

Ambiguity in high/low construal: an Agree-based approach*

Qiu hao Charles Yan

Queen Mary University of London

1. Introduction

In this paper I present an Agree-base approach to the phenomenon known as *ambiguity in high/low construal* (Geis 1970, 1975), arguing against the conventional Move-based one (Larson 1987, 1990, Haegeman 2009, 2010, 2012).

As shown in (1), *when* in a temporal adverbial clause (TAC) can relate to either the local verb *say* or a more deeply embedded one *leave*, giving rise to two different readings: the high construal of *when* refers to the time that Puffy made the statement of departure (1a), while its low construal refers to the time of Puffy's presumed departure(1b).

- (1) I saw Puffy in Canary Whart *when* [she said [that she would leave]].
- a. High construal: at the time that Puffy made the statement
 - b. Low construal: at the time of Puffy's presumed departure

By contrast, if the TAC is constructed in a non-bridge verb context (2), e.g., *exclaim*, rather than the bridge verb context *say*, only the high construal is available: *when* can only refer to the time that Puffy made the exclamation (2a); the analogous reading to (2b) is unavailable.

- (2) I saw Puffy in Canary Whart *when* [she exclaimed [that she would leave]].
- a. High construal: at the time that Puffy made the statement
 - b. *Low construal: at the time of Puffy's presumed departure

*I owe my greatest thanks to both my supervisors, David Adger and Coppe van Urk, who have been supporting me in various aspects since I started this research. A lot of my teachers and colleagues have also helped me with the early version of the work, from whom I benefit greatly: Pietro Baggio, Luisa Martí, Tom Meadows, Hazel Pearson, Zhouyi Sun, Ka-Fai Yip, and Zhongyang Yu. Different versions of this work have been presented in various occasions, and I appreciate all the audiences there as well: LELPGC22, TABU Dag 2022, ACTL 2022, CreteLing 2022, NELS53, and ConSOLE31. Special thanks go to Rajesh Bhatt, Theresa Biberauer, Caroline Heycock, Łukasz Jędrzejowski, Iva Kovač, Idan Landau, Einar Freyr Sigurðsson, and Sten Vikner, all of who brought my attention to various issues.

The traditional analysis invokes movement of *when*, as proposed by Geis (1970, 1975). Larson (1987, 1990), following Geis's proposal, offers the representation (3), postulating that *when* moves from either the high TP-domain of TAC or the low one.

- (3) I saw Puffy in Canary Wharf when [TP she said [CP that [TP she would leave]]].
- a. High construal: [CP when_i [TP she said [CP that [TP she would leave]] t_i]]
 - b. Low construal: [CP when_i [TP she said [CP t_i that [TP she would leave t_i]]]]

Based on these previous analyses, Haegeman (2009, 2010, 2012) argues that *when* in TACs is in essence a TP-internal operator that can move to the left periphery of CP. Since the same ambiguities can be found in *when*-interrogative and relative clauses, Haegeman further proposes that adverbial *when* is formally identical to interrogative/relative *when*. Given this, it is attractive to explain the disappearing low construal (2b) via the idea that movement of *when* from the lower position is blocked by *exclaim* (cf. Erteschik-Shir 1973).

However, I will present some new empirical arguments that require us to re-consider the Move-based approach. On the one hand, if Haegeman's approach was on the right track, the prediction is that adverbial *when* should behave identically to its interrogative/relative counterpart regarding movement. This is not borne out by empirical facts (section 2). On the other hand, recent work (Yan 2022) argues that there exist correlations between the ambiguous interpretations of *when* and the different uses of SAY verbs within TACs.

Taking these observations into account, I argue for an Agree-based approach to the ambiguity in high/low construal, consisting of three main ideas. First, adverbial *when* is a base-generated *wh*-complementizer, not a *wh*-operator (e.g., interrogative *when*) that undergoes movement to the clausal left periphery. Second, ambiguous high/low readings are reflections of the distinct eventive/stative uses of SAY verbs. Third, feature valuation, which involves a pair of syntactic features [Λ] and [ID] (Adger and Ramchand 2005), and Agree can link the previous two proposals together, thereby fulfilling different interpretations of *when* in TACs. I spell out these three proposals in order in the following sections, and conclude in section 5.

