *captain* verbs is not rigid, and some verbs are known to possess features of both classes (Bladin 1911; Clark and Clark 1979). *Fool* is an *orphan* verb in (5) ("Nick made a fool of Nora"), but it is a *captain* verb in (6). Verbs like *fool* have been around since the emergence of *orphan* verbs and *captain* verbs (Miura 2018a).

(5) Nick fooled Nora.
(6) Nick fooled around with Asta.

This paper examines the relation between manner/result complementarity on the one hand and *orphan* verbs, *captain* verbs and verbs like *fool* on the other. I will first discuss similarities and differences between *orphan* verbs and result verbs and between *captain* verbs and manner verbs (Section 2). I will then briefly review the issues in the classification of *orphan* verbs and *captain* verbs (Section 3). This will be followed by an overview of the historical development of the two verb classes in terms of manner verbs and result verbs (Section 4). After a brief section on why we have exceptions (Section 5), I will provide some concluding remarks (Section 6).

2. *Orphan* Verbs and *Captain* Verbs vis-à-vis Result Verbs and Manner Verbs

Orphan verbs and result verbs, as well as *captain* verbs and manner verbs, share a large number of characteristics. Most importantly, *orphan* verbs may indeed lexicalise result alone, and *captain* verbs manner alone. *Orphan* verbs do not specify how to carry out the action, i.e. the manner or means of making someone an orphan. They also satisfy the diagnostics of result verbs developed by Beavers and Koontz-Garboden (2012: 336–42).[5] For instance, the sentence in (7) incurs a contradiction as it denies the resulting state (of the king having knighted the soldier). Object deletion as in (8) is ungrammatical because the object of a result verb must be overtly realised as the recipient of the result. Finally, result verbs can appear only with the resultative constructions that are compatible with the result they encode, which makes (9a) acceptable and (9b) unacceptable.

(7) #The king knighted the soldier, but nothing is different about it.[6]
(8) *The king knighted.
(9) a. He insists on having an innkeeper knight him into the chivalric order. (https://books.google.co.jp/books/about/Don_Quixote.html?id=ggA-zgEACAAJ&redir_esc=y)
    b. #He insists on having an innkeeper knight him across the nation.

Captain verbs, in turn, do not specify the result of the action, namely the outcome of acting as a captain, and they meet the diagnostics of manner verbs presented in Beavers and Koontz-Garboden (2012: 343–49). Unlike result verbs, manner verbs have restrictions on their subjects and allow only agents, not inanimates or natural forces as illustrated in (10), except for cases of personification. In addition, a contradiction arises when the action is denied in the continuation as in (11), although acceptability may vary depending on the verbs.

(10) #The book chauffeured Jane.
(11) #Jim chauffeured Jane, but didn't move a muscle.

Other features associated with result verbs and manner verbs apply respectively to *orphan* verbs and *captain* verbs. Result verbs and manner verbs have an event schema where the root of the former is an argument of BECOME and that of the latter modifies ACT; see (12a) and (13a), respectively (Rappaport Hovav and Levin 1998: 109; 2010: 24–25). Similarly, *orphan* verbs and *captain* verbs are expected to have an event schema as represented respectively in (12b) and (13b).[7)]

(12) a. [[x ACT] CAUSE [BECOME [y <*STATE*>]]]
b. [[x ACT] CAUSE [BECOME [y <*ORPHAN*>]]]
(13) a. [x ACT <*MANNER*>]
b. [x ACT <*CAPTAIN*> y]

Result verbs have been classified as accomplishment, and manner verbs as activity, in particular human activity or agentive action (Levin and Rappaport Hovav 1991: 135; 2014: 340; Rappaport Hovav and Levin 1998: 104–05).[8)] This is closely connected with the above-mentioned selectional restrictions on the subject of manner verbs and has repercussions on the membership of *orphan* verbs and *captain* verbs. When human nouns are converted to verbs in Present-day English, they usually become *captain* verbs and express a human activity, inevitably with a human subject, whereas *orphan* verbs are a rare outcome (March-and 1969: 369; Kim 2010: 32). As a natural consequence of this tendency, Levin's list reproduced in the previous section includes many more *captain* verbs than *orphan* verbs.

Result verbs are said to express a scalar change, "where a scale is a set of degrees — points or intervals indicating measurement values — on a particular dimension (e.g. height, temperature, cost), with an associated ordering relation" (Rappaport Hovav and Levin 2010: 28), and manner verbs express a non-scalar change, i.e. "any change that cannot be characterized in terms of an ordered set of values of a single attribute" (Rappaport Hovav and Levin 2010: 32; see also Levin and Rappaport Hovav 2013: 52–53; 2014: 339–40). The same dichotomy can be said of *orphan* verbs and *captain* verbs. More specifically, *orphan* verbs express a change in a two-point scale between being and not being an orphan.

Result verbs and manner verbs are connected with other parts of speech: result verbs include deadjectival members such as *clean*, *clear* and *empty* (Levin and Rappaport Hovav 1991: 130; for *clean*, see Levin and Rappaport Hovav 2014), while manner verbs include those converted from instrument nouns such as *brush*, *mop* and *sponge* (Levin and Rappaport Hovav 1991: 131). *Orphan* verbs are relevant to adjectives in that they are preferred in adjectival passive (see Section 1), and all *captain* verbs are denominal conversion verbs.

Finally, result verbs are more constrained in usage than manner verbs, or to put it another way, manner verbs are more flexible (Rappaport Hovav and Levin 1998: 101–03; see also Beavers and Koontz-Garboden 2012, Okuno 2018 and Yasuhara 2019). Unlike *orphan* verbs, *captain* verbs are not especially favoured in certain constructions, and they are not exclusively transitive. Furthermore, *captain* verbs often accompany a particle (see (6) above) or a dummy object *it* (Miura 2018a, 2018b), but *orphan* verbs take particles only restrictively, and their semantics does not allow collocation with expletive *it*.

There are some differences between *orphan* verbs and result verbs and between *captain* verbs and manner verbs. All result verbs are verbs of change of state, and the majority of verbs of change of state participate in causative alternation, whereas typical manner verbs do not (Levin and Rappaport Hovav 1991: 133; 2013: 54; 2014: 342–45; Rappaport Hovav and Levin 1998: 117–18). Neither do *orphan* verbs, at least in Present-day English; see (14) and (15):

(14) The king knighted the soldier.
(15) *The soldier knighted.

Nevertheless, not all verbs of change of state show this alternation, which confirms the view that (non-)participation in causative alternation is uninformative to distinguish between result verbs and manner verbs (Levin and Rappaport Hovav 1991: 133 n.8; 2014: 343 n.4). Manner verbs are said to occur in the conative construction (e.g. *Kay rubbed at the counter*; Levin and Rappaport Hovav 1991: 135; 2013: 54), but the use of *captain* verbs in this construction is probably subject to lexical

variation. All in all, there seems to be no compelling evidence against regarding *orphan* verbs as result verbs and *captain* verbs as manner verbs.

3. Issues in the Classification of *Orphan* Verbs and *Captain* Verbs

Despite their apparently neat correspondence to result verbs and manner verbs, *orphan* verbs and *captain* verbs are not clear-cut verb classes. Their membership has some ambiguities. First, the fact that these verbs are "zero-related" (Levin 1993: 184) to human nouns in Present-day English does not necessarily mean that they were historically converted from these nouns. According to the *OED*, *nurse*, a *captain* verb in Levin's list, is a variant of the verb *nursh* or *nourish*, whereas *volunteer*, another *captain* verb, is considered as a case of back-formation from *volunteering*. In contrast, *coach*, *guard*, *model* and *star* were all derived by denominal conversion, though based on the non-human sense of the noun. Second, not all verbs converted from human nouns invariably become either *orphan* verbs or *captain* verbs. In (16), *man*, *boy* and *girl* are used in the sense "to provide a vessel with (male/female) staff," which is rephrasable as neither "to make (someone) a man/boy/girl" nor "to act as a man/boy/girl." The *OED* acknowledges neither *orphan* use nor *captain* use of the verb *girl*. However, all three verbs function as result verbs: as a consequence of what the members of the Canadian Children's Opera Chorus did, both vessels were provided with staff. In (17), in turn, the verb *Shakespeare* is neither an *orphan* verb meaning "to make (someone) Shakespeare" nor a *captain* verb meaning "to act as Shakespeare." It is a manner verb with the sense "to act in a Shakespeare play."

(16) Both vessels were manned, or rather, boyed and girled, by the members of the Canadian Children's Opera Chorus. [1990 *Toronto Star* (Nexis) 29 May c4; *OED*]

(17) Madame de Navarro has declaimed, spouted, statuesqued, Shakespeared, and all the rest of it. [1896 G. B. Shaw in *Saturday Review* 4 April 349/1; *OED*]

Section 1 cited the verb *fool*, which can behave both as an *orphan* verb and as a *captain* verb and thus does not fit into the dichotomy of these verb classes. *Fool* has all features shared by *orphan* verbs and result verbs and those shared by *captain* verbs and manner verbs, which were outlined in Section 2. Still, it is important to note that the meaning and use as an *orphan* verb or a result verb and that as a *captain* verb or a manner verb are realised independently. Manner/result complementarity presumes that one verb lexicalises only one meaning component, whether it is result or manner. *Fool* does not express result and manner at the same time, and neither meaning is intended in every single context where *fool* is used. Therefore, *fool* does not pose a challenge to manner/result complementarity but is an instance of polysemy. Indeed, studies by Levin and Rappaport Hovav (Rappaport Hovav and Levin 2010; Levin and Rappaport Hovav 2013, 2014; see also Usuki 2015 and Qiu 2019) acknowledge a handful of verbs that have both result and manner meaning components (e.g. *clean*, *climb*, *cut*), noting that the manner drops out in the result use and the result drops out in the manner use. In short, these verbs do not encode manner and result simultaneously. They are considered polysemous and demonstrate the validity of manner/result complementarity. Still, verbs converted from human nouns include many more polysemous members than *fool* and have been exemplified since the earliest history of *orphan* verbs and *captain* verbs.

4. A History of *Orphan* Verbs and *Captain* Verbs

This section summarises the historical development of *orphan* verbs and *captain* verbs on the basis of data available from the *OED* (see Miura 2018a for a full investigation).[9] The first two lines of Table 1, "*orphan* (*o*)" and "*captain* (*c*)," demonstrate that new *captain* verbs consistently outnumber new *orphan* verbs from the fourteenth century onwards, with their total reaching more than three times that of the latter. These two lines include ninety-two verbs that went on to develop both *orphan* use and *captain* use. The next two lines, "*o*-only" and "*c*-only," show the chronological distribution of the verbs that remained only as *orphan* verbs or as *captain* verbs, respectively. In the same way as

the first two lines, *c*-only verbs continue to outnumber *o*-only verbs from the fourteenth century, but the gap in their total is wider. The last four lines of the table show the distribution of the verbs included in the first two lines but omitted in the next two lines, namely the verbs that developed both *orphan* use and *captain* use. These verbs can be broken down into: i) those which were formerly *orphan* verbs and subsequently acquired *captain* use (*o* to *c*); ii) those which were *captain* verbs previously and obtained *orphan* use later (*c* to *o*); and iii) those which developed both uses simultaneously (*o*=*c*). These "*o*&*c*" verbs have been recorded continuously since the fourteenth century, and their total number is not far below that of "*o*-only" verbs. Moreover, the lack of any remarkable difference in the distribution of "*o* to *c*" and "*c* to *o*" suggests that the shift in either direction was equally feasible.

Table 1. The Development of *Orphan* Verbs and *Captain* Verbs in the *OED*

	OE	12C	13C	14C	15C	16C	17C	18C	19C	20C	Total
Orphan (*O*)	3	2	7	6	5	44	63	18	36	11	195
Captain (*C*)	–	1	5	16	12	85	121	66	160	114	580
O-only	1	2	3	–	2	22	34	11	24	4	103
C-only	–	1	3	10	7	59	99	59	144	106	488
O&*C*	–	–	–	1	5	22	26	6	23	9	92
O to *C*	–	–	–	–	2	11	11	3	13	4	44
C to *O*	–	–	–	1	3	11	14	3	10	5	47
O=*C*	–	–	–	–	–	–	1	–	–	–	1

We will have a closer look at the history of *orphan* verbs in terms of their relation to result verbs. Clark and Clark define the parent nouns of *orphan* verbs as "roles conferred on people by external forces, sometimes against their will" (1979: 775). Such roles, to put it plainly, represent results and easily conform to result verbs. *Orphan* verbs that suit Clark and Clark's definition continue to be attested from Old English to the twentieth century (e.g. OE: *martyr*; 12C: *child*; 13C: *thrall*; 16C: *concubine*; 17C: *hostage*; 18C: *countess*; 19C: *pauper*; 20C: *scapegoat*). This definition can therefore be regarded as a primary sense that leads to *orphan* verbs diachronically. The sixteenth century sees the rise of

proper nouns becoming *orphan* verbs (e.g. 16C: *Balaam*; 17C: *Jebusite*; 18C: *grizel*; 19C: *boycott*), and interestingly, the parent nouns often represent results, specifically victims of some negative treatment by others. The sixteenth century also witnesses the first case of title nouns converted to *orphan* verbs with the sense "to call someone X" (e.g. 16C: *rabbi*; 17C: *goodfellow*; 18C: *mama*; 19C: *darling*). Calling someone X is roughly equivalent to making someone X, i.e. a result.

Not all *orphan* verbs can be explained well with Clark and Clark's definition, and crucially, such verbs are seen even from the earliest stage of *orphan* verbs. We cannot identify these verbs as *orphan* verbs based solely on the meaning of their parent nouns and have to judge by the syntactic context instead. For instance, it is hard to say that a coward counts as a role "conferred on people by external forces, sometimes against their will," but it is clear from the (extended) context that *coward* is used as an *orphan* verb in (18). As a nation, *Portuguese* digresses even further from Clark and Clark's definition, but the context and the (passive) construction in (19) help to determine it as an *orphan* verb.

(18) Thy tarying thy folk cowardith! [c1300 *Kyng Alisaunder* 3344]
(19) The Mass of the People are…Portuguezed in Speech and Manners. [1698 J. Fryer, *New Account of East-India & Persia* 157]

Examples of *captain* verbs whose parent nouns agree with Clark and Clark's definition "roles or professions that people take on deliberately" are observed throughout the history of these verbs (e.g. 12C: *leech*; 13C: *witness*; 14C: *cook*; 15C: *host*; 16C: *pilgrim*; 17C: *engineer*; 18C: *sycophant*; 19C: *burglar*; 20C: *prima donna*). Apart from the fact that human noun-to-verb conversion typically gives rise to a *captain* verb, as *captain* verbs focus on the agent and their action, they inevitably belong to manner verbs. Parallel with *orphan* verbs, *captain* verbs based on proper nouns are seen from the sixteenth century (e.g. 16C: *Pharisee*; 17C: *Don Quixote*; 19C: *lynch*; 20C: *Shylock*), but in contrast to *orphan* verbs, these proper nouns are often characters who behaved actively according to their own will and judgement. There are a number of *captain* verbs,

even from the earliest period, whose parent nouns do not concur entirely with Clark and Clark's definition (e.g. 14C: *father*; 15C: *husband*; 16C: *maiden*; 17C: *carl*; 18C: *fussock*; 19C: *dilettante*; 20C: *ancestor*), but they are not more suitable for *orphan* verbs either. As *captain* verbs increase substantially from the seventeenth century (see Table 1), it looks as if any human noun of any nature or role were to become a *captain* verb.

The fuzzy semantic range covered by the parent nouns of *captain* verbs is further evidenced in the fact that nouns synonymous with parent nouns of attested *orphan* verbs sometimes become *captain* verbs, as shown in Table 2.

Table 2. Some *Orphan* Verbs and *Captain* Verbs with Near-Synonymous Parent Nouns

Orphan	*Captain*
child (12C)	*heir* (14C)
foe (12C)	*enemy* (14C)
liege (16C)	*page* (16C)
deputy (17C)	*proxy* (17C)
Portuguese (17C)	*Russian* (18C)
hero (17C)	*heroine* (18C)
father-in-law (18C)	*mother-in-law* (19C)

As we can see in this table, on the one hand, it is not necessarily easy to make diachronic generalisations about which human noun would become an *orphan* verb or a *captain* verb. On the other, as we saw in Section 1, *orphan* verbs and *captain* verbs differ in their uses, and the context always helps to determine which verb is being used. In (20) *hero* occurs in a passive construction, and the whole context clarifies that it is an *orphan* verb. In (21) *heroine* co-occurs with a dummy object *it*, which is allowed only with *captain* verbs (Miura 2018b). The verbs in Table 2 may not so much have been pre-determined as *orphan* verbs or *captain* verbs as were employed flexibly according to the given context.

(20) The man..All nature robs regardless of the wrong;—Gains bits of silk—is hero'd by the throng. [1762 "Citizen of London," *Wedding Day* ii. 19]

(21) She could not heroine it into so violent..an extream, as one in her situation might have wish'd. [1760 L. Sterne, *Life Tristram Shandy* vol. I. xviii. 100]

We have seen that, throughout their history, both *orphan* verbs and *captain* verbs have members whose parent nouns satisfy Clark and Clark's definition concerning Present-day English, while those which do not agree well with the definition have emerged since the fourteenth century. The fourteenth century is precisely the period when verbs with both *orphan* use and *captain* use, i.e. *o*&*c* verbs in Table 1, are first found. Like *orphan* verbs and *captain* verbs, parent nouns of these *o*&*c* verbs can be classified into some groups:

(i) *fellow* (15C) and its synonyms (e.g. 15C: *peer*; 16C: *friend*; 17C: *companion*; 19C: *partner*)
(ii) titles or ranks cum occupations (e.g. 15C: *saint*; 16C: *pope*; 17C: *duke*; 18C: *queen*; 19C: *squire*)
(iii) *fool* (16C) and its synonyms (e.g. 16C: *dolt*; 17C: *buffoon*; 19C: *noodle*)

Regarding the first group, although not all nouns meaning a fellow or a friend became *o*&*c* verbs,[10] friends are a bidirectional and equal relationship, and the result entailed in the *orphan* use "to make someone a fellow" and the manner entailed in the *captain* use "to act as a fellow for/toward" overlap each other. This may have facilitated the *o*&*c* use of *fellow* and its synonyms. Incidentally, *neighbour* became an *o*&*c* verb in the sixteenth century, which may well be because its *orphan*/result sense "to make someone a neighbour" and *captain*/manner sense "to act as a neighbour for/toward" are closely related, just like *fellow* and its synonyms. As for the second group, given that titles and ranks are in principle provided by others and that occupation nouns typically become *captain* verbs (see Clark and Clark's definition), it is understandable that these nouns end up as *o*&*c* verbs. Finally, concerning the third group, although the *orphan* sense "to make (someone) a fool" and the *captain* sense "to act as a fool for/toward" are not particularly synonymous, one can certainly act like a fool deliberately, and considering that parent

nouns of *orphan* verbs have a chronological tendency to express undesirable roles such as low social status, *fool* and its synonyms are sufficiently eligible for *o&c* use.[11)]

Not all *o&c* verbs belong to the above three groups, and the number of these verbs increases from the sixteenth century. An interesting case is that some *orphan* verbs or *captain* verbs in Levin's list (see Section 1) are *o&c* verbs from the historical perspective. *Cripple* is in Levin's list of *orphan* verbs, but the *captain* use "to move or walk lamely" is older and continues to be recorded until the end of the nineteenth century (c1220–1878).[12)] *Champion* is a *captain* verb in Levin's list, but it is evidenced as an *orphan* verb "to make a champion of" in 1886.[13)] As summarised in Table 3, numerous other examples demonstrate the fuzzy boundary between *o&c* verbs, *orphan* verbs and *captain* verbs.

