Root–derived passive potential adjectives in English

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Abstract

Research into event and argument structure within Distributed Morphology has been centred on the assumption that the vP head is present in the structure of only those lexically deverbal words that behave eventively in terms of their external syntax (that is, they can license modifiers that describe the event of the underlying verb). The vP layer has been claimed to perform two main roles, namely serving as the locus of event implications and categorizing the structure syntactically as a verb. This paper, using evidence from root-derived *-ble* adjectives in English (e.g., *applicable*, *perceptible*, *visible*), argues that these two functions are fulfilled by two different functional heads. Specifically, it is shown that root-derived *-ble* adjectives can undergo event-related modification and thus be derived by a suffix that selects for an eventive functional head. Their structure nevertheless does not include the cyclic vP projection, present only in *-ble* adjectives derived from verbs as well as truncated roots (e.g., *operable*, *tolerable*, *calculable*).

1. Introduction

What all root-based accounts of word formation have in common is that any assumptions that they make about the structure of words are based purely on how they behave in terms of their external syntax, largely ignoring any lexical considerations. This means that a word which on the surface might seem derived from a verb (e.g., *given*) can in fact be analysed as derived from a categorically undefined morphological root. Consider the contrast below:

(1) a. a deliberately given false impression

b. They met at the (*deliberately) given location.

c. John's success was not a (*deliberately) given.

As used in (1a), *given* falls into a class of constructions known in the literature as adjectival passives (see e.g., Anagnostopoulou 2003; Embick 2003, 2004; Sleeman 2011; McIntyre 2013;

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Alexiadou et al. 2014; Bruening 2014; Alexiadou et al. 2015). Its deverbal nature stems from the fact that it can co-occur with adverbs describing the manner in which the action expressed by the verb is performed, in this case *deliberately*. On the other hand, the instances of *given* in (1b) and (1c) are not possible with such modifiers, hence under a syntactic model of word formation they cannot be considered deverbal.

In the morphosyntactic literature, a great deal of attention has been devoted to determining whether words that are deverbal in the lexical sense (that is, that are derived from lexical verbs) are also deverbal in the morphosyntactic sense (in other words, whether their syntactic behaviour points to the presence of the functional and categorizing vP head in their structure). Apart from adjectival passives, the issue of the presence vs absence of vP in the structure of words has been widely discussed with respect to deverbal nominalizations (see, e.g., Alexiadou 2001; Alexiadou and Schäfer 2010; Borer 2012, 2013; Bruening 2013; Roy and Soare 2013; Wood 2023) and synthetic compounds (see, e.g., Harley 2009, Alexiadou 2017, Iordăchioaia et al. 2017). This research deals with the question of whether verbal structure is present in the representation of lexically deverbal words from the point of view of *-ble* adjectives in English. Specifically, the paper will attempt to answer the question opposite to the one stated above, namely whether words that are not based on lexical verbs can appear in environments indicative of their syntactic complexity and if so, how this complexity is manifested in their internal structure. Consequently, the study will examine the external syntax of *-ble* adjectives derived from bound and truncated roots (e.g., *visible, audible, available, operable*) and those adjectives where the attachment of the *-ble* suffix triggers root allomorphy (e.g., *applicable, comprehensible, divisible*) in order to determine whether and how their semantics and syntactic behaviour differs from the syntax and semantics of verb-derived *-ble* adjectives, such as *translatable, modifiable*, or *runnable*.

The analysis will be performed within the Distributed Morphology approach, first proposed by Halle and Marantz (1993). Like other syntactic approaches to word formation, Distributed Morphology rejects the existence of the lexicon as a separate component of the grammar, instead assuming that complex words are formed by means of syntactic operations. Most research conducted within Distributed Morphology posits that the structure of deverbal words contains a single vP head, which serves as the "locus of eventivity" (Alexiadou 2001). This study will challenge this claim and argue that the vP domain is composed of two syntactic layers, namely EventP and phase vP, the former functioning as eventivizer and the latter being a verb-producing categorizer. This hypothesis will be borne out by the language data illustrating the syntactic behaviour of the examined adjectives.[1]

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[1] The bulk of linguistic examples used in this paper have been extracted from texts stored in the Google Books database, occasionally supplemented with examples from the Corpus of Contemporary American English (COCA – Davies 2008-) and sentences found elsewhere on the Internet. The Google Books sources are identified by the author, year of publication, name of the book and, if possible, the page where the example can be found. Some

The paper is organized as follows. Section 2 summarizes the main tenets of Distributed Morphology (with a special emphasis laid on how deverbal and non-deverbal *-ble* adjectives are represented syntactically). Section 3 investigates the external syntax of root-derived adjectives, concentrating on whether it is indicative of the presence of event structure in their representation. The internal structure of root-derived *-ble* adjectives is proposed in section 4, which also discusses the syntactico-semantic constraints that such adjectives are subject to. The paper is concluded in section 5.

2. Theoretical background: *-ble* adjectives in Distributed Morphology

Distributed Morphology (henceforth DM – Halle and Marantz 1993; Marantz 1997; Embick 2010) is a linguistic theory according to which the syntax of a language is a sole generative component responsible for the creation of both words and sentences. DM further posits that words, irrespective of whether they are morphologically simple or complex, are decomposed into roots, which receive a syntactic category upon being combined with a functional layer. This means that a verb such as *give* is syntactically produced when the root √GIVE is assigned a category by the c layer v. A representation of this process is illustrated in (2).

