THE ENGLISH PHRASE-AS-LEMMA CONSTRUCTION: WHEN A PHRASE MASQUERADES AS A WORD, PEOPLE PLAY ALONG

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This article examines the English PHRASE-AS-LEMMA (PAL) construction, which treats phrases syntactically AS IF they were words (e.g. *a **don't-mess-with-me** driver*). We argue that it is important to acknowledge and represent the construction's unique syntax directly rather than trying to shoehorn it into a more familiar grammatical category such as Noun or Adjective. PALs do not share the same distribution as other categories, and critically, their unique syntax influences their interpretation in predictable ways, which we demonstrate with survey data ($N = 685$). In particular, PALs convey the type of meaning associated with individual English words—LEMMAS—and thus evoke semantic frames that are presumed shared common knowledge. We further predict that the shared common knowledge and the use of quotes encourages PALs to be interpreted as witty and sarcastic. We show that a full analysis of PALs requires a family of constructions that includes certain conventional instances and productive subtypes. Because the construction's special form and function are intimately related, we predict that comparable PAL constructions should appear in other, unrelated languages. While the PAL construction is not terribly frequent in any language, the implications we draw are quite broad: our knowledge of language is rich and complex, providing subtle means for language users to indicate familiarity with listeners while conveying their message.*

Keywords: phrasal compounds, constructions, grammatical categories, family of constructions, quotes

1. PHRASES AS LEMMAS. When linguists find examples that appear to run counter to general patterns in a language, we often seek explanations that essentially claim that the recalcitrant examples only seem to be unusual. The allure of trying to assimilate unusual examples to more familiar or better understood patterns stems from a natural assumption that fewer patterns imply less for theorists to explain and less for learners to learn. However, what if language users display an implicit awareness that an unusual pattern is, in fact, just as unusual as it seems? The current article identifies such a case, based on examples like those in 1 (from the Corpus of Contemporary American English (COCA); Davies 2008–). In these cases, a unit with the internal structure of a phrase—even an entire sentence—appears in a slot typically reserved for a word.

(1) a. a trickle-down policy
b. a must-do task
c. the 'both sides do it' argument
d. an 'I'm not a witch' moment
e. the 'How does it feel?' game
f. a 'you both win!' moment
g. a 'take music for granted' attitude
h. the 'stop making more games' argument
i. his 'At some point, we've all parked in the wrong garage' speech
j. the 'punishment is good for everyone else, but not my little angel' attitude

* We are grateful to the referees and editors for their extremely helpful and insightful comments on earlier versions of this manuscript. We are also grateful to Anne Abeillé for astute comments on an earlier draft and to Arielle Belluck for help creating stimuli and for careful copyediting. Finally, we are indebted to the 2023 audiences at MIT, the International Conference on Construction Grammar in Prague, and at the Cognitive Science Society in Sydney for feedback. Any remaining errors are solely our own.

TERMINOLOGY. Before providing an outline and key points of the article, we briefly clarify our terminology. Examples such as those in 1 are often described as 'phrasal compounds' (e.g. Bagasheva 2017, Göksel 2015, Hein 2017, Lieber 1988, Meibauer 2007, Müller 2018, Pafel 2015, 2017, Trips 2012, Trips & Kornfilt 2015, 2017a, Wiese 1996) because the phrase typically modifies a head Noun in a way that is reminiscent of English compounds. However, for reasons that will become clear, we dub the construction under investigation the PHRASE-AS-LEMMA (PAL) construction.

By PHRASE we intend a multiword unit, which may be a quote. In order to delimit the scope of our investigation, we focus here on phrases that include a finite verb and at least one other word.[1] We use the term LEMMA as psycholinguists do, to refer to the meanings or conceptual structures of simple words (or 'word roots') without reference to their form (Handke 2012:69, Ferreira & Engelhardt 2006:63). We use bar levels sparingly, but by, for example, X^0 we intend to include both simple words, inflected or not, derived words, and compounds, since compounds share the same distribution as simple words.

Since there are no stable crosslinguistic tests for grammatical categories (e.g. Croft 2001:29–34ff.), we follow the typologists' convention of capitalizing grammatical categories of a particular language. Therefore, unless otherwise specified, we use 'Noun', for instance, to refer to what might otherwise be described as a word that passes standard tests for nouns in English, that is, English Nouns.

2. OUTLINE OF KEY POINTS. Our primary point is that it is important to acknowledge that the PAL construction is exactly as odd as it seems: a PAL is a phrase that behaves AS IF it were a simple word. PALs are neither Nouns, Adjectives, nor typical phrases or quotes (§3). By recognizing a special category that has the internal syntax of a phrase but the external syntax of a word, we are able to explain, rather than stipulate, why PALs have the special rhetorical properties we demonstrate them to have. Specifically, we argue that PALs are interpreted as if they named lemmas, as simple words do. In particular, lemmas label familiar, culturally relevant types of entities or events, so using a PAL is an invitation to treat a phrase as if it depicted a familiar and culturally relevant type of entity or event (§4).

Section 4 is the heart of the article. Here we explain the function of the construction in detail and confirm that speakers who produce a PAL construction are perceived to share more common knowledge with their intended audience than speakers who produce a close paraphrase without a PAL (study 1). At the same time, since the type of situation or event depicted by the PAL is described by a phrase and has NOT actually been named by a dedicated word, the situation is unlikely to actually be regularly discussed. We explain that the depiction of situations that are familiar but not often discussed is the definition of what comedians call OBSERVATIONAL HUMOR. We further observe that PALs are commonly quotes, and quotes need not be used literally (Clark & Gerrig 1990:764, Pascual et al. 2013; see also Michaelis & Feng 2015). Instead, quotes offer an opportunity to caricature the speaker (*They said 'blah, blah, blah*'; *She's like 'woe is me'*), which allows them to be interpreted sarcastically. Studies 2 and 3 (§4) confirm that sentences containing PALs are judged more witty and more sarcastic than close paraphrases that do not contain PALs. Thus, we argue that naive English speakers recognize that PALs are phrases that are treated as if they were words and are sensitive to the ensuing implications: in comparison to close paraphrases, PALs imply more common

[1] As clarified in the 'Limitations' section (§8), the analysis should be extendable to other types of phrases used as words (see e.g. Gehrke 2015 on German complex prenominal participial modifiers).

knowledge between speaker and listener and are judged more witty and more sarcastic. It is incumbent on us as linguists to recognize the construction's unusual form directly, because by doing so, the rhetorical implications we document can be recognized as motivated rather than arbitrary.

While the PAL construction is highly productive, conventionalized instances and several narrowly defined productive SUBTYPES of this construction exist as well. A fourth study (§4) finds that the same rhetorical factors (familiarity, wittiness, sarcasm) hold even for conventional, frequent PAL tokens (e.g. *do it yourself*, *all you can eat*) in comparison to close paraphrases. A fifth study (§5) confirms that speakers recognize the conventional, productive subtypes as well. These facts indicate that our knowledge of PALs requires a rich network of general patterns, instances, and subregularities, in a way that has become familiar from analyses of other constructions (Diessel 2020, Goldberg & Herbst 2021, Goldberg & Jackendoff 2004, Goldberg & Michaelis 2017, Lyngfelt 2018, Van de Velde 2014).

By directly relating the construction's unusual syntax and corresponding rhetorical functions, we predict that at least some unrelated languages should have a comparable construction, and in §6 we cite work on comparable constructions in other West Germanic languages, including German, Dutch, and Afrikaans (Hein 2017, Meibauer 2007, Trips 2012), as well as in Turkish (Trips & Kornfilt 2015). We also observe constructions in Hebrew and Brazilian Portuguese, which appear to have a comparable function. To the extent that these cases share the function of the English PAL construction, they lend support to our claim that the form and function of this construction are motivated by the observation that the construction treats a clause AS IF it were a word, which in turn implies that the phrase should have a lemma-like interpretation.

Before delving into the rhetorical function of the English PAL construction, we first review its formal properties in §3.

3. PALs: INTERNAL SYNTAX OF A PHRASE AND EXTERNAL SYNTAX OF A WORD. A new type of category is required to capture the unusual formal properties of the English PAL construction. Rather than attempting to shoehorn PALs into some familiar category, we argue on the basis of their distribution (this section) and interpretation (§4) that a new category is needed.

3.1. PALs HAVE THE INTERNAL SYNTAX OF PHRASES. To make the point that PALs have the internal syntax of phrases, we note that they can in fact be full sentences. As illustrated in 2a–c, they can include direct address forms (e.g. *hey*) or markers of illocutionary force (e.g. *please*, *why am I*), hallmarks typical of full sentences rather than words (Green 1976, Hooper & Thompson 1973).

(2) a. Request
that's pretty much the please-don't-dump-me dance, isn't it? (COCA)
b. Direct address
[This is] no stately, hey-everybody-look-at-me procession. (COCA)
c. WH-question with subject-auxiliary inversion
the why-am-I-me question (COCA)

While PAL tokens have the internal syntax of phrases, they have the external distribution of words, as has been widely observed (Bruening 2018, Harley 2011, Pafel 2015, Wiese 1996). To confirm this, first note that PAL tokens appear in positions that are unusual for clauses in English, let alone full sentences. Typically, when a Noun is modified by a Clause, the Clause follows, rather than precedes, the Noun (e.g. 3a). Noun complements also follow their head Noun (e.g. 3b).

(3) a. English Relative clause
… a kitten that was alive (COCA)
b. English Noun complement
the report that there is arsenic in rice (COCA)
c. English Adjectival modifier
… the feisty kitten (COCA)
d. English Noun modifier
… the weather report (COCA)

While crosslinguistically it is not unusual for clausal AND lexical modifiers to appear in the same position (e.g. Gil 2013), it IS unusual in English.

Since PALs may be novel and their internal structure and interpretation obey the same constraints that English phrases or full sentences do, it is natural to presume they are created by the same grammatical constructions used to generate full sentences.[2]

3.2. PALS HAVE THE DISTRIBUTION OF WORDS, BUT RESIST CLASSIFICATION AS ANY FAMILIAR CATEGORY. English PALs have most often been discussed as 'phrasal compounds': modifiers in Noun compounds (Bruening 2018, Harley 2011, Pafel 2015, Wiese 1996). Motivation for a compound analysis can be drawn from the stress pattern of PAL + Noun combinations. Just as compound nouns commonly favor stress on the modifier rather than the head noun (Ladd 1984, Lees 1960:120; but see Arndt-Lappe & Plag 2007), the PAL is typically stressed rather than the head Noun (see Table 1).

COMPOUND (stress on modifier)	REGULAR MODIFICATION (stress on head N)
the FIRE truck	the red TRUCK
an 'I'm not a WITCH' moment	a nonwitchy MOMent
a 'please don't DUMP me' dance	a last DANCE

TABLE 1. Stress pattern typical of compounds and PALs (left) vs. regular modification (right).

Moreover, the PAL and Noun form a tight semantic unit, as adjectives resist intervening between a PAL and N (e.g. *an angry 'don't mess with me' driver* vs. ?*a 'don't mess with me' angry driver*). While PALs behave like modifiers in compounds in terms of their prosody and tight semantic bond, in other ways they behave more like modifying adjectives. In the attested examples 4a and 4b, *very* and *more*, which generally modify Adjectives rather than (compound) Nouns (Wasow 1980), modify PALs.

(4) a. You repeatedly dismiss inconvenient evidence … in a *very* 'I'm white and right, so your evidence can't be true if it disproves what I say' way (COCA)
b. He has done a *much more* 'I'm compassionate too' campaign to try to move up his personal ratings (COCA)

Also unlike compounds, PAL + Noun combinations cannot be used as modifiers that scope over a distinct head noun (5a), although this is possible for NN and AN compounds (5b–c).

[2] While PALs are treated as if they were words, their internal status as nonatomic is evidenced by the fact that they can occasionally reference an argument external to the PAL, as in (i).

(i) a. I'm a 'do-it-myself' kind of woman
b. For example, Carin Smith, 36, and Jay Bender, 41 … pursue do-it-themselves careers (COCA)
c. … he ennobled the living room with do-it-himself boiseries. (COCA)

(5) a. ?[[PAL N] N]: ?[[‘I can do it myself’ attitude] game]
b. [[N^0 N^0] N^0]: [[Saturday morning] presentation]
c. [[A^0 N^0] N^0]: [[blue sky] thinking]

We capture these observations by treating PALs as a zero-level category and the PAL + Noun construction as an N′ rather than an N^0. That is, we distinguish the external syntax of NN compounds (6) and PAL prenominal modifiers (7).