Table 3. Some *O&C* Verbs, *Orphan* Verbs and *Captain* Verbs Whose Parent Nouns Are Near-Synonymous or Belong to the Same Category

O&C	*Orphan*	*Captain*
boy/man (16C), *lady/woman* (17C)	*child* (12C), *baby* (18C)	*carl/churl* (17C), *son* (18C)
brother (16C), *sister* (17C)	*uncle* (16C), *cousin* (17C)	*father* (14C), *mother* (15C)
slave (16C), *servant* (17C)	*thrall* (13C), *vassal* (17C)	*page* (16C), *maid* (19C)
wretch (16C), *bankrupt* (17C)	*beggar* (16C), *pauper* (19C)	*niggard* (16C), *miser/slattern* (18C), *wimp* (20C)
apostate/proselyte (17C)	*martyr* (OE)	*renegade* (17C), *vert* (19C)
bride (17C)	*nun* (18C)	*bridegroom* (19C)
burgess (17C)	*denizen* (16C), *citizen* (17C)	*tenant* (17C)
colonel (17C)	*professor* (19C)	*captain* (16C)
strumpet/whore (17C)	*courtesan* (17C)	*callet/harlot* (17C)

5. Why Are There Exceptions?

The previous section showed the historical development of *orphan* verbs and *captain* verbs and the difficulty of identifying which human noun would turn into an *orphan*/result verb or a *captain*/manner verb. *Orphan* verbs and *captain* verbs are neither dichotomous nor uniform, and they lack rigid boundaries. This may be partly why *o&c* verbs arose

even from their earliest history, but we cannot always explain which human noun would become an *o&c* verb eventually. Three factors may be raised as to why there are exceptional verbs that do not fit the semantic generalisation made in previous studies, most notably Clark and Clark (1979). First, *orphan* verbs and *captain* verbs are extremely low in frequency. My analysis of the *OED* confirmed that nearly 35 per cent of *orphan* verbs and 15 per cent of *captain* verbs are hapax legomena (Miura 2018a: 206, Table 9), and the verbs frequent enough to be established in meaning and use are a small minority. Similarly, Yumoto and Kageyama (2011: 198) observe that, with the exception of a few cases like *nurse*, verbs converted from agent or occupation nouns are rare and hardly productive. The most common parent nouns of denominal conversion verbs in Present-day English are related to instruments (Clark and Clark 1979: 776–79). Verbs converted from instrument nouns are sometimes discussed as examples of manner verbs, but *captain* verbs tend to remain unaddressed. We may hypothesise that various gaps or exceptions have been born because writers have employed *orphan* verbs or *captain* verbs under their own judgement and according to the context in question. Second, Present-day English denominal conversion verbs are said to be semantically diverse to the extent that they can only be considered to express an action that has something to do with the parent noun, and, as we have seen in this paper, the meaning of each verb is determined in its syntactic environment (Nagano 2008: 113–56; Yumoto and Kageyama 2011: 180; see also Kiparsky 1997). Lastly, Sakai (2015) and Usuki (2015) point out that some denominal conversion verbs are semantically exceptional. Specifically, at least some of the verbs converted from instrument or means nouns such as *guillotine* and *poison* (examples of manner-of-killing verbs in Beavers and Koontz-Garboden 2012) have a close relationship between manner and result, and whilst manner is their primary meaning, the resulting state may be entailed too.[14)] Verbs converted from human nouns usually become manner/*captain* verbs, but ties with result/*orphan* use may surface due to analogy with these most productive denominal conversion verbs.

6. Concluding Remarks

Orphan verbs and *captain* verbs correspond respectively to result verbs and manner verbs. *O&C* verbs like *fool* have both *orphan* use and *captain* use, but they are not direct counterexamples to manner/result complementarity since they do not entail manner and result at the same time. To follow Levin and Rappaport Hovav's argument, verbs that have both manner and result meaning components, with one dropping out when the other is lexicalised, namely with only one meaning eligible for lexicalisation, are considered to be polysemous. However, such polysemous verbs are treated as a handful of exceptions (Rappaport Hovav and Levin 2010: 23 n.1). Given that there is no great discrepancy between the number of *o&c* verbs and that of *orphan* verbs (see Table 1), we should be cautious to deal with *o&c* verbs as exceptions and may even avoid the labels "result verbs" and "manner verbs," sticking instead to "result use" and "manner use." As *orphan* verbs lexicalise only result and *captain* verbs only manner, *o&c* verbs lexicalise only result in *orphan*/result use and only manner in *captain*/manner use. It can be challenging to predict which human noun would develop into which verb, and we often have to examine the context or the syntactic construction to make any judgement. Nevertheless, such cases do not deny the fact that either manner or result is lexicalised in the verb. Manner and result are not opposites. The semantic system is equipped with flexibility. Depending on the nature of the parent noun, either manner or result may become the core meaning of the converted verb, which however has the potential to switch to the other meaning according to the context.

NOTES

1) This paper is based on my contribution to the symposium "On Manner/Result Complementarity" that was hosted at Gifu City Women's College as part of the 75th Congress of The Regional District of Chubu Branch, The English Literary Society of Japan (28 October 2023). I would like to thank Professor Koji Kawahara for his invitation to tackle this much-discussed topic in lexical semantics by revisiting my previous research on the history of *orphan* verbs and *captain* verbs (funded by Japan Society for the Promotion of Science under Grant-in-Aid for Young Scientists (B), Grant

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2) Japanese readers are referred to the series of recent monographs by Takanori Demizu (Demizu 2018, 2019, 2023) for student-friendly and up-to-date reviews of previous studies of lexical semantics of manner verbs and result verbs.
3) See also Mateu and Acedo-Matellán (2012), Namiki (2013), Husband (2014), Rissman (2016) and Morito (2022).
4) See also Yumoto and Kageyama (2011: 205) for the correlation between *captain* verbs and manner verbs.
5) See Morito (2022) for a helpful summary of these diagnostics and a critical analysis of the approach taken in Beavers and Koontz-Garboden (2012).
6) The symbol # indicates that the sentence has a low degree of acceptability.
7) Notations follow those in Rappaport Hovav and Levin (1998, 2010). Verbal roots are italicised and enclosed in angle brackets. The subscript for <*MANNER*> and <*CAPTAIN*> indicates their function as a modifier. The letter <y> in (13b) is underlined to show that it is a root argument added to the event schema, in contrast to the structure argument x, the original component of the event schema. The root argument in (13b) corresponds to the target of the action of *captain* verbs (see Section 1).
8) On a related note, result verbs are sometimes assumed to be telic and bound, and manner verbs atelic and durative (Levin and Rappaport Hovav 1991: 148). However, telicity cannot always distinguish the two verb classes, and a number of result verbs are not regarded telic (Rappaport Hovav and Levin 2010: 26–27).
9) The data introduced in this section are not updated from those in Miura (2018a). I am deeply indebted to Dr Philip Durkin, Dr Kate Wild and Mr James McCracken for having provided me with a comprehensive list of denominal conversion verbs in the *OED* Online based on the content and tagging of entries as of early 2015, when I was carrying out research on *orphan* verbs and *captain* verbs.
10) For instance, *buddy*, *comrade* and *pal* did not develop *orphan* use.
11) However, many synonyms of *fool* are limited to either *orphan* use (e.g. *bastard*, *doodle*, *mop*, *noddy*, *pigwidgeon*, *tony*) or *captain* use (e.g. *booby*, *clown*, *daff*, *folt*, *goof*, *lubber*, *muff*, *sawney*).
12) There are additional examples from Levin's *orphan* verbs. *Outlaw* and *widow* originated as *orphan* verbs, but apparent *captain* use is recorded at the end of the nineteenth century for *outlaw* ("to become outlawed") and in Shakespeare for *widow* ("to survive as the widow of (a spouse); to become the widow of"), as illustrated respectively in (i) and (ii) below. These instances may however be interpreted alternatively as the intransitive variant of causative alternation (see (15) above), which is found with the majority of result verbs in Present-day English.
    (i) Honour is a harder master than the law. It cannot compromise for less than an hundred cents on the dollar, and its debts never outlaw. [1895 "M. Twain" in *Westminster Gazette* 9 September 8/1]
    (ii) Let mee be married to three Kings in a forenoone, and Widdow them all. [a1616 W. Shakespeare, *Antony & Cleopatra* (1623) i. ii. 23]

13) To give another example from Levin's *captain* verbs, *doctor* started as an *orphan* verb, though in the sense "to make a Doctor" (1599–1891), not "to make a medical doctor or a physician," which would have been the *orphan* counterpart of the current *captain* use.
14) See also Rissman (2016), who proposed that instrument verbs such as *chop*, *cut*, *dice*, *slice*, *snip* and *stab* encode both agentive and result meanings and counterexemplify manner/result complementarity.

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An Analysis of *the Collins COBUILD Advanced Learner's Dictionary of English*, Tenth Edition

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1. Introduction

The year 2023 saw the publication of the Tenth Edition of one of the major EFL dictionaries, *the Collins COBUILD Advanced Learner's Dictionary* (henceforth *COB*10). It took five years for Collins to update the previous edition and bring the latest edition to market, as opposed to four years for the 8th-to-9th revision, possibly due to the COVID-19 pandemic that must have affected the editorial process.

When we reviewed the 9th edition of the dictionary (henceforth *COB*9) in Kokawa et al. (2020), the paperback edition that was released from Kirihara Shoten was available on the Japanese market, including the international paperback edition of *COB*9, a 15-page user's guide brochure in Japanese[1] edited by Kirihara Shoten and a cardboard case that accommodates both. The 10th edition is only available, as far as we know at the time of writing, in hardcover.

Thus, we must admit that we cannot make a direct comparison in terms of layout and physical constitution of the two editions of the *COBUILD* and our analysis here is only based on the hardcover 10th edition (ISBN: 978-0-00-844490-7) and the paperback 9th (ISBN: 978-0-00-825321-9), the latter of which we used in Kokawa et al. 2020.

The *COB*10 is made up of the following: 19 pages of front matter (*Acknowledgements, About COBUILD dictionaries, Guide to dictionary entries, Guide to dictionary features, Introduction, Definitions, Style and usage, Frequency banding, Pragmatics, List of grammatical notations,*

Explanation of grammatical terms, Pronunciation and *Irregular verbs*), 1,736 pages of A–Z dictionary text, 16 pages of *Visual dictionary* in full color in the middle of the book between M and L entries, and 121 pages of back matter (Appendices, that comprises *Writing style guide, Special information, Language in use, General grammar guide, Business English grammar, Academic English grammar, Glossary of grammatical terms, Frequent words, Academic Word List* and *Credits*). The total number of A–Z dictionary text pages was 1,758 in *COB*9, so we have 22 pages less in *COB*10. One of the reasons for this reduction may be that the 'Visual dictionary,' which had been incorporated in the A–Z text in *COB*9, was assembled as the middle matter of the dictionary between the entries of L and M. The middle matter is only made up of the Visual dictionary and includes 16 pages in full color. We will deal with this matter in the section 6.2. below.

We will not discuss all those features in *COB*10 listed above, but will rather focus on some of the major information categories (pronunciation, headwords and frequency bands, definitions, examples, as well as several featured elements about which this dictionary makes the following claims:

> Several special features in this dictionary help you to build your vocabulary in interesting and effective ways.
>
> (the front matter of *COB*10 viii)

The featured columns that we dealt with include 'Vocabulary in context,' 'Visual dictionary,' 'Synonyms,' 'Collocations,' 'Usage notes,' 'Prefixes' and 'Suffixes,' 'Word history,' and 'Pragmatics.' We also discussed some of the contents of the back matter of *COB*10, namely 'Style and usage,' 'Grammar,' 'Frequent Words,' and 'Academic Word List' in the following sections of this paper.

The copyright page of *COB*10 tells us that the 'Founding Editor-in-Chief (John Sinclair) and the Senior Editors (Penny Hands and Alison Macaulay) have not changed from *COB*9. Two editors in the 'For the Publisher' list (presumably referring to the in-house editor-lexicographers') out of the three in *COB*9 has been replaced, while only one lexi-

cographer was added to the 16 names in the 'Contributors' list in *COB*9, namely Laura Wedgeworth, but the others have remained.[2)] Thus, we may conclude that no major changeover of the staff has been made from the 9th to the 10th editions.

The design of the cover of the dictionaries is basically the same in the two editions: large yellow upper-case and lower-case letters 'C' and 'c' are presented on the front cover against the deep blue background. The title and the target user description on the front is also the same: 'For upper-intermediate and advanced learners of English.' We find a blurb identical to that on the 9th on the back cover that reads:

> *COBUILD*: The source of authentic English
>
> Our explanations, examples and special features are all based on our 4.5-billion-word database of the English language, the Collins Corpus, which means you can trust COBUILD to help you speak and write accurate and up-to-date English. The corpus is updated every month and has been at the heart of Collins COBUILD for more than 30 years.

The first edition of the *COBUILD* was published in 1987, and it is 31 (*COB*9) and 36 (*COB*10) years since then, so 'for more than 30 years' seems an appropriate description. On the other hand, as was discussed in Kokawa et al (2020), the word count of the *COBUILD* corpus (4.5 billion) stays the same since the 7th edition of the *COBUILD*, while in the 5th and 6th editions it was '645 million.' It may be that after the days of *COB*7, older data in the *COBUILD* corpus are being discarded (or made inaccessible) to keep it reasonably up-to-date for dictionary compilation.

A new feature in *COB*10, which is noteworthy, is mentioned in the Introduction (the front matter of *COB*10 xi):

> New to this edition is the addition of levels pertaining to the Common European Framework of Reference for Languages (CEFR). This framework has been developed to describe language proficiency, using a range of levels from A1 to C2. The *Collins COBUILD Advanced Learner's Dictionary* has assigned a level to

each meaning and phrase in the dictionary, the levels A1 to B2 are shown explicitly in the text, with all remaining vocabulary falling into the levels C1 or C2. This allows learners to see immediately which words and meanings are the most relevant to their own language learning journey.

What is pedagogically significant about this feature is that *COBUILD* assigned the different markers A1, A2, B1 and B2 to some of the different word senses and phrases in the same entry, in addition to the frequency banding attributed to each entry as a whole. We have no resource to investigate the validity of each marker at the moment, but we will briefly return to this in our discussion in section 4 below. Incidentally, on the back covers of the *COB*9 and the *COB*10 we find the designation of CEFR B2+. On the other hand, on the two sides of the cardboard case provided by the Japanese publisher, Kirihara Shoten, to put the *COB*9 and the above-mentioned handbook in, the level marker CEFR A1〜B2+ is printed. It may be that the original publisher would like to foreground the prestige of the dictionary by presenting the upper limit of the CEFR level, while the Japanese distributors have tried to make the user feel that the dictionary is quite accessible by showing the lower range (see 4.3.).

Visually, or in terms of dictionary presentation, the most striking alterations from *COB*9 to *COB*10 are apparent in that in the former, A–Z dictionary pages, the front and back matters were all printed in color, or at least black and blue, and illustrations were in full color, while in the newer version, all the pages are printed in black and white, with the sole exception of the 16-page 'Visual dictionary' which is presented as the centerpieces in full color. This may be due to the publishing cost, but we may have to say it is lexicographically a rather disappointing modification. Since the introduction of blue print in addition to black for dictionary text in *COB*4 (2003) and of vivid full-color illustrations in *COB*6 (2009) (Kokawa et al. 2015, 75), the colorful presentation of texts and materials in the dictionary has been a very attractive feature of the *COBUILD*. Headwords, run-ons and sense numbers had been presented in blue, which made it easier to spot information for which the

user of the dictionary was looking. The colorful pictures in the 'Vocabulary in Context' columns found abundantly in *COB*9 not only made the book attractive and fun to look at, but also imparted far more information than the black-and-white illustrations in *COB*10 could achieve. We will discuss this later in sections 6.1. and 6.2. below, and it will be recapped in our concluding remarks in section 9. First, we will look at the headwords and related information in *COB*10 in the following sections.

2. Headwords and Related Information

2.1. Count of headwords and related information

2.1.1. Scope of the survey

We counted the (substantial) headwords, run-ins, run-ons and empty headwords in one out of every 50 pages starting from page 2 up to 1,758 in *COB*9. The total number of represented sample pages is 36, which accounts for approximately 2% of the A–Z text of the dictionary. We then compared them with those in the corresponding parts in the dictionary text in *COB*10, based on the headwords, run-ons and run-ins. These categories of items had been printed in blue in the 9th edition, which made them very conspicuous and easy to find, but in the 10th they are only in black boldface so they do not stand out as they did in the previous edition.

2.1.2. Independent headwords, run-ons, run-ins and empty headwords in *COBUILD* entries

In the *COB*9 and the *COB*10, a single entry includes one independent headword which is presented at the top. Derivatives, idioms etc. are presented in boldface as 'run-ins' in the entry without logically starting a new line. On the other hand, phrasal verbs are entered as run-ons in the *COB*9 and the *COB*10 within an entry at its end with a logical line feed and a triangular icon pointing to the right (▶).

Some headwords are only entered for the purpose of giving reference to other entries, without any descriptions except pronunciation. We will call them here 'empty headwords.'

In our count, 821 such items (independent headwords, run-ins, run-ons and empty headwords) are identified in our sample portions in the 10th edition.

2.1.3. Empty headwords

We have identified 16 empty headwords in our sample in *COB*9 and *COB*10: **anemia, anemic, anesthesia, anesthetic, anesthetize, bye-law, enquire, enquirer, enquiry, en route, fancy-free, glamor, polarize, provocateur, spice up** and **yell out**. Reference is made for instance in the form '→ See anaemia' (s.v. **anemia**) under these empty entries. Correspondingly, in the entry **anaemia**, the note in AM, use anemia is given immediately below the headword line.) Many of the empty headwords are American/British variants that refers to their British/American counterparts with full entries (**anemia/anaemia, enquire/inquire, glamor/glamour, polarize/polarise,** etc.). Some others are directed to their full form or synonyms (**provocateur/agent provocateur**, **fancy-free/footloose**). The two phrasal verbs are given reference to the numbered senses of **spice** (spice 2) and **yell** (yell 1) respectively. There were no changes from the 9th to the 10th editions with regard to empty headword entries.

2.1.4. Run-ins and run-ons

As was mentioned above, derivatives and idioms are presented as run-ins in the *COB*9 and the *COB*10 (in blue and in black respectively). One and the same derivatives are sometimes in the same entry more than once, under different sense numbers. For instance, **negatively** is found four times in the entry **negative**, under the sense numbers 1, 2, 3 and 9, each with different illustrative sentences. We identified 73 token run-in instances of derivatives (we disregarded idioms here) in our sample portion. In this category too, there were no alterations in the run-in presentation from the 9th to the 10th.

There were 22 and 23 instances of run-ons, namely phrasal verbs presented in our probed portions, in *COB*9 and *COB*10 respectively. They are the same except that one phrasal verb, **rip apart** was newly entered

as a run-on in the latest edition.

2.1.5. Independent headwords

There were 703 instances of independent headwords in the *COB*9, while in the *COB*10 the count is 710. Nothing was deleted from the ninth edition, so there were seven net additions in the revision from the 9th to the 10th. The added items are as follows: **blood sister, choir girl, cred, fandom, fan-made, open goal** and **open mic**. The new inclusion of **blood sister** and **choir girl** may be associated with gender equality (as opposed to **blood brother** and **choir boy** which must have been used for ages. **Cred** (< street cred(ibility)), **fandom** and **fan-made** may be said to be related to sub-, street or popular culture. **Open goal** (in sports) and **open mic** (in meetings, parties and performances) are interesting expressions that may be used figuratively as well.

What may be regrettable these days may be that when people need to look these words up, they may consult the Web (on their smartphones and PCs) rather than an EFL dictionary like *COBUILD*. Information on the Web is quite reliable but its veracity is not 100% guaranteed. However, when a dictionary presents these words, we presume that *COBUILD* lexicographers see to it that information will remain relevant for a certain period of time, rather than focusing on ephemeral or passing 'buzzwords.' In the case of *COBUILD*, they must be attested via the *COBUILD* corpus as having taken root and been established for a certain period of time, at least until the next revised version is put on market.

