

Color isn't Silent, *Shallow* isn't Deep: Two Case Studies of Evaluating Silent Elements*

One-Soon Her and Hui-Chin Tsai

National Chengchi University

Language and Linguistics
15(6) 775–800
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sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/1606822X14544620
lin.sagepub.com



A notable recent trend in syntax is the proliferation of silent elements (SEs), due largely to work by Kayne. Yet the exact grammatical status of such SEs is not always made explicit. Consequently, few have been explicitly and empirically tested. In this paper we adopt the taxonomy of lexical items in Her & Tsai (forthcoming) and distinguish two kinds of SEs in the literature: an intrinsic SE is one that does not add any meaning, while an extrinsic SE is one that does and is thus by definition illicit. We then put two of Kayne's SE analyses to rigorous semantic and syntactic tests. One concerns the adjective *shallow*, as in 'the lake is LITTLE BIT shallow' (Kayne 2006), where capital letters indicate silence. We demonstrate that LITTLE BIT are extrinsic SEs, as the source form and the surface form are not semantically equivalent. The other SE examined is COLOR, an intrinsic SE in 'John's car is a bright green COLOR' (Kayne 2005b:Chapter 10). We demonstrate with syntactic tests that it is not free variation between COLOR/*color* and that color adjectives also function unmistakably as nouns. Thus, the assumption of an SE head noun COLOR for all color adjectives cannot be justified. We further demonstrate that from the perspective of language acquisition the two SE accounts are likewise problematic. This study therefore concurs with Her & Tsai (forthcoming) that, while SEs are indispensable in language, for each SE proposed there must be sufficient semantic justification and formal motivation.

Key words: acquisition, COLOR, ellipsis, *shallow*, silent element

1. Introduction

Largely influenced by the work of van Riemsdijk (2002, 2005) and especially Kayne (e.g. 2005a, 2005b, 2006, 2010, 2012), in recent syntax literature there is a proliferation of elements that are active in syntax but are ultimately unpronounced. For example, Kayne (2012) proposes that the slang monetary term *grand*, meaning *thousand dollars/bucks*, has 'THOUSAND BUCKS IN grand TOTAL' for its underlying source, where capitalized elements are silent. Note that, unlike elements

* We are sincerely grateful to the editors and the two anonymous reviewers of *Language and Linguistics* for their insightful comments, which led to significant improvement of the paper. We also benefited from discussions with Wei-Tien Dylan Tsai on general issues related to silent elements in syntax. An earlier version of the paper was presented by the first author in an invited talk at the English Department, National Taiwan Normal University on February 25, 2014. We thank Miao-Hsia Chang, Chun-Yin Chen, Hsiao-Hui Chan, Miao-Ling Hsieh, Ta-Chun Shen, and Hao-Wen Sung for their questions and comments. However, all remaining errors are our own. Research reported in the paper was partly funded by the following NSC grants: 101-2410-H-004-184-MY3, 102-2811-H-004-023, and 103-2811-H-004-003. The respective contribution of the two authors is 3/4 and 1/4, and the first author is also the corresponding author.

elided due to the presence of an antecedent with the same propositional content,¹—for example, *If you have long stem roses, I'll take a dozen ~~long stem roses~~* or *He wanted to leave but I didn't ~~want to leave~~*, where the single strikethrough indicates ellipsis—many of the silent elements (SEs) in the Kaynian tradition lack such conventional propositional antecedents, even though they often do have some ‘sounding neighbors’ to lean on (Sigurðsson 2004:253, fn.20). In this paper, we shall critically review two such SE accounts. Kayne (2005b:Chapter 10) proposes that color adjectives in fact modify a silent head noun COLOR in the absence of the overt *color*. The surface form in (1a) thus must have (1b) as its source form. In Kayne (2006), he also proposes that the adjective *shallow* is in fact in its source form modified by a silent LITTLE BIT, as in (2a) and (2b).

- (1) a. a green car
b. a green COLOR car
- (2) a. This lake is shallow.
b. This lake is LITTLE BIT shallow.

A number of researchers, for example Sigurðsson (2004:251), Leu (2008:5), and Liao (2013), claim that there are many more such SEs in syntax, that is, those without an overt antecedent, than previously thought. However, there are two problems with such a claim. First of all, given the fact that verbal communication is fundamentally based on the sound-meaning correspondence, it is counter-intuitive that there should be many meaningful but soundless elements in language. Second, the fact that the exact grammatical nature of such SEs is not always made explicit in the accounts proposed makes it difficult to assess many such accounts in the literature. Therefore, before reviewing the two SEs COLOR and LITTLE BIT, we shall first discuss the feature-based taxonomy of lexical items proposed by Her & Tsai (forthcoming), which explicitly validates the existence of SEs by properly situating them among other types of lexical items. We then explore the implications of this conception of SEs on two important questions posed by Simpson (2012): first, whether the surface form, for example (1a) and (2a), and its corresponding SE source form, for instance (1b) and (2b) respectively, can be allowed to deviate in semantic content, and second, whether SEs and ellipsis should be unified or distinguished. We shall also demonstrate that SEs in the literature come in two types, depending on whether their semantic contribution to the phrase is redundant or not. An SE is called an intrinsic SE if it does not add any meaning, while an SE that does add meaning is dubbed an extrinsic SE, which is by definition illicit. We shall show that COLOR is an intrinsic SE, but LITTLE BIT consists of extrinsic SEs.

The paper is organized as follows. Following this introduction, §2 discusses Her & Tsai's (forthcoming) feature-based taxonomy of lexical items and the necessary constraints on the presence of SEs in syntax. Simpson's (2012) two questions will then be explored further. Based on the discussions in §2, §3 reviews two of Kayne's SE accounts, shown in (1) and (2), and ultimately demonstrates that, despite the legitimacy of SEs in syntax, these two specific SE accounts cannot be justified, on syntactic and/or semantic grounds. Section 4 offers an additional perspective of language acquisition to the evaluation of SEs. Section 5 consists of a summary and some concluding remarks.

¹ In the words of Merchant (2008:132–153), ellipsis usually necessitates ‘some equivalent antecedent which is subject to some kind of parallelism’.

2. Grammatical status of lexical SEs

Even though the exact nature of unpronounced elements is often not made explicit in the accounts where they are proposed, there are only two possibilities in terms of the source of their silence: either the unpronounced element is base-generated as such, thus without phonological features, or its silence is due to the deletion of its phonological features in syntactic derivation. Following Her & Tsai (forthcoming; H&T hereafter), unpronounced elements of the former kind are called ‘SEs’, and the latter ‘ellipsis’. In this section we shall discuss the implications that SEs as one type of lexical item have on several important issues. First, what is a comprehensive taxonomy of lexical items that can accommodate SEs? Second, are SEs and deletion by ellipsis the same or different? Third, must an SE be semantically equivalent with its pronounced counterpart, if any?

2.1 A feature-based taxonomy of lexical items

A canonical lexical item is seen as a bundle of features within the recent syntactic theory. This is made explicit in Chomsky (1999:7):

In the simplest case, the entry LI is a once-and-for-all collection (perhaps structured) of (A) phonological, (B) semantic, and (C) formal features. The features of (A) are accessed in the phonological component, ultimately yielding a PF-interface representation; those of (B) are interpreted at LF; and those of (C) are accessible in the course of the narrow-syntactic derivation. Language design is such that (B) and (C) intersect, and are disjoint from (A), though there is some evidence, to which we return, that presence or absence of features of (A) might have an effect on narrow syntactic computation.

Following H&T, we shall call the three kinds of features: PFF (PF-accessed features), FF (formal features), and LFF (LF-accessed features). A lexical item must have FF to undergo syntactic computation, which means a lexical item active in syntax may or may not have PFF or LFF. The existence of expletives, for example *it* in *it's nice to meet you* and *there* in *there is money on the table*, in other words lexical items with PFF and FF but without LFF, predicts that the opposite should exist as well, that is, lexical items with LFF and FF but without PFF. The former is devoid of semantic content, the latter of phonological content. The existence of both expletives and SEs further predicts that there are lexical items with FF only, thus devoid of both sound and meaning. A feature-based taxonomy of lexical items thus obtains, as shown in Table 1.