(2)　　　　v
　　　　／＼
　　Ø　　　√GIVE
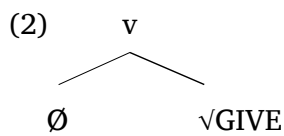
This understanding of a verb has its consequences for what adjectives (or nouns) can be considered deverbal. Approaches such as DM assume that the adjective is deverbal if it refers to the event expressed by the verb that serves as the base for the derivation (the terms "eventive" and "deverbal" are often used interchangeably by linguists adopting the DM framework), which is syntactically manifested by the presence of vP, which introduces an event variable (Alexiadou 2001). The presence of event implications is diagnosed by means of testing the ability of a word to occur with event-related modifiers, such as *by*-phrases, which are used to detect the presence of the initiator of the event.[2]

-Ble adjectives in English have been shown to fall into two classes as regards their deverbal status, labelled high (passive potential) and low *-ble*, a division proposed by Oltra-Massuet (2013). Consider the adjectives *controllable* and *considerable*: from a lexicalist perspective, both can safely be considered deverbal (derived from the verbs *control* and *consider,* respectively). However, the two *-ble* adjectives behave differently as regards their ability to occur with *by*-phrases and event-related adverbs (such as *easily*), which are licit only with *controllable*:

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examples have also been constructed for the purpose of this study – these have no source given. All links provided here were last accessed on April 10, 2024.
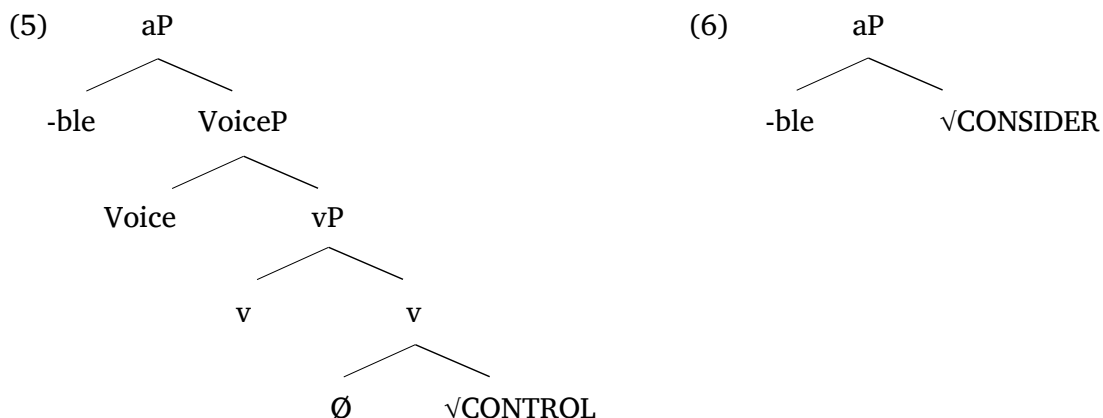
[2] This naturally applies only to complex words based on verbs that imply the presence of an agent.

(3)   a. The cost of the project should be easily controllable by the organization's management.

   b. The risk is (*easily) considerable (*by the investor).

Apart from co-occurring with *by*-phrases, the presence of complex verbal structure in high *-ble* adjectives stems from their ability to license instrumental phrases and control into purpose clauses.

(4)   a. The surface is washable with regular dish soap and a damp sponge.
   (Oltra-Massuet 2013: 90)

   b. The light source is orientable to allow correction of the light range.
   (Oltra-Massuet 2013: 87)

Hence, under DM, only *controllable* contains the event structure typical of verbal forms in its syntactic representation and consequently has the status of a deverbal word, with the aP suffix spelled out by *-ble* merged above vP in the process referred to as "outer affixation" (Marantz 1997, Embick and Marantz 2008, Embick 2010). On the other hand, *considerable* in (5b) has a simple structure where *-ble* is attached directly to the root (it is an example of "inner affixation"); the fact that *consider* is a lexical verb does not translate into the presence of v in the structure.

(5)   aP

    -ble   VoiceP

           Voice   vP

                    v   v

                         Ø   √CONTROL

(6)   aP

    -ble   √CONSIDER

In (5), the root is first categorized by v, which subsequently projects into a phrase (vP). The syntactic representation of *controllable* also contains the VoiceP head responsible for the introduction of the external argument (Kratzer 1996; Alexiadou et al. 2015).

Apart from the ability of words to occur in eventive context, there are two other criteria that determine whether complex nouns and adjectives are derived by outer or inner affixation. Firstly, structures derived by attachment above the categorizing head are expected to be semantically transparent. DM holds that idiosyncratic meanings are structurally assigned by the categorizing head (Marantz 1997; Arad 2003, 2005) – that is, by the head that dominates the root directly. This prediction is by and large obeyed by *-ble* adjectives. The above

mentioned *considerable* is in fact an idiomatic adjective (its meaning is fairly detached from the meaning of the verb *consider*) and the same comment can be made about adjectives such as *agreeable* (**easily agreeable weather*) or *responsible* (**an easily responsible person*).