What we would like to suggest now, not only as metalexicographers but also as learners and explorers of a language, as long as dictionaries are updated over the span of several years, is to have a new-word dictionary as an attached appendix. Just a list of new headwords may help us visualize recent trends and the development of the language. Publishers of dictionaries may be reluctant to do such a thing, as it may reveal how conservative they may appear in their acceptance of new trends, but as we discussed earlier dictionaries have different mission of 'attestation' from the Web. Also, if the publishers make the new word supplement

appealing, it may add to the dictionary's practicality and popularity as a reference work.

Besides the items found in our sample portion, words which must have come into widespread use during the COVID-19 pandemic, such as **epidemiology** and **epidemiologist** are found as new entries in the 10th edition.

2.2. Frequency band designation in the *COB*9 and the *COB*10

As was discussed in Kokawa et al. (2020, 47–48), the 4th and later editions of *COBUILD* employs a three-diamond, five-level system to designate the frequency of lexical items, entry by entry. The system is the same in *COB*10 and the application of diamonds, or the actual designations of frequency bands have not changed from the *COB*9 to the *COB*10 as far as our sample survey portions are concerned. We identified the following items with the respective numbers of lozenges attached.

> ♦♦♦ (17 items): **able, by, ①down, enough, far, for, later, low, pay, police, policy, provide, sign, ten, yeah, year, yellow**
> ♦♦ (12 items): **ability, balance, choice, credit, glass, interested, latest, mile, negotiate, prove, search, tend**
> ♦ (37 items): **anger, angle, bake, bloody, bye, chocolate, deposit, enormous, fantastic, fantasy, glad, glance, harm, hunt, hunter, interesting, interim, interior, Latin, lower, mild, negative, opening, pause, pole, policeman, police officer, province, provision, recovery, recruit, riot, signal, subsequent, tendency, tennis, training**

The frequency designation for each entry was the same in both the *COB*9 and the *COB*10.

Based on the number of independent headwords in *COB*10, we have calculated the percentage of items marked with three, two, one and zero diamonds respectively in our sample portions in order to have a very rough idea of frequency markings in the *COBUILD*.

> Level 3 (♦♦♦) 17/710 ≒ 2.3%
> Level 2 (♦♦) = 12/710 ≒ 1.7%

Level 1 (♦) = 37/710 ≒ 5.2%
*Level 1–3 combined = 66/710 ≒ 9.3%
Level 0 (without any diamonds) = 644/710 ≒ 90.7%

In our sample portions, nearly 1 out of 10 headwords are listed as 'frequent words' whose levels are varied.

The *COB*10 expounds upon the use of the Collins Corpus in the front matter (*COB*10 v) as follows:

> All *COBUILD* dictionaries are based on the information our editors find in the Collins Corpus. Because the corpus is so large, our editors can look at lots of examples of how people really use words. The data tells us how words are used; what they mean; which words are used together; and how often words are used.
>
> ('About COBUILD dictionaries', *COB*10 v)

This paragraph is identical to the corresponding one in *COB*9. We can surmise from the foreword that the *COBUILD* uses the corpus data for deciding the frequency designation with diamonds.

Presuming that the judgement of the *COBUILD* editors with regard to frequency information is based on the corpus, we cannot rightly comment on the respective application of frequency diamonds in the *COBUILD*. The present authors are non-native speakers of English, and *COBUILD*'s corpus should definitely give more evidence than our EFL teacher/learner intuition. We would just like to point out that the fact that entries **anger** (1), **angry** (1) **upset** (1), **hunger** (0) and **hungry** (0) are endowed with the number of diamonds shown in brackets respectively, while the fact that the word **negotiate** (2) has two diamonds as shown above is rather unexpected.

2. 3. Conclusion

No major changes have been applied to the overall system of headword and frequency band presentation in the revision from the *COB*9 to the *COB*10. Certain additions of entries, however, although not extensive, was identified reflecting the changes in society and in the language used there, and we welcome this slow but steady update in view of the roles that EFL dictionaries play, as opposed to those of information

found on the Web. Further investigation may be awaited with regard to some of the specific application of frequency diamonds, possibly using other corpora than the *COBUILD* corpus. (Section 2 by Kokawa)

3. Pronunciation

This chapter examines the phonetic transcriptions of *COB*10 and relevant audio samples in the Collins Online English Dictionary (https://www.collinsdictionary.com/), with a focus on changes from *COB*9. In addition, it compares pronunciation dictionaries, such as *Longman Pronunciation Dictionary*, 3rd edition (*LPD*3), *English Pronunciation Dictionary*, 17th edition (*EPD*17), and *The Routledge Dictionary of Pronunciation for Current English*, 2nd edition (*RDP*2) to verify the transcription of the words with multiple pronunciations.

3.1. Overview

The overall system of phonetic transcription in *COB*10 remains the same as that of *COB*9, which was briefly outlined in Kokawa et al. (2020). The list of transcription symbols and explanations regarding English sounds in the front matter (xxv–xxvii) are also available on the online distortionary, IPA Pronunciation Guide — COBUILD. The transcription system is consistent in newly added headwords, such as **coronavirus**, **COVID-19**, **fake news**, **LGBTQ+**, **lockdown**, **non-binary**, and **postwoman**, and their pronunciations agree with other major learner's and pronunciation dictionaries. As for **epidemiologist** /e̲pɪde̲mi̲ɒlədʒɪst/, however, the vowel in the second syllable is transcribed as /e/, while other dictionaries used /iː/.

One of the small changes from the previous version can be observed in the transcription of acronyms. Take **LGBTI+** as an example. Spaces are added between the transcription of each alphabet such as /e̲l dʒiː biː tiː a̲ɪ/ (here, the transcription of "**+**" (/plʌs/) is not included because it is missing from *COB*10 and the Collins Online English Dictionary). In addition, when providing multiple variations, the difference in stress becomes clearer, indicated by the position of an underline, such as in **electronic** /ɪle̲ktrɒ̲nik, i̲ːlek-/ (cf. /ɪle̲ktrɒ̲nik, i̲ː-/ in *COB*9: here it

becomes clearer that the second syllable is not stressed in the second variant). As another example of the change from *COB*9, the stress underline has been added to one-syllable words that were transcribed without stress marks in *COB*9, such as **your** /jɔːʳ, jʊə̲ʳ/.

On the online dictionary, users can listen to the pronunciation of a headword by clicking the speaker icon next to it. Similar to the paper version, a separate transcription and a sound file are given, wherein the North American pronunciation differs from the British one. Although the majority of sound samples sound natural and consistent with the transcription, a number of unnatural or synthetic North American sound samples exist. For common words, 21,093 pronunciation videos are available, wherein users can watch a native speaker of British and North American English pronounce a headword twice (if a headword has two variants of pronunciation, both variations are pronounced). In addition, clicking on the link on these videos will redirect users to corresponding YouTube websites that offer information of the regional accent of speakers. These videos are pedagogically helpful, because users can observe the movement and position of the lips, jaw, and tongue when a native speaker makes the sound. However, certain discrepancies are observed between the sound transcriptions and actual pronunciations in the videos. The reason is that the British pronunciation for certain words is pronounced by native speakers of Scottish English, whose sound system poses a number of significant differences from that of the British accent. Section 3.2. further discusses examples of these discrepancies.

3.2. British and North American pronunciation

As explained in the front matter and Kokawa et al. 2020, *COB*10 employs the British-centered transcription system as in *COB*9. Furthermore, *COB*10 maintains the traditional transcriptions for British pronunciation without reflecting changes in pronunciation such as the monophthongization of SQUARE word vowels (Wells, *Accents of English* 155–157). However, in contrast to its transcription, the sound samples and videos on the online dictionary have monophthongized

realizations. Notably, certain exceptions exist: a number of the British pronunciation videos, such as **where** and **care**, have /er/ realizations, because they are pronounced by native speakers of Scottish English. The difference between the British and Scottish accents is also evident in the videos of GOAT word vowels (Wells, *Accents of English* 146–147). The difference in phonemic representations of GOAT words is one of the most significant systematic differences between British /əʊ/ and North American /oʊ/, which is also explained in the front matter of the dictionary (xxvi). On the British English pronunciation videos of several GOAT words, such as **home** and **joke**, Scottish English speakers found [ou] realizations. Although gaining the opportunity to listen to various regional accents of English would be an advantage for users, a gap remains between the transcriptions and video recordings, which could be confusing for users.

For North American English pronunciation, the traditional transcription system is preserved in *COB*10. The rhotic vowels are indicated by the superscript /ʳ/ but not sound changes in North American English such as the merger of vowels /e/, /eə/, and /æ/ before /r/ (the Mary-marry-merry merger). The vowels of CLOTH words (Wells, *Accents of English* 136–137) are also described in the same manner as that in *COB*9, /klɒ̲θ AM klɔ̲ːθ/, while the transcription of /ɑ/ is added for North American pronunciation on the online dictionary, which reflects its merger with LOT words (Wells, *Accents of English* 131). As for the intervocalic flapping of /t/, no indication exists on *COB*10 and the online dictionary. They are realized as stops [t] in the pronunciation videos, but the sound samples on the online dictionary provide [ɾ] realizations. Thus, additional information related to the features of North American pronunciation would be pedagogically beneficial due to the lack of explanation of North American intervocalic /t/ even in the front matter of *COB*10 or in the online dictionary.

3.3 Variants of pronunciation

To investigate the transcriptions of the lexical items known to have multiple variations, analysis was conducted on 260 words, whose prefer-

ence ratios are available in *LPD*3 and Wells (1999). The result was basically the same as that of Kokawa et al. (2020), which concludes that the difference between British and North American English is not transcribed clearly enough in many cases. However, although partially reflecting the result of the preference ratio, two changes are observed. First, in **February** /fe͟bruəri, AM -rueri/, /ju/ in the second syllable was replaced with /ru/ for the British accent, which makes the transcription more consistent with the preference ratio (i.e., 61% of British English speakers prefer /ru/). However, the second syllable for the North American accent has become less consistent with the poll, wherein 64% of American English speakers prefer /ju/. Second, the British transcription of **longitude** has changed from/lɒ͟ndʒɪtjuːd/ to /lɒ͟ŋgɪtjuːd/. This revision clearly reflects the actual preference of British English speakers (as /lɒ͟ŋg-/ is preferred by 85%). Although not a thorough revision, the fact that certain transcriptions have been revised is worthy of recognition.

3.4 Conclusion

Although no major changes occurred in the overall system of phonetic transcription from *COB*9 to *COB*10, certain revisions have been made for the sake of uniformity with the transcription system. Further improvement can be implemented to decrease the discrepancies between the transcription and sound samples. (Section 3 by Aoki)

4. Definitions

4.1. Overview

The guide for definitions in *COB*10 is found in the front matter of the print volume (xii–xiii). The main features of the definitions in *COB*10 are the same as those in *COB*9. They can be summarised as follows:

1. The definitions are written as full sentences using a restricted defining vocabulary consisting of 2,500 of the most common English words.
2. A full-sentence definition of a word must provide users with information about collocates, structure, grammar, context and

usage of the defined word.

3. Grammatical and functional words are sometimes explained by paraphrases with context.

The features of the newly added word senses are discussed in detail in 4.2. As noted in the introduction, *COB*10 was compiled using the language data in the Collins Corpus that, according to the publisher, is continually updated and contains 'English language material from thousands of different written and spoken sources, both online and in print' (xi). It can be assumed that use of the corpus contributed to the recognition and inclusion of new words and senses that resulted from recent changes in our society, such as the changes in lifestyles brought about by the COVID-19 pandemic.

The most fundamental novelty of *COB*10 is that it assigns a CEFR label to each meaning and to each phrase among its entries. As explained in the introduction, the CEFR 'has been developed to describe language proficiency, using a range of levels from A1 to C2' (xi). Levels A1 through B2 are clearly indicated in the text, but vocabulary items that pertain to levels C1 or C2 are not labelled. The CEFR labels allow learners to see which entry words and phrases are most relevant to their proficiency level and the study of which must be prioritised. The benefits of these will be discussed in 4.3.

If cross-references exist, they appear following the presentation of all word senses, i.e. at the end of the entry in *COB*10. The changes to cross-referencing are discussed in 4.4. in terms of user-friendliness.

4.2. Features of new word senses

We found very few additional entry words or word senses in the comparison of the entries in *COB*9 and *COB*8 (Kokawa et al., 2020). By contrast, we found some additions in *COB*10 upon comparing the word senses in the sample pages with those of the corresponding pages in *COB*9. Every 50th page of *COB*10 was taken as a sample. Because the body of *COB*10 consists of 1,736 pages, excluding the front matter, the Visual dictionary in the middle and the appendices at the end, the sample pages accounted for approximately 2% of the dictionary. The newly

added word senses can be grouped into the following six categories.

First, we noted that *COB*10 has added to its entries some new word senses coined as a result of changes in lifestyle due to the COVID-19 pandemic. For example, the fourth sense of the word **hybrid** was added in *COB*10:

> 4 ADJ [ADJ N] **Hybrid** working is the practice of working in different environments, such as from home and in an office. ❑*Hybrid working is here to stay.*

Another example is the sixth sense of the word **remote**:

> 6 ADJ **Remote** working or learning is done from home or from somewhere away from the usual place, especially using a computer connected to the internet. ❑*Now remote learning is much easier.* ❑*… remote workers.*

Second, we noted additional senses of words that reflect the frequent use of computers in daily life. The fourth sense of **favourite** is an example:

> 4 VERB If you **favourite** the address of a website or other online resource, you add it to a list so that you can find it again easily. [COMPUTING] ❑[v n] *The trial had to be stopped after a juror favourited a newspaper's report of the case on Twitter.* ❑*When you favourite an image, the image will save to your collection.*

Another example is the third sense of **cloud**:

> 3 N-SING The **cloud** is the network of remote servers that is used in cloud computing. [COMPUTING] ❑*If the cloud were a country, it would rank fifth in the world in electricity demand.* ❑*The use of cloud storage has expanded hugely in recent years.*

It is noteworthy here that the adjective **cloud-based** was found in the entry for **cloud** in *COB*9, but it has been promoted to its own independent entry in *COB*10, as follows:

> **Cloud-based** ADJ **Cloud-based** technology allows you to use programs and information that are stored on the internet rather than

on your own computer.

Third, new meanings and uses of common headwords have been added to *COB*10. This is likely due to the Collins Corpus itself, which is constantly updating. For example, a new sense of the verb **angle** has been added, as follows:

> 7 V-ERG If you **angle** something or if it **angles** in a particular direction, it faces or points in that direction. ❑[v n] *You can open the slats for a bright light or angle them for more shade.* ❑[v adv/prep] *The path angled downhill and northwards.*

Incidentally, the term V-ERG, indicating an ergative verb, is not found in the 'Explanation of grammatical terms' section in the front matter (xvii–xxiii) of *COB*10. It is used not only for single verbs but also for some phrasal verbs, as shown in the following example:

> **ball** 3 VERB When you **ball** something or when it **balls**, it becomes round. … ●PHRASAL VERB-ERG **Ball up** means the same as **ball**. ❑[v n p] *She balled the handkerchief up and threw it at his feet.* [Also v p n (not pron)]

As the term VERB-ERG is used to identify a feature of certain verbs, as shown in the examples above, it should be included in the 'Explanation of grammatical terms' in the front matter[1)].

Fourth, it is notable that many multiword units have been added to the headwords in *COB*10. The following is an example, drawn from the entry for ② **blow**:

> 4 PHRASE [v inflects] Something that **softens the blow** or **cushions the blow** makes an unpleasant change or piece of news easier to accept. 5 PHRASE [v inflects, PHR n] If you **strike a blow** for particular cause or principle, you do something that supports it or make it more likely to succeed.

Examples similar to this include the following: **in concert** (**concert** 3), **not cricket** (**cricket** 2), there is **no love lost / little love lost between** (**love** 19), **not** doing something **for love or money** (**love** 21) and **put one over on** (**put** 13), among a significant number of others.

Fifth, words or phrases labelled CONVENTION are among the new additions to *COB*10. *COB*10 defines a CONVENTION as a word class, namely, 'a word or a fixed phrase which is used in conversation, for example when greeting someone, apologizing, or replying, e.g. *hello*, *sorry*, *no comment*' (xviii). The phrase **perish the thought** in the entry for **perish** is an example:

> **perish** 3 CONVENTION If someone says **perish the thought**, they mean that they think that a suggestion or possibility is unpleasant or ridiculous [FEELINGS] ❑*And perish the thought that the holiday should distract you from the basketball*.

This may also have been due to the contribution made by the Collins Corpus to the identification and inclusion of these colloquial multiword units.

Finally, it is worth noting that some newly added word senses in *COB*10 concern the expression of gender identity. In recent years, people have become more sensitive regarding gender identity, producing in an increase in the number of terms used to describe it. The data found in the Collins Corpus may reflect this tendency, which has led to the inclusion of these new terms and word senses. For example, the fourth sense of **out** was added for *COB*10.

> ② **out** 4 ADJ [v-link ADJ] If a person is **out,** they are open about their sexuality or gender identity. ●ADV [ADV after V] **Out** is also an adverb. ❑*What is missing is for one professional football or hockey player to come out*.

4.3. Benefits of the CEFR-level labels

One outstanding novel feature of *COB*10 is the addition of labels showing the levels of the CEFR to meanings and phrases in *COB*10 entries. Those in the A1 to B2 range are explicitly labelled whereas those in the C1 or C2 levels are not. Let us consider the following labelled senses in the entry for **composition**:

> 1 N-UNCOUNT When you talk about the **composition** of something, you are referring to the way in which its various parts

> are put together and arranged. … 2 B2 N-COUNT The **compositions** of a composer, painter or other artist are the works of art that they have produced. ❑ *Mozart's compositions are undoubtedly amongst the world's greatest*. 3 B1+ N-COUNT A **composition** is a piece of written work that children write at school. …

Vocabulary in the A1 to B2 range are explicitly labelled so that the target users of *COB*10, who are supposed to be upper-intermediate and advanced learners of English, can prioritise those for their vocabulary learning, as indicated in the introduction (xi). We recommend that teachers encourage their students to use these CEFR labels as indices showing the relevance of definitions to their own level of English proficiency.

4.4. Some problematic points of cross-references

One main feature of *COB*10 is that Visual dictionaries are gathered in the middle matter and they are classified under the two headings 'TYPES OF' and 'PARTS OF'. Under the former are Visual dictionaries that show groups of related vocabulary items that belong to a particular set. For instance, in the Visual dictionary for BAG are words such as **backpack**, **briefcase**, **bum bag**, **carrier bag**, **handbag** and so on. Under the latter heading are definitions composed of an image and a list of important words associated with it. For example, in the Visual dictionary for COMPUTER is a photograph of a laptop that identifies important parts of the laptop with words such as **screen**, **USB port**, **keyboard** and **trackpad**.

In *COB*9, the location of Visual dictionaries that were relevant to a certain entry was explicitly specified. By contrast, *COB*10 uses the general term 'colour supplement' to indicate a Visual dictionary and does not explicitly indicate its location. Therefore, it can be difficult for users to identify Visual dictionaries relevant to a certain headword. For example, in the entry for **engine**, *COB*9 gave the instruction 'See also feature box at **aeroplane**'. The intention of this direction was to help users find the Visual dictionary for **aeroplane** in which an engine was shown as a part of the plane. By contrast, *COB*10 only says 'See also

colour supplement'. To follow this instruction, the users must first guess that an **engine** is depicted in one of the Visual dictionaries classified under the heading 'PARTS OF'. Then, they must locate the word **engine** within the Visual dictionary for **aeroplane**. This case illustrates that cross-reference in *COB*9 was more helpful for locating the relevant Visual dictionary being referred to.

The cross-reference in the entry for **badminton** in *COB*10 exhibits a similar problem. It is difficult for users to spot the photograph of badminton rackets within the Visual dictionary for **bat** unless they can successfully infer that badminton rackets are to be found in the Visual dictionary for **bat** under the heading 'TYPES OF'. In *COB*9, users could go directly to the Visual dictionary for **bat**, as the instruction in its cross-reference clearly states that the feature box is found at **bat**, even though the Visual dictionary was not on the same page where the entry for **badminton** was. We consider that the instructions in the cross-references of *COB*10 must be reformed in terms of user-friendliness.