2. Adverbial *when* as *wh*-complementizer

In this section, I argue that adverbial *when* is essentially a *wh*-complementizer, which is distinct from the typical *wh*-operator, i.e., interrogative *when*. Contrary to a *wh*-operator, a *wh*-complementizer (i) has a head-status (instead of a phrasal one), and (ii) is base-generated in the C head (instead of being moved from another position). All the syntactic differences between adverbial *when* and interrogative *when* can be attributed to the characteristics of the *wh*-complementizer.¹

¹Note that relative *when* is excluded from the discussion since it seems to share syntactic similarities respectively with the two *whens* compared here. I do think its behaviour is compatible with what I propose here, but leave it aside for reasons of space.

2.1 *Wh*-adverb float

The first argument comes from *wh*-adverb float. McCloskey (2000:footnote 8) mentions that in Standard English, adverbs like *exactly* not only can form a constituent with *wh*-phrases, but also can be separated from *wh*-phrases with which it is construed. For example, in (4a) interrogative *when* and *exactly* form a constituent and show up together in the topmost Spec,CP. But *when* is also able to occur alone in the left periphery with *exactly* being stranded either in the intermediate Spec,CP (4b) or in the base position (4c).

- (4) Piet said (that) he was drawing the picture at 9 p.m. exactly.
- a. When exactly did Piet say (that) he was drawing the picture *t*?
 - b. When did Piet say exactly (that) he was drawing the picture *t*?
 - c. When did Piet say (that) he was drawing the picture exactly?

The floating *wh*-adverb shows that interrogative *when*, as a *wh*-operator, pied-pipes and strands *wh*-adverbs via successive-cyclic movement in the derivation of interrogative clauses.

By contrast, adverbial *when* differs from its interrogative counterpart in being incompatible with *exactly* in any circumstance (5). The impossibility of pied-piping (5a) and stranding *wh*-adverbs (5b)/(5c) demonstrates that TACs introduced by adverbial *when* are not derived via canonical *wh*-movement. As adverbial *when* initiates a (subordinate) clause and occupies its highest position which seems not to be the Spec,CP, I suggest it is a complementizer that is base-generated in the head position.

- (5) When Piet said (that) he was drawing the picture, he remembered his best friend.
- a. *When exactly Piet said (that) he was drawing the picture...
 - b. *When Piet said exactly (that) he was drawing the picture...
 - c. *When Piet said (that) he was drawing the picture exactly...

2.2 *Wh*-the-hell phrases

The second argument stems from *wh*-the-hell phrases. Pesetsky (1987) discusses various situations with respect to ‘aggressively non-d-linked *wh*-phrases’, e.g., *who the hell*. At least in English, to form a *wh*-the-hell question, the *wh*-word must (i) undergo movement in syntax, and (ii) not be linked to the discourse (i.e., it is non-d-linked).

Requirement (i) is illustrated by the contrast between (6) and (7). As shown below, (6a) is a root question, while (7a) is an echo question. In both cases, interrogative *when* is non-d-linked. The only difference on the surface is that *when* undergoes movement in syntax in the former but not in the latter. Thus movement gives rise to distinct results regarding *wh*-the-hell phrases: *wh*-ex-situ is compatible with *the hell* (6b), but *wh*-in-situ is not (7b).

- (6) a. When did Piet draw the picture *t*?
- b. When the hell did Piet draw the picture *t*?

- (7) a. Piet drew the picture when?
 b. *Piet drew the picture when the hell?

Requirement (ii) is demonstrated by (8). Imagine a context where both participants in a conversation know that Piet has several habitual working time slots (for instance 12pm, 3pm, 6pm, etc.). Within such a context, (8a) is a natural question to raise as *which time* is linked to the discourse. By contrast, (8b) is unacceptable since there is a pragmatic contradiction between the d-linked *wh*-phrase *which time* and the non-d-linked modifier *the hell*.

- (8) a. Which time did Piet draw the picture?
 b. *Which the hell time did Piet draw the picture?

Both requirements can now be used as diagnostics to test the characteristics of adverbial *when* in (9): adverbial *when* is incompatible with *the hell* (9b), in contrast to its interrogative counterpart in the root question (6b).

- (9) a. When Piet drew the picture, he remembered his best friend.
 b. *When the hell Piet drew the picture, he remembered his best friend.

In principle, adverbial *when* in this case should be non-d-linked. The ungrammaticality of (9b) can, however, be accounted for if adverbial *when* does not move in syntax. This provides further evidence for an analysis where adverbial *when* is base-generated as a complementizer.