Further, as argued by Embick (2010), derivation above v (which in Embick's account is a cyclic head) must be morphologically regular – i.e., it cannot be subject to lexically conditioned (root-determined) allomorphy. Embick's illustration of this constraint is the derivation of *marrying* vs *marriage* – only the former is formed via outer attachment on the grounds that it is produced with the regular suffix *-ing* present in nominal gerunds; *marriage*, by contrast, is derived by root attachment as it features a root-determined affix. The great majority of eventive *-ble* adjectives are derived without the involvement of morpho-phonological alternations. However, in what follows, it will be shown that *-ble* adjectives involving root allomorphy (such as *divisible* or *applicable*) as well as *-ble* adjectives derived from bound roots (*visible, audible, legible*, etc.) can in fact behave eventively, though not to the same extent as regularly derived *-ble* adjectives. This will make it necessary to postulate that their structure contains a non-cyclic head that introduces an event variable. The data illustrating the eventive character of root derived *-ble* are discussed in section 3.

3. The external syntax of root-derived *-ble* adjectives.

Under standard DM assumptions, adjectives such as *applicable, compherensible,* or *destructible* must be derived locally to the root because they involve root allomorphy. Nevertheless, this prediction is not confirmed by the data in (7), where it is shown that such adjectives can license *easily* and *by*-phrases:

(7)   a. Since the early days of the development process, there has been an effort to internationalize RDA and to make RDA **easily applicable by** communities around the world. [C. Oliver, 2010, *Introducing RDA: A guide to the basics*, p. 11]

   b. When billions of dollars are spent searching for life elsewhere in the cosmos, is it egotistical to think that intelligences cannot exist unless they are **comprehensible by us?** [R. Herrmann, 2004. *Sir John Templeton: Supporting scientific research for spiritual discoveries*, p. 298]

   c. Pure diamonds, used in lasers, would be tougher and stronger than any material known to man, almost **indestructible by** any magnitude of laser power. [COCA]

   d. It was as if, in the age of digitization, people were reduced to the status of mere images, perhaps even more **easily destructible** than they always had been. [D. Freedberg, 2021, *Iconoclasm*, p. 15]

   e. Like the fortress of Dienbienphu, they were not **easily defensible by** tactical atomic weapons employed locally. [W. Millis, 1981, *Arms and men: A study in American military history*, p. 342]

f. The set of properties that can be inferred by NuageDB and used for optimization is **extensible by** the user. [I. Gorton and D. K. Gracio (eds.), 2013, *Data-intensive computing: Architectures, algorithms, and applications*, p. 225]

g. Notice how much simpler this transaction gets, not only for search costs but also because the money unit here makes the parts of the transaction more **easily divisible**. [M. Ashton. 2016. *What's wrong with money?: The biggest bubble of all*]

h. Finally, do not miss 100 Herculis, a matched pair of 6th-magnitude white stars, **easily divisible by** small telescopes. [I. Ridpath and W. Tirion, 2012, *The monthly sky guide*, p. 46]

i. While the NVP polymer is **easily soluble** in water, studies have shown that water is not a thermodynamically good solvent for the homopolymer. [K. O. Havelka, C. L. McCormick, 2000, *Specialty monomers and polymers: Synthesis, properties, and applications*, p. 222]

j. Further, like many of the environmental hazards on which Beck's work focused, the novel coronavirus is an invisible threat that is not **easily perceptible by** the human senses. [D. Lupton, 2022, *COVID societies: Theorising the Coronavirus crisis*]

k. We can now refine the definition of error as being an instance of language that is unintentionally deviant and is not **self-corrigible by** its author. [C. James, 1998, *Errors in language learning and Use: Exploring error analysis*]

l. He appears to think that the people he criticizes have made an **easily corrigible** intellectual error. [T. Brooks (ed.), 2022, *Political emotions: Towards a decent public sphere*, p. 201]

Agent-oriented modifiers and the adverb *easily* are also possible with *-ble* adjectives derived from bound roots.

(8) a. In the northern hemisphere, the Hercules Cluster is ***easily visible with*** binoculars or a small telescope. (C. Liu, 2013, *The handy astronomy answer book*, p. 200)

b. It is at this stage that Nicholas Horsfall resorts to his microscope, judging the text "**easily legible with** a magnifying glass". [M. Squire, 2011, *The Iliad in a nutshell: Visualizing epic on the Tabulae Iliacae*, p. 366]

c. Of the approximately 400,000 species of plants on Earth, only a tiny fraction are **edible by** humans. (S. Baker, 2019, *The carnivore diet*, p. 74)

d. The consonants of speech tend to be quieter and of higher frequency, and therefore not **easily audible by** these children. [H. Knoors and M. Marschark (eds.), 2015, *Educating deaf learners: Creating a global evidence base*, p. 26]

e. Recreation-oriented tourists should be looked upon less as shallow, **easily gullible** simpletons who believe any contraption to be 'real'(...), but rather as persons who

attend a performance or participate in a game (…). [S. L. Roberson (ed.), 2007 (first edition 2001), *Defining travel: Diverse visions*, p. 35]

f. If you are locked-into attributing credibility to someone who has little, you are to that extent **gullible by** that person. [L. Thayer, 2009, *Communication!: A radically new approach to life's most perplexing problem*, p. 106]

g. We start by introducing conceptual models which are employed to catch and schematize the principal features of the process of salt marsh edge erosion, in order to make it **more easily intelligible by** the reader. [D. M. Fitzgerald and Z. J. Hughes (eds.), 2021, *Salt marshes: function, dynamics, and stresses*, p. 400]

h. This equipment is not **easily portable by one man** over long distances in rough country. (J. D. Ives and R. G. Barry (eds.), 2019, *Arctic and Alpine environments*)

i. In the period 1954–60, the concept of a 'South Vietnamese nationality' was only **tenable by those** who chose to ignore the facts. [C. A. Thayer, 2021, *War by other means: National liberation and revolution in Viet-Nam, 1954–60*].