4.5. Conclusion

The basic characteristics of *COB*10 are as follows: as with *COB*9, the definitions are given in full-text format and the vocabulary used in the definitions is limited to the 2,500 most commonly used words. However, it should be commended that *COB*10 incorporates novel words and usages. This is for several reasons. First, new words and terms are included to reflect the lifestyle changes brought about by the COVID-19 pandemic; second, new words and terms related to the use of computers, which have become indispensable in our daily life in recent years, are included; and third, common words and phrases with new meanings and usages that have appeared recently have also been included. It is noteworthy that several multiword units with new meanings and usages, colloquial words used in conversational expressions and some new word senses related to gender identity are included. The most important feature is that the headwords are given labels to show their CEFR levels, where these are between A1 and B2, allowing the target user to recognise the priority level at which the word is to be learned.

Teachers should encourage learners to pay attention to the CEFR markings with the aim of prioritising learning vocabulary appropriate to their proficiency level. Finally, one of the negative changes in *COB*10 is the lack of clear cross-reference. With all of the Visual dictionaries grouped in the volume's middle matter and the related visual dictionaries not explicitly marked as such, users will find it difficult to refer to a visual dictionary from a headword. (Section 4 by Takahashi)

5. Examples

In this section, we review examples in *COB*10. *COB*7, *COB*8, and *COB*9 used examples based on the Collins Corpus, and *COB*10 uses the same corpus. We compared the examples used under the same headwords in *COB*9 and *COB*10. *COB*9 had 1,758 text pages (A–Z) and *COB*10 has 1,736 text pages. *COB*10 has fewer text pages but we noticed a little increase in the number of examples from *COB*9 to *COB*10.

5.1. Comparison of examples in *COB*9 and *COB*10

The sample pages are about 2% of the total text pages of *COB*9 and *COB*10. Table 5.1 shows the results of the survey of examples conducted on the same range of headwords in both editions. In about 38 sample pages out of the 1,736 text pages, 1,690 examples are found: 38 examples have been added, 10 deleted, and 13 modified in *COB*10.

Table 5.1. Comparison of the Number of Examples between *COB*9 and *COB*10

	Headwords	*COB*9	Addition	Deletion	Modification	*COB*10
1	a—able	76	5	0	1	81
2	backwards—Bahamian	102	6	0	0	108
3	bunting—burp	100	4	1	0	103
4	committal—community	77	2	1	1	78
5	default—definite	81	0	0	1	81
6	element—email	97	1	1	1	97
7	flash mob—flay	97	0	1	0	96
8	grove—guarantor	116	3	1	2	118

9	incompetent—indecent	94	1	1	1	94
10	liable—license plate	73	4	2	0	75
11	misshapen—mix	113	3	1	2	115
12	orderbook—orienteering	75	4	0	0	79
13	poll—poo	51	1	0	0	52
14	redden—redundancy	76	0	0	0	76
15	seabird—season	86	0	0	1	86
16	spank—speak	103	3	1	1	105
17	taste—tea	66	0	0	0	66
18	underachieve—underpants	88	1	0	2	89
19	wish—withholding tax	91	0	0	0	91
Total examples in the sampling pages		1,662	38	10	13	1,690
Total text pages(A—Z)		1,758				1,736

5.2. Additions of examples

In about 38 sampling pages in *COB*9 and *COB*10, 38 examples were added in *COB*10. That is, approximately one example was added on one page. Among these additions, there are 14 examples added to ten new definitions and two examples to the old difinitions[1)]; six examples were added to the new phrasal verbs and nine examples to the new set phrases. Besides, there are eight cases of example replacement with the former ones including one example with a phrasal verb.

5.2.1. New examples added to the definitions

There are 14 examples added to the new definitions under the following ten headwords:

(1) **a**
- ❏ *The full address was that of a Mrs. P.R. Slater of Peterborough.*
- ❏ *As far as I can recall, Patti was a Smith.*

(2) **abandon**
- ❏ *We are scared to abandon ourselves to our feelings in case we seem weak or out of control.*

(3) **ablaze**
- ❏ *He was ablaze with enthusiasm.*

❑ *Her voice is passionate. Her eyes are ablaze.*

(4) **badge**

❑ *Foreign companies used to consider a New York listing a badge of honour.*

(5) **bag**

❑ *The smart ones will have already bagged by placing cards on them.*

(6) **burn**

❑ *They always took changes and got burned very badly in past years.*

(7) **library**

❑ *Guests were rarely entertained in the library.*

(8) **ordinary**

❑ *I'm just a very ordinary, boring normal guy.*

❑ *Your life since then must have seemed very ordinary.*

❑ *…very ordinary, if very well made, drinking glasses, lamps and tableware.*

(9) **orient**

❑ *She lay still for a few seconds, trying to orient herself.*

(10) **poncey**

❑ *…poncey art-house films.*

There is one additional example to an old definition under the following headword:

underlying

❑ *…underlying health conditions.*

5.2.2. New examples with phrasal verbs

Six examples with phrasal verbs have been added under the following four headwords in *COB*10. (Underlined parts in the examples, our modification, show phrasal verbs.)

(1) **burn**

❑ [v p n (not pron)] *The bushfire actually helped to burn off a lot of dead undergrowth.*

❑ [v pron-refl p] *He might burn himself out and go to an early grave.*

(2) **grow**

❑ [v p n (not pron)] *I also let my hair go darker and grew out my fringe.*

❑ [v p] *The red rinse had grown out completely.*

(3) **mist**
❑[v p]*His eyes misted over and he started to shake.*
(4) **mix**
❑[v p n]*They get confused and mix up their words.*

5.2.3. New examples with set phrases

Nine examples with set phrases have been added in *COB*10 under the following seven headwords. (Underlined parts in the examples, our modification, show the set phrases.)

(1) **backwards**
[EMPHASIS] ❑*I asked about one or two things that interest me and she really did know it all backwards.*
(2) **bad**
❑*The economy is in a bad way.*
❑*We still can't find anyone with a bad word to say about her.*
(3) **bag**
[AM, INFORMAL] ❑*I don't want to be left holding the bag if something goes wrong.*
(4) **burden**
❑*The burden of proof is on the prosecution.*
(5) **licence**
[DISAPROVAL] ❑*At that time, commercial TV was a licence to print money.*
(6) **mix**
[INFORMAL] ❑*Stewart has developed a tendency to mix it verbally with the opposition.*
(7) **spare**
❑*The government is determined to spare no effort in investigating this case thoroughly.*
❑*Officials say they'll spare no expense to prevent another riot.*

5.3. Replacements of examples

There have been eight replacement examples in *COB*10. These examples have been replaced with those using the same style labels [formal], [informal], or the pragmatic label [approval], and the same grammatical patterns. They have been replaced with more appropriate, less controversial or discriminatory ones. (Underlined parts in the examples, our

modification, show phrasal verbs.)

(1) **comms**
[informal] ❑*…comms software.*
→ [informal] ❑*She has been running the organization's comms for 15 years.*
❑*All the ship's comms were down.* (additional example)

(2) **elevated**
[usu ADJ n] ❑*…the magazine's elevated British tone.*
→ [usu ADJ n] ❑*Some guests were trying to maintain the elevated tone.*

(3) **grown**
[ADJ n] ❑*Few women can understand a grown man's love of sport.*
→ [ADJ n] ❑*I've never seen a group of grown men laugh so much.*

(4) **incongruous**
[formal] ❑*She was small and fragile and looked incongruous in an army uniform.*
→ [formal] ❑*This seemed both incongruous and irritating against a background of severe poverty.*

(5) **liable**
❑*Only a small minority of the mentally ill are liable to harm themselves or others.*
→ ❑*When challenged about his behaviour, David was liable to dissolve in tears.*

(6) **liberator**
[formal] ❑[+*from*]*We were the people's liberators from the Bolsheviks.*
→ [formal] ❑[+*from*]*We shall be our own liberators from poverty.*

(7) **mix**
❑[v p n]*Depressed people may mix up their words.*
→ ❑[v p n]*They get confused and mix up their words.*

(8) **sparkle**
3 [approval] ❑[v]*She sparkles and has as much zest as a person half her age.*
→ [approval] ❑[v]*She sparkles with wit and charm.*

5.4. Deletions of examples

In the sample pages, ten examples were deleted from *COB*9. Some of these examples seemed somewhat controversial or discriminatory. Besides the eight replacements of examples, two examples have been

deleted in *COB*10.

The following first example in *COB*9 had a style label [computing]. It has been deleted together with the definition of its headword because this information has become archaic in this field:

burn 13 VERB To **burn** a CD-ROM means to write or copy data onto it. [computing] ❑[v n]*You can use this software to burn custom compilations of your favourite tunes.*
(2) **flat-footed** 2 VERB [disapproval] ❑*The government could be caught flat-footed.*

5.5. Modifications of Examples

In the total sample pages, 13 examples under the following 13 headwords were modified. Seven examples have been remodeled to those in *COB*8 or former editions. We believe, many of these examples were partly modified in *COB*9 but returned to the original examples in Collins Corpus. (Underlined parts in the examples, our modification, show where changes occurred.)

(1) **abdomen**
[formal] ❑*He was suffering from pains from his abdomen.* (*COB*10)
← [formal] ❑*He had pains in his abdomen.* (*COB*9)
← [formal] ❑*He was suffering from pains from his abdomen.* (*COB*8)
← [formal] ❑*He was suffering from pains in his abdomen.* (*COB*7 / *COB*6)

(2) **community**
❑*The police haven't really done anything for the Black community in particular.* (*COB*10)
← ❑*The police haven't really done anything for the black community in particular.* (*COB*9)
← ❑*The police haven't really done anything for the Black community in particular.* (*COB*8)
← ❑*The police haven't really done anything for the black community in particular.* (*COB*7 / *COB*6)

(3) **defeat**
❑[+ *for*]*This vote is seen as a defeat for the liberal elite.* (*COB*10)
← ❑[+ *for*]*The vote is seen as a defeat for the anti-abortion lobby.* (*COB*9 / *COB*8 / *COB*7 / *COB*6)

(4) **elevate**

❏[v-ed]…*individuals who have elevated in cholesterol levels.* (*COB*10)

← ❏[v-ed]…*overweight individuals who have elevated cholesterol levels.* (*COB*9 / *COB*8 / *COB*7 /*COB*6)

(5) **grow**

❏[v-ing]…*a growing number of children living in poverty.* (*COB*10)

← ❏[v-ing]…*a growing number of immigrants.* (*COB9* / *COB*8 / *COB*7 / *COB*6)

(6) **grow**

❏[v n]*We tried to grow some copper sulphate crystals with our children.* (*COB*10)

← ❏[v n]*We tried to grow some copper sulphate crystals.* (*COB*9)

← ❏[v n]*We tried to grow some copper sulphate crystals with our children.* (*COB*8 / COB7 / *COB*6)

(7) **incompetent**

[DISAPPROVAL] ❏He wants the power to sack incompetent teachers. (*COB*10)

← [DISAPPROVAL] ❏*He wants to sack incompetent teachers.* (*COB*9)

← [DISAPPROVAL] ❏*He wants the power to sack incompetent teachers.* (*COB*8 / *COB*7 / *COB*6)

(8) **mission**

❏*They say God spoke to them and told them to go on a mission to the poorest country in the Western Hemisphere.* (*COB*10)

← ❏*They say God told them to go on a mission to the poorest country in the Western Hemisphere.* (*COB*9)

← ❏*They say God spoke to them and told them to go on a mission to the poorest country in the Western Hemisphere.* (*COB*8 / *COB*7 / *COB*6)

(9) **mistrust**

❏[v n]*It frequently appears that Bell mistrusts all journalists.* (*COB*10)

← ❏[v n]*It appears that Bell mistrusts all journalists.* (*COB*9)

← ❏[v n]*It frequently appears that Bell mistrusts all journalists.* (*COB*8 / *COB*7 / *COB*6)

(10) **season**

❏[+ *of*]…*a season of films by America's pre-eminent documentary maker, Ken Burns.* (*COB*10)

← ❑[+ *of*]*…a season of films by America's preeminent documentary maker, Ken Burns*. (*COB*9)
← ❑[+ *of*]*…a brief season of films in which Artaud appeared*. (*COB*8 / *COB*7 / *COB*6)

(11) **speak**
❑[v + *of*]*Throughout the book he speaks of the challenges his family has faced*. (*COB*10)
← ❑[v + *of*]*Throughout the book Liu speaks of the abuse of Party power*. (*COB*9 / *COB*8 / *COB*7 / *COB*6)

(12) **underclothing**
❑*…a common brand of men's underclothing*. (*COB*10)
← ❑*…men's underclothing*. (*COB*9)
← ❑*…a common brand of men's underclothing*. (*COB*8 / *COB*7 / *COB*6)

(13) **underground**
❑*After the violent clashes of 1981 they either went underground or left the country*. (*COB*10)
← ❑*After the violent clashes they either went underground or left the country*. (*COB*9)
← ❑*After the violent clashes of 1981 they either went underground or left the country*. (*COB*8 / *COB*7 / *COB*6)

5.6. Conclusion

*COB*6 used the Collins Corpus, which contained 645 million words. Then the corpus has grown to 4.5 billion words, which *COB*7, *COB*8, and *COB*9 used. Considering its growth, the changes in the examples were very few in *COB*7 and *COB*8. The expansion of the corpus was reflected in the examples in *COB*9, and this time we also found a number of changes in the examples in *COB*10. In this section we compared the examples used under the same headwords in *COB*9 and *COB*10. The number of examples has increased a little. Several examples with phrasal verbs and set phrases were added, and very few deletions of examples except some replacements of examples. We also find a number of modified examples, about half of which were remodeled to the former ones used in *COB*8, *COB*7, or *COB*6. (Section 5 by Ikeda)

6. Featured Columns

6.1. Vocabulary in context

No significant change from *COB*9 occurred: 94 columns are available, including approximately 10–15 keywords written in bold with a wide range of topics related to headwords such as **banking**, **body language**, **cookery**, and **upcycle**. In addition, the descriptions that could be considered editorial errors in *COB*9 have not been modified in *COB*10. An example is **Speaking**, wherein only a part of the keywords is written in bold. However, four revisions were made for the sake of visibility and consistency, which would be highly appreciated by users. First, in the column of **Eyesight**, the hyphen was added to two keywords, namely **short-sightedness** and **long-sightedness**. Thus, the consistency between the headword descriptions of **short-sighted** and **long-sighted** has been improved due to this revision. The same type of revision was also made for the columns of **Technology**, **The telephone**, and **Space travel**.

Second, in the column for **Being polite and impolite**, the part of speech of a keyword, **disrespect**, was changed from verb to noun as follows.

> *COB*9: …It's not unusual for impatient drivers to overreact and **disrespect** other motorists with **offensive** language….
> *COB*10: …It's not unusual for impatient drivers to overreact and show **disrespect** to other motorists with **offensive** language….

Given the fact that the headword **disrespect** is demonstrated only as a noun in *COB*10, the reason for this revision may be the consistency in the dictionary. A similar type of revision was made for the column of **Onomatopoeia**, in which "fizzle" was deleted from the list of the verbs related to fires.

> *COB*9: … Fires can **crackle**, **spit**, **fizzle**, or **sputter**, and the wind might …
> *COB*10: …Fires can **crackle**, **spit**, or **sputter**, and the wind might …

While *COB*10 does not explain the reason for the change, this revision might be due to the influence of the trend found in the Collins Corpus,

from which thousands of example sentences are taken, as mentioned in Introduction (xi).

Notably, as another example of the revisions, the content was partially changed in the column for **Families** as follows.

> *COB*9: … Perhaps a nuclear family is best described as married or divorced adults who are either **raising children**, or who may be **childless** but *could do so in theory*…
> *COB*10: … Perhaps a nuclear family is best described as married or divorced adults who are either **raising children**, or who may be **childless** but *could raise children if they wished*…

This revision can be viewed as a consideration of family diversity, which reflects the recent situation, wherein a family unit can take different forms. A similar revision that is deemed to consider gender diversity can also be observed in the column for **Working condition**. As extracted below, the word 'paternity' was also presented in bold, which indicates that it was added as a keyword. Despite being a small change, the notion that parental leave is intended for fathers and mothers has become clear.

> *COB*9: ... The ILO also helps countries to formulate legislation for minimum wage rates as well as to set up provisions for paternity and **maternity leave**.
> *COB*10: ... The ILO also helps countries to formulate legislation for minimum wage rates as well as to set up provisions for **paternity** and **maternity leave**.

Thus, although the reason for these revisions remains unclear, one can infer that *COB*10 pays more attention to diversity.

Third, for the columns for **Online learning** and **Technology**, images were replaced with more suitable ones for the column topics. For example, the newly replaced image for **Online learning** depicts a girl wearing a headset and writing on a notebook, which demonstrates that she is learning online more clearly. For **Technology**, the image, which provides a clear display of a wearable device, is now available.

The fourth change from *COB*9, which is disappointing from the perspective of visual clarity, is that all images are printed in black and

white, as mentioned in Chapter 1. Although the pictures are discernable even in black and white, the color pictures in *COB*9 are evidently easier to recognise than the black-and-white pictures in *COB*10.

Lastly, it is worth noting that additional online resources related to Vocabulary in context are available from *COB*10 on the Collins' ELT Resources website (https://collins.co.uk/pages/elt-cobuild-reference-cobuild-worksheets-resources). The website offers worksheets and lesson plans using the contents of *COB*10, including Vocabulary in context. For example, it provides a lesson plan that aims to develop skills in predicting the meaning of unknown vocabulary through an analysis of the context, using the columns for **Challenge** and **Music**. We provide examples of the exercises on the worksheet: for Exercise 1, certain words for **Challenge** are replaced with nonce words, and learners are required to guess the part of speech and the meaning of these nonce words. Exercise 2 provides fill-in-the-blank questions using the words in **Music**, and which learners need to select the appropriate word for each blank from the wordlist. Teachers can also make their own exercises using other columns. From the educational perspective, these online resources are a valuable addition to *COB*10, because the website provides users with an excellent opportunity to effectively utilize dictionary materials.

(Section 6.1 by Aoki)

6.2. Visual Dictionary

6.2.1. Presentation of 'Visual dictionary' panels in the *COB*9 and the *COB*10

'Visual dictionary' panels consist of two kinds. One is what Kokawa et al (2020, 74–77) called the 'variety' type (which the *COBUILD* dictionaries refer to as 'types of' panels, and the other is what Kokawa et al (2020, ibid.) named 'constituent' type (which the dictionary calls 'parts of' panels.

The front matters of two editions explain the Visual dictionary panels as follows:

> **Visual dictionary** panels show you images of things that are

> defined in the dictionary. Sometimes it's much easier to understand the meaning of a word if someone shows you a picture of it. Certain Visual dictionary panels show 'types of' a particular area of vocabulary, for example 'boats' or 'devices'; others show 'parts of' something, for example, 'parts of a bicycle' or 'parts of the skeleton'. Browse the dictionary for these colourful images: learning vocabulary sets through images can be particularly helpful for memorizing words. (*COB*9 ix)

> **Visual dictionary** panels are presented in a full-colour supplement in the middle of the dictionary and show you images of things that are defined in the dictionary. Sometimes it's much easier to understand the meaning of a word if someone shows you a picture of it. Certain Visual dictionary panels show 'types of' a particular area of vocabulary, for example 'boats' or 'devices'; others show 'parts of' something, for example, 'parts of a bicycle' or 'parts of the skeleton'. Browse the dictionary for these colourful images: learning vocabulary sets through images can be particularly helpful for memorizing words. (*COB*10 x)

The explanations above in the two editions are followed by the same examples of 'variety' and 'constituent' panels: 12 images (*fork, hoe, hose, lawnmower, rake, secateurs, shears, shovel, spade, Strimmer, trowel* and *wheelbarrow*) in a panel as an instance of 'types of' gardening tools, and a panel of a cross-section of a flower with 5 captions (leaf, petal, stamen, stem and stigma) of its constituent parts.