2.3 Cross-linguistic evidence

The previous two arguments have demonstrated that adverbial *when* and interrogative *when* behave differently in syntax, though they look identical regarding their surface forms. Cross-linguistic data show a clearer morphological distinction between them.

One example is Scottish Gaelic, in which *when* is realised by two different forms. As seen in (10), both adverbial *when* (10a) and relative *when* (10b) are spelled out by the same form *nuair*. By comparison, interrogative *when*, regardless of embeddedness (11), is spelled out by another form *cuine*.

- (10) a. Bidh Sìleas ann, *nuair* a bhios mise ann.
 be.FUT Julia there when be.FUT.REL I there
 ‘Julia will be there, when I will be there.’ **adverbial *when***
- b. Tha cuimhne agam air an latha *nuair* a bha sinn ann.
 be.PRES memory at.me on the day when that be.PRES we there
 ‘I remember the day when we were there.’ **relative *when***

Ambiguity in high/low construal: an Agree-based approach

- (11) a. *Cuine* a bhios Sìleas ann?
when that be.FUT.REL Julia there
'When will Julia be there?' **non-embedded interrogative *when***
- b. Dh'fhaighnich mi *cuine* a bhios Sìleas ann
ask.past I when that be.FUT.REL Julia there
'I asked when Julia will be there.' **embedded interrogative *when***

Similar morphological distinctions can be found in a number of Germanic languages, e.g., German, Dutch, Afrikaans, and Icelandic, among many others. That is, these languages all have different forms to distinguish adverbial *when* from interrogative *when*. Even though cross-linguistic data are insufficient to show directly that adverbial *when* is a base-generated complementizer, they support the basic idea that the syntax of adverbial *when* should be considered distinct from other cases of *when*.

3. Eventive/Stative SAY verbs

One significant consequence of the proposal in the previous section is that the conventional Move-based approach to ambiguities in high/low construal is undermined, as adverbial *when* cannot be analysed as a movable operator any more. Therefore, a different approach is required without relying on movement. In this section, I review briefly the proposal of Yan (2022), namely that ambiguous construal in fact is the reflection of syntactic and semantic differences of SAY verbs involved in TACs.

Major (2021) argues, following Grimshaw (2015), that *say* has either an eventive use (12a) or a stative use (12b). Eventive *say* requires an Agent as its subject, denoting the physical action of saying. Stative *say*, by contrast, does not refer to an actual behaviour; instead, its function is to introduce 'what is stated by whom'. Therefore, the subject that stative *say* selects is interpreted more like a Source (of the statement).²

- (12) I visited the suspects in the detention centre yesterday.
- a. **Suspect #2** *said* that he is guilty. **Agent**, Eventive *say*
- b. **Suspect #2's sweating** *says* that he is guilty. **Source**, Stative *say*

The syntax and semantics of these two uses of *say* are quite different. Eventive *say* is compatible with subject-oriented adverbs (e.g., *enthusiastically*) and manner adverbs (e.g., *loudly*) (13a). In addition, it is able to have the progressive aspect (13b).

- (13) I visited the suspects in the detention centre yesterday. **Eventive *say***
- a. Suspect #2 *enthusiastically/loudly* said that he is guilty.
- b. Suspect #2 *was saying* that he is guilty.

²Hazel Pearson (pers.comm.) points out that the term 'stative' is not very clear, since the concept itself can be decomposed into 'habitual' or 'generic'. Given the main purpose of this work is to understand the mechanism behind ambiguous readings of *when*, I leave aside the issue of defining 'stative *say*' precisely.

In contrast, stative *say* demonstrates the opposite pattern: it is incompatible with either subject-oriented/manner adverbs (14a) or the progressive aspect (14b).

- (14) I visited the suspects in the detention centre yesterday. Stative *say*
a. *Suspect #2's sweating *enthusiastically/loudly* says that he is guilty.
b. *Suspect #2's sweating *is saying* that he is guilty.

The contrast between the two uses of *say* seemingly correlates with ambiguity in high/low construal. Applying the diagnostics from above to the baseline example (1), (15) shows that an unambiguously eventive *say* leads to the high reading rather than the low one. This leads to the generalisation that the high construal is licensed by eventive *say*.