Table 1: Her & Tsai's (forthcoming) taxonomy of lexical items

Type of lexical items	PFF	LFF	FF
1. Canonical lexical items	✓	✓	✓
2. Expletives, e.g. <i>it</i> , <i>there</i>	✓	✗	✓
3. [Kayne's SEs for <i>grand</i> , PRO, pro, null light verbs, etc.	✗	✓	✓
4. Empty expletives, true empty category, (some) null functional heads	✗	✗	✓

Such taxonomy, in principle, allows as many non-canonical lexical items as the canonical ones, however, as it provides no general theory to constrain the occurrence of non-canonical, meaningless or soundless items. While H&T are cautious in stating that ‘such items must by nature be the exception and highly constrained, as they impose an extra burden on acquisition’, Sigurðsson (2004:243), in his proposal of the ‘Silence Principle’, goes as far as claiming that any meaningful feature may in principle be silent. Under this rather unconstrained view, one would expect every canonical lexical item to have PFF-less or LFF-less variants. Nonetheless, the fact that there are only a handful of expletives, for example the LFF-less *it* and *there* as the LFF-less counterparts of the personal pronoun *it* and the adverbial *there*, suggests strongly that the number of PFF-less SEs should likewise be rather small. Note that this suggestion is not based on the assumption of parallelism between PF and LF per se;² rather, it is based on the fact that expletives and SEs both are situations where the usual sound-meaning mappings break down (Merchant 2013). This is witnessed in the usual ‘last resort’ constraint associated with expletives and the strong formal motivation required, for example the expletive subject *it* due to the Extended Projection Principle (EPP). Any SE proposed should likewise be semantically and syntactically motivated. Indeed, PRO, as an SE, is motivated by the PRO Theorem, and *pro*, another SE, is motivated by the subject–verb agreement morphology.

Kayne (2005a:4) explicitly claims that functional elements, for instance *for*, *the*, and *-ing*, but not lexical elements, for example *cat* and *table* as nouns and *die* and *talk* as verbs, can be subject to the parametric variation between silence and pronunciation. Thus, parametric differences are found in the lexicon as well as in syntax in that they are based on features of particular functional elements. However, in practice, certain SEs, for example THOUSAND, BUCKS, and TOTAL, which Kayne has proposed seem rather lexical in nature and it is not clear how they can be regarded as functional.³ A similar principled constraint on the occurrence of SEs is proposed in Emonds (2000, 2006:117), where the lexicon has two distinct components: (1) a mental *Dictionary* that contains open class lexical items from the lexical categories N, V, A, and P and (2) a *Syntacticon* that contains all closed class lexical items and bound morphemes. Crucially, Dictionary items are accessed by their PFF, while Syntacticon items are accessed by their FF. Consequently, only Syntacticon items can be SEs, which are without PFF, but Dictionary items must have PFF. Under this conception, an SE thus must be formally motivated, and not necessarily semantically.

Note that even though Sigurðsson (2004:243) proposes that all semantic features may in principle be silent, this proposal is in turn based on a more fundamental view on language:

² As pointed out by an anonymous reviewer, Chomsky (2008, 2010) in recent years has argued, in his discussions of ‘externalization’, against the assumption of parallelism between PF and LF.

³ An anonymous reviewer suggests that ‘total’ would seem to be related to ‘all’, which certainly is functional, and ‘thousand’, like other numeral words, is part of a closed class, and therefore a good candidate for being functional. We disagree. ‘Total’ is an adjective, thus a member of a lexical category, and ‘thousand’ is a member of numeral bases, which are potentially infinite and thus do not form a closed category. However, the fundamental question for all syntacticians, as the reviewer is keenly aware, is how best to distinguish between lexical elements and functional elements in general. A full exploration of this general question is beyond the scope of the paper.

There is extensive evidence that all languages have access to all features of UG—humans are endowed with innate syntactic elements and structures that are independent of whether or how they are expressed. We need to realize that SILENCE VARIATION underlies a substantial part or even the lion’s share of language variation. (Sigurðsson 2004:251, emphasis in original)

Under this extremist view of universal grammar (UG), all languages share the same set of syntactic features, namely FF, and the same structures. Thus, an SE with semantic content that is active in syntax must be motivated by the FF it carries or the syntactic structure it is part of. In short, its occurrence is also necessarily sanctioned formally, but not necessarily semantically.

This thus provides us with an important criterion in evaluating a syntactic account with SEs. If the reason for the proposal of an SE is purely semantic with little or no formal justification, then the SEs proposed should be rejected. Kayne’s (2012) proposal of the source form of ‘THOUSAND BUCKS IN grand TOTAL’ to account for the monetary term *grand* is one such example. Kayne (2012) and Simpson (2012) give plenty of justification for the use of *grand* referring to a total unindividuated sum of money and not a plurality of discrete monetary units. Even if such a view is factually correct (it is not, see Law 2012 and H&T), without strong formal justification why these four meaningful lexical items, or Dictionary items in Emonds’ (2000, 2006) terms, should be PFF-less, the account is highly suspicious.

2.2 Distinction between SEs and ellipsis

In spite of his endorsement of Kayne’s (2012) SE account of *grand*, Simpson (2012) raises two important questions regarding Kayne’s SEs. One is whether there is a distinction between SEs and elements deleted due to ellipsis. It has been well-established that syntactically active elements can end up not being pronounced and there are clearly two sources: base-generated silence and non-base-generated silence. The former refers to what we call SEs, or lexical items listed in the lexicon without PFF, and the latter refers to elements that do have PFF, which are deleted in syntactic derivation or ultimately become invisible to PF (H&T). Sigurðsson (2004) suggests that the same distinction be made.

...[W]e need to distinguish between silence that is due to non-lexicalization (as we are discussing here and as discussed by Kayne) and silence that is due to PF-deletion (such as sluicing in Merchant’s analysis).⁴ (Sigurðsson 2004:254, fn.24)

In their proposal to account for the nonasserted part of an answer to a question by PF ellipsis, Vergnaud & Zubizarreta (2006:648, fn.14) also make this distinction: ‘Note that one will then have to distinguish a *silent* PF from the *absence* of PF altogether’ (emphasis in original).

In short, SEs and ellipsis are *united* as elements active in syntax but are ultimately unpronounced. Yet, they are *distinguished* in terms of the nature of their silence: the silence of SEs is inherent, the

⁴ ‘Merchant’s analysis’ in this quote refers to Merchant (2001).

silence of elements due to ellipsis is acquired.⁵ SEs enter syntactic derivation as such, formally motivated, as argued earlier, and thus may or may not have pronounceable counterparts, for example *pro* and PRO, as shown in (3) and (4) respectively.

- (3) a. *pro*_[1.sg] no hablo ingles. (Spanish)
 *pro*_[1.sg] not speak English
 ‘I do not speak English.’
 b. Yo no hablo ingles.
 I not speak English
 ‘I do not speak English.’
- (4) a. I_i hope PRO_i to see you again.
 b. *I_i hope I/me_i to see you again.

Elided elements, on the other hand, are generally pronounceable and can in fact be pronounced as an alternative to ellipsis,⁶ as shown in the two semantically equivalent answers to the same question in (5).

- (5) Q: Where did you see him?
 A-a: I ~~saw him~~ in the supermarket.
 A-b: I saw him in the supermarket.

Vergnaud & Zubizarreta (2006:647–648) propose that a natural answer to a question is one whose presupposition is the same as that of the question, based on the general principle proposed in Chomsky (1971) and Jackendoff (1972), that the nonasserted subpart of the LF of a clause is not realized at PF. Thus, ellipsis in general requires an antecedent to serve as a trigger of ellipsis as

⁵ As pointed out by an anonymous reviewer, Kayne (2006) takes the position that spell-out systematically ‘fails to see’ phrases at the edge of a phase and in fact proposes that all silence in syntax be accounted for this way. However, this view is not supported by Leu (2008), a close associate of Kayne’s, who questions whether Kayne’s notion of phase is compatible with the notion of phase in other respects. This position is also not considered by Law (2012) and Simpson (2012) in supporting Kayne’s SE approach to *grand*. In fact, even Kayne (2012) himself does not entertain this position in his own SE account of *grand*. This is quite understandable, as pointed out by H&T, because the movements in deriving the surface form [ten grand] from the source form [ten THOUSAND BUCKS IN grand TOTAL] would have been massive and ad hoc. We thus agree with Leu (2008) and H&T that the ‘positional silence’ proposed by Kayne (2006) is only one kind of silence specific to ellipsis, an example of which is ‘topic drop’ in German, and cannot account for all silence in syntax.

⁶ There are exceptions, as ellipsis is known to rescue violation island constraints. For example, Merchant (2001) notes that the elided part of (i) would violate the relative clause island constraint if recovered phonologically, as in (ii).

- (i) They want to hire someone who speaks a Balkan language, but I don’t remember which.
 (ii) *I don’t remember which (Balkan language) they want to hire someone [who speaks ___].

well as the base according to which the loss of meaning due to the elided elements can be recovered. Consequently, in the presence of more than one discoursally and grammatically appropriate antecedent, thus more than one base for recovering the meaning loss due to ellipsis, ambiguity obtains. H&T cite this joke as an example.

Mom says to kid: Please go to the supermarket and get two **cartons of milk** for me. If they have **eggs**, then **bring back a dozen**.