In the *COB*9, 46 panels (23 variety type panels and 23 constituent type panels) were scattered throughout the A–Z text of the dictionary near the entry of the panel title, which was all printed in full color. On the other hand, in the *COB*10, two out of 46 panels were deleted and 44 panels (21 variety and 23 constituent), still printed in full color, were all assembled in the middle matter between L and M dictionary text, as the whole A–Z dictionary pages are all printed in black and white in the newer edition of the *COBUILD*. In the *COB*10, 'parts of' panels in the middle matter are presented category by category, not in the alphabetical order. Thus, the categories seem to be 1 computer panel (*computer*), 5 vehicle panels (*aeroplane, bicycle, car, ship*), 4 wildlife panels (*bird, fish,*

flower, insect), 6 earth, nature and environment panels (*compass points, continents, greenhouse effect, volcano, water cycle, wind turbine*) and 8 anatomical or body part panels (*digestive system, ear, eye, heart, organs, respiratory system, skeleton, teeth*) all of which being shown in this order. The specific Visual dictionary panels presented in the two editions are as follows:

Table 6.1 Visual Dictionary Panels in the *COB*9 and the *COB*10

Category	*COB*9	*COB*10
variety ('TYPES OF' …) (pp. 1–8 in *COB*10 central matter)	architecture, bags, bats, beds, bikes, boats, cars, chairs, clocks, cups and glasses, devices, DIY toolkit, footwear, gardening equipment, gemstones, hats, homes, metals, rocks, ships, kitchen utensils, woodworking tools (23)	architecture, bags, bats, beds, bikes, boats, cars, chairs, clocks, cups and glasses, devices, DIY, footwear, gardening tools, gemstones, hats, homes, metals, rocks, kitchen utensils (21)
constituent ('PARTS OF'…) (pp. 9–16 in *COB*10 middle matter)	aeroplane, bicycle, bird, car (external/internal), compass points, computer, continents, digestive system, ear, eye, fish, flower, greenhouse effect, heart, insect, organs, respiratory system, shark, ship, skeleton, teeth, wind turbine, volcano (23)	(*rearranged in the alphabetical order*:) aeroplane, bicycle, bird, car, compass points, computer, continents, digestive system, ear, eye, fish, flower, greenhouse effect, heart, insect, organs, respiratory system, ship, skeleton, teeth, wind turbine, volcano, **water cycle** (23)

(The retitled panels are underlined by the present authors. The shaded titles are those that were deleted in the 9th-10th revision. The title in boldface is the new addition in the new edition.)

'Types of' panels and 'parts of' panels are assembled in the middle matter of the *COB*10 in pages 1–8 and 9–16 respectively. Panels of 'types of **ships'** and 'parts of **shark'** are crossed out through the revision. Having the latter is rather peculiar as there is a panel 'types of **fish**' already and there is no reason for the inclusion of shark anatomy except that maybe people encounter that species more often in movies than other types of fish. On the other hand, the disappearance of the **ships** panel seems rather puzzling when there is space (which is left blank) for one more panel on page 8 in the middle matter of the 10th edition and there would be a good rationale for including it. It would

allow EFL users to be able to identify different types of boats including *aircraft carrier, galleon, ferry, steamer, trawler* and so forth. The **woodworking tools** panel is streamlined into the **DIY** panel in the *COB*10, which was renamed from **DIY toolkit** found in the 9th (no individual images were lost: 9 in the **DIY toolkit** and 12 **woodworking tools** in the *COB*9 are combined to make 21-image **DIY** panel in the *COB*10). Sub-titles in the panel **car**, 'external' and 'internal,' are deleted in the new edition but the images and captions themselves stay the same. **Gardening equipment** in the *COB*9 is renamed **gardening tools** in the *COB*10. Presumably 'tools' may be a more suitable word for things like *forks, hoes, hoses* and *shovels*. **Water cycle** is a new panel introduced in the latest edition, and we would like to welcome it as it is very enlightening with regard to the environment and SDGs.

6.2.2. Individual update within Visual dictionary panels

Some individual images in the Visual dictionary panels have gone through alterations or update. Elements in the 'clocks' panel are presented in a different order (*digital clock, sundial, grandfather clock, hourglass, phone, stopwatch* and *watch* in the *COB*9 but *sundial* is moved from between the *digital clock* and *grandfather clock* to between *stopwatch* and *watch*). Through this process, the two items, *stopwatch* and *watch*, which may belong to a slightly different category from 'clocks,' are somehow separated. We do not see any specific reason for this update.

In the panel labelled 'devices,' 10 pictures out of 12 were replaced by images of the same concept, except for those for *headphones* and *periscope*, but we cannot find any good reason here for the change. *Binoculars* in the *COB*9 certainly looked unnatural with red lenses which were redone as black in the *COB*10, but *microscope* probably had a more familiar or symbolic image in the 9th edition. Also, many devices in this panel are associated with the senses of hearing (*earphones, headphones, megaphone, microphone, stethoscope*) and seeing (*binoculars, microscope, periscope* and *telescope*), and digital or such electronic devices as smartphones, tablets and scanners are not included. We find this a little regrettable as one of the functions of Visual dictionary panels may be

showing the widest variety possible of the items that belong to the title concept to the learner of the language, and offering them a clear image of the meaning of the lexical item concerned.

In the panel for 'homes,' the image of 'tenement' stays the same but the caption 'tenement' has been replaced by the more common word 'flat.' The image certainly represents that of a 'tenement' to be precise, but it can also be called a 'flat,' so we may call this update an improvement.

6.2.3. Conclusion

With the restriction caused by the change from full-color to black-and-white printing in the A–Z text of the dictionary through the revision from the 9th to the 10th editions, the Visual dictionary panels in the *COB*9 was moved from the A–Z text pages and placed in the middle matter in the 10th. Giving up color pages might have been inevitable due to cost cutting, yet the merits of showing images in full color by this process is retained for which we credit the editors.

However, the advantages that the dictionary had when the panels were presented near their related entries in the A–Z text and the users could see the visualization of the words they were looking up are now lost, and learners now have to take the time to visit the middle matter if they want to visualize the word concerned—if they even know that the associated panel or image is presented there at all. (The lack of reference from the entry and individual meaning to the panels and images in the middle matter in the 10th are discussed above in 4.4.)

With regard to the Visual dictionary presentation, we regret to say that the new edition of the *COBUILD* has lost a certain amount of user-friendliness along with the opportunity for visual information, which was informatively prepared and is helpfully included in the dictionary, to be more apparent to EFL learners. Having said that, we are in the Internet age now and practically all learners who have digital devices such as smartphones, tablets and PCs may search images of a certain word or concept via a search engine on the Web, and they can find literally thousands of related pictures. The Visual dictionary in the

*COB*10, which is hardly comparable as a source for visual images to a Web search, may well be used as an 'illustrated book (of animals, vehicles, etc.)' to 'read and organize or add to your knowledge when you have extra time' rather than a reference material to look things up that you need to know. (Section 6.2. by Kokawa)

6.3. Synonyms

As described by Kokawa et al. (2020), synonyms were first presented in the thesaurus boxes in *COBAm*. Then *COB*6 adopted this feature. The thesaurus boxes were carried over to *COB*7 and *COB*8 but were replaced by the SYNONYMS boxes in *COB*9. The visual thesaurus, which was contained in the back matter of *COB*8, was eliminated in *COB*9. Each synonym in the SYNONYMS boxes is numbered. This number refers to a specific sense of a headword and is intended to help dictionary users find its meaning.

The guide for SYNONYMS boxes in the front matter of *COB*10 has not been changed since *COB*9. It is noted here that synonyms are provided for key headwords with lively, up-to-date examples taken from the Collins Corpus (ix).

In *COB*9, there were 981 SYNONYMS boxes.[1)] All SYNONYMS boxes from *COB*9 have been transferred to *COB*10. However, a small change was seen in one of those in *COB*10. One of the examples in the SYNONYMS box for **quantity** has been replaced with a new example in *COB*10. The example sentence for the synonym **size** has been revised as follows:

> **size**: Iraq itself has oil reserves second in size only to Saudi Arabia's. (*COB*9)
> **size**: … a stockpile, second in size only to that of the US. (*COB*10)

It is difficult to guess the purpose of this change. It might be to avoid referring to a specific country, but even if so, the name of another specific country is used in the example in *COB*10, i.e., the US. This example shows that the example sentences in the SYNONYMS boxes may have been reviewed in *COB*10, but it should be assumed that the exam-

ple sentences that were considered unnecessary to change were carried over as they were from *COB*9.

In our previous analysis, we compared the SYNONYMS boxes in *COB*9 with the 'synonyms' paragraphs in *MWALED*2, noting that it is inconvenient that the former does not indicate the meaning of synonyms within the boxes, while the latter does. The users themselves must look up the meaning of the synonyms in *COB*10. This analysis showed that the SYNONYMS boxes in *COB*10 were almost the same as those in *COB*9, and this appears to show that no consideration was given to this issue in the process of revision. It is not clear why the synonyms and examples in the SYNONYMS boxes were not thoroughly reviewed, even while the textual data in the Collins Corpus that was used to create *COB*10 was kept up to date.

In conclusion, we found that the SYNONYMS boxes of *COB*10 are little different from those of *COB*9. (Section 6.3. by Takahashi)

6.4. Collocations

'COLLOCATIONS' columns were introduced into *COB*9 in place of 'Word Partnership' boxes in *COB*8. There is no change in the members of 'COLLOCATIONS' columns between *COB*9 and *COB*10. 451 columns are shown in monochrome in *COB*10 instead of two colors, black and blue, in *COB*9.

In the 'COLLOCATIONS' box of '**broadcast**' in *COB*10, 13 collocations are shown as follows:

broadcast
NOUN 1
Noun + **broadcast**: radio, satellite, television; election, news
adjective + **broadcast**: commercial, live, outside; political
verb + **broadcast**: watch
VERB 2
broadcast + *adverb*: live, nationally, nightly

Among these collocations only 'broadcast live' can be found in the

examples under the headword 'broadcast' (The underlined part in the example, our modification, shows the phrase.):

2 B2 *The concert will be broadcast live on television and radio.*

In the 'COLLOCATIONS' box of '**approach**' in *COB*10, 30 collocations are shown as follows:

approach
NOUN 5
adjective + **approach**: different, fresh, innovative, positive; balanced, cautious, conservative, traditional
verb + **approach**: consider, favour, suggest, try; adopt; require
VERB
1
approach + *noun*: vehicle
approach + *adverb*: cautiously, gingerly
3
approach + *noun*: council
approach + *adverb*: directly, formally, tentatively
4
approach + *noun*: subject, task
6
noun + **approach**: deadline, election, holiday, summer; storm
7
approach + *noun*: age, retirement

Among these collocations, 'different approach' can be found in the examples:

NOUN 5 B2 ❑ *We will be exploring different approaches to gathering information.*

We find some more examples using similar, not the same, collocations given in the collocation box, but readers must judge in each case (Underlined parts in the examples, our modification, show the phrases.):

VERB 1 B1 ❑ *We turned to see the approaching car slow down.*

3 ❑ *When Chappel approached me about the job, my first reaction was disbelief.*
3 ❑ *He approach me to create and design the restaurant.*
3 ❑ *Anna approached several builders and was fortunate to come across Eddie.*
4 B2 ❑ *The Bank has approached the issue in a practical way.*
4 B2 ❑ *Employers are interested in how you approach problems.*
6 B1+ ❑ *As autumn approached, the plants and colours in the garden changed.*
6 B1+ *… the festive spirit that permeated the house with the approach of Christmas.*
7 B1+ ❑ *We approach the end of the year with the economy slowing and little sign of cheer.*

A large number of collocations have been introduced by the collocation boxes of *COB*10, but not many of them seems to have been introduced into the examples under each headword. More collocations could be introduced in the examples, especially under the meanings on SEFR A1, A2, B1, B1+, or B2. (Section 6.4. by Ikeda)

6.5. Usage notes in the *COB*9 and the *COB*10

6.5.1. The definition of usage notes in the *COB*9 and the *COB*10

The *COB*9 and the *COB*10 defines the usage notes as follows with exactly the same wording.

> **Usage notes** give tips on avoiding common learner errors in grammar, vocabulary, and pronunciation. These include uncountable nouns that learners often mistakenly use as if they were countable, typical preposition errors, and commonly confused words. Browse the dictionary for these invaluable notes and find out how to avoid all the most frequent mistakes in English.
>
> (*COB*9 x and *COB*10 ix)

Usage notes for **fruit** and **wish** follow the explanation above in both the *COB*9 and the *COB*10. Thus, we may understand the usage notes in the *COBUILD* as designed mainly for offering learners of English explicit advice about avoiding possible confusion and mistakes. The main concepts of the usage notes in both the *COB*9 and the *COB*10 are

the same, namely, 'be careful not to make a mistake when you use English by saying …,' which is different from those in the *COB*8, which were basically telling the user to not 'confuse A with B' (Kokawa et al. 2020, 85).

6.5.2. Presentation of usage notes in the *COB*9 and the *COB*10

Usage notes in the *COB*9 and the *COB*10 are presented as one of the featured columns within the A–Z text of the dictionary in the width of one column out of two in one page, in the same way as other information categories except for the Visual dictionary in *COB*9, which takes up two columns of width in the dictionary text. Presentation of usage notes in the *COB*9 and the *COB*10 are only different in two respects. The first is that while in the *COB*9, they are printed in two colors, namely in the column title 'USAGE,' the column box and the word in question at the top are printed in blue, and the rest is in black. In the *COB*10, they are printed only in black. Usage notes are text-based resource, so there seems to be little difference in the amount of information between the two editions.

The second difference between the usage notes in the two editions is that the square icon placed before the illustrative sentences in the *COB*9 has been abolished. It may be due to an expectation of the reduction of the number of lines, as explanations are in roman and examples are in italics in both editions, so there would be no need for the icon except that it may make the demarcation clearer. As a matter of fact, the usage note column of **contrary** was reduced from 9 lines to 8, while the number for **much** in the 10th was increased to 8 instead of 7 in the *COB*9, so there was no overall line reducing effect throughout the dictionary by this process.

6.5.3. Count and the update of usage note information in the *COB*9 and the *COB*10

We have identified 119 usage notes in the *COB*9 and 118 in the *COB*10 throughout. The note which was removed in *COB*10 is that for **woman**. The description in the *COB*9 note went as follows:

USAGE

woman
It is more polite to call someone an **old lady** or an **elderly lady**, rather than an 'old woman'. ❑ *There's an **old lady** who rides a bike around town.*

*COB*9 (1735)

It may be that somehow this caveat is no longer totally valid or appropriate.

The other 118 notes are the same in both editions, but there are four cases of minor replacement or deletion with regard to illustrative sentences in the usage note columns.

In the case of the usage note for **during**, the last sentence presented in the *COB*9, '*Mr Tyrie left Hong Kong in June*.' was deleted in the *COB*10. The explanation in the usage note has to do with the contrast of 'during' and 'for', so this deletion seems reasonable.

USAGE

during
Don't use **during** to say how long something lasts. Don't say, for example, '~~I went to Wales during two weeks~~'. Say 'I went to Wales **for** two weeks'. ❑ *Mr Tyrie left Hong Kong **in** June.*

*COB*9 (469)

USAGE

during
Don't use **during** to say how long something lasts. Don't say, for example, '~~I went to Wales during two weeks~~'. Say 'I went to Wales **for** two weeks'.

*COB*10 (465)

In the usage note for **open**, the last example in the 9th, '*The door was open and the sunlight flooded in*.' (*COB*9, 1051) was replaced by the sentence '*The door was open and the sunshine streamed in*.' (*COB*10, 1040)

We could not find a convincing rationale for this change[1)]. It may be due to the updating of the *COBUILD* corpus data.

In the usage note for **until**, the last illustration was changed from '*Total sales reached 1 million by 2017.* (*COB*9, 1660) to '*Total sales will reach around 1 million by 2022*' (*COB*10, 1639). This change may have resulted from an attempt to seem more up-to-date, although the year 2022 had already passed at the time of publication (2023). It may also have been due to a change in the corpus reference, or corpus data expiration.

Lastly, in the case of the usage note for **yes**, the following alteration was identified.

USAGE

yes
Don't say 'yes' if you want to agree with a negative question. For example, if someone says 'Aren't you going out this evening?', say '**No**, I'm not'. Don't say ~~'Yes, I'm not.~~' ❑*'Didn't you get a dictionary from him?' — '**Yes**, I did.'*
Similarly, don't say 'yes' if you want to agree with a negative statement. For example, if someone says 'He doesn't want to come', say '**No**, he doesn't'. Don't say '~~Yes, he doesn't~~'. ❑ *'That isn't true.' — 'Oh **yes**, it is.'*

*COB*9 (1753)

USAGE

yes
Don't say 'yes' if you want to agree with a negative question. For example, if someone says 'Aren't you going out this evening?', say '**No**, I'm not'. Don't say ~~'Yes, I'm not.~~'
'*Didn't you get a dictionary from him?' – '**No**, I didn't.'*
Similarly, don't say 'yes' if you want to agree with a negative statement. For example, if someone says 'He doesn't want to come', say '**No**, he doesn't'. Don't say '~~Yes, he doesn't~~'. *'That isn't true.' – '**No**, it isn't.'*

*COB*10 (1731)

The explanation above the sentences is given as '*Similarly, don't say 'yes' if you want to agree with a negative statement*,' the change from the reply '*Oh* ***yes****, it is*.' to '***No****, it isn't*.' is in conformity to this. However, as long as it is the usage note attached to the entry of **yes**, it would have been more desirable if an example of refutation of the negative statement using 'yes', as '*Oh* ***yes****, it is*.' in the usage note for the entry **yes** in the *COB*9 was presented somewhere in the *COB*10. Incidentally, no mention was made in the entry of **no** about this popular mistake that many EFL learners—including Japanese students—often make.

6.5.4. Conclusion

There were no major changes in the format and concept of the usage notes from the *COB*9 to the *COB*10, except that the information printed in blue is now in black. There is one case of deletion and a few cases of illustrative sentence renewal. After all, one should expect small changes in the usage of the language over the span of several years.

(Section 6.5. by Kokawa)

6.6. Prefixes and Suffixes

There is no change in the 'PREFIX' boxes and 'SUFFIX' boxes between *COB*9 and *COB*10 except for their colors. They were printed in black and blue in *COB*9 but they are monochrome prints in *COB*10. We compare these prefixes and suffixes with those in other learner's dictionaries *LDOCE*6, *OALD*10, and *MWALED*2.

6.6.1. Prefixes

We compared all the prefixes in the 'PREFIX' boxes in *COB*10 and those in other learner's dictionaries *LDOCE*6, *OALD*10, and *MWALED*2. All of these four dictionaries treat the following 32 as prefixes:

> a-, anti-, be-, co-, de-, demi-, dis-, em-, en-, ex-, extra-, hyper-, il-, im-, in-, inter-, ir-, mis-, non-, out-, over-, post-, pre-, pro-, re-, retro-, semi-, sub-, trans-, ultra-, un-, under-.

Table 6.2 shows 40 prefixes that are not marked as 'prefix' but 'combination form' in *OALD*10, or *MWALED*2. 'Narco-' and 'part-' do not appear in the other three dictionaries; they could be replaced with more common prefixes. *OALD*10 treats the following 38 prefixes of *COB*10 as 'combination form':

> Aero-, agro-, astro-, auto-, bi-, bio-, counter-, e-, eco- electro-, Euro-, Franco-, geo-, Indo-, kilo-, macro-, mal-, mega-, micro-. mid-, milli-, mini-, mono-, multi-, neo-, neuro-, pan-, part-, photo-, poly-, proto-, pseudo-, psycho-, socio-, super-, techno-, tri-, vice-.

*MWALED*2 treats 25 prefixes among these prefixes of *COB*10 as 'combination form'. *COB*10 treats all of these as 'prefix' as well as *LDOCE*6, which seems an easier way to understand for the users. 'Great-' is not treated as 'prefix' but one of the meaning splits in *OALD*10 and *MWALED*2. It can be treated as an independent headword. 'Mid-' appears in some examples under the headword 'mid' of *MWALED*2, but it could be treated as a 'prefix'.