(6) $[_{\mathbf{N^0}}\, N^0\, N^0]$

(7) $[_{\mathbf{N'}}\, PAL^0\, N]$

Note that we leave the head N underspecified as to its bar level in 7. This is because PALs may modify Nouns with complements, particularly when the head noun identifies a type, as in, for example, *a ‘don’t mess with me’* [*type of driver*].[3]

Beyond their most common use as prenominal modifiers, PALs are occasionally used as head Nouns, predicate Adjectives, or Verbs, as the attested examples in Table 2 illustrate (see also Günther et al. 2020). We return to several of these cases in §5.

HEAD NOUN	Could’ve tried a simple ‘I’m sorry.’ (COCA) my dad pulled the old ‘I’m going to the store for smokes, be back in five’ (COCA) This show is a must see. (COCA)
PREDICATIVE ADJ.	Romney’s slogan should be more ‘I’m nothing like you.’ (COCA)
VERB	[he was] carrying on like a television husband, honey-I’m-home-ing her from the doorway. (Brit Bennett, *The vanishing half*) A: you’re welcome. B: No, don’t ‘you’re welcome’ me. (COCA)

TABLE 2. PAL tokens as head Noun, Adjective, and Verb.

Thus, PALs do not conform to any familiar grammatical category. Since PALs have the external distribution of words, they occasionally appear with added inflection: for example, plural (*-s*) when used in a slot usually reserved for Nouns, or progressive (*-ing*) when used in a slot normally reserved for Verbs (see Table 3 and Verb examples in Table 2).

ATTESTED PALS	MORPHOLOGY
‘his speech abounded in **I told you so’s**’ (Jespersen 1924:96)	plural suffix
Their parents were **do-it-yourself*ers***. (ABC News)	agentive *-er* morphology + plural suffix
few people want to be memorialized **‘um’-*ing***, **‘you know’-*ing***, and **‘remember that time when we got drunk’-*ing*** their way into ignominy. (NYTimes 6/19/15)	verbal gerund morphology

TABLE 3. Examples with lexical morphology applying to PALs as head Nouns or Verbs (in italics).

To summarize, we have argued on the basis of distributional evidence that PALs should be recognized for what they are: phrases that are treated AS IF they were words. The following section strengthens our argument for recognizing this special grammatical category by demonstrating that the unique function of the PAL construction is inextricably linked to its being treated as if it were a word. In particular, we predict that the construction’s unique syntactic properties should imbue it with particular rhetorical functions, which are then confirmed by empirical crowdsourced studies.

[3] In rare cases where an adverb precedes the PAL (e.g. 4), the structure is presumably $[_{N'}\, [_{PAL'}$ adverb $PAL^0]$ N]. However, we follow Culicover and Jackendoff (2005) in leaving syntax as simple as possible and thus eschew nonbranching levels of representation whenever possible.

4. THE FUNCTION OF THE ENGLISH PAL CONSTRUCTION. With rare exceptions, previous accounts of PALs have focused on their syntactic properties, without much attention to their function. One exception is Trips and Kornfilt (2015, following Trips 2012), who observed that PALs used as modifiers in English either characterize a generic type of entity named by the head Noun or serve to identify a specific head Noun referent. However, these observations hold of modifiers generally (e.g. Langacker 2008:321–23; see also Gehrke 2015 for German prenominal participial modifiers). For instance, the parallel functions of Adjective modifiers are illustrated in Table 4. That is, this observation does not capture what is special about the function of PALs.

PAL MODIFIERS	
Characterization of generic type of entity	You don't get to do the **'we never have fun anymore'** thing.
	It can be characterized as a **'here is the structure, you figure out how to use it'** approach
Identification of specific referent	MLK's **'I have a dream'** speech
	the **'I like turtles'** kid
ADJECTIVE MODIFIERS	
Characterization of generic type	A **cold** drink would be a **good** thing.
Identification of specific referent	The **blue** team lost the challenge.
	The **British** team restarted the race.

TABLE 4. General functions of both adjectival and PAL modifiers (examples from COCA).

A second investigation into the function of PALs comes from Meibauer (2007), who documents a comparable construction in German (e.g. 8a) and provides empirical evidence that instances are judged more witty than paraphrases involving relative clauses (e.g. 8b).[4]

(8) German (Meibauer 2007:250, orthographically presented; our glosses)
  a. Kaufe-Ihr-Auto-Kärtchen
     buy.PRS.1SG-2PL.POSS-car-card.DIM
     'I-buy-your-car card'
  b. Kärtchen mit der Aufschrift ‚Kaufe Ihr Auto'
     card.DIM with DEF writing buy.PRS.1SG 2PL.POSS car
     'card with the writing "I buy your car" '

Meibauer's observation that German PALs are more witty than paraphrases is insightful, and the evidence provided is compelling; we demonstrate that the English examples are also judged more witty than paraphrases (§4.4). However, the explanation we offer differs. Meibauer (2007:248) writes that '[e]xpressivity of phrasal compounds stems from a conflict between a principle that requires enrichment of a minimal and underdetermined structure in nominal compounds … and a principle that requires maximal informativity … and leads to the integration of a phrase into word structure'. We interpret this to mean that by opting to use a PAL token rather than an NN compound, the speaker chooses to provide, in a concise way, a more specific description than is possible with a typical NN compound. The wittiness of the PAL construction is then said to follow from a tension between the pragmatic principles of INFORMATIVENESS and QUANTITY.

However, note that close paraphrases of PALs exist that are minimally different in length and convey no less propositional content than PALs (compare 9a–b).

[4] Abbreviations in examples follow the Leipzig glossing rules (https://www.eva.mpg.de/lingua/resources/glossing-rules.php), with the following additions: CM: compound marker, DIM: diminutive.

(9) a. We're at the stage of nationwide collapse where people move to Jersey.
b. We're at the 'people are moving to Jersey' stage of nationwide collapse.

Insofar as informativity and quantity principles are satisfied equally well by 9a and 9b, these principles do not explain why PALs are judged more witty than their paraphrases. In §4.1, we argue instead that the fact that PALs are phrases which have the distribution of words provides the key clue as to why they serve the function they do.

A final proposal comes from an anonymous referee who suggests that the PAL construction be assigned an informal register, and that the differences in interpretation follow from informality. Yet the PAL construction is not informal in being easy to process or restricted to casual contexts. PALs can create unusually long dependency lengths (between the start of the PAL and its head), and dependency length is recognized to increase working-memory demands (Futrell et al. 2020, Hawkins 2003). Moreover, our stimuli are primarily based on written texts. Critically, rather than ASSIGNING increased informality to the construction, our analysis PREDICTS the more specific rhetorical aspects of the PAL construction. Section 4.1 explains our proposal, and empirical evidence is offered in §4.3.

4.1. IMPLICATIONS OF THE LEMMA-LIKE INTERPRETATION. As noted at the outset, we use the term LEMMA to refer to the conceptual meaning associated with an open-class word form (Ferreira & Engelhardt 2006:63, Handke 2012:69). Relational lemmas (e.g. 'walk' or 'speak') do not refer to specific situations that exist in time and space, but rather to SITUATION TYPES (Barwise & Perry 1983) or EVENT KINDS (Gehrke 2015). Critically, for our purposes, in order for a lemma to be used it must be culturally relevant or 'nameworthy' (Mithun 1984; see also Denlinger 2023, Gehrke 2015, Pascual et al. 2013), at least to the subgroup of speakers who use it. As Fillmore (1985) put it, 'meanings are relativized to frames', where a FRAME is defined as an abstraction of a familiar (recurrent, coherent) experience or situation (Fillmore 1975, 1977, Goldberg 1998, 2010, 2016, Lakoff 1987, Petruck 1997). That is, lemmas evoke stable semantic frames, and speakers who evoke a lemma presume that comprehenders are already generally familiar with that semantic frame. We claim, therefore, that by producing a PAL token, the speaker invites the listener to treat the PAL as if the type of situation named by a semantic frame were already familiar and nameworthy: the PAL's meaning is already part of the speaker's and audience's shared common knowledge.

At the same time, the event type named by a PAL is NOT actually named by a word. Particularly in the case of uncommon PALs, the situation depicted is not actually discussed often enough to warrant its own label. Notably, comedians refer to the discussion of situations that are familiar but rarely discussed as OBSERVATIONAL HUMOR. An example of observational humor from Jerry Seinfeld is provided in 10.

(10) Some years ago you were given the option … you want to communicate with another person? you could talk, you could type. Well, once you had that option, well, that took half a *second*, talking lost, talking's *over*! Who wants to talk, oh my god, I gotta *talk*, do I have to *talk* to this person now? Talking is *work*, you have to make facial expressions that go with what you're saying, different hand gestures. You have to suck air in. You have to blow it out. Talking is over, it's obsolete, it's antiquated, I feel like a blacksmith up here sometimes. If you want, I could text you this little thing, we could get the hell outta here. (Jerry Seinfeld discussing smart phones[5])

[5] https://slate.com/culture/2014/02/jerry-seinfeld-on-the-tonight-show-offers-his-own-take-on-smartphones-watch-video.html

Stereotypically, observational humor begins with 'Have you ever noticed?' or 'Did you ever wonder why?' (Double 2013:208–9). These formulations set up the situation as recurrent and familiar to comprehenders, even if it is not. In this way the PAL construction is ideally suited to express observational humor: it presupposes that the type of event or experience expressed is familiar and recognizable to comprehenders even though no word actually names it. PALs are easily decodable, so there is no need for them to actually be familiar to comprehenders.

The act of coining a new word for a familiar situation generally strikes comprehenders as somewhat witty or humorous as long as the word is interpretable in context. This is exemplified by so-called *sniglets*, which are made-up words used to name familiar situations. For instance, a *cinemuck* has been said to describe 'the combination of popcorn, soda, and melted chocolate which covers the floors of movie theaters' (Hall 1984); *snaglet* was coined to describe the type of word that is believed to be newly coined but which already in fact exists (Atkinson & Longman 1985:104); a *boastion* could be a lengthy description of one's own work in lieu of asking a question. As in the case of PALs, sniglets can be used for observational humor whenever they name a situation that is familiar but not regularly discussed.

Since PALs are easily interpretable, given that they rely on the regular constructions of English, speakers can exploit the PAL construction by expressing a type of situation or event that is in reality unlikely, seemingly random, idiosyncratic, or even bizarre, as is illustrated by the example in 11, uttered by comedian Stephen Colbert.

(11) Meanwhile, in 'Salma Hayek's owl coughed a rat hairball on Harry Styles' news … (Colbert, 6/18/21)

In 11, Colbert treats the event of the actress's owl coughing up rat hairballs on the singer-songwriter AS IF it were familiar enough to be a lemma named by a word. This type of case, in which the situation is not in reality at all familiar but is treated as if it were, exemplifies Keller's (1994:97ff.) observation that people at least sometimes aim to 'talk in such a way that you are noticed'. Sanchez-Stockhammer and Uhrig (2023) memorably discuss British 'drunkonyms'—someone at a pub may be *totally gazeboed* or *utterly pajamaed*. They observe that new terms can be coined in a suitable context to describe a state of drunkenness, regardless of the typical meaning of the filler word. For other relevant discussions of playful or 'extravagant' language use see Bergs 2018, Eitelmann & Haumann 2022, Haspelmath 1999:1055, Hoffmann 2022, and Ungerer & Hartmann 2020.

To summarize, we argue that since PALs are phrases in a position normally reserved for words, they invite comprehenders to assume that the PAL token expresses a lemma-like meaning: a recurrent situation that the comprehender is expected to recognize. This in turn requires that the comprehender already be familiar with the type of situation depicted by the PAL. This is the sense in which PALs presuppose that listeners or readers share common knowledge with the speaker. Insofar as greater common knowledge between speaker and comprehender implies greater intimacy or familiarity, it may be that PALs would be judged as more informal than near paraphrases, as an anonymous referee suggested. Importantly, however, we are not stipulating greater common knowledge: it follows from the fact that the situation is treated as if it were a familiar word. Before we turn to the empirical studies, we briefly explain the motivation for and functional effect of PALs that are quotes.

4.2. PALs ARE OFTEN QUOTES. PALs very often have grammatical features associated with quoted speech (Göksel 2015, Jespersen 1924, Trips & Kornfilt 2017a:3, Meibauer

2007:240, Pafel 2017, Pascual et al. 2013, Wiese 1996:188). In fact, PALs are often delimited in writing by quotation marks, thus bearing the typographical signature of quotes. Like other quotes, PALs can include imperative verb forms, terms of address, or first- and second-person pronouns (*you*, *me*) without referring to the speaker or comprehender, as in examples 12a–c.