j. The Buddha's genius was to abstract the religious attitude from religious dogma at a time when religious dogmas were still **easily tenable**. [A. O'Hear, 2013 (first edition 1984), *Experience, explanation and faith: An introduction to the philosophy of religion*, p. 250]

k. As Weber has pointed out, in ideal-typical terms, the populist incorporative mode entails plebiscitarian organizational structures. It entails organizational forms **easily malleable by** a charismatic leader who is able to bypass 'intermediaries' and appeal directly to the 'people'. [J. R. Hall (ed.), 2013 (first edition 1995), *Civil society: Theory, history, comparison*]

Traces of event structure can also be found in adjectives such as *available* or *susceptible*, which accept the modification with *easily* and *quickly* (however, they are impossible with *by*-phrases).

(9) a. The number of books **easily available** in electronic form seems likely to increase./*The books are available by students. [COCA]

b. Some basins are shallow and therefore relatively weak in maintaining system stability, and **easily susceptible** to change. [W. H. Edwards, 2010, *Motor learning and control: From theory to practice*, p. 160]/*The basin is easily susceptibl$_i$ to damage by$_i$ environmental factors.

c. If you are easily irascible, belonging to the Type A category, it is time you learnt the techniques of dealing with your anger. [M. Curlew, 2019, *Go after your dreams*, p. 50]/*John is easily irascible by inconveniences.

d. Much of China's land consists of mountains and deserts that are not **easily amenable** to human habitation. [COCA]/*This area is not easily amenable to human habitation by land engineers.

e. The Bible story about Jesus going up to the temple in Jerusalem with his parents and then staying behind unnoticed by his parents until the end of the day was **easily credible** to the children. [R. P. Lynton, 2009, *Between past and future: A field guide for fathers overseas*]/*This story is easily credible by the listener.

f. (…) humans could find new lands to clear nearby and so had no compelling reason to settle in the mountains where the soils were less fertile, **easily arable** land was rare. [John Powers, 2015, *The Buddhist world]./*This land is easily arable by prospective farmers.

g. Persons involved in the U.S. assistance work worry that the reporting distortions that result from the pressure to show quick, **easily tangible** results are beginning to have deleterious effects on the design of future projects. [T. Carothers, 2013, *Assessing Democracy Assistance: The Case of Romania*, p. 112]

h. The husks are ready to use when soft and **easily pliable**. [T. H. Romero, 2010, *Viva vegan!: 200 authentic and fabulous recipes for Latin food lovers*]

(10) a. The rules established for documentation try to enforce the presumption that documents should not be restricted [and, therefore, **quickly available** to the public on the web). (J. H. Jackson, 2006, *Sovereignty, the WTO, and changing fundamentals of international law*, p. 119]

b. With the advent of gunpowder, wounds were often more serious and more **quickly susceptible** to infection. [D. Hemenway, 2009, *While We Were Sleeping: Success Stories in Injury and Violence Prevention*, p. 119]

c. Kate thought she'd better keep Ryan calm, at least until they got to her house. He seemed **quickly irascible**, and Kate wanted to get home in one piece. [R. Dawn, 2017, *Double-Edged: The Perfect Halves Series – Book One*, p. 142[

d. Sweet Grass, the venerable Cree chief and Christian convert who had been one of the petitioners in 1871, proved **quickly amenable** to accepting treaty on the terms to which Ahtahkakoop and Mistawasis had already agreed. [J. R. Miller, 2009, *Compact, contract, covenant: Aboriginal treaty-making in Canada*]

e. Governing requires the ability to curate **quickly credible**, specific, and relevant information. [B. S. Noveck, 2015, Smart Citizens, Smarter State: *The technologies of expertise and the future of governing*, p. 104]

f. The wooden posts were not **quickly flammable**, although when two were nailed together for strength a fire could smoulder between them. [F. H. Armstrong, 1988, *A city in the making: Progress, people & perils in Victorian Toronto*, p. 299]

g. The view that foreign language skills don't yield "**quickly tangible** research benefits" stems from an implicit assumption that languages exist in discrete, separate spheres and that the politics of language use and writing instruction can be studies through the lens of one language alone. [S. Wible, 2013, *Shaping language policy in the U.S.: The role of composition studies*, p. 158]

h. A simple and **quickly pliable** bicycle will be more efficient for very short journeys that can be combined with the use of public transportation.
[https://www.alltricks.com/surl/folding-bikes]

In the next section, I proceed to the discussion of the data shown in (7)–(10).