Table 6.2 Comparison of the Prefixes among Learner's Dictionaries

	entry	*C0B*10	*LDOCE*6	*OALD*10	*MWALED*2
1	**aero-**	prefix	prefix	comb	comb
2	**agro-**	prefix	prefix	comb	
3	**astro-**	prefix	prefix	comb	
4	**auto-**	prefix	prefix	comb	comb
5	**bi-**	prefix	prefix	comb	prefix
6	**bio-**	prefix	prefix	comb	comb
7	**counter-**	prefix	prefix	comb	prefix
8	**e-**	prefix	prefix	comb	comb
9	**eco-**	prefix	prefix	comb	comb
10	**electro-**	prefix	prefix	comb	comb
11	**Euro-**	prefix	prefix	comb	comb
12	**Franco-**	prefix	prefix	comb	comb
13	**geo-**	prefix	prefix	comb	comb

14	**great-**	prefix	prefix	comb	comb
15	**Indo-**	prefix	prefix	comb	
16	**kilo-**	prefix	prefix	comb	comb
17	**macro-**	prefix	prefix	comb	comb
18	**mal-**	prefix	prefix	comb	comb
19	**mega-**	prefix	prefix	comb	comb
21	**mid-**	prefix	prefix	comb	comb
22	**milli-**	prefix	prefix	comb	comb
23	**mini-**	prefix	prefix	comb	comb
24	**mono-**	prefix	prefix	comb	comb
25	**multi-**	prefix	prefix	comb	comb
26	**narco-**	prefix			
27	**neo-**	prefix	prefix	comb	prefix
28	**neuro-**	prefix	prefix	comb	
29	**pan-**	prefix	prefix	comb	prefix
30	**part-**	prefix			
31	**photo-**	prefix	prefix	comb	comb
32	**poly-**	prefix	prefix	comb	comb
33	**proto-**	prefix	prefix	comb	
34	**pseudo-**	prefix	prefix	comb	comb
35	**psycho-**	prefix	prefix	comb	
36	**socio-**	prefix	prefix	comb	comb
37	**super-**	prefix	prefix	comb	prefix
38	**techno-**	prefix	prefix	comb	comb
39	**tri-**	prefix	prefix	comb	prefix
40	**vice-**	prefix	prefix	comb	

comb: combination form

6.6.2. Suffixes

We compared all the suffixes in the 'SUFFIX' boxes in *COB*10 and those in other learner's dictionaries *LDOCE*6, *OALD*10, and *MWALED*2. All of these four dictionaries treat the following 35 as suffixes:

-ability, -able, -al, -ally, -an, -ance, -ation, -cy, -ed, -ence, -ency, -er, -est, -fold, -ful, -ibility, -ible, -ic, -ical, -ify, -ing, -ish, -ism, -ist, -ity, -ly, -ment, -most, -or, -ous, -s, -sion, -th, -tion, -y.

Table 6.3 shows 16 suffixes that are not treated as suffixes in other learner's dictionaries. '-ication', '-icity', '-phile', and '-ophobe' don't appear in other dictionaries. Though these four appeared in the Collins Corpus, they could be replaced with more common suffixes. *COB*10 treats '-ion' as a headword and is referred to the suffix '-ation,' but the other three dictionaries treat it as a suffix. '-ion' can be an independent suffix.

Four prefixes '-phile', '-phobe', '-phobia', and '-phobic' are marked as 'combination form' in *OALD*10 and *MWALED*2, and three suffixes '-ological', '-ologist', and '-ology' are treated as combination forms in *OALD*10. '-like' is marked as 'combination form' in *COB*10, but it can be a suffix in the same way as *LDOCE*6 and *OALD*10.

'-st' and '-nd' are treated as suffixes in *COB*10 as well as *LDOCE*6. In *MWALED*2, '-st' is treated as a 'symbol' and explained that it is 'used in writing after the number 1 for the word *first*,' and the same is true of '-nd' and '-rd' but these are not marked as 'symbol.' In *COB*10 '-rd' is treated as a headword but is not treated as a suffix.

Table 6.3 Comparison of the Suffixes among Learner's Dictionaries

	entry	*C0B*10	*LDOCE*6	*OALD*10	*MWALED*2
1	**-ication**	suffix			
2	**-icity**	suffix			
3	**-ion**	suffix	suffix	suffix	suffix
4	**-nd**	suffix	suffix		(symbol)
5	**-like**	comb	suffix	suffix	comb
6	**-ological**	suffix		comb	
7	**-ologist**	suffix	suffix	comb	
8	**-ology**	suffix	suffix	comb	
9	**-ophile**	suffix			
10	**-ophobe**	suffix			

11	**-phile**	suffix	suffix	comb	comb
12	**-phobe**	suffix	suffix	comb	comb
13	**-phobia**	suffix	suffix	comb	comb
14	**-phobic**	suffix	suffix	comb	comb
15	**-rd**	(suffix)	suffix		(symbol)
16	**-st**	suffix	suffix		symbol

comb: combination form

6.7. Word History

There is no change in the contents of 'WORD HISTORY' columns between *COB*9 and *COB*10. 46 columns are monochrome prints in *COB*10 instead of two colors, black and blue, in *COB*9. Varieties of etymologies are introduced, such as Greek, Latin, Italian, Spanish, French, German, Dutch, Gaelic, Arabic, Turkish, Persian, Hindi, African, Aztec, Old English, etc. Familiar etymologies are not shown, like 'piano', 'dandelion', 'lavender', 'narcissus', 'pansy', 'pineapple', 'saxophone', 'influenza', or 'cardigan'.

6.8. Pragmatics

There is no change in the number of 'PRAGMATICS' columns between *COB*9 and *COB*10. As is shown on page xv in the front matter of *COB*10, seven columns are shown under each headword in the main body, that is, 'approval', 'disapproval', 'emphasis', 'feelings', 'formulae', 'politeness', and 'vagueness'. The item of 'vagueness' was lacking in the main body of *COB*9, but it has been made up in *COB*10. The seven columns are shown in monochrome in *COB*10 though they were shown in blue 'PRAGMATICS' boxes, and in gray 'Pragmatics' boxes in *COB*6, *COB*7, and *COB*8. (Sections 6.6.–6.8. by Ikeda)

7. Information in the back matter

7.1. Style and usage

Style and Usage has been available from *COB*9, which consists of Writing style guide, Special information, and Language in use, as over-

viewed in Kokawa et al. (2020). These have remained the same in *COB*10, except that it is now printed in black and white. In addition, the entries for Terms used in writing (1754) are listed in alphabetical order.

7.2. Grammar

Grammar is also a newly available section in *COB*9, including General grammar guide, Business English grammar, Academic English grammar, and Glossary of grammatical terms. No changes were seemingly made in *COB*10. In the Collins Online Dictionary, a page called Easy Learning English Grammar presents different example sentences and provides access to explanations (https://grammar.collinsdictionary.com/easy-learning). (Sections 7.1.–7.2. by Aoki)

7.3. Frequent Words

*COB*10 has 'a list of over 3,100 of the most frequent words taken from the Collins Corpus', but *COB*9 had 14 duplicated words. The list has been corrected in *COB*10; the total number is 3,110.

7.4. Academic Word List

*COB*10 has a list of 570 words of 'Academic Word List' with their sublists from 1 to 10. The list appeared in *COB*6, and it has been unchanged since then. The list has been available online since *COB*8.

(Sections 7.3.–7.4. by Ikeda)

8. The *COBUILD* (Learner's) Dictionary online

The same message is on the back covers of the *COB*9 and the *COB*10. It reads as follows:

> Use the *COBUILD* Learner's Dictionary at collinsdictionary.com

However, as was noted previously in Kokawa et al. (2020, 102), if we access 'collinsdictionary.com' we are led to the comprehensive Collins dictionary website, not a *COBUILD* 'Learner's' Dictionary webpage. If

we look up a word on that Webpage above, if the page contains information derived from the *COBUILD Advanced Learner's Dictionary*, that information is presented first and data from other dictionaries such as the *Collins English Dictionary* follows.

We have experimented with the looking up of words mentioned in 2.1.5. above, namely **blood sister, choir girl, cred, epidemiology, epidemiologist, fandom, fan-made, open goal** and **open mic**. These were all checked via the *collinsdictionary.com* site, and all lexical items except for **choir girl** were retrieved, so we may conclude that the site is reasonably up-to-date with regard to vocabulary for learners. Incidentally, there was no information on **choir girl** from other dictionaries either. The meaning of 'choir girl' may be too open in meaning to be dealt with in the web dictionary.)

The site is actually quite versatile and works with different languages. and You can even look up a Japanese word from an English equivalent. For instance, if you enter the word **dictionary** in the search window, the following results will be found.

The difference between the book version of the *COB*10 and the Collins dictionary site is that the latter does not contain supplements outside the A–Z dictionary text such as Visual dictionary and usage notes.

However, it is open to anyone to use for free, and quite easy to access, which ironically makes it a strong rival to the paper version of the *COBUILD*. (Section 8 by Kokawa)

9. Concluding Remarks

When we saw the cover of the latest edition of the *COBUILD* dictionary, which was not different from the previous version except for the words '10TH EDITION, we sensed that the revisions were not so extensive. In a sense, our assumption was correct. It has followed the well-established tradition realized in the 9th edition and the updates were very carefully put into practice (see Section 3 and other sections). However, we found alterations *passim* in different information categories in the dictionary as we noted in this paper (such as in Section 5 and in other sections). Considering the fact that the reference book was revised in a span of just over 6 years, and that the core part of the language (excluding ephemeral buzzwords, etc.) may not have changed that quickly, the updates found in the 10th edition here were in line with expectations.

One noteworthy new feature which might be seen as revolutionary is the introduction of CEFR level markings applied to the different senses of each lexical item. (See Section 4). In the *COBUILD* dictionaries frequency information using diamonds has already been employed, but thinking of the fact that different senses of a word often differ in their pedagogical importance, and the fact that CEFR is being used a standard for EFL teaching and learning worldwide, this addition is likely to be both informative and useful for EFL learners today. Incidentally, senses in the *Collins COBUILD* version available via *collinsdictionary.com* are marked with this CEFR level marking as well.

The major drawback of the latest edition is the discontinuance of full-color presentation of the A–Z text of the dictionary and different feature columns included in the text. As noted, full-color visual dictionary panels have been removed from the main text and relocated into the middle matter, which has had the effect of reducing visual prominence and the pedagogical effect of seeing them close to the entry con-

sulted (See 6.2.). Furthermore, the reduction of colors has caused the images in the 'vocabulary in context' section to be less appealing and sometimes made it harder to be sure exactly what they might represent (See 6.1). At the same time, some of the items in the dictionary text which were printed in blue have been demoted to black, making headwords and other related lexical items stand out less in the dense dictionary pages.

The shift to electronic and online dictionaries is an unstoppable trend, which must be affecting the sales of paper dictionaries. We know that the labor-intensive task of dictionary making has become more difficult, and that cost reduction must be a top priority for the industry. However, this should not be used as a justification to reduce the charm and attraction that the dictionary has had in the past. Having well-balanced, appealing full-color pages throughout the dictionary was one of the features that attracted users. In addition to the adherence to the use of raw corpus data and the newly introduced application of CEFR level markings to different senses, we would like the publisher of this long-established major dictionary to reconsider its appeal in the next revision to come.

NOTES

Section 1

1) 『Collins コウビルド英英辞典［改訂第 9 版］使用の手引き』
2) In addition to the names listed in the copyright page, dozens of names are listed in the 'Acknowledgements' page in the front matter (iv).

Section 4

1) Although it is not listed in the Explanation of grammatical terms in the front matter, the term 'ergative verb' is included in the Glossary of grammatical terms in the back matter in *COB*10.

Section 5

1) One example was added to the old definition under the headword '**underlying**', and the other was added when examples were exchanged under the headword '**comms**'.

Section 6

Section 6.3.

1) In the previous analysis, we indicated that there were 961 synonym boxes in *COB*9. For this analysis, we recounted them and found 981.

Section 6.5.

1) One of my native speaker colleagues commented on this as follows:

In the first case, I cannot understand the rationale either. The more natural "sunlight flooded in" has been replaced by the more awkward "sunshine streamed in." The only reason that comes to mind is that it might be due to the difficulty and/or frequency of the idioms. Perhaps "streamed in" has become a more common collocation in recent years? (personal communication)

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DICTIONARIES and their ABBREVIATIONS

COBAm: *Collins COBUILD Advanced Dictionary of American English*. Ed. by J. Sinclair. Boston: Thomson Heinle. 2007.

*COB*1: *Collins COBUILD English Language Dictionary*. Ed. by J. Sinclair. London: Collins ELT 1987.

*COB*2: *Collins COBUILD English Dictionary*, Second Edition. Ed. by J. Sinclair. London: HarperCollins Publishers. 1995.

*COB*3: *Collins COBUILD English Dictionary for Advanced Learner's*, Third Edition. Ed. by J. Sinclair. Glasgow: HarperCollins Publishers. 2001.

*COB*4: *Collins COBUILD Advanced Learner's English Dictionary*, Fourth Edition. Ed. by J. Sinclair. Glasgow: HarperCollins Publishers 2003.

*COB*5: *Collins COBUILD Advanced Learner's English Dictionary*, Fifth Edition. Ed. by J. Sinclair. Glasgow: HarperCollins Publishers 2006.

*COB*6: *Collins COBUILD Advanced Dictionary of English*, Sixth Edition. Ed. by J. Sinclair. Glasgow: HarperCollins Publishers 2008.

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*COB*8: *Collins COBUILD Advanced Learner's Dictionary*, Eighth Edition. Ed. by J. Sinclair. Glasgow: HarperCollins Publishers 2014.

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Collins Online Dictionary: https://www.collinsdictionary.com/ (accessed on February 1, 2024)
ELT COBUILD Worksheets Resources: https://collins.co.uk/pages/elt-cobuild-reference-cobuild-worksheets-resources/ (accessed on February 1, 2024)

A Qualitative Analysis of How Look-up Behavior Differs in Two Conditions

Toshiko Koyama
Toshiyo Nabei

1. Introduction

Hartmann mentioned in his book, "…dictionaries come in many different forms, and that they do not exist in a vacuum, but are produced and used in contexts which can vary considerably across space and over time" (4). In the real world, the most common form of dictionaries across the centuries have been "books." L2 (Second/Foreign Language) learners have thumbed through or flicked over the pages to locate target words.

This view might be changing today. The impacts of the recent digital revolution have significantly changed the learners' look-up behavior. As Koyama and Nabei reported, the popular "dictionaries" among recent L2 learners, especially in Japan, have changed from paper dictionaries to pocket electronic dictionaries (hereafter, pocket e-dictionary). In addition, smartphone apps are becoming popular among young Japanese learners of English in the early 21st century. Most young Japanese adults find it handy to "flick" word spellings to look up words on their smartphones. The use of electric dictionary devices is a new and strong trend among L2 learners.

Given such situations, Koyama and Yabukoshi conducted three studies investigating Japanese college students' dictionary use equipped in mobile devices when they need to access lexical information in L2 classes. In these studies, Japanese college students' vocabulary lookup behaviors during tasks in English classes were observed and analyzed in

relation to their English proficiency. In the first two studies (n = 97, n = 73), a sentence completion task was used: the participants needed to choose the most appropriate word among four choices to complete given sentences. In the third study (n = 75), the participants read five short business-style passages and answered two to five multiple-choice comprehension questions. The participants were allowed to use electric dictionaries (e.g., pocket e-dictionaries, an electric dictionary on a tablet, or smartphone apps) as much as they wanted.

The findings in the three studies can be summarized as follows:

1) most students utilized Google search or free apps as a dictionary on their smartphones when solving the items;
2) there was no correlation between their choice of mobile devices (a pocket e-dictionary or a smartphone) and their English proficiency;
3) pocket e-dictionary users looked up more words than the users of smartphone apps during the test, however;
4) no significant differences were found between the number of words looked up and each test score depending on their dictionary choices.

Put simply, college students these days use their smartphones as their primary language resources, rather than pocket e-dictionaries, even in L2 classes. Surprisingly enough, their test performance assigned in the studies was not affected by the differences of the devices, even though the amount of linguistic information presented on an authentic dictionary should be quantitively and qualitatively better than the free dictionary apps.

An important point here is that learning outcomes and learner perceptions must be carefully investigated, as well as a variety of other factors. For instance, doubts are expressed as to whether or not pocket e-dictionaries are effective in L2 learning because it does not involve much effort to look up a word. According to the "Involvement Load Hypothesis" proposed by Hulstijn and Laufer, retention of unfamiliar words depends on the involvement load of a task. Since looking up words in a pocket e-dictionary is "easier" than looking up words in a paper dictionary, the effectiveness of pocket e-dictionaries in vocabulary

learning can be questionable (Tono 23). Even worse can be smartphone use: the flick input system available on smartphones does not require learners to spell out every letter to lookup; the smartphone provides possible word options starting with the same first few letters. In other words, using smartphone apps is far easier than using pocket e-dictionaries. The learning outcome of how many words a learner can retain after using electronic dictionaries may need careful examination. In addition, the different amounts of linguistic information in authentic electronic dictionaries and free dictionary applications can be an issue of concern. As was mentioned in Béjoint, "Dictionaries are for people who need help in the use of language, … All bilingual and some monolingual dictionaries have been designed for students learning a foreign language" (163). Informative dictionaries are the most efficient guides and tutors for L2 learners. Thus, it is also important to find out if L2 learners are sufficiently aware of and equipped with skills to utilize rich dictionary information.

Koyama and Yabukoshi conducted a preliminary qualitative investigation into two college students' vocabulary lookup behaviors. Adopting the same research design as the first two quantitative studies by Koyama and Yabukoshi, two students answered a sentence-completion style vocabulary test. One participant used a pocket e-dictionary, while the other used a free smartphone app. The study revealed that the pocket e-dictionary user answered more correctly in a shorter time than the smartphone user. Using video recordings of their dictionary use behaviors during test taking, two things became clear: Compared to a pocket e-dictionary, 1) fewer search results were displayed on a smartphone, and 2) the lexical information on free dictionary apps was extremely limited.

Based on these findings, Koyama carried out the second experiment. In this study, two participants worked on two sets of tests in which they chose an appropriate word from the four choices to complete a given sentence. They used a pocket e-dictionary during one test and a free smartphone dictionary app during another. Their look-up behaviors using different dictionaries were video recorded and analyzed. A post-

task test on their word retention was also conducted a week later: the word recognition test asked the participants to identify words they looked up during the tasks. The analyses of video recordings of their lookup behaviors revealed that the participant with a larger vocabulary size was more willing to look up words than his counterpart. Even though he had already known or could correctly guess the meanings of words in the tests, he looked up more words in the pocket e-dictionary and the smartphone app than his counterpart. The counterpart participant looked up fewer words than the other and could answer questions less correctly; his word recognition rate was lower as well. These findings were consistent with Knight's assertion, "…, it appears that many high verbal ability students refer to the dictionary when they have already correctly guessed the meaning" (295).

A critical question here is why the student with low English proficiency did not make use of dictionaries during the task. In order to better understand L2 learners' lookup behaviors and their perceptions of different dictionary types (e.g., pocket e-dictionaries, dictionary applications, and electronic dictionaries on tablets), approaches to different perspectives may be necessary. One option might be adopting video-stimulated recall interviews as a research technique (Gass & Mackey). In these interviews, research participants review their behavior in recorded images and reflect on their decision-making processes during the task (Nguyen, *et al*.). This technique enables us to fill a gap between what participants think and what they actually do.

2. The study

2.1 Purpose

Based on the preliminary study by Koyama, the purpose of the current study aimed to provide qualitative validation from different perspectives. For this purpose, we applied a wearable eye tracker in the experiment in order to record the participants' actual lookup process and adopted a stimulated recall interview (hereafter SRI) with video-recording stimuli to investigate Japanese university EFL students' dictionary use when they answer sentence-completion style vocabulary ques-

tions.