(12) a. The 'I got you' line (COCA)
b. her don't-mess-with-me stance (COCA)
c. A hey do-you-remember-me type text (COCA)

Quotes can be powerful. They provide an effective way of identifying or characterizing the content of political movements (e.g. *fight racism*), familiar situations (e.g. *it's not you, it's me*), attitudes (e.g. *life is good*), or types of people (e.g. *don't mess with me*). The fact that a well-chosen quote can evoke so much is why quotes are used as bumper stickers, worn on T-shirts, included in email signature lines, written in greeting cards, and also used in the PAL construction.

In a classic article on the general function of quotes, Clark and Gerrig (1990) observe that quoted speech is a demonstration of the way someone talks or thinks. Therefore, quotes can be used to imitate a person or type of attitude for the purpose of characterizing them (1990:765). Speakers may change the quality of their voice or physically adopt a pose as if to portray the type of person who might produce the quote. This then makes quotes a useful way to depict a type of speech, speaker, or attitude.

As is true for quotes generally, quotes used in the PAL construction need not have been uttered. For instance, 13a does not imply that anyone has uttered the archaic phrase *woe is me*. Similarly, it is not necessary to assume anyone explicitly utters *blame the victim* (as in 13b) or *greed is good* (as in 13c). Instead, quotes are common in the PAL construction because they are a handy way to characterize or caricature a type of person or attitude. Because caricatures are commonly pejorative or sarcastic, we further predict that PALs should lend themselves to a sarcastic interpretation.

(13) a. a 'woe is me' approach (COCA)
b. another blame the victim attitude (COCA)
c. the greed is good mentality (COCA)

Not all PALs are even hypothetical quotes, as those in 13a–c might be described to be. For instance, 14a does not indicate that anyone made a statement, but instead characterizes the type of dire situation that leads people to move to New Jersey, of all places. Similarly, 14b does not suggest that anyone said 'paint by numbers', despite the quotation marks; it instead depicts a process that is rote rather than creative.

(14) a. people-are-moving-to-Jersey stage of nationwide collapse (Twitter)
b. the process would … yield some kind of 'paint by numbers' feel to the finished work (COCA)

4.3. Empirical evidence for semantic claims. In §4.1 we claimed that instances of the PAL construction imply that PALs are treated as if they were words, with lemma-like meanings. Lemmas in turn presuppose familiarity with the semantic frame depicted. Here we test an implication of this idea, namely, that a sentence containing a PAL should imply that the speaker shares more common knowledge with the comprehender than a sentence that conveys the same content without a PAL. We also observed that PALs lend themselves to describing recognizable situations that are not actually often talked about: the definition of observational humor. This predicts that PALs should tend to be judged more witty than close paraphrases. Finally, we observed that clausal PALs are most often quotes because quotes generally can be used to characterize, identify,

or CARICATURE a type of person or attitude; this predicts that PALs should tend to be interpreted as more sarcastic than close paraphrases.

We test these hypotheses in three separate surveys. The first survey included two versions.

1. Common knowledge surveys:
   a. Do PALs presuppose more common knowledge between speaker and listener/reader than paraphrases?
   b. Do PALs indicate more 'shared background' with the listener/reader than paraphrases?
2. Wittiness: Are PALs judged more witty than paraphrases?
3. Sarcasm: Are PALs judged more sarcastic than paraphrases?

Rather than attempting to define the common language terms *common knowledge*, *wittiness*, and *sarcasm*, we operationalized them by asking independent groups of naive English speakers to make judgments based on their own interpretations (see §4.4). But first we normed the stimuli as follows.

NORMING THE STIMULI PAIRS ON SEMANTIC SIMILARITY; ESTIMATING FREQUENCIES OF PALS. The 100 sentence pairs used as stimuli in the main surveys were carefully constructed and normed so that the PAL sentences were confirmed to be highly similar in content to their paraphrases. Moreover, the same exact phrase used as a PAL was included in sixty-four of the 100 paraphrases (but not as a PAL); and forty of the paraphrases included the same quoted phrase (as a complement of a verb rather than as a PAL). These binary factors were also included in analyses, as preregistered (details below). We also estimated the (log) frequencies of each PAL phrase using the billion-word COCA corpus.

PARTICIPANTS. A total of 187 English speakers were recruited from the crowdsourcing platform Prolific (M age = 40.1). Seventy-nine participants were male, 105 female, and three nonbinary. No participants were excluded.

PROCEDURE. One hundred and five PAL sentences were created, inspired by naturally occurring sentences containing PALs in the COCA corpus (Davies 2008–), with a range of frequencies. A paraphrase of each sentence was constructed with the intention of expressing nearly synonymous content. The initial set of sentence pairs was randomly divided into seven lists of fifteen potential stimuli pairs plus twelve fillers. Each participant saw one list and was asked how semantically similar each pair of sentences was, using a sliding scale from 0 to 100. The semantically similar filler pairs were then used to test whether the target pairs were highly semantically similar, as intended.

FILLER PAIRS. The total set of twelve filler pairs is provided in Table 5. They included six sentence pairs that involve standard alternations or other nearly synonymous sentences. Another six sentence pairs were intended to have quite distinct meanings.

RESULTS. Judgments on filler pairs conformed to our expectations: nearly synonymous fillers were judged highly similar (M = 93.0); low-similarity fillers were judged to be dissimilar (M = 28.7). The five least-similar pairs of potential target stimuli were removed since the goal was to include highly similar pairs. The target stimuli pairs were rated on average 90.4 (CI [63.2, 98.3]). A linear mixed model with similarity as the output variable and target items as the reference level was used, with random intercepts for subjects and items, and results show that the target pairs were not less similar than the nearly synonymous filler pairs ($\beta = 2.60$, $p = 0.496$) and were far higher in similarity than the low-similarity fillers ($\beta = -61.71$, $p < 0.0001$). Mean similarity ratings, centered to avoid collinearity, were included in all analyses, as preregistered.

Intended to be highly semantically SIMILAR *M* = 93.0	Bruce gave him three pieces of blueberry pie.	Bruce gave three pieces of blueberry pie to him.
	Emily loaded the truck with precious cargo.	Emily loaded precious cargo onto the truck.
	The tree was struck by a huge lightning bolt.	A huge lightning bolt struck the tree.
	It was nice of Daisy to save water.	It was good of Daisy to save water.
	Juan drove her crazy.	Juan drove her insane.
	Keisha noticed a child who was asleep.	Keisha noticed a sleeping child.
	Sophia, a brilliant journalist, unlocked the secrets of a mysterious murder.	Sophia, a brilliant scientist, unlocked the secrets of a mysterious disease.
Intended to be very semantically DIFFERENT *M* = 28.7	The Enchanted Reef, a mystical underwater wonderland, captures the imagination of all who visit.	The Enchanted Reef, a magical amusement park, costs a fortune.
	The Enigmatic Portrait, a masterpiece by a reviled politician, evokes scorn and dismissiveness.	The Enigmatic Portrait, a masterpiece by a reclusive artist, evokes intrigue and fascination.
	The Evergreen Jungle, a biodiversity hotspot, teems with life and natural wonders.	The Evergreen Jungle, a biodiversity hotspot, teemed with life and natural wonders before development took over.
	Lily is a talented pianist who mesmerizes audiences with her music.	Lily is a talented actor who captivates audiences with her performances.
	Everest Summit, an awe-inspiring peak, challenges adventurers to conquer its heights.	Tippy Summit, an awe-inspiring peak, challenges beginner climbers who try to scale its walls.

TABLE 5. Filler sentences provided to all participants included six nearly synonymous pairs and six clearly semantically distinct pairs, presented in randomized order. Mean similarity ratings on a scale of 1–100 are provided in the left-hand column.

ESTIMATING LOG FREQUENCIES OF PALS USED AS PALS. We performed searches of the billion-word COCA corpus (Davies 2008–) on August 22, 2023, using the interface provided online. To estimate instances of phrases used as lemmas, we searched for the phrase with and without quotes followed by a Noun. We then filtered results by hand to remove instances that were not PALs. For example, when searching for the PAL phrase, *'it only takes one' NOUN* and *it only takes one NOUN*, the latter search returned *it only takes one person to*, which is not a PAL and so was excluded. We included estimated log frequencies of each PAL used as a PAL in all analyses.

4.4. PREREGISTERED STUDIES 1–3: COMMON KNOWLEDGE, WITTINESS, SARCASM.

PREREGISTRATION. Hypotheses, experimental design, number of participants, recruitment method, exclusion criteria, and planned analyses were preregistered at https://aspredicted.org/ (see appendix §A1). Preregistration for the first three studies and all items, data, and analyses for these surveys are available at https://researchbox.org/3143.

PARTICIPANTS. We recruited 700 adult English speakers from Prolific. Surveys each began with two catch trials, neither of which included a PAL construction. Participants were excluded from the study for failing either one, which left a total of 685 participants (*M* age = 38.4; 308 male, 359 female, fifteen nonbinary, three preferred not to say). Each participant took part in a single survey.

PROCEDURE. Surveys asked separate groups of participants to perform a two-alternative forced-choice task in which they chose whether a sentence containing a PAL construction or a close paraphrase that did not contain a PAL (1a) implied that the speaker assumed more 'common knowledge' (1b) or shared more 'shared background', (2) was more 'witty (or clever)', or (3) was 'more sarcastic'. One hundred stimulus pairs were divided pseudorandomly into ten lists of ten experimental and twelve filler trials apiece. Each list included PALs that appeared in COCA as PALs, with a range of raw frequencies from one to 200+ occurrences. One stimulus was removed from analysis for accidentally including a PAL phrase in the paraphrase. Example trials in two of the surveys are provided in Figure 1.

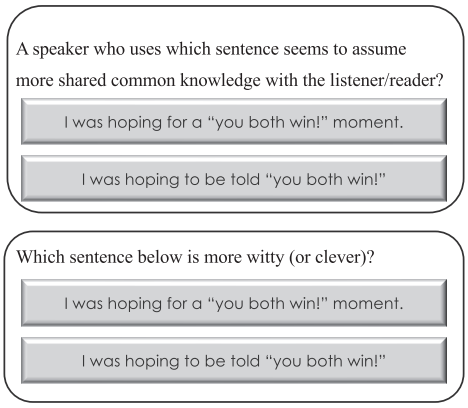

FIGURE 1. Sample stimulus in common knowledge (top) and wittiness (bottom) surveys.

STIMULI. Table 6 includes ten sentence pairs used in one of the ten lists, each of which contained PALs with a range of estimated frequencies.

SENTENCE WITH PAL CONSTRUCTION	PARAPHRASE WITHOUT A PAL
It's a pleasure to have a friend with a 'can do' attitude.	It's a pleasure to have a friend with a positive attitude.
Stay in your seats until the 'fasten seat belt' sign has turned off.	Stay in your seats until you see that the sign to fasten your seat belts has turned off.
They started a 'blame the media' campaign.	They started a campaign to blame the media.
Few employees have a 'do all this extra work because it's good for the company' attitude.	Few employees have an attitude that you should do all this extra work because it's good for the company.
Keisha was annoyed to get an 'alignment failed' message.	Keisha was annoyed to get a message that said 'alignment failed.'
The proud father posted another 'Noah sleeping' moment.	The proud father posted another moment showing Noah sleeping.
Principal Snyder seemed to make a 'let's expel the troublemaker' campaign.	Principal Snyder seemed to make a campaign to expel the troublemaker.
Taylor, no one else has a 'Kiss the Gardener' sign.	Taylor, no one else has a sign that says 'Kiss the Gardener.'
She criticized the 'guess what I was thinking' line.	She criticized the line that said 'guess what I was thinking.'
Seth's father often uses the 'it only takes one!' line.	The line Seth's father often cited was 'it only takes one!'

TABLE 6. Sample full list of stimuli pairs used in the common knowledge, wittiness, and sarcasm surveys. This is one of ten such lists that were randomly assigned to participants; each was presented in randomized order.