(Later)

Mom: What the . . . Why did you buy 12 cartons of milk?

Kid: Because the supermarket had eggs.

SEs, on the other hand, do not require such an antecedent, in its conventional sense, and thus produce no such ambiguity. Thus, for an SE, there is no pronounced base for its (silent) semantic content, or LFF, to be recovered accordingly. This indicates that an SE in a phrase does not contribute any additional semantic content to the phrase. Putting it differently, the semantic content of a phrase containing an SE remains the same without the semantic contribution of the SE.⁷ This brings us to Simpson's (2012) second question regarding SEs: whether a source form with SEs must in principle be semantically equivalent to its counterpart with overt lexicalization.

2.3 Semantic equivalence between SE source form and surface form

It is well-established that ellipsis in a sentence does not change the semantic content of the sentence. This is accounted for by the notion of 'recoverability'.

A transformation can delete an element only if this element is the designated representative of a category, or if the structural condition that defines this transformation states that the deleted element is structurally identical to another element of the transformed string. *A deleted element is, therefore, always recoverable.* (Chomsky 1964:41, emphasis added)

SEs and ellipsis are alike in that both are silent and differ in terms of the timing of their silence. The question is whether they converge or diverge in terms of semantic recoverability. In other words, must the meaning of the surface form be the same as that of the source form with SEs, as proposed by the linguist? The answer to this question should logically be the same as the answer to Simpson's (2012) question, whether a source form with SEs must in principle be semantically equivalent to the same source form with the SEs' pronounced counterparts. Let us consider three concrete examples.

⁷ An anonymous reviewer is quick to point out that this is obviously not true of Kayne's proposal for 'grand' and also not true of Kayne's proposal for phrases like 'at the age of seven YEARS' or 'John is seven YEARS'. Indeed this is precisely why H&T (forthcoming) argue that Kayne's SE account of 'grand' should be rejected and also why we contend in §3 of this paper that the SE YEARS in 'at the age of seven YEARS . . .' is likewise problematic.

- (6) a. He paid ten THOUSAND BUCKS IN grand TOTAL.
 b. He paid ten grand.
 c. He paid ten thousand bucks in grand total.
- (7) a. The lake is LITTLE BIT shallow.
 b. The lake is shallow.
 c. The lake is little bit shallow.
- (8) a. He bought a green COLOR car.
 b. He bought a green car.
 c. He bought a green color car.

The reader is reminded that, crucially, the question at this time is *not* whether *factually* the three forms in each set are semantically equivalent; rather, the precise question is whether *theoretically* the three forms must be semantically equivalent. Consider the source form (a) and the surface form (b) first. Intuitively and logically, the answer is yes, for why then should the specific SE source form be proposed? In practice, the proposal of a specific SE is, to a great extent, semantically motivated, that is, the presence of this specific SE accounts for the meaning of the surface form. H&T thus first render a practical consideration in contending that the permissibility of any deviation in meaning, or truth value, between the SE source form and its surface form, ‘no matter how subtle and minute, opens a Pandora’s Box with all sorts of wild possibilities’. Theoretically, the more precise problem in allowing semantic discrepancy between the two forms is that it would render a proposed SE unfalsifiable, or ‘empirically intractable’, as Zeschel & Stefanowitsch (2008) put it. Thus, whether the source form (a) and the surface form (b) in each set in (6)–(8) are semantically equivalent in fact provides a test to falsify a proposed SE.

Now consider (a) and (c). Theoretically, an SE and its pronounced counterpart, if any, differ only in the fact that the former is without the PFF that the latter has. This fact means that (a) and (c) in each set in (6)–(8) have exactly the same lexical items as far as meaning is concerned and also share the same syntactic structure and thus the same compositional semantics. They, that is (a) and (c), thus must be semantically equivalent. However, Simpson (2012) suggests otherwise and claims that there may well be some ‘meaning adjustment and loss’ between the two forms:

This difference in meaning again suggests that the underlying sequence of elements assumed to be present in *two grand*, namely “two THOUSAND BUCKS IN grand TOTAL” is not a simple unpronounced equivalent to overt *two thousand bucks in grand total*, but one which apparently has lost some of the meaning present in the fully overt sequence. This kind of meaning adjustment and loss is not uncommon in processes of grammaticalization, hence not totally unexpected (Hopper & Traugott 1993; Harris & Campbell 1995). (Simpson 2012:100)

If ‘meaning adjustment and loss’ is indeed permissible between THOUSAND and *thousand*, BUCKS and *bucks*, IN and *in*, or TOTAL and *total*, then the responsible thing to do is, of course: 1) make explicit what exactly is different between the two and 2) label the SE accordingly and not

misleadingly. For example, if THOUSAND is semantically not the same as *thousand*, then it should not be labeled as THOUSAND, which is extremely misleading due to the precise and unmistakable meaning of *thousand*. Furthermore, the difference must be spelled out, if the account is to be falsifiable. For example, if THOUSAND is claimed to denote a mathematical value larger or smaller than thousand, then the account is easily falsified. We can thus draw two conclusions. First, simply to claim that there is some ‘meaning adjustment and loss’ between an SE and its pronounced counterpart is irresponsible and the account offered is unfalsifiable and thus should be rejected. Second, in the absence of such a claim, an SE source form in (a) and its pronounced counterpart in (c) must be assumed to be semantically equivalent. Consequently, this likewise provides a test to falsify a proposed SE. Given that (a) and (b), and likewise (a) and (c), must be semantically equivalent, (b) and (c) must also be semantically equivalent. Note, however, passing the semantic test does not mean this SE is therefore fully justified, as it still has to be justified syntactically. Here is an example of an SE account with *pro*_[1,sg] that is semantically and syntactically valid.

- (9) a. *pro*_[1,sg] no hablo ingles. (Spanish)
 *pro*_[1,sg] not speak English
 b. no hablo ingles.
 c. Yo no hablo ingles.

All three forms in (9) have identical semantic content and are justified syntactically by various tests, for example anaphora, tag question, control, raising.⁸ H&T falsify the ‘THOUSAND BUCKS IN grand TOTAL’ source form on two grounds: semantically, the three forms in (6) are not equivalent, and syntactically, the monetary *grand* behaves like a noun and not like an adjective as in the source form. In §3, we shall falsify the SE account for *shallow* in (7) on semantic grounds and reject the COLOR SE account in (8) on syntactic grounds.

3. Revisiting two Kaynian SEs

In this section, we shall first demonstrate that SEs proposed in the literature come in two types in terms of their semantic contribution to the sentence. Then, our first case study focuses on Kayne’s source form of ‘LITTLE BIT shallow’ for *shallow*, followed by the second case study of Kayne’s SE source form ‘a green COLOR car’ for *a green car*.

3.1 Distinguishing two types of SEs in the literature

There are two kinds of SEs in the literature in terms of their semantic contribution to the proposed source form: an SE either provides additional meaning that the source form does not otherwise have or it is superfluous as the meaning it denotes is already present in the pronounced elements. We shall call the former kind ‘**extrinsic SEs**’ and the latter kind, ‘**intrinsic SEs**’. To illustrate, a

⁸ An anonymous reviewer questions whether the pro-drop sentence in (9b) and the non-pro-drop one in (9c) have identical semantic content. As there is not a possible world where one of the two propositions is true and the other one is false, the two indeed have the same meaning.

putative SE source form ‘She is the baby’s FEMALE mother’ for the surface form *she is the baby’s mother* contains an intrinsic SE, while a putative source form ‘She is the baby’s LOVING mother’ for the same surface form contains an extrinsic SE.

Based on our discussions in §2, however, an SE source form and its intended surface form must be semantically equivalent. This means that extrinsic SEs are by definition illegitimate, and our earlier putative source form ‘LOVING mother’ for *mother* certainly fits the bill. Zeschel & Stefanowitsch (2008) demonstrate that the truth value of Kayne’s (2005b:Chapter 10) SE source form ‘At the age of seven YEARS . . .’, manifested via the corresponding form *At the age of seven years . . .*, deviates from that of the surface form *At the age of seven . . .*, as the latter is restricted to a human subject, while the former has no such restriction.⁹

- (10) a. At the age of seven years, the boy/tortoise/tree really started to grow.
- b. At the age of seven, the boy/*tortoise/*tree really started to grow.

The SE source form ‘THOUSAND BUCKS in grand TOTAL’ for the monetary *grand* is shown by H&T to be just such a case. One piece of evidence that H&T offer is that, while Kayne’s account predicts that *grand* must refer to a grand total, *grand* can in fact refer to a *subtotal* quite naturally, which by definition is not a *grand total*. Thus, (11a) is well-formed, but both (11b) and (11c) are self-contradictory.

