

## 1. INTRODUCTION

Idioms are notoriously difficult to describe syntactically. While an idiom is typically defined semantically as a phrase with a meaning that is not the sum of its parts (e.g., *sweet tooth* is not a tooth that is sweet), syntactic idiomaticity is a challenging characteristic of language notorious for testing the limits of grammatical theories. Syntactically, an idiom is a phrase with unusual, or idiosyncratic grammatical combinatorics. Within the tradition of autonomous syntax, idiomatic expressions are problematic because they feature phrasal signs (multi-word form-meaning pairings, such as *rock the boat*) that resist syntactic manipulation, making it tempting to treat them as ‘words with spaces’, or single lexical units, rather than phrases consisting of a head and its sister constituents. For example, *rock the boat* behaves more like a single lexical unit. While it has the internal structure of a verb phrase, the idiomatic meaning is lost under conditions such as passivization (1a-b) or wh-movement (2a-b). However, idioms do allow access to internal structure (3a-b) as well as for the integration of internal modifiers (4a-b), processes that are constructionally licensed (cf. Booji 2009, Capelle 2022).

- (1) a. Literal: The boat was rocked by John.  
b. Idiomatic: ??The boat was rocked by John.
- (2) a. Literal: What did John rock? The boat.  
b. Idiomatic: ??What did John rock? The boat.
- (3) a. John rocked the boat.  
b. John was rocking the boat.
- (4) a. John rocked the political boat.  
b. John rocked the wrong boat.

As a result, theorists in this tradition have been forced to posit alternative transformations to account for the various forms in which idioms may appear (e.g., Chomsky 1980, Culicover 1976). However, despite the semantic and syntactic irregularities of idioms, they often demonstrate systematicity and predictability, a feature historically lost as a result of the limitations of existing theoretical frameworks. Additionally, they vary in their degree of

flexibility; while some phrases are entirely frozen (e.g., *by and large*), others are comprised of partially fixed lexical members (e.g., *blow X's mind*) (Kay & Michaelis 2012).

Idioms may be better accounted for within the framework of Sign-Based Construction Grammar (SBCG), which allows idioms to be analyzed as cascades of lexical dependencies assembled by the independently-needed phrasal constructions of the grammar, just as non-idiomatic lexemes are assembled (Michaelis 2006, 2019; Sag 2012; Boas & Sag 2012; Sag, & Flickenger 2015; Kay & Michaelis 2019). A major advantage of SBCG is its ability to account for idioms as constructions with compositional meaning while also capturing underlying systematicity, avoiding lexical overgeneration (Michaelis 2006, Sag 2012, Boaz & Sag 2012, Kay, Sag, & Flickenger 2015). Using SBCG, this work proposes a compositional account for the idiomatically combining elements, non-idiomatic selectors, and non-idiomatic modifying words involved in the *X in mind* construction (5-8). Specifically, it proposes formalisms that account for systematicity underlying senses of this phrase. This account aligns with a lexicalist perspective, in which idiomaticity is often attributed to the selectivity of head words (Sag 2012). It should be noted that a purely lexicalist approach is limited by the fact that not all idioms can be accounted for as straightforward projections of their heads. For example, in the phrase *up in the air*, *in the air* is not simply a projection of the preposition *up*, evinced in part by the fact that the phrase does not behave like a prepositional phrase, failing standard diagnostics.

- (5) We should keep in mind that many of the problems we struggle to solve today were solvable yesterday.
- (6) When you say, "other motivations ", what do you have in mind?
- (7) The last time his father helped was when Bob got it in mind to replace every light in the front entryway.
- (8) With that in mind, how can the alliance expect to achieve peace?

This paper presents an alternative account, proposing an explanation of how such expressions can be modeled as productive, constrained constructions within a formal grammar. Specifically, the idiomatically combining elements of the *X in mind* construction are analyzed using SBCG, thereby leveraging the ability to model grammatical representations that capture both the partial fixedness and the creative flexibility of the phrase, without artificially inflating verb senses or

lexical entries. I argue that *X in mind* is not a set of unrelated idioms, but a unified construction governed by construction-level constraints.