Factors. The dependent variable of interest was the proportion of PAL sentences chosen over the paraphrases. As preregistered, all analyses include the following fixed factors: mean similarity rating for each target sentence pair as determined by the norming study (§4.3); the log frequency of each PAL phrase appearing in the billion-word COCA corpus of American English as a PAL phrase (Davies 2008–) (M = 0.64, CI [1, 3.38]) (§4.3); the length in words of each PAL phrase (M = 4.15, CI [2, 11]); whether the paraphrase as well as the PAL sentence included a quote; and whether the phrase used as a PAL was included in the non-PAL sentence in identical form. As preregistered, random intercepts were included for participants and items. Participant slopes are not relevant since each person witnessed only one survey. The order of stimuli presentation was randomized for each participant, and the order of presentation of each sentence within a pair also varied randomly.

Results. The percentage of each of the 100 PAL sentences judged to imply more common knowledge with the comprehender, to be more witty, and to be more sarcastic by participants is represented in Figure 2. The bias toward selecting PAL sentences over their paraphrases is clear in each survey, and for nearly every item.

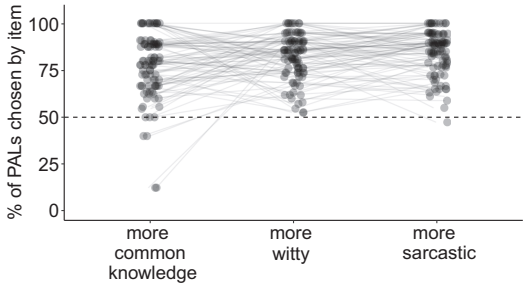

Figure 2. Mean percentage of participants who selected the PAL-sentence over its paraphrase for each of 99 items on each of the separate surveys. Lines connect the same item across surveys.

Generalized linear mixed models were constructed, with choice (PAL or paraphrase) as the output and bias toward choosing PALs quantified by the intercept. Predicted results were confirmed by independent groups of participants:

1. a. Sentences containing PALs implied that the speaker and listener shared more common knowledge (M = 77.3%, $\beta = 1.69$, $z = 4.80$, $p < 0.0001$).
   b. A separate survey used the wording 'shared background' and found an effect of similar magnitude (M = 74.3%, $\beta = 1.78$, $z = 4.62$, $p < 0.001$).
2. Sentences containing PALs were judged to be wittier than their paraphrases (M = 82.2%, $\beta = 2.58$, $z = 8.48$, $p < 0.001$).
3. Sentences containing PALs were judged to be more sarcastic than their paraphrases (M = 84.5%, $\beta = 2.71$, $z = 8.54$, $p < 0.001$).

No significant influence on responses was found for semantic similarity or whether the PAL and its paraphrase contained the identical phrase, nor for the estimated log frequencies of the PAL phrases. PALs were slightly less easily distinguished from paraphrases when the paraphrase as well as the PAL included a quote (i.e. quoted speech, not as a PAL). When the paraphrase included a quote, there was a significant negative effect on the choice of PALs in the wittiness and sarcasm surveys (wittiness: $\beta = -0.85$, $z = -3.60$, $p < 0.001$; sarcasm: $\beta = -0.75$, $z = -3.05$, $p = 0.002$), and a significant positive effect on the shared common knowledge survey ($\beta = 1.06$, $z = 3.77$, $p < 0.001$). Model

outputs that include all fixed and random factors for each of these surveys are provided in appendix §A1 (Table A1).

Exploratory analyses investigated potential correlations among the three surveys. Since the surveys that asked about an increase in common knowledge or shared background were intended to operationalize the same thing, it is reassuring that their results were highly correlated ($r = 0.62$, $p < 0.00001$). How likely a PAL item was to be judged more witty also correlated with how likely it was to be judged more sarcastic ($r = 0.46$, $p < 0.0001$). A smaller but significant correlation was also found between how likely an item was judged to imply more common knowledge and to be more witty ($r = 0.24$, $p < 0.02$). No significant correlation was evident between an item implying more common knowledge and being interpreted as more sarcastic ($r = 0.14$, $p = 0.14$).

Study 4: effect is robust to frequency of PAL phrases. To determine whether the lack of evidence for a frequency effect was due to the fact that we had included relatively few high-frequency PAL phrases in each list, we created a single new list that included only high-frequency PAL phrases (log frequencies > 2.0): *anything goes*, *all you can eat*, *can do*, *do it yourself*, *do not disturb*, *must win*, *must do*, *must read*, *must see*, *pay as you go*, *wait and see*, *know it all*, *trickle-down*. This smaller survey included the same procedure and analyses of responses as the previous studies. Preregistration of the study and all items, data, and analyses are available at https://researchbox.org/2109. It was run on a new group of seventy English speakers on Prolific. All details are provided in appendix §A2, including full models (Table A2). Once again, results demonstrate a significant bias toward selecting the PAL sentence over the paraphrase in each survey, of roughly the same size as when the high-frequency items were interspersed among relatively more novel PAL tokens. That is, PAL sentences imply more common knowledge between interlocutors even for PAL phrases likely familiar to all speakers ($M = 72.88\%$, $\beta = 1.53$, $z = 2.85$, $p = 0.004$). And even though commonly used PALs are not obviously witty or sarcastic, they were judged to be slightly more witty and sarcastic than close paraphrases: wittiness: $M = 79.81$, $\beta = 2.34$, $z = 3.49$, $p < 0.001$; sarcasm: $M = 84.46$, $\beta = 3.91$, $z = 5.06$, $p < 0.0001$.

Discussion. Results patterned as predicted by the observation that PALs appear in the position of a word, which has lemma-like meanings: English speakers find sentences containing PALs to imply more common knowledge with the comprehender than close paraphrases do. This is not easily attributed to differences in content because the sentence pairs had been separately normed and found to be as similar in content as classic alternations and other near paraphrases; moreover, judgments revealed no influence of the variation in similarity between item pairs, not even from whether the same exact phrase was used in the PAL sentence and its paraphrase. Instead, we attribute the increased perceived common knowledge to the fact that the situation is depicted by a sentence that is treated as if it were a word and that, again, the meaning of a word—its lemma—is presumed to depict a situation that is familiar to the addressee.

As predicted on the basis of the idea that there is humor in the discussion of familiar situations that are not commonly discussed, PALs were separately judged to be significantly more witty than their paraphrases and more sarcastic. Finally, we found that when both the PAL sentence and its paraphrase included quoted speech, participants found it slightly harder to distinguish which one was more sarcastic. This makes sense once we keep in mind that quotes are commonly used to mimic or caricature speech; that is, both the quote and the PAL could be interpreted as sarcastic.

The (log) frequency of the PAL phrase in corpora did not have a significant effect in any of the studies. In the first three studies, each participant judged only one or two

high-frequency PALs, which appeared more than 100 times as PALs in the billion-word COCA corpus. Each participant judged four or five PALs that were novel, appearing only once as PALs; the other three to five PALs were estimated to appear between one and 100 times in COCA. A fourth study checked whether the lack of evidence for a frequency effect was due to the fact that relatively few high-frequency PALs were included as stimuli. For this study, we reran the same surveys on a single list of items that included only the fourteen highest-frequency PALs (e.g. *all you can eat*, *can do*, *trickle-down*, *do it yourself*). Results replicated the significant bias toward selecting the PAL sentence over the paraphrase in each of the surveys. That is, PAL sentences imply more common knowledge between interlocutors even when the PAL phrase is likely familiar to all speakers. And even though commonly used PALs are not obviously witty or sarcastic, they were judged to be slightly more witty and sarcastic than close paraphrases.

5. SUBREGULARITIES OF THE PAL CONSTRUCTION. As observed in §3, not all PAL tokens occur as modifiers of Nouns. At the same time, corpus searches of the COCA corpus revealed relatively few other types of PALs. This may be because it is quite difficult to search for the other uses of PALs (Hein 2017, Trips 2012), or it may be that the parses on which the COCA corpus interface relies do not treat PALs systematically, which could make our searches inaccurate. Nonetheless, our searches identified several remarkably narrow subtypes of PALs, which are characterized on the left side of Table 7. If speakers are in fact sensitive to such narrowly delimited types of examples, it would require us to recognize that they are included as part of speakers' knowledge of English.[6]

HYPOTHESIZED TO BE CONVENTIONAL SUBTYPES (INSTANCES)	MINIMALLY DIFFERENT INSTANCES
***must*-VERB:**	
must-purchase, must-go, must-keep, must-cook, must-happen, must-fix, must-check, must-travel, must-hike e.g. It definitely makes our must-hike list!	should-purchase, should-check, ought-to-keep, have-to-cook, have-to-fix, can-happen, might-interview, can-travel, might-go, ought-to-hike e.g. It definitely makes our should-hike list!
***a simple* <PAL>** e.g. A simple 'I would love to, but I'm busy that night' more than suffices.	*a short/sweet/winning/basic/brief* <PAL> e.g. A short 'I would love to, but I'm busy that night' more than suffices.
***Don't* $\mathbf{PAL_{quote}}$ *me*:** PAL is a direct quote from the immediately preceding context used as a transitive verb in an interdiction context, e.g.: A: And there it is. B: Don't 'there it is' me, buddy.	Same quote but in non-interdiction context; or similar meaning but not a direct quote, e.g.: A: And there it is. B: I heard you 'there it is' me, buddy.
***the old* <PAL> N** e.g. Dredging up the old 'you guys do it too' defense is the weakest form of deflection.	*the tired/familiar/annoying/classic/big* <PAL> N e.g. Dredging up the tired 'you guys do it too' defense is the weakest form of deflection.

TABLE 7. Narrowly defined subtypes and paraphrases hypothesized to be conventional. Each participant saw a single instance of each type (four items) and was asked to decide which was more natural.

[6] An anonymous referee suggested a paper by Finkbeiner and Meibauer (2016) that analyzes another productive subcase in German, which also exists in English, in which a clause is inserted between first and last names, as in *Muhammad 'float like a butterfly' Ali*.

To determine whether speakers are implicitly aware of the four narrowly defined subtypes depicted in Table 7, we preregistered and administered a final two-alternative forced-choice survey to determine whether instances of these subtypes were judged more NATURAL in comparison to minimally different instances that did not conform to the narrow subtypes. The minimally different versions are depicted on the right side of Table 7.

Importantly, in this survey, none of the PAL tokens were themselves common. For instance, *must*-VERB is frequently instantiated by *must-read*, *must-see*, and *must-win*, so none of these examples was included, because we assume that English users are familiar with frequent tokens. Each *must*-VERB instance appeared no more than ten times in the billion-word COCA corpus, and most did not appear even once.

PARTICIPANTS. A new group of eighty adult native English speakers was recruited from Prolific. Two catch trials were included, and participants were excluded if they failed either one. After removing one additional participant on the basis of implausible age, seventy-four participants remained (*M* age = 39.12; thirty-eight male, thirty-six female).

STIMULI. Each instance of what we hypothesized to be a conventional subtype was paired with a minimally different novel sentence that, by hypothesis, included a nonconventional instance of the PAL construction. Ten stimuli pairs for each subtype were created. Preregistration, data, and code for this study are available at https://researchbox.org/2109.

PROCEDURE. To avoid priming effects within the experiment, each participant saw only a single instance of each hypothesized-to-be-conventional subtype paired with its minimally different PAL sentence (see von der Malsburg et al. 2020 for motivation for single-trial studies).

FACTORS. The dependent variable of interest is which sentence is judged more natural, when a choice is provided between two PAL sentences, where only one was hypothesized to be a productive instance of a conventional subtype. With the exception of the PAL-as-Verb subtype, each pair of sentences differed by at most one word, which was intended to be similar and appropriate in context: log frequencies of the words that differed were estimated based on searches for those single words in isolation within the COCA corpus. We included the differences in log frequency between the two words as a fixed effect for the three narrow types that included this information. In the case of PAL-as-Verb type, the foils differed from the conventional cases by either not quoting from the immediately preceding context or using a preceding quote but in a noninterdiction context. In order to follow the preregistered analysis, we treated the difference in log frequencies as zero for these cases. Random intercepts for items and participants were included.

RESULTS. As is evident in Figure 3, participants in fact demonstrated a bias toward choosing instances of each of the PAL subtypes, hypothesized to be conventional, as being more natural (86.09%).

The preregistered generalized linear model confirmed the overall bias ($\beta = 2.28$, $z = 6.09$, $p < 0.0001$), and the tendency to choose the hypothesized subtypes as more natural held for each of the four narrowly defined subtypes, considered independently (see appendix §A3, Tables A4–A7 for full models). The frequency differences between the words used in the conventional and nonconventional terms (e.g. *must* vs. *should*; *simple* vs. *short*; *old* vs. *tired*) showed no significant effect on whether participants considered the instances of conventional subtypes to be more natural.