- (11) a. He paid ten grand in subtotal for now.
- b. #He paid ten thousand bucks in grand total in subtotal for now.
- c. #He paid ten THOUSAND BUCKS IN grand TOTAL in subtotal for now.

We shall demonstrate momentarily in §3.2 that Kayne’s ‘LITTLE BIT shallow’ is also a case involving such extrinsic SEs. An intrinsic SE, on the other hand, is on the right track semantically but still has to be syntactically justified. H&T demonstrate that *grand* is a noun and not an adjective and thus the SE source form Kayne proposes, where *grand* can only be an adjective, is falsified. One piece of evidence comes from the morphological process that combines a numeral and a noun root to form a nominal modifier, as in (12). An adjective root does not participate in this process, as in (13). Examples in (14) show that *grand*, like *K* and *G*, behaves like a noun and that this behavior cannot come from the SE source form, as shown in (15).¹⁰

⁹ An anonymous reviewer points out that Kayne ends up proposing ‘at the age of seven YEAR’, with singular YEAR, and thus there should be no straightforward expectation of truth value equivalence with ‘years’. However, this is a non sequitur, as Kayne is aware that ‘seven YEAR’ and ‘seven YEARS’ do not differ in meaning in spite of the absence or presence of -s, as shown in the following two examples, namely ‘five-drawer’ versus ‘five drawers’.

- (i) a five-drawer file cabinet
- (ii) This file cabinet has five drawers.

¹⁰ An anonymous reviewer indicates that the obvious question is why, if ‘grand’ is a noun, it disallows plural ‘-s’. The fact is the *grands* plural form for its monetary use is subject to dialectal variation. The reader can refer to Her & Tsai (forthcoming) for a detailed exposition.

- (12) a. a ten-gift box
 b. a ten-shirt drawer
 c. a ten-millionaire team
- (13) a. *a ten-expensive box
 b. *a ten-large drawer
 c. *a ten-rich team
- (14) a. a ten-grand salary
 b. a ten-G salary
 c. a ten-K salary
- (15) *a ten-thousand-buck-in-grand-total salary

We shall demonstrate in §3.3 that Kayne's 'a green COLOR car' involves an intrinsic SE that cannot be syntactically justified.

3.2 *Shallow isn't deep*

Within the Minimalist Program (MP) Kayne has played a central role in the studies of the microparametric variation tied to specific lexical items or features (Carnie 2008:412). One type of parameter proposed involves the choice between an SE functional element and its pronounced counterpart. Many such SEs in the Kaynian tradition are motivated by the phonological realization of their counterparts in other languages, especially in related languages. A typical example is the source form 'LITTLE BIT *shallow*' Kayne (2006) proposes for the adjective *shallow*, which has no direct lexical counterpart in French and the same concept of which is expressed as a phrase, *peu profond* 'little deep'.

- (16) a. Le lac est profond.
 the lake is deep
 'The lake is deep.'
 b. Le lac est peu profond.
 the lake is bit deep
 'The lake is shallow.'
- (17) a. The lake is shallow.
 b. The lake is LITTLE BIT shallow.
 c. The lake is little bit shallow.

It should be immediately clear that the meaning of the bare form *shallow* in (17a) is different from that of the modified *little bit shallow* in (17c) or 'LITTLE BIT shallow' in (17b). The source form in (17b) and the surface form in (17a) are therefore not semantically equivalent. LITTLE BIT are thus examples of **extrinsic** SEs. In what follows we shall demonstrate that this account can be falsified.

We shall assume that Kayne’s (2005a:42–44) earlier account regarding English and French *little/petit* and *bit/peu* is correct, that English *a bit* is aligned with French *un peu*, both always requiring adjectival modification, which may or may not be overt, as shown in (18). Further, while *bit* can be silent or pronounced, *peu* must be pronounced, as in (19). In other words, while *bit* has a corresponding silent BIT (licensed by *little*), *peu* does not, as in (20).

- (18) a. un PETIT peu de sucre
- b. a LITTLE bit of sugar

- (19) a. un petit peu de sucre
- b. a little bit of sugar

- (20) a. . . . *petit PEU sucre
- b. . . . little BIT sugar

The adjective *shallow*, among others, is said to be selected by LITTLE BIT in English, and likewise in French for *profond* ‘deep’, except that French has to pronounce BIT as *peu*.¹¹ Kayne’s SE account of *shallow* can therefore be summarized in (21). Note that the notation /shallow/ indicates the language-independent concept and not the morpheme *shallow* in English.

- (21) Summary of Kayne’s account of ‘LITTLE BIT shallow’

Concept	French	English
/deep/	profond	deep
/shallow/	PETIT peu profond	LITTLE BIT shallow

Within this account, ‘profond’ is semantically equivalent to ‘deep’ and ‘PETITE peu profond’ is equivalent to ‘LITTLE BIT shallow’; consequently, this account in effect predicts that the two English lexical items *shallow* and *deep* are synonymous.¹² Here is the logic this account entails: if $A = \alpha$ and *little bit* $A = \textit{little bit } \beta$, then $A = \beta = \alpha$. However, this goes completely against the dictionary definitions of the two words, which by all accounts must be antonyms, as clearly demonstrated in (22).

¹¹ An important point that Kayne (2005a, 2006) wishes to make is that this French/English difference can thus be reconsidered as a property of LITTLE and/or BIT, both arguably functional rather than lexical. However, this point is valid only if the SE account is valid.

¹² An anonymous reviewer suggests that it is indeed Kayne’s view that the morpheme ‘shallow’ is actually a variant of ‘deep’ and thus has the exact same meaning as ‘deep’. Thus, the only difference between ‘shallow’ and ‘deep’ is that ‘shallow’ must always be accompanied by LITTLE BIT in syntax. We name just two immediately clear arguments against such a view. First, ‘the lake is now LITTLE BIT shallower and muddier’ would mean that the lake is now a little muddier and also a little deeper! Second, given LITTLE BIT is licensed in syntax by ‘shallow’, the derivational process that converts the adjective ‘shallow’ to the noun ‘shallowness’ does not involve LITTLE BIT. Thus, ‘the shallowness of the lake is the problem’ would mean exactly the opposite, that is, the deepness of the lake is the problem.

- (22) a. Is the lake shallow or deep?
 b. The lake is not shallow, it's deep.
 c. The lake is not deep, it's shallow.

To illustrate this problem with a more drastic example, in Mandarin, there are two antonyms 記得-忘記 *jide-wangji* 'remember-forget'; yet in Taiwanese, a related Sinitic language, the Mandarin *jide* 'remember' has a direct counterpart *ki-tit*, but the Mandarin *wangji* has no lexical counterpart but is readily expressed as *be ki-tit* 'not remember'; thus, the Mandarin expression 我永遠不會忘記 *wo yongyuan buhui wangji* [I-forever-not-will-forget] 'I will never forget' is expressed in Taiwanese with double negation, that is, *goa engoan be be-ki-tit* [I-forever-not-not-remember]. If the same logic behind the proposal of LITTLE BIT *shallow* is to be followed, then the source form of the Mandarin 'forget' would be 'BU *wangji*' 'not forget'!¹³

Another problem with *shallow*'s SEs in terms of meaning is that this account predicts that while the bare form *deep* is grammatical in English, the bare form *shallow* is not, and that *shallow* must always be accompanied by the silent LITTLE BIT or the overt *little bit*. However, considering the various degrees of shallowness indicated by the various intensifiers, we can reasonably derive this hierarchy: *extremely shallow* > *very shallow* > *shallow* > *little bit shallow* > *barely shallow*. Kayne's account eliminates the level of shallowness indicated by the bare form. Furthermore, the omnipresent LITTLE BIT/*little bit* also disrupts the semantic equivalence between the surface form and the source form. We can thus conclude that Kayne's SE source form for *shallow* cannot be justified semantically. In (23) the semantics between *extremely* and LITTLE BIT, and likewise between *barely* and LITTLE BIT, are contradictory.¹⁴ And in (24), the surface form in (24a) is well-formed, but the source form in (24b) is self-contradictory.

¹³ The same anonymous reviewer referred to in fn.12 further suggests in the same spirit that if 'shallow' is equivalent in interpretation to 'LITTLE deep', Kayne would, to be consistent, have to say that Mandarin 'wangji' is invariably accompanied by silent negative NOT. The phrase 'NOT wangji' is interpreted as 'forget', but 'wangji' itself has the interpretation of 'remember'; the morpheme 'wangji' itself would not, for Kayne, have the interpretation of 'forget'. Again, this is easily falsified. We name just one argument using the facts from the negative polarity item *ban* 'half'. If 'wangji' is indeed accompanied by a silent negative NOT, (ii) should be well-formed; it is not.