2.2 Participants

The participants were two undergraduates (aged 21) who majored in Education. Both were enrolled in the teacher training course to obtain an English Teaching License. Before the experiment, the participants' linguistic levels were measured by a 45-item cloze test and the vocabulary size test (Aizawa & Mochizuki). They also answered a short questionnaire about their TOEIC test scores and daily search tools. Table 1 shows the summary of these tests and survey results. Student E had higher English proficiency, and a larger vocabulary size than Student F. Both were heavy smartphone users and have been using them to search for word meanings even in English classes since entering college. Although the duration of the use of pocket e-dictionaries differs, both used them in their high school days.

Table 1. Breakdown of the participants

	Student E	*Student F*
Cloze test (45)	28	18
TOEIC® score (990)	715	620
Vocabulary size (7000)	5,154	4,731
Daily search tool (in English class)	smartphone	smartphone

2.3 Materials

In keeping with the previous study (Koyama), the same test materials were used. Two sets of 15 sentence-completion questions were retrieved from Part 5 of an official TOEIC® workbook. To complete the given sentence, the participant had to choose the most appropriate word from the list of four. The materials include several words unknown or unfamiliar to the participants.

2.4 Apparatus

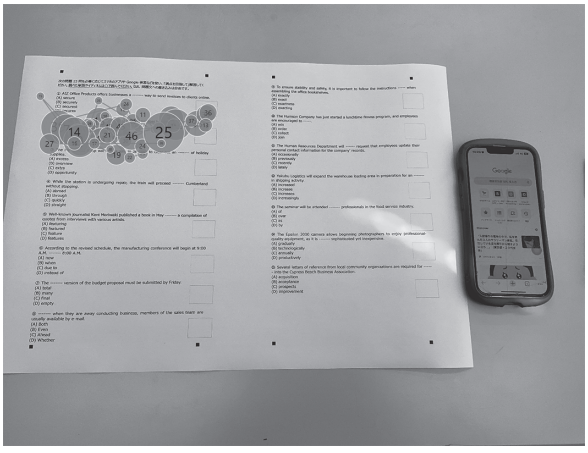
While completing the task, the participants' actual lookup processes

were recorded with Tobii Pro Glasses 3. These wearable glasses are equipped with 16 illuminators and four eye cameras integrated into scratch-resistant lenses. These enabled us to obtain a 106-degree field of view. The accompanying Tobii Pro Lab ver. 1.217 eye-tracking software was used for the investigation.

The eyeglasses and the wearer's view are shown in Figures 1 and 2. Circles and curves in Figure 2 indicate the wearer's gaze point.

Figure 1. Tobii Pro Glasses 3

Figure 2. Field of view by Student F wearing the eyeglasses.



2.5 Procedure

The experiment was conducted in February 2023 for two weeks. In the first session, the participants worked on the two sets of sentence-completion tasks. The second session, which was held a week later, was for the follow-up SRI.

At the beginning of the first session, the participants were informed of the purpose of the study, and filled in consent forms for the experiment. Then, the procedure of the experiment was explained, in which they learned that they would solve two sets of sentence-completion tasks while using either their own pocket e-dictionaries or their smartphone dictionary apps as often as they wished, spending as much time as they needed. When they were prepared, the participants worked on the assigned tasks wearing the eye tracker twice: they used, during the first task (Set A), their own pocket e-dictionaries, and during the second (Set B), their daily-use smartphone apps. The students circled looked-up words on the paper while working.

A week later, the second sessions were given online individually. First, the participants answered the word recognition test; they were asked to circle the words among the list of all words that appeared in Sets A and B they looked up in the dictionaries. This test was meant to measure the words the participants retained after a week. Then, SRI was conducted; the researcher (the first author) showed the video recorded by Tobii Pro Glasses 3 to the participant (See Figure 3) and asked what he/she was thinking when they solved the questions using the dictionary or apps. The SRI was conducted in Japanese. The interviews were video-recorded, and later verbal protocols were made and analyzed.

Figure 3. SRI on line

3. Findings and discussion

Table 2 presents a summary of the participants' task performance.

Both used the *Genius* English-Japanese dictionary on their pocket e-dictionaries, as well as *Weblio* and Google search on their smartphones. Out of 15 items in each test, Student E correctly answered 11 and 10 items in Set A and B, respectively, while Student F answered 10 and 13 items in Set A and B, respectively. Both students spent approximately 30 minutes to complete each set. Student E marked 27 and 15 words on the test papers as to have looked up while Student F marked 44 and 25 words on the test papers. Word recognition rate was calculated by dividing the number of words recognized in the week-later word recognition test by the number of words they actually retrieved during the tests.

Table 2. The summary of variables of look-up behavior

	Student E		*Student F*	
	Set A	Set B	Set A	Set B
Mobile gadgets	pocket e- dictionary	smartphone	pocket e- dictionary	smartphone
Dictionary/Apps	*Genius*	*Weblio*/ Google search	*Genius*	*Weblio*/ Google search
Number of correct answers	11/15 (73%)	10/15 (67%)	10/15 (67%)	13/15 (87%)
Task Completion Time (*mm:ss*)	29:20	26:08	32:30	22:28
Number of looked-ups	27	15	44	25
Word recognition rate	5/27 (18.5%)	3/15 (20.0%)	21/44 (47.7%)	18/25 (70.8%)

The quantitative results show that task performances by Students E and F were relatively similar despite their language proficiency differences. In the previous study by Koyama, proficient learners with larger vocabulary sizes tend to spend more time in reading and conduct more frequent lookups than less proficient learners. However, the weaker student, Student F in the current study, did not differ much from Student E in terms of task completion time. Yet, she looked up more words than Student E, completed the questions slightly more correctly and retained more words than the stronger student. These findings contradict from Koyama.

In order to further understand the ways in which the learners looked up words in solving the sentence-completion tasks, the participants' verbal protocols from SRI were analyzed. As in the previous study by Koyama, we focused on the protocols in relation to the problem-solving processes of three questions in the Sets: Question ⑪ in Set A, Question ⑦ and Question ② in Set B. The target questions are listed below.

Set A Question ⑪ (Pocket e-dictionary was available.)

Ms. Oh's proposal highlights a _____ strategy for decreasing the company's transportation costs in the coming year.
(A) surrounding (B) securing (C) relative (D) comprehensive

Educational Testing Service (91)

Set B Question ⑦ (Smartphone apps were available.)

The _____ version of the budget proposal must be submitted by Friday.
(A) total (B) many (C) final (D) empty

Educational Testing Service (48)

Set B Question ② (Smartphone apps were available.)

Because of _____ regarding noise, the hotel manager has instructed the landscaping staff to avoid operating equipment before 9:30 A.M.
(A) complaints (B) materials (C) opponents (D) symptoms

Educational Testing Service (50)

The participants' lookup behaviors and answers to the questions can be summarized as follows. Student E took advantage of dictionary lookup permission with only three items: "comprehensive" (in Question 11), "regarding," and "symptom" (in Question 2); in contrast, Student F looked up "proposal," "highlights," and the four option words (in Question 11), "budget" and "proposal" (in Question 7), and "opponent" and "regarding" (in Question 2). Student E's answers to Questions ⑪, ⑦, and ② were (B) [incorrect], (A) [incorrect], and (A) [correct] respectively, while Student F's answers were (C) [incorrect], (C) [correct], and

(A) [correct] respectively. As discussed in the earlier section, unlike previous studies, the more proficient student, E, looked up fewer words than the less proficient student, F. He did not answer as many questions correctly as Student F did, either.

Qualitative analyses of the participants' lookup behaviors and their retrospective explanations revealed different levels of commitment to correct understanding of the target passage. Student E's primary interest in solving the tests was limited to choosing the correct answers rather than understanding each given sentence. For example, when asked how he solved the questions and which words he looked up, Student E answered, "I think I looked up option words... I looked up 'comprehensive,' I guess..."[1] (Protocol E-4) and "mostly option words, so I guess I looked up 'symptoms'" (Protocol E-26). In fact, among the three words he looked up, only one word, "regarding," came from the central question sentence. Even when he felt uncertain of the sentence's meaning, he did not try to look up any words from the question sentence. For instance, during the SRI, Student E signaled hesitantly that he was uncertain of the meaning of "highlight" in Question 11. In this set of SRI, his incomprehension of the question sentence can be inferred:

> "I found the subject of the [Question 11] sentence is long ... I was not completely sure what highlight means. Does highlight mean "highlight" (in Japanese, which means "bright/ make something light"). … I guessed "costs" is the verb of this sentence." (Protocol E-13, 15, 17).

Unlike Student E, Student F seemed to make a genuine effort to understand each sentence before she chose the word for the blank. Five words among the ten she looked up were words in the question sentences. In fact, the non-option words she looked up were crucial for understanding the question sentences. For instance, she looked up and understood "budget proposal," which enabled her to assume the central message of Question ⑦ sentence as "maybe the sentence means something like the last proposal needs to be submitted" (Protocol F-68). Her understanding of the sentence's meaning must have led her to choose the correct word, "final," from the options.

Her interest in understanding the given sentences also seems to have activated her metalinguistic awareness and linguistic knowledge. Student F seemed to have utilized her linguistic knowledge when she tried to understand the question sentences. When asked how she tried to solve Question ⑪, she answered, "Because the word after the blank is a noun, I wondered if the option words were adjectives" (Protocol E-13). She also commented to explain her problem-solving process for a different question, "Poleberry Local Marketplace takes pride in carrying only ____ processed dairy products from the region.": "I thought 'processed' is the verb of this sentence, and ... maybe ... 'only' is before [the blank], it should be either an adverb or an adjective, followed by a noun or verb... I wondered which would be good for the blank." Although her explanation was not grammatically accurate, nor could she answer the question correctly, her use of grammatical terms (parts of speech) was impressive. It indicates her ability to approach English sentences with an analytical attitude for better understanding.

In fact, Student F reported that she was interested in English and English education. She pursued an English Teaching License at the university, too. She also disclosed that she had a positive attitude toward using paper dictionaries. According to her report, her English teacher in the high school strongly encouraged her students to use paper dictionaries. The teacher explained that paper dictionaries provide definitions and examples at a glance. Although Student F uses smartphone apps frequently today, she used a paper dictionary extensively in high school. Her familiarity with dictionaries was well observed in her lookup behaviors: she scrolled down the list of definitions and tapped on buttons to display example sentences.

Student F's enthusiastic attitude toward using the dictionary and exploring English contrasts with Student E's indifference. He was more proficient in English than Student F; yet his attitude toward English learning was different from hers. The lack of attempt to look up uncertain words in the question sentences indicates a need for more awareness of the importance of a thorough comprehension of a given text. He did not seem to have sufficient experience using paper or pocket e- dictio-

naries. Individual learners' interest in English and experiences with dictionary use appeared to have influenced their dictionary lookup behaviors and learning outcomes.

4. Conclusion

"Why don't less proficient L2 learners look up words in a dictionary?": with this critical question in mind, this study attempted to clarify the decision-making process by L2 learners looking up words in dictionaries. Unlike previous studies, the less proficient learner used the pocket e-dictionary and the smartphone app more frequently than the proficient learner in this study. The test results were also contradictory to the previous studies: the less proficient learner in this study performed better than the more proficient learner.

The retrospective explanations in SRIs from the two participants suggest that individual learners' lookup behaviors are influenced by other variables, such as their former dictionary use experiences and degrees of interest in understanding the language. Although the task in the experiment was put forward in the same way (i.e., "complete the fifteen incomplete sentences choosing appropriate words from the options along with the assistance of dictionaries), the participants pursued the task in different manners and attitudes. The activity of looking up words in a dictionary may be a complicated activity. It might be necessary and important to understand in more detail what thoughts and values from their former experiences influence their lookup behaviors. Given the limitations of this small-scale study, it would be premature to draw conclusive findings. More extensive studies into L2 learners' lookup behaviors, coupled with their experiences in using L2 dictionaries, would be necessary to provide a more comprehensive understanding.

NOTES

*This article is a revised version of the paper presented at the first meeting of JACET English Lexicography Group at Toyo University in Tokyo on October 1st, 2023

1) The participant's words were translated from Japanese into English by the second author. The same applies hereafter.

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An Acoustic Analysis of the Front Vowel Shifts in South-Central Pennsylvania English: A Preliminary Observation

Kimihiko Kimura

1. Introduction

This paper reports the present situation of vowel changes in South-Central-Pennsylvania English (SCPE). This variety of English is spoken in the rural areas in the south-central part of Pennsylvania, the United States. Unlike the well-described varieties in Pennsylvania (i.e., Philadelphia and Pittsburgh English), SCPE has not been fully documented in the history of American English studies despite its complex social, historical, and linguistic background.

Among the few studies on SCPE, Kimura (2020) and Kimura (2023) reported that the low-back merger has developed and spread eastward in Pennsylvania in the past hundred years. The low-back merger is a phonological change where the low-back vowel phonemes /ɑ/ and /ɔ/ lose their distinction regardless of phonetic context (e.g., words *cot* /kɑt/ and *caught* /kɔt/ become homophones). It has been observed in the vast areas of the West, the North, Eastern New England, and Western Pennsylvania (Labov et al., 2006) of the United States. Although Eastern Pennsylvania has not been covered by the merger since the beginning of the 20th century, it was demonstrated that the low-back vowels pronounced by younger speakers who were born in the 1990s presented subtler distinctions than those spoken by people born in the 1940s both auditorily and acoustically (Kimura 2020, 2023).

In recent studies, the low-back merger is accompanied by shifts of

front vowels. This series of vowel changes is called, for instance, the Third Dialect Shift (or, more recently, the Low-Back-Merger Shift by Becker (2019)). The Third Dialect Shift typically involves five vowels: three front vowels (/ɪ, ɛ, æ/) and two back vowels (/ɑ, ɔ/). There's a certain pattern where low vowels (/æ, ɑ, ɔ/) undergo a shift: merger of the low-back vowels /ɑ, ɔ/ while /æ/ is retracting backward. Regarding the movement of /ɪ, ɛ/, there are two reported variations: 1. They undergo a downward chain shift with the low vowels /æ/, /ɑ/, and /ɔ/ (e.g., Clarke et al. (1995)), or 2. They retract backward in parallel with /æ/ (e.g., Boberg (2005), Hagiwara (2006)).

The cause of the shift is subject to debate. Studies, such as Labov et al. (2006), explains that it is "triggered by low back merger". However, based on his data, Durian (2012) suggests that the shift can occur without a complete low-back merger. Instead, he argues that the crucial factor is the retraction of /ɑ/ within the vowel space.

The Third Dialect Shift has also been identified in the Inland North region, where the Northern Cities Shift had previously been established (Wagner et al., 2016; Nesbitt & Mason, 2016). This discovery in the Inland North has significant implications for American dialectology because the Northern Cities Shift involves a vowel movement opposite to that of the Third Dialect Shift: /ɑ, ɔ/ move apart from each other in the vowel space. Wagner et al. (2016) and Nesbitt & Mason (2016) observed evidence of /ɑ/ "retracting toward the low-back merger," indicating that the complete merger of /ɑ, ɔ/ is not necessarily a prerequisite for the Third Dialect Shift.

The purpose of this study is to observe the changes in front vowels /ɪ, ɛ, æ/ of SCPE, and discuss whether they are related to the inter-generation development of the low-back merger reported in Kimura (2020) and Kimura (2023). Furthermore, the possible scenario of future vowel changes will be discussed referring to the previous studies introduced above.

2. Data and methodology

The following sections explain the data sources and methodologies

used in the present analysis. In Section 2.1, the sources and properties of acoustic recordings will be explained, and Section 2.2 illustrates the acoustic analysis methods used to extract vowel formants.

2.1 The dataset

The acoustic data used in this study were field recordings collected in 2019 by the present author. Details of each recording will be provided in the following subsections.

2.1.1 Fieldwork Locations in 2019

Figure 1 shows the location of each field recording in 2019 on a map of the Commonwealth of Pennsylvania.

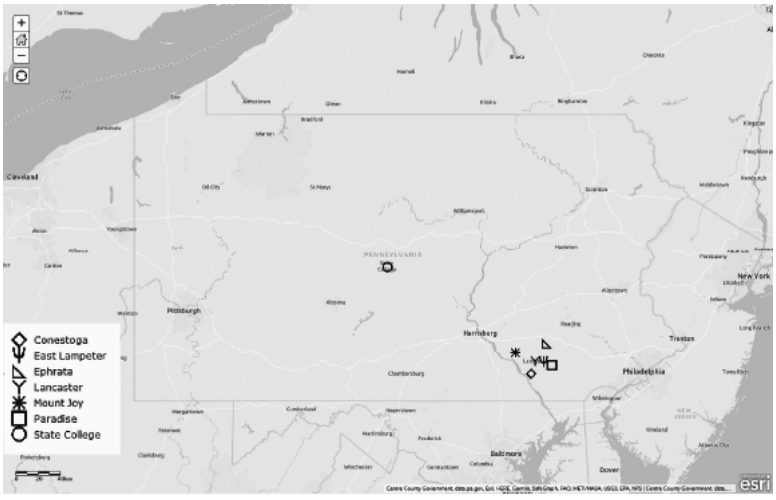

Figure 1. A map of fieldwork locations in 2019 (Reprinted from Kimura (2023)).

The data points are distributed in two counties: Centre (State College) in central Pennsylvania and Lancaster (Conestoga, East Lampeter, Ephrata, Lancaster, Mount Joy, Paradise) in the southeast. As was explained in Section 1, the western half of the Commonwealth, which includes State College, has already undergone the low-back merger in the 20th century, and the eastern part, containing Lancaster, is resistant

to the merger. Since this paper aims to report the apparent-time changes in the front vowels of SCPE, only data recorded in Lancaster County are used. The list of consultants who participated in the field-work interview in Lancaster County and whose data are used in the present analysis is provided in Table 1.

Table 1. A list of consultants referred to in this study.

ID	County	City/Township/Borough	Age	Gender	Ethnicity/Race
#1	Lancaster	Mount Joy	70s	male	Caucasian
#2		East Lampeter		female	
#3				female	
#4		Conestoga		male	
#5				female	
#6		Ephrata		male	
#7		East Lampeter	20s	male	
#8				male	
#9		Lancaster		male	
#10				male	
#11		Ephrata		female	

Recordings were made with a unidirectional monoaural microphone (OLYMPUS ME52W), and an IC recorder (SONY ICD-UX560F/B) with a sampling frequency/quantization bit of 44.1 kHz/16 bit[1].

2.2 Selected vowel tokens

In the present analysis, vowel tokens are selected according to the following criteria:

1. Related to the ongoing vowel changes in North American English (namely, /u/, /ʊ/, /oʊ/, /i/, /ʌ/, /ɪ/, /ɛ/, /æ/, /ɑ/ and /ɔ/)[2]
2. Stressed (either the primary or secondary stress is placed)

2.3 Acoustic analysis

The acoustic analysis in the present study was conducted through the following procedures:

1. Optimization of formant parameters
2. Extraction of time and formant data
3. Determination of vowel nuclei
4. Visualization of F1–F2 vowel spaces

The first two steps were processed with the acoustic-analysis software Praat (Boersma & Weenink, 2020) combined with a C++ script running on ROOT framework (Brun & Rademakers, 1997), and the third and the fourth with a Python script. The C++ and Python scripts were written by the present author. Each of the procedures will be briefly explained in the following subsections.

2.2.1 Optimization of formant parameters

Before the actual measurement of vowel formants (F1 and F2), one of the parameters used in the formant estimation algorithm was optimized. In Praat, an algorithm called the Burg method is exploited to estimate formant frequencies from spectrograms. Among the modifiable parameters of the Burg method, "formant ceiling" was optimized[3)], since this parameter is especially important for accurate formant measurements.

This optimization process especially helps Praat reduce the chance of mismeasurements caused by the difference in speakers' vocal tract lengths, such as those between male and female speakers. Formant ceiling is usually recommended to be set to 5,000 [Hz] for male speakers and 5,500 [Hz] for females, which reflects the average gender-specific vocal tract lengths.