- (15) I saw Puffy in Canary Wharf
a. when she *enthusiastically/loudly* said that she would leave. High ✓, Low ✗
b. when she *was saying* that she would leave. High ✓, Low ✗

Interestingly, it is also borne out by (16) that the low construal is licensed by stative *say*. Imagine a context, in which Puffy is a famous TikToker who always posts on her twitter to her fans when and where she will show up and shoot videos. Then, under such a context the high construal is not as available as the low one.

- (16) I have never seen Puffy in Canary Wharf when her tweet says that she goes there.
High ✗, Low ✓

Based on these observations, the general conclusion is that the high construal is only allowed by eventive *say*, and the low construal is available only with stative *say*.

Such a correlation between the construal and structure of SAY verbs can now account for the disappearing low construal in (2) in a different fashion: applying the contrasts between eventive and stative *say* as diagnostics again, it is clear that *exclaim* is incompatible with a Source subject (17), but compatible with the eventive characteristics (18). This suggests that *exclaim* only has the eventive use, with the low construal unavailable.

- (17) ***Puffy's tweet** *exclaimed* she would leave at midnight. ***Source**, Eventive SAY
(18) a. Puffy *enthusiastically/loudly* *exclaimed* that she would leave.
b. Puffy *was exclaiming* that she would leave.

4. Feature valuation and Agree

So far I have put on the table two proposals that are crucial to my approach to ambiguity in high/low construal. The theoretical model that I adopt and develop from Adger and Ramchand (2005) is sketched in this section. In short, I posit that (i) there exists a feature valuation relation between adverbial *when* and the event variable which is contained only

by eventive verbs, and further, (ii) the feature valuation relation is established via Agree and can determine high/low construal.

4.1 The phrase structures of eventive/stative SAY verbs

To start off, it is necessary to make clear the phrase structures of eventive and stative SAY verbs. As with Stowell (1996, 2007), I postulate that both eventive and stative verbs contain a Davidsonian argument in their most external argument position, following Davidson (1967) and Kratzer (1995)'s classification as stage-level predicates. The Davidsonian argument is located in the specifier position of the highest VP-shell, no matter whether this is a ν P or a VoiceP. The determining distinction between the two uses of SAY verbs, I argue, lies in the nature of the Davidsonian argument that they contain. I posit that, for eventive verbs, the argument they contain is an event variable; whereas as for stative verbs, the argument is a state variable, as proposed by Kim (1969, 1976). Unlike the event variable, the state variable denotes a property being instantiated at a particular time (Rothmayr 2009). I will return to the differences of variable types shortly.

4.2 Features on *when* and the event variable

The core features of my Agree-based model are adopted from Adger and Ramchand (2005), who focus on the relative structures in Scottish Gaelic.

Adger and Ramchand argue that relativisation at least involves constructing a predicate in semantics. At LF what interprets a relative as predicate abstraction is the syntactic feature $[\Lambda]$ on a base-generated complementizer. In order to interpret the variable position that is abstracted over by the complementizer, another feature $[ID]$ is assumed on the variable. A syntactic object with this pair of features can be simply interpreted as predicate abstraction at LF (19).

$$(19) \quad [\Lambda \dots ID] \rightarrow \lambda x \dots x$$

Based on their idea, I posit that the construction of TACs also involves a predicate in semantics, and needs to be interpreted as predicate abstraction at LF as well. To be precise, adverbial *when*, as a base-generated complementizer, first contains the feature $[\Lambda]$. Since *when* is the element that receives ambiguous readings, it also contains another unvalued feature $[ID:]$. Meanwhile, a variable occupies the position abstracted over by *when*, thus it contains the feature $[ID]$. Going back to types of variables discussed above, I postulate that only the event variables contained by eventive verbs have the valued feature $[ID:zeit]$. The schema in (20) demonstrates how a TAC is interpreted as predicate abstraction at LF.

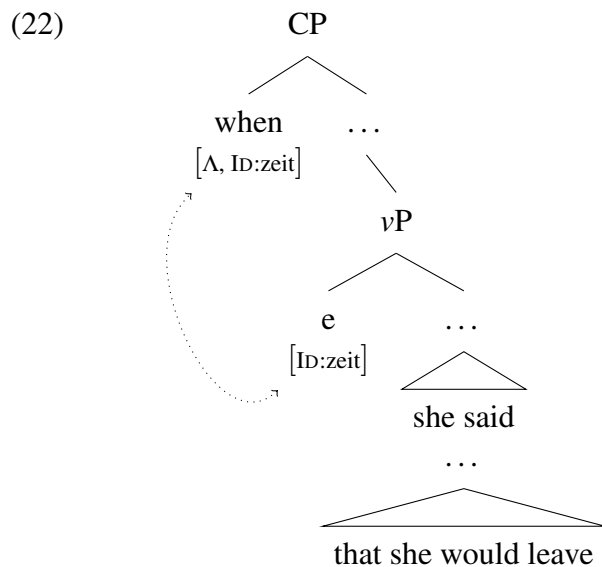
$$(20) \quad \textit{when}[\Lambda, ID:] \dots e[ID:zeit] \rightarrow \textit{when}[\Lambda, ID:zeit] \dots e[ID:zeit] \rightarrow \lambda t \dots t$$