- (i) Mingtian wo hui bu jide ban ge mingzi.
 tomorrow I will not remember half C name
 'I won't remember any names tomorrow.'
- (ii) *Mingtian wo hui wangji ban ge mingzi.
 tomorrow I will forget half C name
 '*I will forget any names tomorrow.'

¹⁴ The same anonymous reviewer again comments that his/her interpretation of Kayne's analysis of 'extremely/barely shallow' leads to this interpretation: 'extremely/barely LITTLE deep', which s/he presumes means something like 'deep to an extremely/a barely small degree'. Again, we do not agree and find 'extremely/barely LITTLE/little deep' self-contradictory.

- (23) a. These days the lake is extremely/barely shallow. ≠
b. These days the lake is extremely/barely LITTLE BIT shallow.
- (24) a. I wouldn't say the lake is little bit shallow, it's simply shallow. ≠
b. #I wouldn't say the lake is little bit shallow, it's simply LITTLE BIT shallow.

Adding to the problem is that in French, where Kayne claims that 'PETIT peu profond' is equivalent to 'LITTLE BIT shallow', *profond*, like *deep* in English and unlike *shallow* in Kayne's account, can appear with other intensifiers besides *peu*. This indicates that while the French *petit peu profond* is equivalent to English *little bit deep*, and thus in turn equivalent to *shallow*, there is no justification to restricting the intensifiers on *shallow* to LITTLE BIT/*little bit*.

- (25) Le lac est très profond.
the lake is very deep
'The lake is very deep.'
- (26) Le lac n'est guère profond.
the lake is little deep
'The lake is shallow.'
- (27) Le lac n'est pas du tout profond.
the lake is not of all deep
'The lake is not deep at all.'

Even though Kayne (2006) suggests that LITTLE BIT selects some other adjectives besides *shallow*, it is not clear which ones. Consider *narrow*, for example. Given that both *wide* and *narrow* have counterparts in French, namely *vaste* and *étroite*, respectively, presumably there is no need for 'LITTLE BIT narrow'. Thus, it seems that the LITTLE BIT form applies only to *shallow*. So, let's consider the motivation for 'LITTLE BIT shallow', that is, in French, a related language, there is no single lexical item meaning *shallow* but the meaning is readily expressed by *peu profond*. If this is a valid motivation and the SE source form of *shallow* indeed is psychologically real, then the obvious empirical question is how monolingual speakers of English acquire this tacit knowledge that *shallow* is underlyingly 'LITTLE BIT shallow'? After all, *shallow* functions perfectly well without the SEs LITTLE BIT in its underlying form. Assigning such specific lexical idiosyncrasies to UG would be quite unreasonable.¹⁵

¹⁵ The same anonymous reviewer asserts that implicit in Kayne's analysis is indeed the claim that all such 'negative' adjectives are necessarily accompanied by silent LITTLE BIT, in all languages. By the same token, this reviewer should consider that the verbs for 'forget' and all such 'negative' verbs in all languages are necessarily accompanied by a silent NOT. Since we have rejected both LITTLE BIT for 'shallow' and NOT for Mandarin *wangji* 'forget', their invalidity in other languages or in UG should be taken for granted.

As mentioned earlier, in fact many of Kayne's SEs are motivated by their phonological realization in a related language. Under the current Ethnologue classification of the world's languages, English is a Germanic language, while French is an Italic language. The two languages are thus related only in the sense that they are both under the Indo-European family. So, the question is, do all Indo-European languages with two different lexical items expressing the concepts of /deep/ and /shallow/ have a similar source form 'LITTLE BIT shallow' like English? If the answer is 'yes', it seems to be a rather expensive endeavor for the numerous languages to accommodate the absence of a lexical item in just one or a few languages. What exactly counts as a 'related' language is also entirely unclear. After all, under the principles and parameters (P&P) framework of UG, *all* languages are related.

Also, consider this scenario: What if French were to develop a lexical item for the concept /shallow/, either indigenously or by borrowing the adjective *shallow* from English?¹⁶ Would English then still retain the SEs LITTLE BIT for *shallow*? If the answer is yes, the implication is that once a source form with SE comes to exist, it exists forever and can never be changed, a rather unreasonable proposition. If the answer is 'no', then the question is how would the English speakers know about the change in French and thus drop the SEs LITTLE BIT? The dilemma indicates that Kayne's SE source form for *shallow* cannot be justified.

3.3 *Color isn't silent*

Kayne (2005b:Chapter 10) also suggests that color adjectives invariably modify the overt head noun *color* or its silent counterpart COLOR. In (28a), *color* is a canonical lexical item. In (28b), COLOR is an SE. (28b) thus serves as the source form for (28c), the surface form. Crucially, (28a) is *not* the surface form of (28b), (28c) is; rather, (28a) is the pronounced counterpart of (28b), with the pronounced counterpart of an SE underlined.

- (28) a. John bought a green color car yesterday.
 b. John bought a green COLOR car yesterday.
 c. John bought a green car yesterday.

As we have argued earlier, these three forms should all be semantically equivalent.¹⁷ And indeed they are, all three propositions denoted by the three sentences must either be all true or all false in any possible world. In other words, they have the same truth conditions. Therefore, we can conclude that COLOR, like the overt *color*, is semantically redundant, as its denotation is already part of the denotation of the adjective *green*. Or, in the more technical terms of Kayne (2005b:Chapter 10), COLOR finds an antecedent in the feature [+color] which characterizes the color adjectives. Thus,

¹⁶ This latter scenario is, in fact, not unlikely, given the extent of English lexical borrowings, or Anglicisms, in French. Chesley (2010), for example, conducts a study of a French newspaper corpus and finds that new Anglicisms outnumber all other new borrowings combined.

¹⁷ For some of the relevant work on the semantics of color terms and other adjectives, the reader may refer to Kennedy (2012, 2013, forthcoming) and Kennedy & McNally (2010). We thank the anonymous reviewer for directing us to this literature.

in the source form of *green*, COLOR is an **intrinsic** SE and does not add any additional meaning to the phrase that contains it.¹⁸

Syntactically, Kayne (2006) claims that *green*'s adjectival status is supported by examples like (29), where the adjective *green* in the surface form (29a) must modify a null nominal head, hence the source form of (29b), where *green* modifies COLOR.

- (29) a. John's car is a bright green.
 b. John's car is a bright green COLOR.

With *green* as an adjective, the presence of *a* here can only be plausibly licensed by the silent COLOR, but in the context of a plural noun, COLOR/*color* does not license *a*, as in (30a) and (30b) respectively.

- (30) a. *John has a green cars.
 b. They bought (*a) different color cars.

The motivation for COLOR is therefore internal to English, where color adjectives require a nominal head, which can either be overt, thus *color*, or covert, thus COLOR. An external motivation may also be available. Liao & Shi (2013) propose the Entailment of Silent Presence (see (31)). Note the Chinese counterpart of (29a) given in (32).

- (31) Entailment of Silent Presence (ESP)
 If a modifier Y in Language A modifies an overt head X, then under identical syntactic–semantic conditions, the presence of Y in Language B should entail the ‘silent’ presence of X in Language B:
 a. Language A: [XP [Mod Y] X]
 b. Language B: [XP [Mod Y] \emptyset] (where \emptyset is silent)

- (32) 約翰的 車 是 明亮的 綠 色
 Yuehan-de che shi mingliang-de lü se
 John's car be bright green color
 ‘John's car is a bright green.’

The SE account of color adjectives in English therefore seems to have a justifiable motivation; however, we contend that it cannot be empirically justified. Under Kayne's SE account, color adjectives invariably modify COLOR/*color*. However, even though the existence of COLOR/*color* as the

¹⁸ An anonymous reviewer points out that Kayne (2005b:212–213) proposes COLOR because his Principle of Decompositionality (PD) prohibits a single lexical item like ‘yellow’ from simultaneously contributing to an interpretation with two notions, that is, ‘color’ and the particular interval on the color scale that ‘yellow’ picks out. Assuming that we are able to demonstrate that COLOR cannot be justified syntactically, either PD needs to be revised or color terms like ‘yellow’ in fact have an interpretation with one notion, or one interpretable feature, only.

head noun modified by *green* is grammatical and does not change the truth value of the phrase, as shown in (33), its nonexistence is likewise grammatical and does not affect the meaning. The only difference is, in the former scenario the predicate of the clause is a noun phrase (NP), i.e. *green COLOR/color*, while in the latter case, the predicate is an adjective phrase (AP), namely *green*. As shown in (34a), an ordinary adjective like *nice* does not need a head noun at all to function as the predicate; however, like *green*, *nice* can also modify an overt head noun, as in (34b), albeit with a change in meaning.

- (33) a. John's car is green.
 b. John's car is green (COLOR/color).
- (34) a. John's car is nice. ≠
 b. John's car is nice color/*COLOR.