4. Deriving passive potential adjectives of the *applicable, visible,* and *available* types

4.1 The internal structure of root-derived *-ble* adjectives

The language data presented in the previous section indicate that *-ble* adjectives such as *applicable, visible,* or *available* can behave agentively (or at least eventively), and thus their internal structure is expected to contain a head that enables the licensing of event-related modifiers. Nevertheless, a proposal that a verbal or eventive head is present in the structure of root-derived *-ble* adjectives poses certain problems. Firstly, it may seem counter-intuitive to postulate that roots such as √VIS, √LEG, or √AUD are categorized by vP as they cannot actually produce verbs (although √AUD can give rise to *audition*, which can be used as a verb; *avail* can also be a verb, but in today's English its meaning is unrelated to *available*). This, however, is in itself not problematic for DM, as one of DM's main tenets is "underspecification of vocabulary items" (Harley and Noyer 1999), which says that vocabulary items (including roots) "need not be fully specified for the syntactic positions where they can be inserted" (Harley and Noyer 1999: 3). This particularly applies to bound roots, which are inherently underspecified. Hence, there is no formal constraint that prevents the above-mentioned roots to be merged with vP.

Another problem concerns the nature of the agent-related PPs used with adjectives such as *visible* or *audible*. These adjectives are more commonly found with the preposition *to* (rather than *by*). However, the preposition *to* is preferred by a number of high *-ble* adjectives, specifically those lexicalized to a higher extent, such as *accessible* or *affordable* (which in the COCA corpus occur 16,780 and 16,873 times, respectively); in other words, the high degree of lexicalization of *accessible* and *affordable* means that they are less "verbal" and more "adjectival". In the "newspaper" subsection of the COCA, *affordable* and *accessible* are used almost exclusively with *to*-phrases; *affordable* appears 7 times with a *by*-phrase, only 1 of which is agentive. The combination of *accessible* and a *by*-phrase appears 77 times, but these

by-phrases refer to the means by which actions are performed (typically – how places can be reached).

Since adjectives such as *visible* or *audible* lack the actual verbal source, the PPs licensed by them can be argued to adjuncts, rather than arguments of a functional layer below aP. Nevertheless, the *by-* and *with*-phrases found with eventive root-derived *-ble* adjectives behave in a manner typical of PPs also licensed by high *-ble* adjectives. Notably, they cannot be stranded under *so*-replacement, unlike prepositions headed by *to*.

(11) a. (…) black life in America is still burdened and circumscribed in ways hurtful and highly visible to blacks, but less so to whites.
       [https://www.washingtonpost.com/archive/entertainment/books/1984/11/04/politics-the-great-american-game/854da6dc-c652-4989-b70b-731206d24ac2/]

  b. ??This is achievable by Mary but less so by John. (cf. This is achievable for Mary but less so for John.)

  c. ??The planet is visible with a telescope but less so with binoculars.

  d. ??This is intelligible by adults but less so by children.

An argument can be made that root-derived *-ble* adjectives are used with agent-oriented modifiers to indicate a greater degree of volitionality. If I want to say that a mountain summit is difficult to climb, I have a choice of saying that it is "accessible only to experienced mountaineers" or "accessible only by experienced mountaineers", even though the former variant seems preferred by speakers.[4] But if I want to say that information can be accessed by everyone, I am much more likely to say that it is "accessible *to* everyone", or even "accessible *for* everyone", as *accessible* is lexicalized to an even greater extent.[5] The word *visible* is even more lexicalized (with a total of 28,904 COCA occurrences), and is rarely used in contexts which place focus on the "spectator"; hence, it is infrequently used with agentive *by*-phrases.[6]

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[4] This is confirmed by a Google search, which gives more examples of *accessible only to experienced* than *accessible only by experienced* (no instances of either phrase are found in the COCA).

[5] COCA returns 140 instances of *accessible to everyone*, 16 instances of *accessible for everyone* and only two examples of *accessible by everyone*. Elsewhere on the Internet the phrase *accessible by everyone* is commonly found, although it is not as prevalent as *accessible to everyone*. For example, Google returns much fewer instances of *information accessible by everyone* than *information accessible to everyone*. However, the combination of *accessible* and an agentive *by*-phrase is found 23 times in the academic subsection of the COCA.

[6] Note however that instruments are rarely introduced with a *to*-phrase; a Google search returns over 20 examples of the phrase *visible with a powerful telescope* and only two examples of *visible to a powerful telescope*. As for the co-occurrence of *visible* and *by*-phrases, the below examples (taken from the COCA) indicate that such modification is possible.
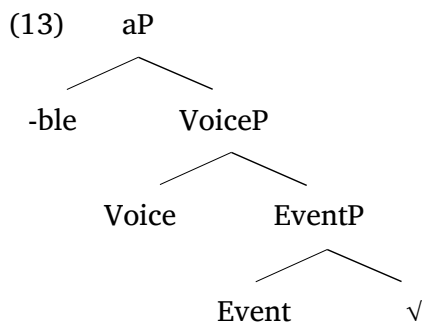
(i) a. Team names were written on the classroom whiteboard and were easily *visible* by all students and easily accessed by the teachers.

   b. Though they can elude radar in daylight, their black color renders them easily *visible* by ground observers or enemy fighters.

Finally, one could argue that the possibility to modify an adjective such as *available* (as well as other root-derived adjectives) with *easily* or *quickly* is a poor indicator of its eventive character as these adverbs can also be found with adjectives that are unquestionably stative:

(12) a. The teacher dismissed the class and the classroom was quickly empty. (example mine)

b. He tucks in his thick, sable tall at the very last second and he is easily free, scaling up side of the computer.