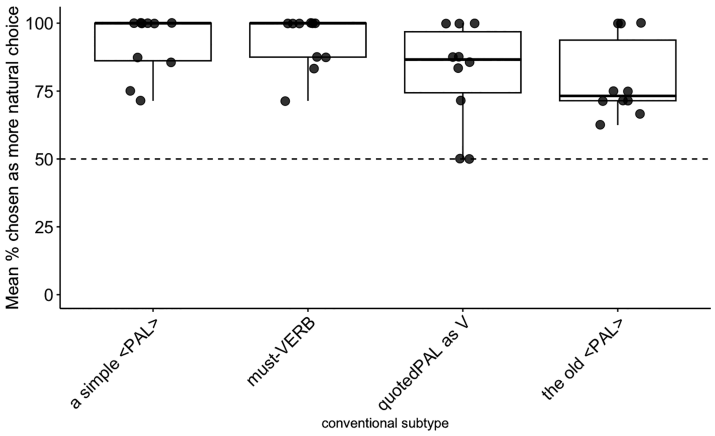

FIGURE 3. Participants recognized each of four narrowly defined subcases used with novel PALs as more natural than paraphrases.

6. THEORETICAL IMPLICATIONS. Usage-based constructionist approaches are in principle well suited to account for the PAL construction (Bagasheva 2017, Finkbeiner & Meibauer 2016, Hein 2017, Trips 2012), because lexical and grammatical constructions are treated as the same basic type of entity. That is, words, partially filled words (a.k.a. morphemes), collocations, lexically filled idioms, and partially filled idioms are all CONSTRUCTIONS, as are more traditional grammatical constructions including verb phrases, conjoined phrases, conditionals, relative clauses, and questions. In addition, certain constructions are already recognized to combine certain properties that are typical of morphology and other properties that are typical of phrases; these include, for instance, a wide range of complex predicates and multiword idioms and collocations (Ackerman & Nikolaeva 2014, Booij 2002, Bresnan 2021, Desagulier 2016, Family 2006, Goldberg 2003:220, 2006:5, Hilpert 2015, Jackendoff & Audring 2020, Traugott & Trousdale 2013:182–90).

According to the constructionist perspective, both words and phrasal constructions can be morphologically fixed, but they often instead contain open 'slots', to be filled by other constructions, which may themselves contain open slots. This inclusive definition of *construction* encompasses any learned pairing of form and function, regardless of its degree of complexity or level of abstraction (Goldberg 2003:220, 2006:5). A few examples illustrating multiple levels of abstraction for the English Noun-Noun compound and PAL constructions are provided in Table 8.

	NOUN COMPOUNDS	PALs
LEXICALLY SPECIFIED	veggie-wrap	must-read
	cheeseburger	can-do attitude
PARTIALLY OPEN	N-wrap	a simple <PAL>
	N-burger	the old <PAL> N
FULLY OPEN AND ABSTRACT	$[_{N0}\ N^0\ N^0]$	$[_{N'}\ PAL^0\ N]$

TABLE 8. Examples of English words and phrases that vary in degree of abstraction.

The usage-based constructionist approach captures linguistic knowledge in a CONSTRUCTIONNET (or CONSTRUCTICON), thereby massively extending the familiar lexicon,

which is already recognized in most linguistic frameworks to require a high-dimensional network (e.g. Aitchison 2012). In principle, the current analysis is translatable into other frameworks, particularly if the following points are recognized:

(i) A new type of grammatical category is required (a PAL), which has the distribution of a word but the internal syntax of a phrase or quote, including potentially a full sentence (§3).
(ii) PALs are construed as describing situations or attitudes that are familiar to the listener, as is true of lemmas, while designating situations that may not be regularly discussed, as is true of (novel) phrases (§4).
(iii) Grammatical categories (specifically PALs) can have distinct rhetorical functions such as being wittier or more sarcastic than paraphrases (§4).
(iv) Some means is needed to capture conventional instances and multiple related but distinct conventional subregularities of English PALs, in addition to their most common use as prenominal modifiers (§5).

Analyses of the English PAL constructions that include these four points would capture both the form of the English PAL construction and its function. If, in addition, form and function are related directly, rather than treated as independent modules, such an analysis would offer a notational variant of a constructionist analysis. That is, by positing a special pairing of form and function to account for PALs, the proposal would acknowledge that a PAL construction is required, which is what we advocate. Importantly, by acknowledging its unusual syntax directly, we have been able to explain why it has the special functional properties it does, rather than simply stipulating those properties. That is, any approach that fails to recognize that PALs are treated as if they were words while not actually being words misses the chance to explain rather than merely stipulate the interpretation of the construction reviewed in §4.

Notice that the first point above, (i), is incompatible with a strict division between the lexicon and syntax (see Bruening 2018 for discussion). For instance, if PAL tokens were generated syntactically and then entered into the lexicon before being reintroduced into the syntax, as depicted in Figure 4, the procedure indicated by the arrow at the bottom of Fig. 4 would violate the claim that syntax cannot 'feed' word-level processes (the 'level ordering constraint': Kiparsky 1983, Pinker 1999; for discussion see Booij 2009, Lieber 1992, Trips & Kornfilt 2017a). The constructionist approach presumes that words and grammatical constructions are accessed in parallel, so there is no reason to assume one systematically precedes the other.

We have seen that PALs differ in their distribution from Nouns or Adjectives. If one were determined to avoid positing a PAL modification construction along with the handful of narrowly defined related subtypes, one would need to instead posit multiple special zero-level heads or half a dozen lexical rules or unrelated constructions, thereby missing an important generalization.

To account for its use as a prenominal modifier, we propose the prenominal PAL construction depicted in the center of Figure 5. This construction is related to both the English compound and modifier constructions, sharing properties with each. The thinner outline indicates that the PAL construction is less frequent than either of these other constructions with which it shares aspects of its form (prenominal position) and its nominal modification function (Barlow & Kemmer 2000:10). By representing the PAL as a zero-level category and the prenominal modifier PAL construction as an N′, we capture the combinatorial properties observed in §3. Also included in Fig. 5 are the narrowly

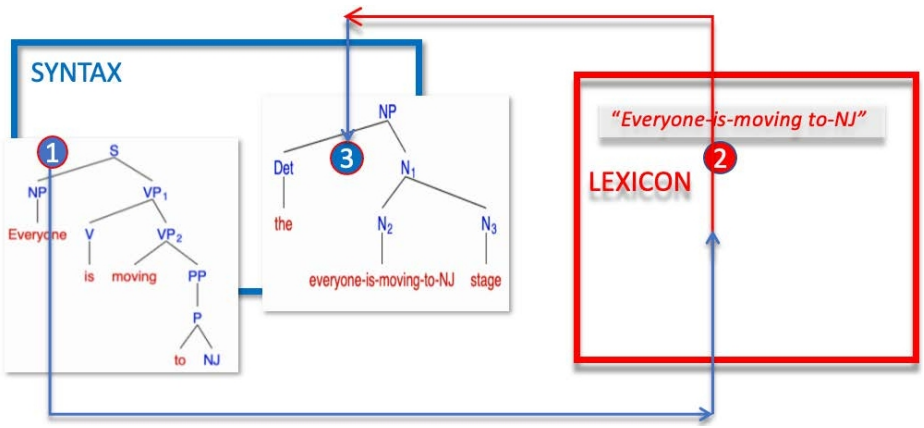

Figure 4. PALs violate the claim of 'level ordering': the idea that syntax cannot provide input to words (indicated by bottom arrow).

defined conventional PAL constructions confirmed in the conventionality survey (study 5). A few familiar tokens are represented as well (e.g. *do-it-yourself*, *know-it-all*), while many more are omitted for the sake of readability.

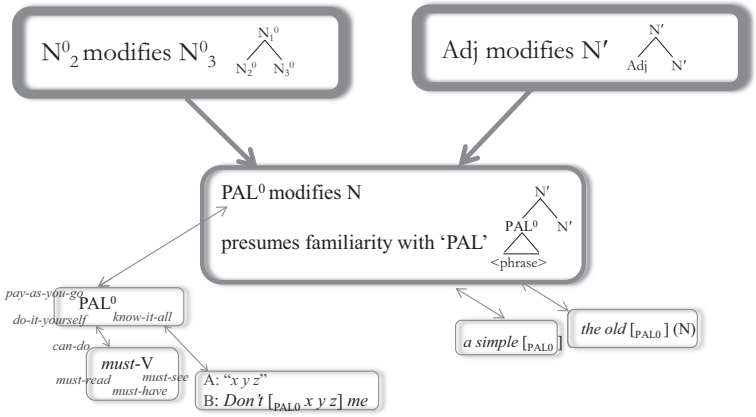

Figure 5. A usage-based network of English constructions, with the prototypical PAL construction in the center, partially sharing ('inheriting') information from both the NN compound construction and the Adjectival modification construction. Several other productive PAL constructions are also displayed (study 5). Arrows are motivation and (normal mode) inheritance links.

Memory is cheap, while computation requires time and resources. Humans have a vast memory for quite specific information about language, including relative frequency information and complex semantic information (e.g. Goldberg 2019:Ch. 1). Moreover, nearly all generalizations have exceptions both in language and in life. To represent information about related constructions that may specify conflicting information, we make use of normal mode (or 'default') inheritance (Diessel 2023:6–9, Flickinger et al. 1985, Goldberg 1995). Conflicts are addressed by the inheriting construction, which specifies its own constraints. In this way, normal mode inheritance captures

relationships among conventional constructions (Croft & Cruse 2004, Desagulier 2016). It is akin to Jackendoff's (1975) 'redundancy rules', which were used to fully specify related but distinct information in the representations of verbs. Importantly, normal mode inheritance is crucially different from COMPLETE inheritance, which requires that ALL information from mother nodes be inherited by daughter nodes (Flickinger et al. 1985, Müller 2010, 2023). Complete inheritance is essentially a device used to capture exceptionless generalizations and avoid redundancy. It is unsuitable whenever a node is allowed more than a single mother, since specifications in two mother nodes may conflict with one another. It is also not appropriate for capturing relationships between a more general and more specific instance whenever there are any conflicts between the daughter node and its mother. By contrast, normal inheritance can capture the idea that constructions are not listed but emerge as generalizations within a network of partially overlapping representations, which MOTIVATE one another (Goldberg 1995:73–81).[7]

We argue that the function of the English PAL construction is motivated by its form. In particular, by treating a phrase as if it were a simple word, the construction encourages listeners to treat the phrase as if it had the meaning of a lemma: a situation or entity that is 'nameworthy' and presumed familiar to both speaker and addressee. That is, the function of the construction is NOT a tacked-on stipulation.

We clarify the relationships indicated in Fig. 5 from top to bottom. Both compounds and Adj + N modification constructions motivate the PAL N construction, in that the PAL N construction shares properties with each of these more frequent constructions. Specifically, it shares with both a prenominal slot for the modifier. Like the compound construction, the PAL N construction forms a tight semantic and phonological unit: stress typically falls within the PAL, rather than the head N, echoing the stress pattern typical of compounds. However, like Adj + N combinations, the PAL N construction cannot be recursively embedded within another PAL N construction.

As presumed by most previous work, PALs prototypically appear as modifiers of Ns. A few familiar phrases are provided (*know it all*, *do it yourself*, *pay as you go*) to exemplify the existence of certain high-frequency instances. Finally, as was demonstrated in §4.3, there exist certain productive subregularities, including PALs introduced by *a simple*, *the old*, and the cluster of semiproductive PALs consisting of *must* + Verb.

7. COMPARABLE PAL CONSTRUCTIONS IN OTHER LANGUAGES. We have defined PALs as phrases that are treated as if they were words and argued that this is why they are assigned lemma-like meanings. By characterizing PALs this way, we avoid reference to any specific grammatical property of English or other Germanic languages, facilitating the identification of comparable constructions crosslinguistically (see Croft 2016, Haspelmath 2010, 2016, Himmelmann 2022 for discussion). Indeed, comparable constructions have been reported in Turkish (Trips & Kornfilt 2015) as well as in other West Germanic languages, including German, Dutch, and Afrikaans (Hein 2017, Trips & Kornfilt 2015, Meibauer 2007), as illustrated in 15a–c. As is the case in English, each of these languages offers distinct, more frequent relative-clause and complement-clause constructions (e.g. Göksel 2015, Kornfilt & Vinokurova 2017), while PALs are used in a constructional slot usually reserved for open-class zero-level modifiers such

[7] Paraphrasing Saussure (2009 [1959]:157), the form of the word *nineteen* is neither fully predictable nor arbitrary but is instead MOTIVATED. It is not predictable because English could have adopted a different base system for numbers, or an arbitrary term such as *nizzle* could have been used (cf. *eleven*). Yet *nineteen* is far from arbitrary, given the terms for *thirteen* to *eighteen*.

as nouns, resembling compounds. The similarity to compounds is indicated in Turkish by the compound marker affixed to the head noun.