In short, the presence of COLOR/color in (33b) is entirely unnecessary for (33a). In the interest of economy, an important principle in the Minimalist Program (MP), the SE COLOR is surely disfavored.¹⁹ Moreover, whether *green* in (33a) is underlyingly an AP or NP can easily be tested. Compare the (a) and (b) examples in (35)–(36).²⁰

- (35) a. A very [clean, green, and spacious] car ≠
 b. ??A very [clean, green color, and spacious] car
- (36) a. A more [beautiful, yellow, and spacious] car ≠
 b. ??A more [beautiful, yellow color, and spacious] car

The first difference is that in the (b) examples, the presence of *color* drastically reduces the grammaticality of the conjunction phrase. The second difference is that in the (b) examples, the intensifiers *very* and *more* scope over the first adjective *clean* only; yet in the (a) examples, they scope over either just *clean* or over all three conjuncts, *clean*, *green*, and *spacious*. This second difference indicates that the color adjectives in (a) phrases are APs, just like the co-occurring AP conjuncts.

There is also evidence that it is not free variation between the two variants COLOR/color. Consider the examples in (37), where color adjectives cannot be NPs with an overt *color*, for the simple reason that the verbs in (37) subcategorize for an AP, not NP. Likewise in (38), where English and Chinese are alike, *yellow*, modified by an intensifier *very*, is an adjective and the presence of *color* is ill-formed.

¹⁹ To put the notion of economy in more precise terms in this case, given the two source forms: (a) the car is green and (b) the car is green COLOR, for the surface form 'the car is green', everything else being equal, the source form that involves less lexical items is more economical, that is (a) is more economical than (b).

²⁰ An anonymous reviewer states that account needs to be taken of uncoordinated examples like '??a very green color car', which are not very good to begin with. We agree and contend that such examples likewise suggest that 'a very green COLOR car' is dubious as the source form for 'a very green car'.

- (37) His face went/turned/waxed red/blue/white (*color).
- (38) a. 約翰的 車 非常 黃(*色)
Yuehan-de che feichang huang (*se)
John's car very yellow(-color)
b. John's car is very yellow (*color).

On the contrary, in (39), the overt *color* is required, for the obvious reason that *green*, modified by the adverb *shockingly*, can only be an adjective and thus requires a head noun. The fact that the alleged SE head noun COLOR is ill-formed in (39) presents a serious challenge to Kayne's account. Thus, the fact that *green* in (40) can be modified by an adjective, *shocking*, suggests that here it indeed can be seen as a noun itself licensing the article *a*.

(39) John's car is a shockingly green *(color)/*COLOR.

(40) John's car is a shocking green.

Under Kayne's account, color adjectives in English grammar do not also function as nouns. However, the fact is that color adjectives routinely take on the *-s* plural form in English and thus unmistakably function as nouns. Here are some Google examples, all from .edu sites and thus likely by American English speakers.

- (41) She created this wild variety of blooming sedum in all different **yellows and purples**, then left me a little stone paved area for my lounge chair.²¹
- (42) But now, looking at the map of Western Europe sprawled on the stations wall with its web of tracks bolded in different **yellows and greens**, I wasn't so sure of myself or my train-locating skills.²²
- (43) I absolutely love spring time because of all the different colors! . . . Trees all along my hill up to my house are blooming; so many different **pinks and yellows**.²³
- (44) Using the eyedropper tool in Photoshop, I picked different colors from the image, starting with the **reds**. After choosing several **reds** from the image, I realized that most of them are VERY similar.²⁴

An anonymous reviewer points out that there may be an alternative to our nominal account of the color terms in (41)–(44), as Kayne (2005b), in the 'Silent years, silent hours' chapter, proposes that the *-s* plural form can in some cases be licensed by a silent noun, as in 'These books are good,

²¹ http://alumni.stanford.edu/get/page/magazine/article/?article_id=29308

²² <http://www.humboldt.edu/travel/2008/SpainJohnson/index.html>

²³ <http://blogs.chatham.edu/botany-nmiller/>

²⁴ <http://people.clarkson.edu/~wyantsa/comm341/inclass2.html>

the others are not'. Therefore, 'several greens' can have 'several green COLOR-s' as its source form. However, such an account is easily falsified by the fact that the alleged source form 'several greener COLOR-s' does not produce 'several *greeners' as a surface form.

In short, Kayne's SE source form for color adjectives assumes that these adjectives necessarily modify an SE head noun COLOR, which freely alternates with the overt *color*, and also that they do not also function as nouns. We have shown that neither assumption can be justified empirically.

4. The question of acquisition

An additional crucial perspective that H&T bring to the evaluation of a proposed SE account is the consideration of the acquisition issue. A well-established principle in language acquisition is the Uniqueness Principle, a.k.a. One-to-One Mapping, that is, a unique mapping between a form and meaning is preferred (e.g. Berwick 1985; Clark 1987; Pinker 1984; Randall 1990; Roeper 1981; Slobin 1973; van Riemsdijk 2002). From this perspective, everything else being equal, an account that does not rely on the necessary employment of non-canonical items such as (empty) expletives and SEs should be more favored than a competing account that does rely on such elements. H&T thus contend that between (45a) and (45b), an account that treats *grand* in the former as a simple noun meaning 'thousand bucks', on a par with the synonymous *G* and *K*, should be much preferred than the source form in (45b), where the single pronounced form *grand* corresponds to multiple meaningful lexical items and thus violates the One-to-One principle.²⁵

- (45) a. Ten grand
b. Ten THOUSAND BUCKS in grand TOTAL

But of course there are cases where everything else is not equal between the two competing accounts. Let us examine the case of the well-established SE PRO. In (46a) is an account that does without PRO, and in (46b), one that requires PRO.

- (46) a. He_i wants to kiss himself_i.
b. He_i wants PRO_i to kiss himself_i.

Superficially, (46a) is straightforward and thus seems to better conform to the One-to-One Principle of acquisition. Yet to give just two obvious but serious drawbacks of (46a): first, there is no local external argument to receive the agent role of *kiss*, and second, the binding relation between *he* and *himself* violates Binding Principle A, as the antecedent and the anaphor are not in the same

²⁵ An anonymous reviewer contends that it is not correct to call a noun 'simple' that has a complex interpretation like 'thousand bucks'. The point that H&T make here is that, given the fact that 'K' and 'G' are unmistakably simple nouns with the interpretation 'thousand bucks', treating 'grand', the base of the acronym 'G', is the most straightforward and simplest solution. We refer the reader to H&T for the full range of arguments against the SE accounts of *grand*.

binding domain. Thus, the PRO alternative in fact drastically simplifies the grammar and better conforms to UG. It thus reduces the burden of acquisition and should be preferred. Similar arguments can easily be construed for the SE *pro* as well.

We shall examine the SE account of LITTLE BIT *shallow* first, from the perspective of acquisition, and then the account of *green* COLOR. *Deep–shallow* are gradable antonyms, among many other such pairs, for example *long–short*, *old–young*, *big–small*, *bright–dark*, *hard–soft*, *high–low*, *wide–narrow*, *heavy–light*, *hot–cold*, *fast–slow*, *difficult–easy*, *sharp–dull*, *rough–fine*, *happy–sad*, etc. Having the acquisition of *deep–shallow* on a par with these other pairs of gradable antonyms is of course the most straightforward and requires no SEs, LITTLE BIT, on *shallow*. Having these SEs on *shallow* necessarily singles out the *deep–shallow* pair from all the other similar pairs and thus creates an additional burden on the acquisition of *deep–shallow*.

Yet an even bigger problem is the lack of motivation for the monolingual child to ever entertain such SEs. In language acquisition, only two things are available to the child: UG and exposure. Exposure alone provides no motivation for LITTLE BIT *shallow*, for the obvious reason that the child never hears these SEs and there are no semantic or syntactic requirements for them. Consider (17) again, repeated as (47). What the child hears is (47a), a well-formed sentence without LITTLE BIT in the underlying form. The child also hears (47c), which is semantically different from (47a); the child thus has no reason to suppose that the intensifier *little bit* may also be silent in (47c).

- (47) a. The lake is shallow.
 b. The lake is LITTLE BIT shallow.
 c. The lake is little bit shallow.