In this analysis, to achieve a more accurate measurement of formants, individual differences in vocal tracts were also considered, that is, different formant ceilings were assigned to each consultant's speech.

Moreover, following the method introduced in Escudero et al. (2009), formant ceilings of each vowel phoneme were optimized individually. Escudero et al. (2009) have demonstrated that high-front vowels and back vowels are especially affected by the formant ceiling values, and this can lead to mismeasurements of formant frequencies[4)]. In the present analysis, Escudero et al. (2009)'s method was modified to enable

measurements of American English vowels with diphthong-like formant transitions. For the details of the method, refer to Section 4.4 of Kimura (2023).

2.2.2 Extraction of formant data

Formant data are extracted from the spectrograms of each vowel token with optimized formant ceilings. The extracted data contains all the data points of each vowel trajectory and will be subject to the process of nucleus search explained in 2.2.3.

2.2.3 Determination of vowel nuclei

From the trajectories with optimized formant ceilings, vowel nuclei were extracted. The nucleus of a vowel is "[t]he core or base of a diphthong, or a two-part vowel sound" (Wolfram & Schilling-Estes, 2016: p. 405), in other words, it is the stable part with the slowest formant transition in the middle of a vowel trajectory. Since almost all the vowels of American English are diphthong-like, this nucleus extraction was conducted for all the tokens using an algorithm with which series of successive time-points with slowest formant transitions were extracted from vowel trajectories. For the mathematical details of this algorithm, refer again to Section 4.4 of Kimura (2023).

2.2.4 Visualization of F1–F2 vowel spaces

The extracted vowel nuclei were plotted on the F1–F2 plane after being transformed into the Bark scale, a psychoacoustic scale originally introduced by Zwicker (1961). For conversion, the conversion formula (Equation (1) below) presented in Traunmüller (1983) was used, since it was demonstrated that this formula is accurate enough in the frequency range of $0.2 < f < 6.7$ [kHz] (f denotes a frequency in Herz), which is sufficient for the analysis of speech sounds.

$$Z(Bark) = \frac{26.81f}{1960[Hz] + f} \tag{1}$$

Normalization is also conducted using Gerstman (1968)'s method. In

this method, formant values in Bark were transformed into the range between 0–1 using Equation (2), in other words, this method put each consultant's vowel space into a square with a side length of 1.

$$f_n^{norm} = \frac{f_n - F_n^{min}}{F_n^{max} - F_n^{min}} \quad (2)$$

F_n^{max} and F_n^{min} denote the maximum and minimum of the formant frequency of the n[th] vowel token, and f_n and f_n^{norm} denote the values before and after normalization. In order to avoid complexity of diagrams, only the medians and ranges of each nucleus trajectory were drawn.

3. Results and discussion

This chapter presents the resulting vowel spaces of each consultant and describes the vowel changes that can be read from each diagram. After presenting the vowel spaces of the older generation (those who were in their 70s when interviewed) and the younger generation (those who were in their 20s when interviewed), a brief description and discussion of a change observed in the front vowel /ɛ/ will follow.

Vowels of the older generation

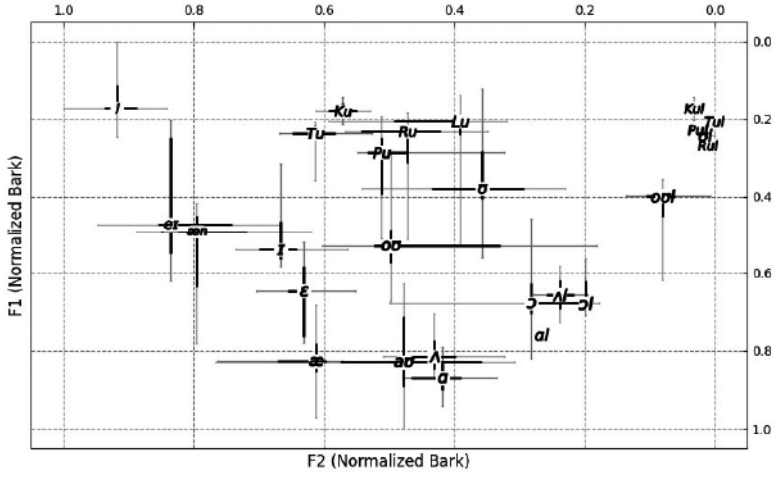

Figure 2. The F1–F2 space of speaker #1 (Mount Joy, male, age 20s)

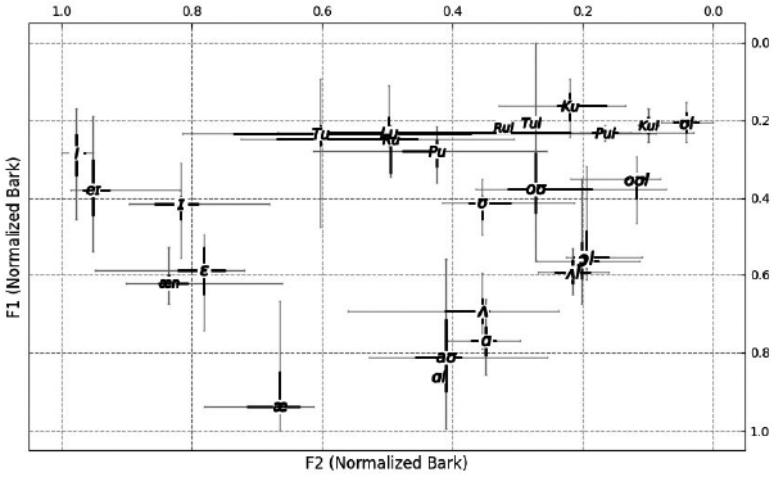

Figure 3. The F1–F2 space of speaker #2 (East Lampeter, female, age 70s)

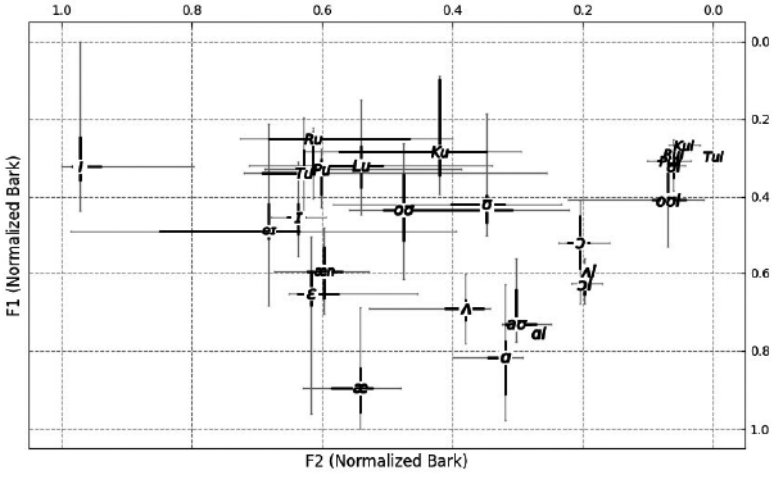

Figure 4. The F1–F2 space of speaker #3 (East Lampeter, female, age 70s)

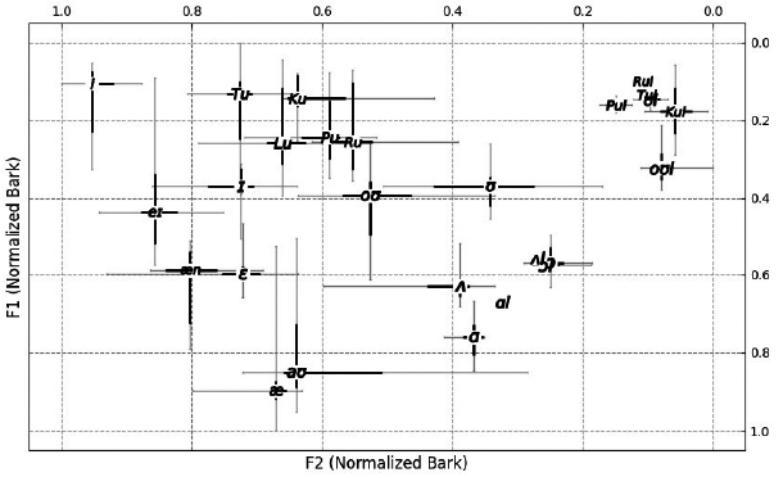

Figure 5. The F1–F2 space of speaker #4 (Conestoga, male, age 70s)

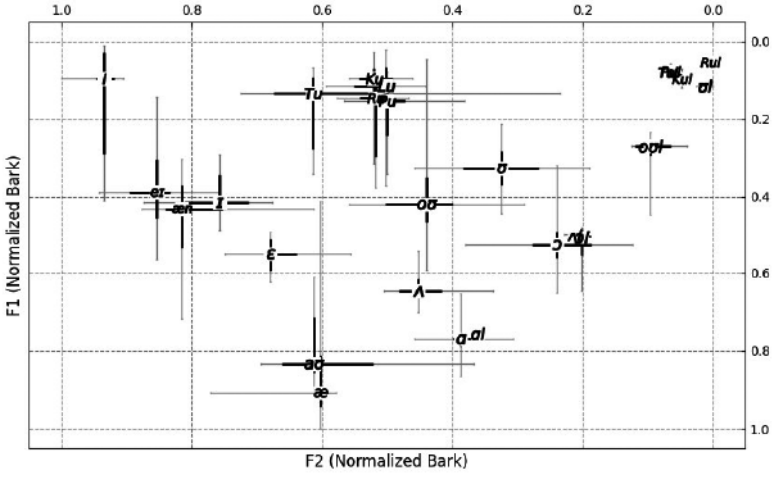

Figure 6. The F1–F2 space of speaker #5 (Conestoga, female, age 70s)

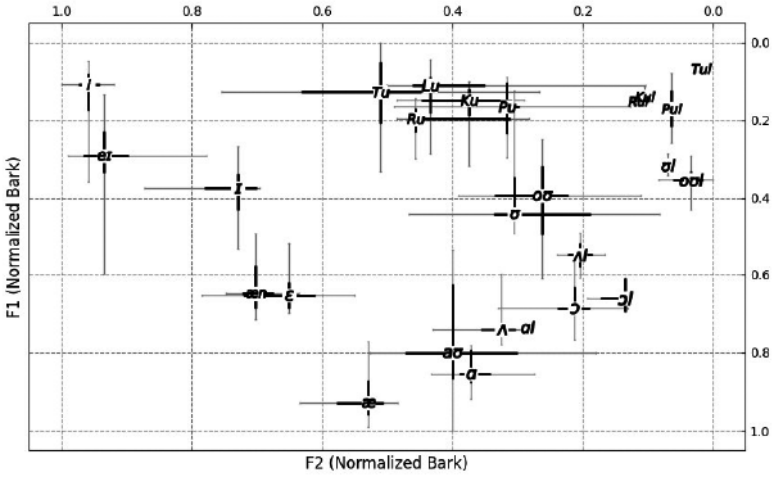

Figure 7. The F1–F2 space of speaker #6 (Ephrata, male, age 70s)

Vowels of the younger generation

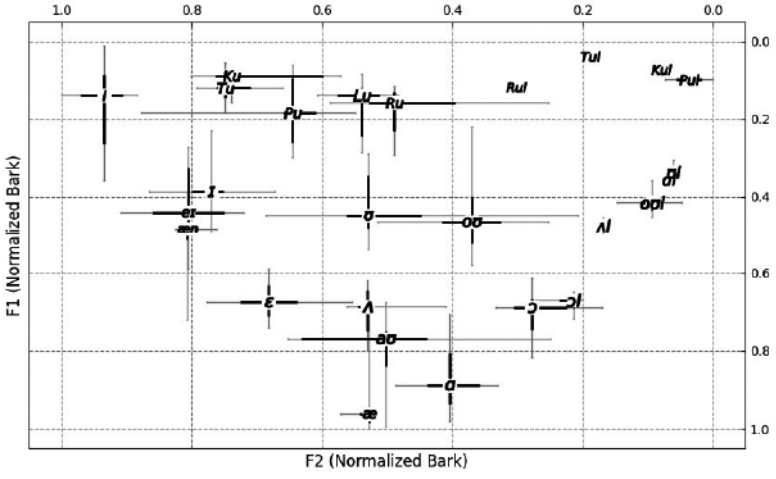

Figure 8. The F1–F2 space of speaker #7 (East Lampeter, male, age 20s)

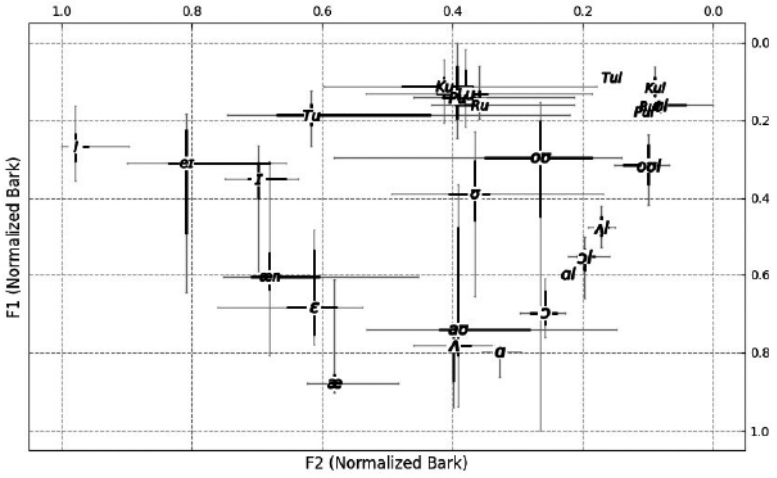

Figure 9. The F1–F2 space of speaker #8 (East Lampeter, male, age 20s)

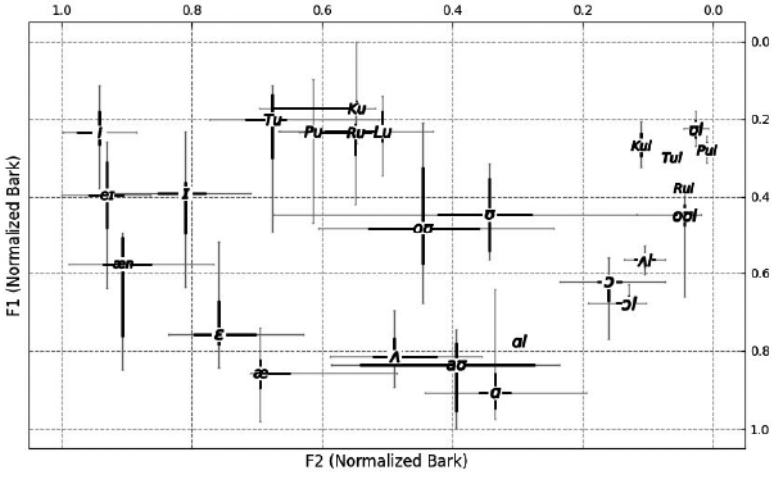

Figure 10. The F1–F2 space of speaker #9 (Lancaster, male, age 20s)

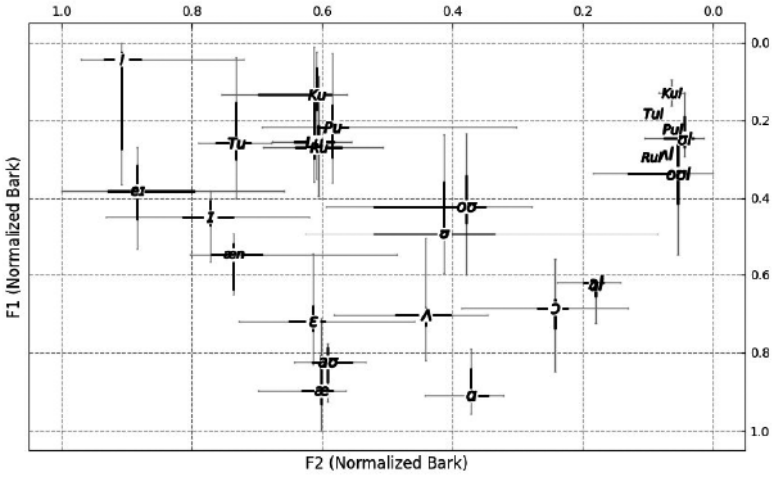

Figure 11. The F1–F2 space of speaker #10 (Lancaster, male, age 20s)

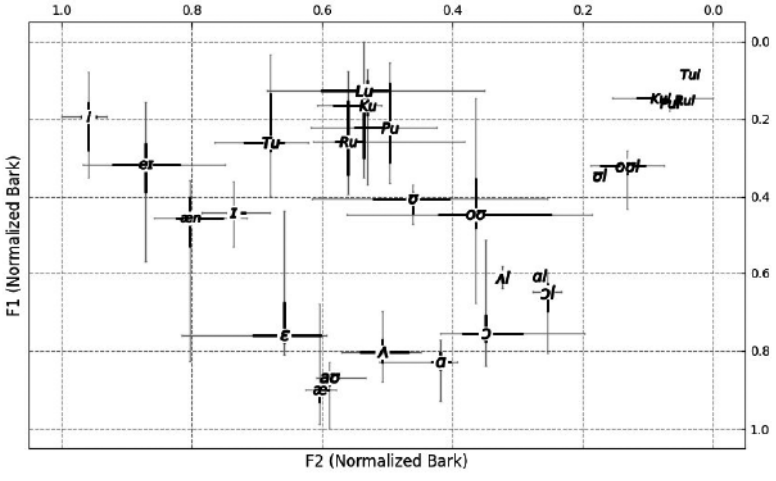

Figure 12. The F1–F2 space of speaker #11 (Ephrata, female, age 20s)

Note that in each vowel space, the medians of each vowel are plotted, and the ranges between 25% and 75 % quantile are represented by thick black bars, and those between 0% and 25%, or 75% and 100% are represented by thin grey bars.

Generally, the position of front vowels varies among individuals, and, apparently, there is no comprehensive shift of the front vowels in SCPE. However, when observing those vowels more closely, the phoneme /ɛ/ shows an inter-generation shift towards higher F1, which indicates acoustically that this vowel is moving towards lower-vowel sound quality: In Figures 2–7, the F1 of /ɛ/ ranges between 0.55 and 0.66, while in Figures 8–12, it ranges from 0.67 to 0.76. It indicates that in SCPE the front vowel /ɛ/ shifts in parallel with the low-back merger, while the other vowel phonemes in question do not show certain generational changes.

It is likely that the phoneme /æ/ will move backward into the space created by the low-back merger in the future, due to the pressure of lowered /ɛ/. In such a scenario, the resulting vowel space might be similar to those undergoing the Third Dialect Shift, but the process itself would be divided into two separate vowel changes that occurred in SCPE simultaneously. There is still room for further investigation to determine which of these changes began earlier in SCPE.

5. Conclusion

The present study observed acoustically that the vowel /ɛ/ is moving lower in the F1–F2 acoustic vowel spaces alongside the low-back merger. This indicates that two separate vowel changes progress in SCPE. In the future, it is possible that SCPE might result in a vowel system that resembles that of the Third Dialect Shift, but the processes toward such a resulting system might be different from the previously known process of the Third Dialect Shift.

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NOTES

1) This is a sufficient quality for acoustic analyses of language sounds.
2) The phoneme /i/ is not involved in the current changes in North American English. The reason why this phoneme token is measured in this analysis is that this phoneme is located in the corner of the vowel space, and can be useful for estimating the size of each consultant's vowel space as a stable anchor point.
3) "Formant ceiling" determines the upper limit of the frequency range in which the Burg algorithm calculates formants. If this parameter is set too small, the algorithm tries to find more formants than actually exists. On the other hand, if this value is too large, it overlooks one or more of the existent formants.
4) One of the causes of mismeasurements is the tracheal resonance of the high-front vowels. The average of the second tracheal resonant frequency is 1,650 [Hz] for females and 1,550 [Hz] for males (Stevens, 1998). These values can be misjudged by Praat as the second formants.

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投 稿 規 定

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