4.3 Application

With these preliminaries in place, the derivations behind ambiguity in high/low construal follow. In terms of the high reading of *when* and eventive *say* (also *exclaim*), the derivational schema and the syntactic tree are presented in (21) and (22).

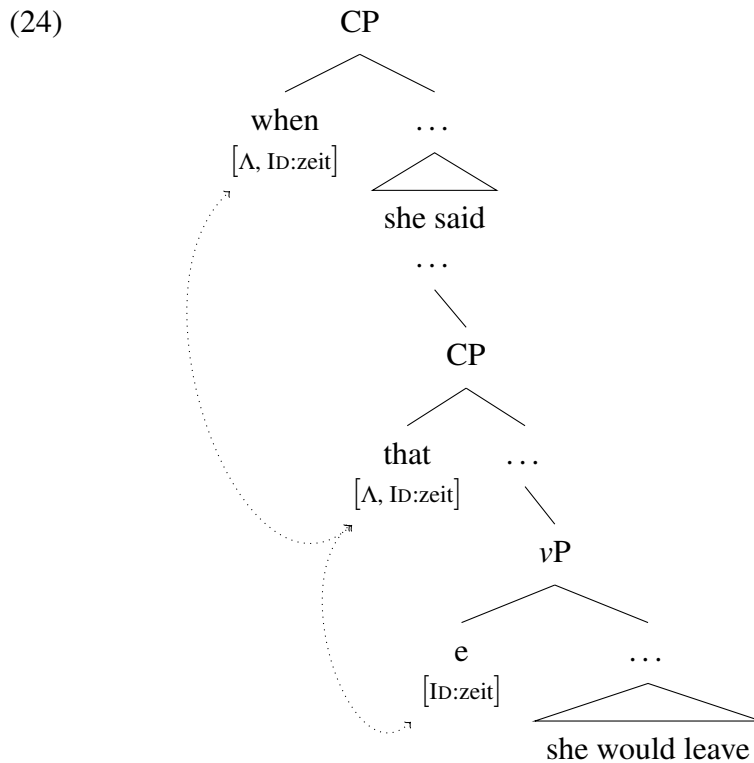
From bottom to up, the event variable contained by *leave*, which is an eventive verb, has the valued feature [ID:zeit]. The lower complementizer *that*, however, has the unvalued feature [ID:]. Therefore, these two form an Agree chain β in the low clause via feature valuation. As the derivation goes up, the event variable contained by eventive *say* also has the valued feature [ID:zeit]. Similarly, the clause-initial adverbial *when* has the unvalued feature [ID:]. Thus, these two form an Agree chain α in the high clause again via feature valuation. Since *when* receives the value *zeit* from the local verb, i.e., eventive *say*, it is interpreted with the high reading.

(21) $when[\Lambda^\alpha, ID^\alpha:zeit] \dots e[ID^\alpha:zeit] \dots that[\Lambda^\beta, ID^\beta:] \dots e[ID^\beta:zeit]$



In terms of the low reading of *when* and stative *say*, the derivation and the syntactic tree are given in (23) and (24). As with the previous derivation, the event variable contained by the eventive verb *leave* first forms an Agree chain with the lower complementizer *that*, in which the former assigns the value *zeit* to the unvalued feature [ID:] on the latter. The difference lies in the high clause, in which adverbial *when* cannot find a matching feature on stative *say* (because it lacks an event variable; what it contains is a state variable instead). The closest element which can assign the value *zeit* to *when* is the already valued feature *that*. Adverbial *when* gets valued in the end, whose Agree chain is in practice extended from the eventive verb in the low clause. Thus, it is interpreted as the low reading.