(15) a. Dutch (Germanic; Meibauer 2007:235, orthographically presented; our glosses)
lach of ik schiet humor
laugh.IMP or 1SG shoot.PRS.SG humor
'laugh-or-I-shoot humor'

b. Afrikaans (Germanic; Meibauer 2007:235, orthographically presented; our glosses)
God is dod theologie
god COP.PRS.3SG dead theology
'god-is-dead theology'

c. Turkish (Turkic; Trips & Kornfilt 2015:307; their parsing, glosses, translation)
'iç çamasir-ın-ı göster' oyun-u
internal laundry-3SG-ACC show game-CM
'"show your underwear" game'

An apparently comparable construction also appears in Modern Hebrew and Brazilian Portuguese, although as far as we know, they have not been reported in the literature (see Becker 2023 for relevant discussion of lexicalization of complete sentences in Hebrew). Notably, in these cases, PALs do not appear in compounds, even though compounds exist, albeit infrequently (e.g. Rio-Torto & Ribeiro 2012). Instead, the comparable construction in Hebrew and Brazilian Portuguese frequently appears as the complement of a preposition, more typically filled by a noun or an NP in both languages (e.g. Polak-Yitzhaki 2017:40–41 for Hebrew). That is, when a clause, which can be a sentence and is commonly a quote, follows *ʃel* (in Hebrew) or *de* (in Brazilian Portuguese), respectively, it appears to receive the same lemma-like interpretation demonstrated here to hold in English.

Insofar as this is the case, it implies that the PAL construction need not resemble a compound. But as in English, the lemma-like interpretation seems to appear because a clause is used in a slot typical of a word. Critically, each language that offers a comparable PAL construction has another way of expressing clausal modification (relative clauses). If simple modifiers and clausal modifiers routinely appear in the same slot, as is the case in Japanese, for instance (e.g. Gil 2013, Matsumoto 1988, 1989, Matsumoto et al. 2017), the clause would not be treated as if it were a simple word. That is, in order to receive a lemma-like interpretation, a PAL construction needs to appear in a position that is typical of single words and atypical of clauses. The Hebrew and Brazilian Portuguese PALs are illustrated in 16–18 below. The (a) examples illustrate the deployment of a simple word, a noun, in the position after Hebrew *ʃel* or Brazilian Portuguese *de*. The (b) examples illustrate the deployment of the PAL construction following the same preposition.

(16) Hebrew (Afro-Asiatic, Semitic; Twitter)
a. keta ʃel student-im
section of student-PL
'a students' thing'

b. keta ʃel mi=ʃe yodea yodea
section of who=SBJ know.PRS.3.M.SG know.PRS.3.M.SG
'an if-you-know-you-know thing'

(17) a. ani mitʁageʃet be=ʁama ʃel kala
1SG be.excited.PRS.F.SG in=level of bride
'I'm excited to the level of a bride'
b. ani mitʁageʃet be=ʁama ʃel ani od ʁega boxa kan
1SG be.excited.PRS.F.SG in=level of I more moment cry.PRS.F.SG here
'I'm excited to the level of "I'm gonna start crying here in a minute" '

(18) Brazilian Portuguese (Indo-European, Romance; NOW corpus)
a. o clima ameno de Cal
DEF.M.SG climate pleasant of Cal.
'the pleasant climate of California'
b. o clima ameno de 'eu te ajudo voce me ajuda
DEF.M.SG climate pleasant of I you help.PRS.1SG you me help.PRS.2SG
e está tudo bem'
and COP.PRS.3SG all good
'the pleasant climate of "I help you, you help me, and everything is good" '

We predict that comparable PAL constructions should imply a shared familiarity with the type of event or situation expressed by the PAL. This appears to be the case, but requires empirical confirmation that falls beyond the scope of the current article.

8. LIMITATIONS. We have primarily focused on English data in the current work while observing intriguing comparable constructions in Hebrew and Brazilian Portuguese. Future work that compares constructions across a systematic sample of languages would be valuable. Such work, however, may find it challenging to rely on published reference grammars, a common data source in large typological comparative projects, since infrequent constructions are seldom included in such grammars.

Further, we have restricted the current analysis to phrases that include a verb, in an effort to focus on clear cases. However, in principle, other types of phrases (or quotes) used as if they were words should evoke a lemma-like meaning as well. Likewise, we have not included PALs that involve quotes from a non-English language, or simple noises (Bresnan & Mchombo 1995:194), as in 33. We expect that these can be assimilated to the analysis provided here, but we leave this too for future work.

(33) kids are 'doo-doo-doo-doo-doo-doo'-ing the day away. (COCA)

9. CONCLUSION. By analyzing the function of the relatively infrequent phrase-as-lemma or PAL construction in English, the current study offers evidence about the nature of our grammatical knowledge. Specifically, by representing the surface syntax as directly as possible—positing a special grammatical category with the external syntax of a word, but the internal syntax of a phrase—we are able to explain why comprehenders imbue it with the functional properties they do.

The English PAL construction provides speakers with a linguistic analogue of the comedian's observational humor: PALs presuppose shared familiarity with a situation that is not often discussed. This unique function arises, we claim, because a phrase—even a full sentence—is deployed in a position otherwise restricted to a word, thereby presupposing that the situation named by the phrase has a lemma-like interpretation, and lemmas necessarily express familiar concepts. Yet in the case of PALs, the 'familiar situation' is not in fact sufficiently nameworthy to be assigned a word. Preregistered, crowdsourced surveys confirm that sentences containing a PAL construction indicate

that the speaker assumes more common knowledge with the comprehender (study 1) when compared with highly similar paraphrases. Sentences with PALs are also judged to be more witty (study 2, replicating Meibauer 2007 for German) and more sarcastic (study 3). Remarkably, these factors are evident even in extremely frequent PAL tokens when compared to paraphrases (study 4). To be sure, we are not claiming that all or most PAL tokens imply a close intimacy with the comprehender, are laugh-out-loud funny, or are witheringly sarcastic. But naive English speakers recognize that the construction adds a dash of these rhetorical flourishes.

Not only do naive speakers implicitly recognize that a phrase is treated as if it were a lemma, but they also display an implicit recognition of several narrowly defined subtypes of the PAL construction, including *must* + VERB cases and conventional uses of PALs as head nouns (*a simple* PAL^0; *the old* PAL^0 N) (study 5). The current work provides an example of just how rich and complex our knowledge of language is.

Crosslinguistic observations (§7) suggest that comparable PAL constructions exist in Hebrew and Brazilian Portuguese, as well as in other Western Germanic languages and in Turkish. Further, the Hebrew and Brazilian Portuguese constructions are unrelated to compounds, thus suggesting that PALs need not conform to compounds. Future work is required to determine the extent to which the function is shared.

By investigating the function of the PAL construction in depth, we can see that its unusual syntax—a phrase appears where a word normally would—provides an ideal means of doing what humans do so well: use finite means to depict ever-changing circumstances. We have argued that English speakers are implicitly aware of PALs' unusual syntax, which, together with an appreciation of the distribution of PALs, makes any endeavor to assimilate PALs to a more familiar category such as a Noun or Adjective misguided. Ordinary language users merrily learn and make use of the complex properties of the construction, so it behooves linguists to recognize the rich complexity of language as well.

By indicating shared common knowledge with the listener, the PAL construction serves an affiliative function in addition to sharing content. Humor and sarcasm are also ways of affiliating with others, since, to paraphrase Grice's (1975) maxim of manner, we generally try to avoid overwhelming or boring our listeners. We hope we have not done so here.

Appendix

A1. Full model results of first three surveys. Table A1 presents the glmer outputs for each of the three main surveys, reported in §4.4. Surveys asked which of two sentences (1a) implies more common knowledge or (1b) shared background with the comprehender, (2) is more witty, or (3) is more sarcastic. Ninety-nine sentence pairs were used in each survey ($N = 685$). The bias toward choosing the PAL construction confirmed significant intercepts.

A2. Same surveys conducted with high-frequency PALs only. As described briefly in §4.4, since we found no effect of (log) frequencies, we reran the same surveys using a single list that included all and only the fourteen highest-frequency PALs.

Participants. A new group of seventy-five native English speakers were recruited from the crowdsourced platform Prolific. After exclusions for incorrect responses to either catch trial, seventy participants remained (M age = 38.11). Seventeen participants were male, forty-seven female, five nonbinary, and one preferred not to respond. As in surveys 1–3, we used the exclusion criteria supplied by Prolific to exclude participants who had taken part in any of the prior surveys or in more than one of the current studies, which again asked separate sets of participants which sentence indicated more common knowledge with the comprehender, was more witty, or was more sarcastic.

	(1a) PAL sentences imply **'more common knowledge'** with the comprehender than paraphrases					(1b) PAL sentences imply **'more shared background'** with the comprehender than paraphrases				
	EST	*SE*	*z*	*p*		EST	*SE*	*z*	*p*	
(intercept)	**1.69**	**0.35**	**4.80**	**< 0.0001**	***	**1.78**	**0.38**	**4.62**	**< 0.0001**	***
Mean similarity	−0.02	0.02	−0.76	0.44		0.01	0.02	0.54	0.59	
Paraphrase is quote	1.06	0.28	3.77	< 0.0002	***	0.61	0.31	1.95	0.050	.
Log frequency of PAL	0.03	0.11	0.28	0.77		−0.16	0.13	−1.17	0.24	
Identical phrase used in paraphrase	−0.09	0.27	−0.34	0.73		−0.32	0.31	−1.05	0.29	
Length	−0.09	0.05	−1.71	0.08	.	−0.02	0.06	−0.37	−0.71	

	(2) PAL sentences are **more witty**					(3) PAL sentences are **more sarcastic**				
	EST	*SE*	*z*	*p*		EST	*SE*	*z*	*p*	
(intercept)	**2.86**	**0.30**	**8.48**	**< 0.0001**	***	**2.71**	**0.31**	**8.54**	**< 0.0001**	***
Mean similarity	0.00	0.02	−0.05	0.96		0.01	0.02	0.48	0.63	
Paraphrase is quote	−0.85	0.23	−3.60	0.0003	***	−0.75	0.25	−3.05	0.002	**
Log frequency of PAL	−0.15	0.10	0.28	0.13		−0.19	0.10	−1.73	0.08	.
Identical phrase used in paraphrase	−0.10	0.24	−0.34	0.70		−0.21	0.26	−0.82	0.41	
Length	−0.01	0.05	−1.71	0.86		−0.03	0.05	−0.64	−0.52	

TABLE A1. Generalized linear model outputs. Intercepts reflect significant biases toward the selection of PALs over paraphrases when different groups were asked: (1a) Which of the following implies more common knowledge with the listener?; (1b) Which of the following implies more shared background with the listener?; (2) Which of the following is more witty?; (3) Which of the following is more sarcastic? Note: for all model outputs, *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.1$.

PROCEDURE. The sentence pairs from the main surveys that involved the fourteen most frequently occurring PALs in our data set, each with log frequency > 2, were judged by separate groups of participants in a single list along with the same twelve filler items used in other surveys. The fourteen highest-frequency items were *must do*, *anything goes*, *do not disturb*, *must win*, *pay as you go*, *can do*, *wait and see*, *all you can eat*, *must read*, *know it all*, *trickle-down*, *must see*, *do it yourself*.

RESULTS. As is evident in Figure A1, even high-frequency PALs were judged as implying more common knowledge and as being wittier and more sarcastic than their paraphrases.

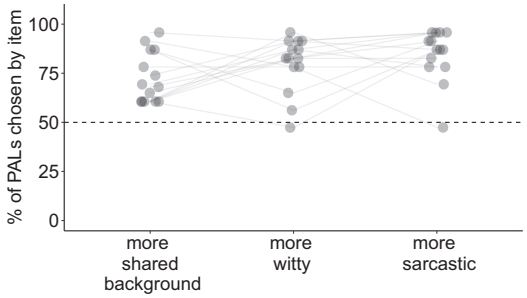

FIGURE A1. Percentage of sentences containing high-frequency PALs chosen over close paraphrases as implying more common knowledge, being more witty, and being more sarcastic.