The sentences in (12) are different from (9–10) in that they have a nuance of becoming empty or free. In other words, the combination of *easily/quickly* and an adjective implies a change of state. No such change of state is implied in a phrase such as *easily available* (if something is easily available, it does not mean that it easily becomes available).

It follows from the discussion above that an event head must be present in the structure of root-derived passive potential adjectives in English. At the same time, this head cannot be strictly verbal due to the idiosyncratic morphology of the roots producing such adjectives, which are either bound (as in *visible, audible, available,* etc.) or subject to root allomorphy (as in *applicable, divisible,* etc.). Consequently, a distinction should be made between the eventivizing and the verbalizing functional heads. Let us label the former layer EventP. The syntactic representation of eventive root-derived *-ble* adjectives can then be conceptualized as follows:

(13)
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              aP
            /    \
         -ble    VoiceP
                /    \
            Voice    EventP
                    /    \
                Event     √
```

The EventP layer included in the representation is responsible for eventivizing the root, which facilitates the licensing of modifiers describing the implied event. The suffix *-ble* attaches directly above v in the structure of adjectives such as *available, irascible,* or *tangible*; these adjectives lack VoiceP as they show no evidence for the presence of the initiator of the implied event. The VoiceP layer is present in the structure of adjectives such as *applicable* or *visible.* Importantly, no root-derived *-ble* adjectives project the cyclic vP head, which means that they are not actually deverbal (this also explains why they reject verbal inflectional morphology, e.g., **vised*). In other words, adjectives such as *visible, applicable,* or *available* are derived locally to the root, which accounts for the fact that they can be derived from bound roots or feature irregular morphology.

There is also syntactic and semantic evidence for the lack of the verb-producing head in the structure of root-derived *-ble* adjectives. Consider the sentences in (14), where root-derived *-ble* adjectives are not put in an environment with aspectual modifiers,[7] manner PPs headed by *as*,[8] and purpose clauses:[9]

(14) a. Online speaker presentations should be like a good billboard – **understandable/??intelligible** in just a few seconds. [Example from: https://356labs.com/blog/inclusive-presentations-with-nolan-haims-present-to-succeed-lessons-learned/]

b. The colour balance of 'Merciless' has been overlooked as is very green, **correctable/??corrigible** in just a few seconds in Photoshop. [https://www.theguardian.com/artanddesign/gallery/2010/mar/04/photography1]

c. A strong brand that has taken a long time to build **can be destroyed/??is destructible** in just a few hours due to poor business decisions. (cf. a company with an indestructible reputation) [https://www.evolvefy.com/services/risk-management]

d. The new supervisor's feelings of inadequacy are more likely to be a result of problems in translating what has been learned into something **perceivable/??perceptible** as useful by his or her workers than to lack of knowledge. (*Social Casework*, Vol. 61, p. 88)

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[7] While temporal *for*-phrases can follow adjectives such as visible (*The eclipse will be visible for 30 minutes*), they cannot be taken as pointing to the presence of the aspectual layer in the structure of these adjectives as they are of the same type as those modifying stative adjectives (*The museum will be open to general public for a week*).

[8] Note however that resultative PPs can modify bound root-derived *-ble* adjectives, as shown below with *malleable* and *pliable*:

(i) a. In practical terms, a gel is malleable into different shapes whereas a hydrogel, although it can be deformed, is not fluid. [https://www.cellgs.com/blog/jelly-on-a-plate.html]

b. When heated, it becomes soft, sticky and easily pliable into any shape, both regular or irregular in nature. [https://www.canadianoutdoorequipment.com/expert-advice/coec-equipped/forj-repair-tape.html]

Modification with *as*-phrases is also possible with *visible* or *audible* (*The planet will be visible as a red dot*; *The snake's rattle is audible as a faint buzz*) but these examples, unlike the ones in (14d-f), do not involve raising, which is allowed with high *-ble* adjectives (e.g., *The patient's death was not provable to have been caused by drug overdose*).

[9] Passive potential adjectives are commonly found with *to*-clauses (e.g., *The text must be legible to allow easy reading*); such cases are nevertheless similar to sentences such as *Grass is green to promote photosynthesis* (Williams, 1985) where control is licensed by a non-agentive director. Agentive control is possible only with deverbal *-ble* adjectives:

(i) Under the right circumstances, experience suggests that muscle groups are fully **trainable to perform** functional movement. (B. A. Maldonado, 2010, *Preferred movement patterns in cycling: It's the skill that makes the sport*, p. 17)

e. These proofs are not as helpful in understanding deeper reasons why some games are **solvable/??soluble** as a draw. (cf. The puzzle is easily soluble.) [https://en.wikipedia.org/wiki/Solved_game]

f. Creation is not **understandable/??intelligible** as arrangement or synthesis of pre-existing building blocks [M. Weber, 2013 (first edition 2006), *Whitehead's pancreativism: The basics*, p. 20]

g. Banding issues are usually due to extreme settings in the Develop module, which may be **correctable/??corrigible** to prevent banding. [https://community.adobe.com/t5/lightroom-classic-discussions/image-quality-cloud-sync/td-p/10850605]