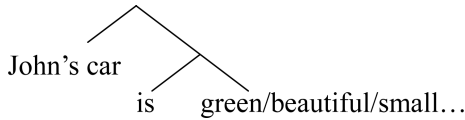
The only other possibility for (47b) is due to UG. Kayne (2006) suggests that LITTLE and/or BIT are functional elements; therefore, their counterparts in each language may be subject to parametric variation and select different adjectives. Crucially, in Kayne's account, *shallow* in English is obligatorily selected, thus necessarily accompanied, by LITTLE BIT. Yet in French, *profond* is optionally selected, thus not necessarily accompanied, by PETIT *peu* (*peu* must be pronounced). Kayne thus claims that this French/English difference is a property of LITTLE and/or BIT, which are arguably functional rather than lexical. Thus, LITTLE and/or BIT are presumably part of UG, but the set of adjectives they select in each language is language-specific. Under this premise, there is still no way for the monolingual English-learning child to ever find out which adjectives LITTLE BIT selects. Again, consider (47). What the child hears is the well-formed (47a) and (47c), which are *not* semantically equivalent and there is thus no reason to suppose that *little bit* may or may not be pronounced in (47c). In other words, even if the child has the knowledge that LITTLE BIT selects certain adjectives in the language being acquired, there is no way for the child ever to find out exactly which adjectives are selected. We therefore conclude that Kayne's SEs LITTLE BIT are unlearnable.

The problems with the acquisition of COLOR are of a different nature, as COLOR is lexical, not functional, and its motivation is entirely internal to English. Thus, we can put UG aside and only consider whether COLOR is learnable from exposure and, if so, whether it is deterministic. Consider (33) again, repeated as (48). The immediate question is what analyses are available to the child when s/he hears (48a). One analysis is straightforward, where *green* is predicative. The other

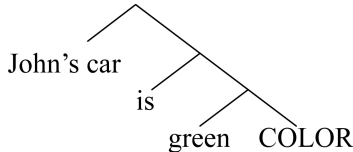
is the synonymous (48b), a variant of (48c), where *green* is an attributive adjective that modifies a silent head noun COLOR.

- (48) a. John's car is green.
 b. John's car is green COLOR.
 c. %John's car is green color.²⁶

The two synonymous analyses are thus both learnable, but this also means that the SE analysis of (48b) cannot be deterministic. The next question is, between the two competing analyses, which one is more likely to ultimately prevail. First of all, the predicative analysis enjoys an immediate advantage in that it has a simpler, flatter structure than the attributive analysis, as shown in (49). Note that the predicative analysis is also more general and applies to all predicative adjectives. In contrast, the attributive analysis with COLOR is specific to color adjectives only.

- (49) a.
- 
- ```

graph TD
 Root1[] --- Node1[]
 Node1 --- NP1[John's car]
 Node1 --- VP[is green/beautiful/small...]

```
- b.
- 
- ```

graph TD
  Root2[ ] --- Node2[ ]
  Node2 --- NP2[John's car]
  Node2 --- VP[is ]
  VP --- green[green]
  VP --- COLOR[COLOR]
  
```

Furthermore, as the child is exposed to examples like the ones in (50) but never to examples like the ones in (51),²⁷ the attributive analysis in (49b) will have to be rejected eventually, leaving (49a) the winning analysis.

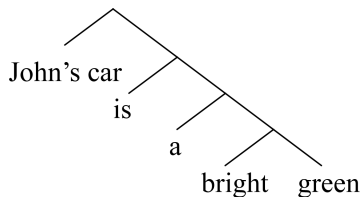
- (50) a. John's car is more purple than mine.
 b. John's car is more [beautiful and purple] than mine.
 c. John's car is extremely [bright and white].
- (51) a. *John's car is more purple color than mine.
 b. *John's car is more [beautiful and purple color] than mine.
 c. *John's car is extremely [bright and white color].

²⁶ An anonymous reviewer does not find (48c) acceptable. However, numerous examples similar to (48c) are found on the net via Google, for example 169,000 exact matches of 'car is red color' alone (searched on April 2, 2014). To acknowledge the reviewer's judgment, nonetheless, we have marked (48c) with a % sign, indicating a possible dialectal variation in judgment.

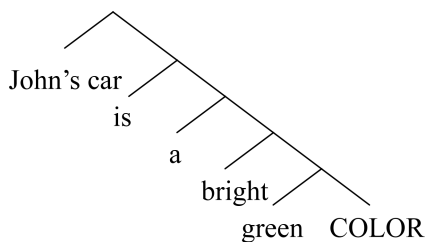
²⁷ An anonymous reviewer suggests that (51) improves either with 'in' or with 'a' or even with 'of a'. We agree, but the point is that (51) is meant to accurately simulate Kayne's source forms with COLOR pronounced.

The same argumentation applies to *a bright green* versus *a bright green* COLOR too. The nominal account in (52a) is again favored due to its simpler, flatter structure, than that of the attributive account in (52b).

(52) a.



b.



Furthermore, as the child is exposed to examples such as *three greens*, *several pinks*, and *different whites* but never to examples such as **a pleasantly green* and **an amazingly purple*, (52a) is reinforced and (52b) eventually rejected. We therefore conclude that Kayne’s SE account of COLOR also cannot be sustained from the perspective of acquisition.

5. Concluding remarks

A canonical lexical item in the lexicon consists of three kinds of features: 1) FF, or formal features, which are necessary for syntactic derivation, 2) PFF, or phonological features, which are accessed at PF, and 3) LFF, or semantic features, which are accessed at LF. A lexical item active in syntax thus must at least have FF and may or may not have PFF and/or LFF. Three types of non-canonical lexical items obtain: expletives (with FF and PFF but without LFF), silent elements (SEs, with FF and LFF but without PFF), and empty expletives (with FF only) (H&T). Thus, accordingly, two kinds of silence can be distinguished in syntax, depending on the source of the silence: base-generated or non-base-generated—the former due to SEs, and the latter, ellipsis.

The fact that SEs are not only permissible but in fact indispensable in grammar, however, does not mean that all the SEs proposed in the syntax literature are justified. First of all, an SE and its pronounced counterpart, if any, must be semantically equivalent. This thus provides a good criterion for the evaluation of an SE account proposed. Zeschel & Stefanowitsch (2008) demonstrate that the truth value of Kayne’s (2005b:Chapter 10) SE form ‘at the age of seven YEARS . . .’ is different from that of the source form ‘At the age of seven . . .’, and Law (2012) and H&T show that Kayne’s (2012) source form ‘ten THOUSAND BUCKS in grand TOTAL’ is not semantically equivalent to the surface form ‘ten grand’. Both SE accounts are thus cast into doubt.

Two more of Kayne's SEs are reviewed in this paper: the French-inspired 'LITTLE BIT shallow' and the internally-motivated 'green COLOR'. We demonstrate that 'the lake is LITTLE BIT shallow' has very different semantic content from that of 'the lake is shallow'. LITTLE BIT are thus extrinsic SEs, as they contribute additional meaning to the phrase that contains them, meaning that containing phrase otherwise would not have. For example, 'The lake is not just a little bit shallow, it is shallow' must have the self-contradictory source form 'The lake is not just a little bit shallow, it is LITTLE BIT shallow' under Kayne's analysis. Thus, this SE account can be falsified on semantic grounds alone.

COLOR as in 'green COLOR', on the other hand, is an intrinsic SE, as it does not contribute meaning to the phrase that contains it. In other words, the meaning of the containing phrase remains the same with or without the intrinsic SE COLOR. This SE thus passes the semantic test; yet it cannot be justified syntactically. For example, that '*John's car is more purple color than mine' is ill-formed shows that COLOR/color does not belong there. In addition, well-formed plural forms such as *three greens*, *several pinks*, and *different whites* and the ill-formed examples like **three pleasantly green* indicate that *green* in the sentence 'the car is a pleasant green' is a noun and there is no SE COLOR.

Finally, we also demonstrate that, from the perspective of acquisition, neither SE accounts can be justified.