The identical generalized linear models used to analyze the main surveys were applied except that subject intercepts were removed due to a lack of convergence on the common knowledge and wittiness surveys. PAL length and mean similarity ratings were centered to avoid collinearity. As before, intercepts show strong, significant bias toward selecting the PAL sentences as implying more common knowledge with the comprehender, as being more witty, and as being more sarcastic than their close paraphrases. Additional smaller effects are evident, but we do not wish to overinterpret them due to the small number of items used.

Table A2 presents the generalized linear model results when only high-frequency PALs and close paraphrases were included as items.

	(1) High-frequency PAL sentences imply **'more common knowledge'** with the comprehender than paraphrases				
	EST	*SE*	*z*	*p*	
(intercept)	1.53	0.54	2.85	< 0.004	**
Mean similarity	0.01	0.03	0.31	0.76	
Paraphrase is quote	1.41	0.83	1.70	0.09	.
Log frequency of PAL	−0.73	0.50	−1.46	0.14	
Identical phrase used in paraphrase	−0.54	0.31	−1.72	0.08	.
Length	−0.12	0.18	−0.66	0.51	

	(2) High-frequency PAL sentences are **more witty**					(3) High-frequency PAL sentences are **more sarcastic**				
	EST	*SE*	*z*	*p*		EST	*SE*	*z*	*p*	
(intercept)	**2.34**	**0.67**	**3.49**	**< 0.0005**	***	**3.91**	**0.77**	**−5.06**	**< 0.0001**	***
Mean similarity	0.04	0.03	1.22	0.22		0.02	0.04	−0.48	0.65	
Paraphrase is quote	−1.01	0.71	−1.42	0.16		−2.02	0.64	−3.14	0.002	**
Log frequency of PAL	−0.53	0.66	−0.80	0.42		−0.22	0.71	−0.31	0.75	
Identical phrase used in paraphrase	0.95	0.41	2.31	0.02	*	−0.70	0.44	1.57	0.12	
Length	−0.48	0.23	−2.07	0.04	*	−0.50	0.24	−2.12	0.03	*

TABLE A2. Generalized linear model results on fourteen highest-frequency PALs. Intercepts reflect significant biases toward the selection of PALs over paraphrases when different new groups of participants were asked: (1) Which implies more common knowledge with the listener?; (2) Which is more witty?; (3) Which is more sarcastic?

A3. CONVENTIONAL SUBTYPES OF PALS, STUDY 5. Table A3 presents the preregistered model results for study 5, which show a bias to choose novel sentences hypothesized to include one of four conventional subtypes of PALs as more natural.

	EST	*SE*	*z*	*p*	
(intercept)	**2.28**	**0.37**	**6.10**	**< 0.0001**	***
Log frequency difference	−0.38	0.40	−0.97	0.33	

TABLE A3. Generalized linear model showing a bias to choose, as more natural, novel sentences hypothesized to include one of four conventional subtypes of PALs.

Exploratory analyses were also conducted on each subtype hypothesized to be conventional. Each participant judged only one such item, so random intercepts for subjects are excluded in the models below (Tables A4–A7).

	EST	*SE*	*t*	*p*	
(intercept)	**0.92**	**0.06**	**15.455**	**< 0.0001**	***
Log frequency difference	−0.03	0.19	−0.140	0.89	

TABLE A4. Generalized linear model for ten items that included *a simple* <PAL> in comparison to minimally different paraphrases: *a short*/*sweet*/*winning*/*basic*/*brief* <PAL>.

	EST	*SE*	*t*	*p*	
(intercept)	**0.93**	**0.03**	**28.43**	**< 0.0001**	***
Log frequency difference	0.01	0.05	0.33	0.75	

TABLE A5. Generalized linear model for relatively novel *must*-VERB PALs in comparison to paraphrases in which *have-to*, *should*, *ought-to*, *can*, or *might* replace *must*.

	EST	*SE*	*t*	*p*	
(intercept)	**0.81**	**0.06**	**13.27**	**< 0.0001**	***

TABLE A6. Generalized linear model for ten items that included a direct quote from the immediately preceding context used as an interdiction as a transitive verb. Paraphrases varied in either being non-interdictions (five items) or having similar meaning but not being direct quotes (five items).

	EST	*SE*	*t*	*p*	
(intercept)	**0.81**	**0.10**	**8.39**	**< 0.0001**	***
Log frequency difference	−0.02	0.09	0.16	0.871	

TABLE A7. Generalized linear model for ten items that included *the old* <PAL> in comparison to minimally different paraphrases: *the tired*/*familiar*/*annoying*/*classic*/*big* <PAL>.

REFERENCES

ACKERMAN, FARRELL, and IRINA NIKOLAEVA. 2014. *Descriptive typology and linguistic theory: A study in the morphosyntax of relative clauses*. Stanford, CA: CSLI Publications.

AITCHISON, JEAN. 2012. *Words in the mind: An introduction to the mental lexicon*. Oxford: Wiley-Blackwell.

ARNDT-LAPPE, SABINE, and INGO PLAG. 2007. The variability of compound stress in English: Towards an exemplar-based alternative of the compound stress rule. *Proceedings of the ESSLLI Workshop on Exemplar-based Models of Language Acquisition and Use*, Dublin, 8–23.

ATKINSON, RHONDA H., and DEBBIE G. LONGMAN. 1985. Sniglets: Give a twist to teenage and adult vocabulary instruction. *Journal of Reading* 29.103–5. Online: https://www.jstor.org/stable/40029633.

BAGASHEVA, ALEXANDRA. 2017. On a subclass of nominal compounds in Bulgarian: The nature of phrasal compounds. In Trips & Kornfilt 2017b, 81–118. DOI: 10.5281/zenodo.885121.

BARLOW, MICHAEL, and SUZANNE KEMMER (eds.) 2000. *Usage-based models of language*. Stanford, CA: CSLI Publications.

BARWISE, JON, and JON PERRY. 1983. *Situations and attitudes*. Cambridge, MA: MIT Press.

BECKER, ISRAELA. 2023. It's all about the sentential construction: Lexicalization of complete mono-clausal sentences into words—Evidence from Hebrew. *Studies in Language* 47.463–504. DOI: 10.1075/sl.21006.bec.

BERGS, ALEXANDER. 2018. Learn the rules like a pro, so you can break them like an artist (Picasso): Linguistic aberrancy from a constructional perspective. *Zeitschrift für Anglistik und Amerikanistik* 66.277–93. DOI: 10.1515/zaa-2018-0025.

BOOIJ, GEERT. 2002. Constructional idioms, morphology, and the Dutch lexicon. *Journal of Germanic Linguistics* 14.301–29. DOI: 10.1017/S1470542702000168.

BOOIJ, GEERT. 2009. Lexical integrity as a formal universal: A constructionist view. *Universals of language today*, ed. by Sergio Scalise, Elisabetta Magni, and Antonietta Bisetto, 83–100. Dordrecht: Springer. DOI: 10.1007/978-1-4020-8825-4_5.

BRESNAN, JOAN. 2021. Formal grammar, usage probabilities, and auxiliary contraction. *Language* 97.108–50. DOI: 10.1353/lan.2021.0003.

BRESNAN, JOAN, and SAM A. MCHOMBO. 1995. The lexical integrity principle: Evidence from Bantu. *Natural Language & Linguistic Theory* 13.181–254. DOI: 10.1007/BF00992782.

BRUENING, BENJAMIN. 2018. The lexicalist hypothesis: Both wrong and superfluous. *Language* 94.1–42. DOI: 10.1353/lan.2018.0000.

CLARK, HERBERT H., and RICHARD J. GERRIG. 1990. Quotations as demonstrations. *Language* 66.764–805. DOI: 10.2307/414729.

CROFT, WILLIAM. 2001. *Radical construction grammar: Syntactic theory in typological perspective*. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780198299554.001.0001.

CROFT, WILLIAM. 2016. Typology and the future of cognitive linguistics. *Cognitive Linguistics* 27.587–602. DOI: 10.1515/cog-2016-0056.

Croft, William, and D. Alan Cruse. 2004. *Cognitive linguistics*. Cambridge: Cambridge University Press. DOI: 10.1017/CBO9780511803864.
Culicover, Peter W., and Ray Jackendoff. 2005. *Simpler syntax*. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199271092.001.0001.
Davies, Mark. 2008–. Corpus of Contemporary American English. Online: https://www.english-corpora.org/coca/.
Denlinger, Kristin. 2023. *The semantics of past participles*. Austin: University of Texas at Austin dissertation. DOI: 10.26153/tsw/51904.
Desagulier, Guillaume. 2016. A lesson from associative learning: Asymmetry and productivity in multiple-slot constructions. *Corpus Linguistics and Linguistic Theory* 12.173–219. DOI: 10.1515/cllt-2015-0012.
Diessel, Holger. 2020. A dynamic network approach to the study of syntax. *Frontiers in Psychology* 11. DOI: 10.3389/fpsyg.2020.604853.
Diessel, Holger. 2023. *The grammar network: How linguistic structure is shaped by language use*. Cambridge: Cambridge University Press. DOI: 10.1017/9781108671040.
Double, Oliver. 2013. *Getting the joke: The inner workings of stand-up comedy*. New York: Bloomsbury.
Eitelmann, Matthias, and Dagmar Haumann (eds.) 2022. *Extravagant morphology*. Amsterdam: John Benjamins.
Family, Neiloufar. 2006. *Semantic spaces of Persian light verbs: A constructionist account*. (Brill's studies in South and Southwest Asian languages 6.) London: Brill.
Ferreira, Fernanda, and Paul E. Engelhardt. 2006. Syntax and production. *Handbook of psycholinguistics*, 2nd edn., ed. by Matthew J. Traxler and Morton A. Gernsbacher, 61–91. New York: Academic Press. DOI: 10.1016/B978-012369374-7/50004-3.
Fillmore, Charles J. 1975. An alternative to checklist theories of meaning. *Berkeley Linguistics Society* 1.123–31. DOI: 10.3765/bls.v1i0.2315.
Fillmore, Charles J. 1977. Scenes-and-frames semantics. *Linguistic structures processing*, ed. by Antonio Zampolli, 55–81. Amsterdam: North-Holland.
Fillmore, Charles J. 1985. Frames and the semantics of understanding. *Quaderni di Semantica* 6.222–54.
Finkbeiner, Rita, and Jörg Meibauer. 2016. *Boris 'Ich bin drin' Becker* ('Boris I am in Becker'): Syntax, semantics and pragmatics of a special naming construction. *Lingua* 181.36–57. DOI: 10.1016/j.lingua.2016.04.006.
Flickinger, Daniel; Carl Pollard; and Thomas Wasow. 1985. Structure-sharing in lexical representation. *Proceedings of the 23rd annual meeting of the Association for Computational Linguistics*, 262–67. DOI: 10.3115/981210.981242.
Futrell, Richard; Roger P. Levy; and Edward Gibson. 2020. Dependency locality as an explanatory principle for word order. *Language* 96.371–412. DOI: 10.1353/lan.2020.0024.
Gehrke, Berit. 2015. Adjectival participles, event kind modification and pseudo-incorporation. *Natural Language & Linguistic Theory* 33.897–938. DOI: 10.1007/s11049-015-9295-7.
Gil, David. 2013. Genitive, adjectives and relative clauses. *The world atlas of language structures online*, ed. by Matthew S. Dryer and Martin Haspelmath. Leipzig: Max Planck Institute for Evolutionary Anthropology. Online: https://wals.info/chapter/60.
Göksel, Asli. 2015. Phrasal compounds in Turkish: Distinguishing citations from quotations. *STUF—Language Typology and Universals* 68.359–94. DOI: 10.1515/stuf-2015-0017.
Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*. Chicago: Chicago University Press.
Goldberg, Adele E. 1998. The relationship between verbs and constructions. *Lexical and syntactical constructions and the construction of meaning*, ed. by Marjolijn Verspoor, Kee Dong Lee, and Eve Sweetser, 383–98. Amsterdam: John Benjamins.
Goldberg, Adele E. 2003. Constructions: A new theoretical approach to language. *Trends in Cognitive Science* 7.219–24. DOI: 10.1016/S1364-6613(03)00080-9.

GOLDBERG, ADELE E. 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199268511.001.0001.

GOLDBERG, ADELE E. 2010. Verbs, constructions, and semantic frames. *Lexical semantics, syntax, and event structure*, ed. by Malka Rappaport Hovav, Edit Doron, and Ivy Sichel, 39–58. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199544325.003.0003.