(23) $when[\Lambda^\alpha, ID^\alpha:] \dots that[\Lambda^\alpha, ID^\alpha:zeit] \dots e[ID^\alpha:zeit]$



5. Conclusion

In this paper, I have argued for an Agree-based approach to ambiguity in high/low construal instead of the traditional Move-based one. My proposal has captured two crucial empirical facts that have escaped attention in the previous literature. One is that adverbial *when* is syntactically distinct from canonical *wh*-operators, which I have proposed is actually a base-generated *wh*-complementizer. The other is that ambiguous readings of *when* are actually reflections of different uses of local verbs in TACs. Using a feature-valuation model based on Adger and Ramchand (2005), my analysis not only maintains the operator-variable relation between adverbial *when* and the event variable contained by eventive verbs, but also offers a plausible account for the high/low reading of *when*. A key prediction from my analysis is that construals of *when* will be unambiguously high/low in TACs with verbs that are unambiguously eventive or stative, though the exact characterisation of stativity is still to be explored. I leave this as future work.

References

- Adger, David, and Gillian Ramchand. 2005. Merge and move: *wh*-dependencies revisited. *Linguistic Inquiry* 36:161–193.
- Davidson, Donald. 1967. The logical form of action sentences. In *The logic of decision and action*, ed. by Nicholas Rescher, 81–95. Pittsburgh: Pittsburgh University Press.

- Erteschik-Shir, Nomi. 1973. On the nature of island constraints. Doctoral dissertation, MIT.
- Geis, Michael. 1970. Adverbial subordinate clauses in English. Doctoral dissertation, MIT.
- Geis, Michael. 1975. English time and place adverbials. *Ohio State University Working Papers in Linguistics* 18:1–11.
- Grimshaw, Jane. 2015. The light verbs *say* and *SAY*. In *Structures in the mind: Essays on language, music, and cognition in honor of Ray Jackendoff*, ed. by Ida Toivonen, Piroska Csúri, and Emile van der Zee, 79–99. Cambridge, MA: MIT Press.
- Haegeman, Liliane. 2009. Main clause phenomena and the derivation of adverbial clauses. In *Proceedings of the 18th international symposium on theoretical and applied linguistics*, ed. by Anastasios Tsangalidis, 1–18. Thessaloniki: Aristotle University of Thessaloniki.
- Haegeman, Liliane. 2010. The internal syntax of adverbial clauses. *Lingua* 120:628–648.
- Haegeman, Liliane. 2012. *Adverbial clauses, main clause phenomena, and the composition of the left periphery*. Oxford: Oxford University Press.
- Kim, Jaegwon. 1969. Events and their descriptions: some considerations. In *Essays in the Honor of Carl G. Hempel*, ed. by Nicholas Rescher, 198–215. Dordrecht: Reidel.
- Kim, Jaegwon. 1976. Events as property exemplifications. In *Action theory*, ed. by Myles Brand and Douglas Walton, 159–177. Dordrecht: Reidel.
- Kratzer, Angelika. 1995. Stage-level and individual-level predicates. In *The generic book*, ed. by Gregory N. Carlson and Francis Jeffrey Pelletier, 125–175. Chicago: The University of Chicago Press.
- Larson, Richard. 1987. ‘Missing prepositions’ and the analysis of English free relative clauses. *Linguistic Inquiry* 18:239–266.
- Larson, Richard. 1990. Extraction and multiple selection in PP. *The Linguistic Review* 7:169–182.
- Major, Travis. 2021. On the nature of ‘say’ complementation. Doctoral dissertation, UCLA.
- McCloskey, James. 2000. Quantifier float and *wh*-movement in an Irish English. *Linguistic Inquiry* 31:57–84.
- Pesetsky, David. 1987. *Wh*-in-situ: movement and unselective binding. In *The representation of (in)definiteness*, ed. by Eric J. Reuland and Alice G. B. ter Meulen, 98–129. Cambridge, MA: MIT Press.
- Rothmayr, Antonia. 2009. *The structure of stative verbs*. Amsterdam/Philadelphia: John Benjamins.
- Stowell, Tim. 1996. The phrase structure of tense. In *Phrase structure and the lexicon*, ed. by Johan Rooryck and Laurie Zaring, 277–291. Dordrecht: Kluwer Publications.
- Stowell, Tim. 2007. The syntactic expression of tense. *Lingua* 117:437–463.
- Yan, Qiuhao Charles. 2022. The structure of *SAY* verbs and temporal modification. *Snippets* 43:7–9.