h. Spray foam insulation **can be applied/??is applicable** to serve as an air barrier as well as insulation.

i. The bed **can be divided/??is divisible** to form two single beds.

Perhaps unsurprisingly, adjectives such as *divisible* or *applicable* are different from bound root-derived *-ble* adjectives in that their semantic scope is larger as their roots can actually produce verbs, unlike roots giving rise to adjectives of the *visible* type. This is why, for example, the meaning of *visible* is restricted to 'possible to see',[10] while *divisible* can be used with the meaning 'possible to diverge in opinion'.

(15) a. Strange things **could be seen/*were visible** coming. (cf. The planet was visible moving across the face of the Sun.)

b. These data are not **readable/*legible** by the software.

c. The loyal opposition is proposed as an exception to Task Force guidelines so that different voices **can be heard/*are audible** that differ from those that inform the public-private partnerships of day-to-day operations. [S. M. Steiner and J. T. Christie (eds.), 2021, Religious Soft Diplomacy and the United Nations: Religious Engagement as Loyal Opposition, p. 87]

d. A company's reputation **can be carried/*is portable** by word of mouth. [Example modeled after a sentence found at: https://www.beanscenemag.com.au/achievable-outback-cafe/]

e. In the 1970 to 1972 period, the MPLA perceived NATO to be divisible on the issue of Portuguese colonialism. [https://core.ac.uk/download/pdf/46518431.pdf, (p.292)]

f. This money isn't applicable to child support. [https://www.justanswer.com/canada-family-law/kao3h-parties-lawyer-made-calculations-shared-child.html]

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[10] *Visible* can also be used idiomatically to mean 'evident' or 'available'. This variant of *visible* has no eventivizing layer, as it is hardly possible with easily (??*easily visible danger*; cf. very visible danger; ??*easily visible resources*).

However, adjectives of the *divisible* type are not used in contexts referring to a specific situation (they can only name a feature of the described object), as opposed to regularly derived passive potential adjectives.

(16) a. The paint could not be applied because it was past its use by date/??The paint was not applicable because it was past its use by date.

b. The students couldn't be divided into groups because they kept arguing./??The students were not divisible into groups because they kept arguing.

c. The barrier could not be destroyed with the equipment we had./??The barrier was not destructible with the equipment we had.

d. The planet wasn't visible with the telescope we had.

e. After the rain, the dirt road was not drivable with our vehicle.

f. The game was not winnable by the team under the circumstances.

The contrast in (16) can again be explained by the lack of vP in the structure of *applicable*, *divisible,* and *destructible*, whose presence can imply a concrete event.[11] This restriction does not seem to apply to adjectives such as *visible,* owing to their more stative semantics (in such contexts these adjectives behave like statives, e.g., *The rules weren't clear to the participants*).[12]

4.2 *-Ble* adjectives derived from truncated roots

A subset of *-ble* adjectives in English includes forms derived from truncated roots which can produce verbs when equipped with the suffix *-ate*.

(16) a. Do not overspend on unnecessarily sophisticated equipment; it should be **easily operable by** the minimum number of staff in the control room. [F. Booty (ed.), 2009 (first edition 2003), *Facilities Management Handbook*, p. 371]

b. Meantime the govt bought heavily from the U.S.A and Russia for development, and built a road network which unified the communications but made the country **more easily penetrable** by mechanised armies. [C. Arnold-Baker, 2015, *The companion to British history*]

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[11] Not all *-ble* adjectives are equally likely to be used in such event-denoting contexts. A sentence such as *The data could not be recovered from the disc* can be safely expressed as *the data was not recoverable from the disc* but *The car could not be pushed to the side of the road* can hardly be rephrased as ??*The car was not pushable to the side of the road.* This paper does not aim to provide a detailed explanation as to why this is the case; curiously, it seems that adjectives lexicalized to a greater degree are better candidates for being placed in such environments (as indicated by the COCA, *recoverable* is used much more frequently, with 581 attestations, against 4 instances of *pushable*).

[12] *Visible* is less likely in contexts denoting specific, sentential events when it is placed in a more dynamic environment (e.g., ??*The planet wasn't visible, no matter how hard we tried*), where the addition of *no matter how hard we tried* forces a more eventive reading of the adjective.

    c. Ultrasound has the advantage of being noninvasive, **easily tolerable by** the patient, widely available, and inexpensive [J. B. Halter, J. G. Ouslander, M. E. Tinetti, S. Studenski, K. P. High and S. Asthana, 2008 (first edition 1990), *Hazzard's geriatric medicine and gerontology*, sixth edition, p. 1068]

    d. Make the plan understandable and **easily calculable by** the employees. [R. R. Sims, *Managing organizational behavior*, p. 65]

    e. The concept of need is flexible and relatively **easily manipulable by** the NHS and by local authority social services departments [M. Mandelstam, 2002, *Manual handling in health and social care: An A-Z of law and practice*, p. 56]

The attachment of the suffix *-ble* to verbs such as *calculate* or *operate* involves the deletion of the suffix *-ate,* resulting in bound root-derived adjectives. This, however, is not disallowed by DM as interaction between two adjacent cyclic heads is common in English; notably, a number of *-ation* nominals see the v head for its allomorphy, e.g., *winter-iz-ation* (Punske 2016). The deletion of *-ate* is very regular and also applies to adjectives such as *communicable, demonstrable, navigable, negotiable,* or *illustrable.* Further pointing to the deverbal character of adjectives such as those in (17) is that they inherit the verbal semantics and syntactic features, as shown below:

(17) a. If a 100% accurate answer takes 5 seconds to compute, but there is only 1 second before the predator attacks or the prey escapes it is explainable that a 90% solution **calculable** in half a second has become the dominant way brains work. [L. B. Metcalf, J. M. Spring, 2021, *Using science In cybersecurity*, p. 44]

    b. The myriad of job-related diseases afflicting workers are all preventable and **eradicable** in one generation. [F. Goldsmith and F. E. Kerr, 1982, *Occupational safety and health: The Prevention and control of work-related hazards*, p. 10]

    c. Although there is no doubt that this cleanser is **tolerable as** a solo therapy in patients with mild acne, the question remains whether this product would be consistently tolerable in a patient who is on additional acne therapy. [J. Q. Del Rosso and J. A. Zeichner (eds.), 2016, *Advances in acne management,* p. 140]

    d. Individuality, whatever its meaning, is a social object, which means that it must be **communicable as a** concept. [A. McKinlay and E. Pezet, 2017, *Foucault and managerial governmentality: Rethinking the management of populations, organizations and individuals*, p. 143]

    e. The use of control technology in separation processes is readily **demonstrable to** improve performance and decrease expenses. [D. J. Lee (ed.), 2001, *Sludge management entering the 3rd millennium*, p. 15]

f. Uniform corrosion is the most common form of corrosion and the most easily **calculable to** determine useful life of components [D. A. Shifler (ed.), 2022, *LaQue's handbook of marine corrosion*, p. 34]

(18) a. impenetrable wall/fog/darkness/mystery

b. tolerable behaviour/cost/temperature/substance

c. operable equipment/business/lesion

d. navigable oceans/situations/websites

It is shown in (17) that adjectives of the calculable-type have the ability to license aspectual modifiers, as-PPs and purpose clauses; (18) illustrates additionally that *-ble* adjectives derived from truncated roots can combine with various nouns and thus be subject to different interpretations. Therefore, they should be treated as canonical, high *-ble* adjectives.[13]

5. Conclusion

This paper has argued that root-derived *-ble* adjectives, such as *applicable, visible,* or *available,* can be used eventively, which translates into the presence of complex functional structure in their representation. These can be further divided into root-derived high *-ble* adjectives (*applicable, visible, audible*), which can license both event-related adverbs as well as agent-oriented PPs (although the adjectives of the *applicable*-type differ from those of the *visible*-type in that they can be used in a wider range of semantic contexts on account on being derived from free roots), and reduced event *-ble* adjectives (e.g., *available, irascible, tangible*), which do not co-occur with agentive PPs but retain the ability to license easily. These two types of *-ble* constructs, in addition to regular and stative *-ble* adjectives, form a complete inventory of *-ble* adjectives in English. The contrastive features of different types of *-ble* adjectives are presented in Table 1.

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[13] Some *-ble* adjectives offer evidence that overt verbalizers such *-ate* or *-ize* are in fact the spell-out of little v head (and not vP). The adjective *recognizable*, for example, has a strongly adjectival variant, which is impossible with aspectual modifiers (it is nevertheless licit with *by*-phrases)

(i) a. Genre fiction is usually **very recognizable by** the reader due to its plot (...). [C. E. Neumann and T. S. Allen, 2013, Latino history day by day: A reference guide to events, p. 63]

b. Even more important than your handle is your profile photo, something that can make your brand **(*very) recognizable**ᵢ **in a second**ᵢ [https://looka.com/blog/social-media-branding-tips/]

In the sentences above, *very* forces a more stative reading of *recognizable*, which results in its inability to license aspectual phrases. This restriction does not apply to the fully deverbal variant of the adjective. The second sentence is grammatical only when *in a second* belongs to the scope of *make*.

Table 1. The contrastive features of different types of -ble adjectives

	aspectual modifiers	manner PPs	purpose clauses	agent-oriented PPs	*easily* and *quickly*
regular, high *-ble* [[[[[√]EventP]VoiceP]vP]aP] (e.g., *controllable, detectable, readable*)	yes	yes	yes	yes	yes
eventive, root-derived *-ble* [[[[√]EventP]VoiceP]aP] (e.g., *applicable, visible, audible*)	no	no	no	yes	yes
reduced event *-ble* [[[√]EventP]aP] (e.g., *available, irascible, tangible*)	no	no	no	no	yes
stative *-ble* [[√]aP] (e.g., *considerable, agreeable, responsible*)	no	no	no	no	no

It follows that in order to accurately account for the syntax of root-derived *-ble* adjectives it is necessary to postulate that the verbal domain is split into the categorizing vP head, and the EventP head, as shown below:

(19) vP
```
        vP
       /  \
      v   EventP
          /    \
       Event    √
```
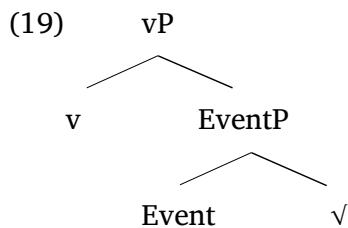
The EventP layer is responsible for eventivizing the root, which translates into the ability of root-derived *-ble* adjectives to appear with event- and Voice-related modifiers, with the exception of structures such as *available* or *pliable*, which are not agentive. The vP head is a cyclic head in the sense of Embick (2010), initiating phonological spell-out and producing verbs in the relevant sense. This head is present only in the structure of eventive and deverbal *-ble* adjectives, such as *controllable, detectable,* or *readable*.

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