GOLDBERG, ADELE E. 2016. Tuning in to the verb-particle construction in English. *Approaches to complex predicates*, ed. by Léa Nash and Pollet Samvelian, 110–41. Leiden: Brill. DOI: 10.1163/9789004307094_006.

GOLDBERG, ADELE E. 2019. *Explain me this: Creativity, competition, and the partial productivity of constructions*. Princeton: Princeton University Press. DOI: 10.2307/j.ctvc772nn.

GOLDBERG, ADELE E., and THOMAS HERBST. 2021. The *nice-of-you* construction and its fragments. *Linguistics* 59.285–318. DOI: 10.1515/ling-2020-0274.

GOLDBERG, ADELE E., and RAY JACKENDOFF. 2004. The English resultative as a family of constructions. *Language* 80.532–68. DOI: 10.1353/lan.2004.0129.

GOLDBERG, ADELE E., and LAURA A. MICHAELIS. 2017. One among many: Anaphoric one and its relationship with numeral one. *Cognitive Science* 41.233–58. DOI: 10.1111/cogs.12339.

GREEN, GEORGIA M. 1976. Main clause phenomena in subordinate clauses. *Language* 52.382–97. DOI: 10.2307/412566.

GRICE, H. PAUL. 1975. Logic and conversation. *Speech acts* (Syntax and semantics 3), ed. by Peter Cole and Jerry L. Morgan, 41–58. New York: Academic Press. DOI: 10.1163/9789004368811_003.

GÜNTHER, CHRISTINE; SVEN KOTOWSKI; and INGO PLAG. 2020. Phrasal compounds can have adjectival heads: Evidence from English. *English Language & Linguistics* 24.75–95. DOI: 10.1017/S1360674318000229.

HALL, RICH. 1984. *Sniglets (snig'lit): Any word that doesn't appear in the dictionary, but should*. New York: Macmillan.

HANDKE, JÜRGEN. 2012. *The structure of the lexicon: Human versus machine*. (Natural language processing 5.) Berlin: De Gruyter. DOI: 10.1515/9783110907865.

HARLEY, HEIDI. 2011. Compounding in distributed morphology. *The Oxford handbook of compounding*, ed. by Rochelle Lieber and Pavol Štekauer, 129–44. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199695720.013.0007.

HASPELMATH, MARTIN. 1999. Why is grammaticalization irreversible? *Linguistics* 37.1043–68. DOI: 10.1515/ling.37.6.1043.

HASPELMATH, MARTIN. 2010. Comparative concepts and descriptive categories in crosslinguistic studies. *Language* 86.663–87. DOI: 10.1353/lan.2010.0021.

HASPELMATH, MARTIN. 2016. The serial verb construction: Comparative concept and cross-linguistic generalizations. *Language and Linguistics* 17.291–319. DOI: 10.1177/2397002215626895.

HAWKINS, JOHN A. 2003. Efficiency and complexity in grammars: Three general principles. *The nature of explanation in linguistic theory*, ed. by John Moore and Maria Polinsky, 121–52. Stanford, CA: CSLI Publications.

HEIN, KATRIN. 2017. Modeling the properties of German phrasal compounds within a usage-based constructional approach. In Trips & Kornfilt 2017b, 119–48. DOI: 10.5281/zenodo.885123.

HILPERT, MARTIN. 2015. From *hand-carved* to *computer-based*: Noun-participle compounding and the upward strengthening hypothesis. *Cognitive Linguistics* 26.113–47. DOI: 10.1515/cog-2014-0001.

HIMMELMANN, NIKOLAUS P. 2022. Against trivializing language description (and comparison). *Studies in Language* 46.133–60. DOI: 10.1075/sl.19090.him.

HOFFMANN, THOMAS. 2022. Constructionist approaches to creativity. *Yearbook of the German Cognitive Linguistics Association* 10.259–84. DOI: 10.1515/gcla-2022-0012.

HOOPER, JOAN B., and SANDRA A. THOMPSON. 1973. On the applicability of root transformations. *Linguistic Inquiry* 4.465–97. Online: https://www.jstor.org/stable/4177789.

Jackendoff, Ray. 1975. Morphological and semantic regularities in the lexicon. *Language* 51.639–71. DOI: 10.2307/412891.

Jackendoff, Ray, and Jenny Audring. 2020. *The texture of the lexicon: Rational morphology and the parallel architecture*. Oxford: Oxford University Press. DOI: 10.1093/oso/9780198827900.001.0001.

Jespersen, Otto. 1924. *Philosophy of grammar*. London: Allen & Unwin.

Keller, Rudi. 1994. *On language change: The invisible hand in language*. London: Routledge. DOI: 10.4324/9780203993286.

Kiparsky, Paul. 1983. Word-formation and the lexicon. *Papers of the Mid-America Linguistics Conference Papers*. Online: https://hdl.handle.net/1808/20827.

Kornfilt, Jaklin, and Nadezhda Vinokurova. 2017. Turkish and Turkic complex noun phrase constructions. *Noun-modifying clause constructions in languages of Eurasia: Rethinking theoretical and geographical boundaries*, ed. by Yoshiko Matsumoto, Bernard Comrie, and Peter Sells, 251–92. Amsterdam: John Benjamins. DOI: 10.1075/tsl.116.11kor.

Lakoff, George. 1987. *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.

Ladd, D. Robert. 1984. English compound stress. *Intonation, accent and rhythm: Studies in discourse phonology*, ed. by Dafydd Gibbon and Helmut Richter, 253–66. DOI: 10.1515/9783110863239.253.

Langacker, Ronald W. 2008. *Cognitive grammar: A basic introduction*. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780195331967.001.0001.

Lees, Robert B. 1960. *The grammar of English nominalizations*. (*International Journal of American Linguistics* 26(3), part 2.)

Lieber, Rochelle. 1988. Phrasal compounds in English and the morphology-syntax interface. *Chicago Linguistic Society (Parasession on agreement in grammatical theory)* 24(2).202–22.

Lieber, Rochelle. 1992. *Deconstructing morphology: Word formation in syntactic theory*. Chicago: University of Chicago Press.

Lyngfelt, Benjamin. 2018. Introduction: Constructicons and constructicography. *Constructicography: Constructicon development across languages*, ed. by Benjamin Lyngfelt, Lars Borin, Kyoko Ohara, and Tiago Torrent, 1–18. Amsterdam: John Benjamins. DOI: 10.1075/cal.22.01lyn.

Matsumoto, Yoshiko. 1988. Semantics and pragmatics of noun-modifying constructions in Japanese. *Berkeley Linguistics Society* 14.166–75. DOI: 10.3765/bls.v14i0.1786.

Matsumoto, Yoshiko. 1989. Japanese-style noun modification … in English. *Berkeley Linguistics Society* 15.226–37. DOI: 10.3765/bls.v15i0.1750.

Matsumoto, Yoshiko; Bernard Comrie; and Peter Sells. 2017. Introduction. *Noun-modifying clause constructions in languages of Eurasia: Rethinking theoretical and geographical boundaries*, ed. by Yoshiko Matsumoto, Bernard Comrie, and Peter Sells, 3–22. Amsterdam: John Benjamins. DOI: 10.1075/tsl.116.01mat.

Meibauer, Jörg. 2007. How marginal are phrasal compounds? Generalized insertion, expressivity, and I/Q-interaction. *Morphology* 17.233–59. DOI: 10.1007/s11525-008-9118-1.

Michaelis, Laura A., and Hanbing Feng. 2015. What is this, sarcastic syntax? *Constructions and Frames* 7(2).148–80. DOI: 10.1075/cf.7.2.01mic.

Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60.847–94. DOI: 10.1353/lan.1984.0038.

Müller, Stefan. 2010. Persian complex predicates and the limits of inheritance-based analyses. *Journal of Linguistics* 46.601–55. DOI: 10.1017/S0022226709990284.

Müller, Stefan. 2018. The end of lexicalism as we know it? *Language* 94.e54–e66. DOI: 10.1353/lan.2018.0014.

Müller, Stefan. 2023. *Grammatical theory: From transformational grammar to constraint-based approaches*. 5th edn. (Textbooks in language sciences 1.) Berlin: Language Science. DOI: 10.5281/zenodo.7376662.

Pafel, Jürgen. 2015. Phrasal compounds are compatible with lexical integrity. *STUF—Language Typology and Universals* 68.263–80. DOI: 10.1515/stuf-2015-0014.
Pafel, Jürgen. 2017. Phrasal compounds and the morphology-syntax relation. In Trips & Kornfilt 2017b, 233–60. DOI: 10.5281/zenodo.896369.
Pascual, Esther; Emilia Królak; and Theo A. J. M. Janssen. 2013. Direct speech compounds: Evoking socio-cultural scenarios through fictive interaction. *Cognitive Linguistics* 24.345–66. DOI: 10.1515/cog-2013-0011.
Petruck, Miriam R. L. 1997. Frame semantics. *Handbook of pragmatics: 1996 installment*, ed. by Jef Verschueren, Jan-Ole Östman, Jan Blommaert, and Chris Bulcaen, 1–13. Amsterdam: John Benjamins.
Pinker, Steven. 1999. *Words and rules: The ingredients of language*. New York: Basic Books.
Polak-Yitzhaki, Hilla. 2017. *Between saying and doing: The verb* asa *'do' and other verbs in spoken Hebrew discourse*. Haifa: University of Haifa dissertation. [In Hebrew.]
Rio-Torto, Graça, and Sílvia Ribeiro. 2012. Portuguese compounds. *International Journal of Latin and Romance Linguistics* 24.119–45. DOI: 10.1515/probus-2012-0006.
Sanchez-Stockhammer, Christina, and Peter Uhrig. 2023. 'I'm gonna get totally and utterly X-ed.': Constructing drunkenness. *Yearbook of the German Cognitive Linguistics Association* 11.121–50. DOI: 10.1515/gcla-2023-0007.
Saussure, Ferdinand de. 2009 [1959]. *Course in general linguistics*, ed. by Charles Bally and Albert Sechehaye. Chicago, IL: Open Court.
Traugott, Elizabeth, and Graeme Trousdale. 2013. *Constructionalization and constructional changes*. (Oxford studies in diachronic and historical linguistics.) Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199679898.001.0001.
Trips, Carola. 2012. Empirical and theoretical aspects of phrasal compounds: Against the 'syntax explains it all' attitude. *Proceedings of the Mediterranean Morphology Meeting* 8.322–46. DOI: 10.26220/mmm.2438.
Trips, Carola, and Jaklin Kornfilt. 2015. Typological aspects of phrasal compounds in English, German, Turkish and Turkic. *STUF—Language Typology and Universals* 68.281–322. DOI: 10.1515/stuf-2015-0015.
Trips, Carola, and Jaklin Kornfilt. 2017a. Further insights into phrasal compounding. In Trips & Kornfilt 2017b, 1–12. Berlin: Language Science. DOI: 10.5281/zenodo.885107.
Trips, Carola, and Jaklin Kornfilt (eds.) 2017b. *Further investigations into the nature of phrasal compounding*. Berlin: Language Science. DOI: 10.5281/zenodo.885113.
Ungerer, Tobias, and Stefan Hartmann. 2020. Delineating extravagance: Assessing speakers' perceptions of imaginative constructional patterns. *Belgian Journal of Linguistics* 34.345–56. DOI: 10.1075/bjl.00058.ung.
Van de Velde, Freek. 2014. Degeneracy: The maintenance of constructional networks. *Extending the scope of construction grammar*, ed. by Ronny Boogart, Timothy Colleman, and Gijsbert Rutten, 141–80. Berlin: De Gruyter Mouton. DOI: 10.1515/9783110366273.141.
von der Malsburg, Titus; Till Poppels; and Roger P. Levy. 2020. Implicit gender bias in linguistic descriptions for expected events: The cases of the 2016 United States and 2017 United Kingdom elections. *Psychological Science* 31.115–28. DOI: 10.1177/0956797619890619.
Wasow, Thomas. 1980. Major and minor rules in lexical grammar. *Lexical grammar*, ed. by Teun Hoekstra, 285–312. Berlin: De Gruyter. DOI: 10.1515/9783111711225-011.
Wiese, Richard. 1996. Phrasal compounds and the theory of word syntax. *Linguistic Inquiry* 27.183–93. Online: https://www.jstor.org/stable/4178931.

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[Received 11 October 2022;
revision invited 9 June 2023;
revision received 17 October 2023;
revision invited 29 March 2024;
revision received 25 July 2024;
accepted pending revisions 13 October 2024;
revision received 14 November 2024;
accepted 11 December 2024]