References

- Berwick, Robert C. 1985. *The Acquisition of Syntactic Knowledge*. Cambridge: MIT Press.
- Carnie, Andrew. 2008. Review of Kayne 2005 "Movement and Silence". *Language* 84.2:411–415.
- Chesley, Paula. 2010. Lexical borrowings in French: Anglicisms as a separate phenomenon. *Journal of French Language Studies* 20.3:231–251.
- Chomsky, Noam. 1964. *Current Issues in Linguistic Theory*. The Hague: Mouton.
- Chomsky, Noam. 1971. Deep structure, surface structure, and semantic interpretation. *Semantics: An Interdisciplinary Reader in Philosophy, Linguistics and Psychology*, ed. by Danny D. Steinberg & Leon A. Jakobovits, 154–196. Cambridge & New York: Cambridge University Press.
- Chomsky, Noam. 1999. Derivation by phase. *MIT Occasional Papers in Linguistics* 18:1–43.
- Chomsky, Noam. 2008. The biolinguistic program: Where does it stand today? Manuscript. Cambridge: MIT. Available online at [http://clt.bcu.edu.cn/resource/\[\[1\].Chomsky_2008_bio-todayGood.gd.pdf](http://clt.bcu.edu.cn/resource/[[1].Chomsky_2008_bio-todayGood.gd.pdf). Accessed on March 8, 2014.
- Chomsky, Noam. 2010. Some simple evo devo theses: How true might they be for language? *The Evolution of Human Language: Biolinguistic Perspectives*, ed. by Richard K. Larson, Viviane M. Déprez & Hiroko Yamakido, 45–62. Cambridge & New York: Cambridge University Press.
- Clark, Eve V. 1987. The principle of contrast: a constraint on language acquisition. *Mechanisms of Language Acquisition*, ed. by Brian MacWhinney, 1–33. Hillsdale: Lawrence Erlbaum Associates.
- Emonds, Joseph E. 2000. *Lexicon and Grammar: The English Syntacticon*. Berlin & New York: Mouton de Gruyter.
- Emonds, Joseph E. 2006. Syntactic conditions on phonetically empty morphemes. *Organizing Grammar: Linguistic Studies in Honor of Henk van Riemsdijk*, ed. by Hans Broekhuis, Norbert

- Corver, Riny Huybregts, Ursula Kleinhenz & Jan Koster, 116–126. Berlin & New York: Mouton de Gruyter.
- Harris, Alice C., & Lyle Campbell. 1995. *Historical Syntax in Cross-linguistic Perspective*. Cambridge & New York: Cambridge University Press.
- Her, One-Soon, & Hui-Chin Tsai. (forthcoming). On silent elements: a case study of *grand* and its silent entourage. To appear in *Natural Language and Linguistic Theory*.
- Hopper, Paul J., & Elizabeth Closs Traugott. 1993. *Grammaticalization*. Cambridge & New York: Cambridge University Press.
- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge: MIT Press.
- Kayne, Richard S. 2005a. Some notes on comparative syntax, with special reference to English and French. *The Oxford Handbook of Comparative Syntax*, ed. by Guglielmo Cinque & Richard S. Kayne, 3–69. Oxford & New York: Oxford University Press.
- Kayne, Richard S. 2005b. *Movement and Silence*. Oxford & New York: Oxford University Press.
- Kayne, Richard S. 2006. On parameters and on principles of pronunciation. *Organizing Grammar: Linguistic Studies in Honor of Henk van Riemsdijk*, ed. by Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz & Jan Koster, 289–299. Berlin & New York: Mouton de Gruyter.
- Kayne, Richard S. 2010. *Comparisons and Contrasts*. Oxford & New York: Oxford University Press.
- Kayne, Richard S. 2012. A note on *grand* and its silent entourage. *Studies in Chinese Linguistics* 33.2:71–85.
- Kennedy, Christopher. 2012. Adjectives. *The Routledge Companion to Philosophy of Language*, ed. by Gillian Russell & Delia Graff Fara, 328–341. New York: Routledge.
- Kennedy, Christopher. 2013. Two sources of subjectivity: qualitative assessment and dimensional uncertainty. *Inquiry* 56.2–3:258–277.
- Kennedy, Christopher. (forthcoming). Two kinds of subjectivity. *Subjective Meaning*, ed. by J. Huitinck & Cécile Meier.
- Kennedy, Christopher, & Louise McNally. 2010. Color, context and compositionality. *Synthese* 174.1:79–98.
- Law, Paul. 2012. Silent nouns in English, Chinese and Naxi. *Studies in Chinese Linguistics* 33.2: 102–122.
- Leu, Thomas. 2008. *The Internal Syntax of Determiners*. New York: New York University dissertation.
- Liao, Wei-wen Roger. 2013. Searching for the silent heads: ghosts in the structure. Paper presented at the 9th Workshop on Formal Syntax & Semantics (FOSS-9), April 27–28, 2013. Chiayi: Chung Cheng University.
- Liao, Wei-wen Roger, & Dingxu Shi. 2013. To pronounce or not to pronounce: locating silent heads in Chinese and English. *Studies in Chinese Linguistics* 34.1:55–65.
- Merchant, Jason. 2001. *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford & New York: Oxford University Press.
- Merchant, Jason. 2008. Variable island repair under ellipsis. *Topics in Ellipsis*, ed. by Kyle Johnson, 132–153. Cambridge & New York: Cambridge University Press.
- Merchant, Jason. 2013. Ellipsis phenomena. *The Cambridge Handbook of Generative Syntax*, ed. by Marcel den Dikken, 701–745. Cambridge & New York: Cambridge University Press.
- Pinker, Steven. 1984. *Language Learnability and Language Development*. Cambridge: Harvard University Press.

- Randall, Janet H. 1990. Catapults and pendulums: the mechanics of language acquisition. *Linguistics* 28.6:1381–1406.
- Roeper, Thomas. 1981. On the deductive model and the acquisition of productive morphology. *The Logical Problem of Language Acquisition*, ed. by Carl L. Baker & John J. McCarthy, 129–150. Cambridge: MIT Press.
- Sigurðsson, Halldor Armann. 2004. Meaningful silence, meaningless sounds. *Linguistic Variation Yearbook* 4:235–259.
- Simpson, Andrew. 2012. The silence of the bucks: a note on Kayne’s “*Grand* and its silent entourage”. *Studies in Chinese Linguistics* 33.2:87–101.
- Slobin, Dan I. 1973. Cognitive prerequisites for the development of grammar. *Studies of Child Language and Development*, ed. by Charles A. Ferguson & Dan I. Slobin, 175–208. New York: Holt, Rinehart & Winston.
- Van Riemsdijk, Henk. 2002. The unbearable lightness of Going: the projection parameter as a pure parameter governing the distribution of elliptic motion verbs in Germanic. *The Journal of Comparative Germanic Linguistics* 5.1–3:143–196.
- Van Riemsdijk, Henk. 2005. Silent nouns and the spurious indefinite article in Dutch. *Grammar and Beyond: Essays in Honour of Lars Hellan*, ed. by Mila Vulchanova & Tor A. Åfarli, 163–178. Oslo: Novus Press.
- Vergnaud, Jean-Roger, & Maria-Luisa Zubizarreta. 2006. The representation of focus and its implications: towards an alternative account of some ‘intervention effects’. *Organizing Grammar: Linguistic Studies in Honor of Henk van Riemsdijk*, ed. by Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz & Jan Koster, 641–660. Berlin & New York: Mouton de Gruyter.
- Zeschel, Arne, & Anatol Stefanowitsch. 2008. Elliptical measure noun constructions: a cognitive approach. Paper presented at DGKL/GCLA 08, Third International Conference of the German Cognitive Linguistics Association, September 25–27, 2008. Leipzig, Germany.

[Received 3 October 2013; revised 17 April 2014; accepted 5 May 2014]

One-Soon Her (corresponding author)
 Graduate Institute of Linguistics and
 Research Center of Mind, Brain, and Learning
 National Chengchi University
 64, Sec. 2, ZhiNan Road
 Taipei 116, Taiwan
 onesoon@gmail.com

Hui-Chin Tsai
 Graduate Institute of Linguistics
 National Chengchi University
 64, Sec. 2, ZhiNan Road
 Taipei 116, Taiwan
 d9544804@oz.nthu.edu.tw

「顏色」並非無聲、「淺」也不是深： 驗證無聲成分的兩個個案研究

何萬順 蔡慧瑾
國立政治大學

由於 Kayne 一系列作品的影響，近年來句法學文獻中「無聲成分」(silent element) 的數量激增。然而無聲成分在文獻中卻缺乏明確的定義，因此也少有針對特定無聲成分的實證或測試研究。本文採用 Her & Tsai (forthcoming) 對詞彙項目 (lexical items) 的分類，將無聲成分清楚定位，並且將文獻中的無聲成分區分出不增加語意的「本質 (intrinsic) 無聲成分」與增加語意的「非本質 (extrinsic) 無聲成分」，後者是句法所不允許的。我們接著對 Kayne 提出的兩個無聲成分的分析進行嚴格的語意與句法驗證。一是 The lake is LITTLE BIT shallow 中的 LITTLE BIT (大寫表示無聲)。我們證明其屬性為「非本質無聲成分」，因其造成來源形式 (source form) 與表層形式 (surface form) 的語意不同。驗證的另一無聲成分是 John's car is a bright green COLOR 中的 COLOR。其雖為「本質無聲成分」，但我們以句法測試證明 COLOR/color 並非自由變化 (free variation)，而且顏色形容詞很清楚地具有名詞的兼類。因此，顏色形容詞在句法上都伴隨著 COLOR 的分析難以成立。我們進一步從語言習得的觀點論證，以上兩個無聲成分也都難以成立。本文同意 Her & Tsai (forthcoming) 的看法：雖然無聲成分是語言中不可或缺的，但研究者所提出的每個無聲成分都必須在語意與形式上有充分的動機與證據。

關鍵詞：無聲成分，顏色，淺，刪節，語言習得