## 2. OVERVIEW

The idiomatically combining expression *X in mind* is notable for its multiple senses, distinctive syntactic behavior, and the questions it raises about how idioms are classified. A comprehensive analysis requires identifying the idiom's obligatory components and determining how these interact with different licensors. Productivity must also be taken into account, as it impacts the range of verbs able to appear in the verbal head position. Further, flexibility must be considered as it impacts the range of syntactic and semantic modifications permissible without loss of an idiomatic interpretation. According to Kay and Michaelis (2012, 2019, Michaelis 2019), lexical flexibility falls on a scale of fixedness. This continuum begins with the most fixed idioms, which are completely frozen and have idiosyncratic syntax. Examples of these idioms include *in point of fact* and *by and large*. At the other end of the spectrum, canonical statements, imperatives, and questions are the most flexible. Examples of these include productive phrase construction patterns in which the pattern itself establishes a set template, but any words may fill the template slots. Idioms such as *X in mind* fall in the middle of this scale. Phrases included in this category are termed "partially fixed" because they follow a constructional pattern but are not entirely open as to what can fill the constructional slots. Constituents are inflected in the same way they would be in a canonical usage, and the pattern itself may allow for partial variability, such as the addition of modifying words or phrases but may only allow these additions in specific places (Kay & Michaelis 2012, Kay et al. 2015, Michaelis 2017). In regard to *X in mind*, the words *in* and *mind* must always be present to achieve an idiomatic reading. However, the expression is triggered by an idiomatic selector and is semi-flexible as to the form in which the selector appears. Additionally, an optional "X" slot functions as the theme argument. *In mind* can be selected for by a verb or it can pattern with the preposition *with*. When headed by a verb, a small set of seemingly unrelated verbs including *have*, *be*, *bear*, *remain*, and *keep* are able to occupy this position (9-13). This can be explained by the fact that the idiom makes use of the MIND is a CONTAINER metaphor. This is elaborated on further in section 4.1.

- (9) Nobody has an idea of what exact reforms they *have in mind*.
- (10) Well, the Axel-fraud thing *is still in my mind*.
- (11) We also have to *bear in mind* the value of the US dollar.
- (12) Even when you know what's in your heart, the words of others can *remain in mind* for hours, days, weeks and even longer.
- (13) One thing to *keep in mind* though is these protests are in multiple states.

*X in mind* can appear without a verbal head when invoked by a *with*-headed absolute clause (14-15) or a simple *with*-headed prepositional phrase (16).

- (14) *With that in mind*, do you think Marie will tell her mom where the ivory is?
- (15) And *with that in mind*, let me bring in a couple of guests.
- (16) I went home *with that in mind*.

The following subsections present a case study of *X in mind*. Section 3 considers flexibility, discussing allowable modification. While Section 3 applies to the phrase in general, Section 4 introduces the four senses, considering differences via a semantic and syntactic account of each. Formalisms are introduced for each sense, demonstrating things such as how verbal licensors can be constrained with a single rule as well as combinatoric differences between the various senses of the phrase.

### 3. MODIFICATION

The constituent arguments of *X in mind* behave like their non-idiomatic counterparts in regard to allowable syntactic combination. Thus, they should allow for quantification, adjectival modification, wh-extraction, and passivization (Michaelis 2019), which is, indeed, the case. Additionally, it allows for more general external modification, genitive insertion between the only invariable constituent, *in mind*, and productive additions to the list of allowable verbal licensors based only on class membership.

Internal modification such as degree, extent, and durative quantification may be realized before the optional *X* argument and the *in mind* PP (17). When the *X* argument is dropped or in an infinitival clause, modification is allowed between the idiomatic trigger and the *in mind* PP (18). Additionally, modification is usually acceptable between a prepositional licenser and the *X* argument (19). However, acceptability may be context dependent (20). Degree, extent, and durative quantification is not allowable within the PP *in mind* (21).

- (17) Bear that **fully** in mind.
- (18) So, we have very much in mind to do something, provided of course the capital markets are there for the quarters.
- (19) The company focuses on publishing psychological suspense with **primarily** female readers in mind.
- (20) ?With **primarily** that in mind, I'd suggest asking more open-ended questions.
- (21) \*So, we have in **very much** mind to do something, provided of course the capital markets are there for the quarters.

The construction allows for passivization, moving the optional *X* argument to the subject position (22). As the *X* argument functions as the direct object, this is in line with sentential syntax. The *X* argument participates in the idiom but is not itself an idiomatic element. The sense of the term realized here would be canonical rather than idiomatic.

- (22) The consolidation and power, not to mention wealth, was in mind as the leaders continued to promote the practice.

This is further demonstrated with extraction. The *X* argument may be extracted (23-24). However, while extraction of the set PP *in mind* may be deemed marginally acceptable, it has a metaphorical, but not idiomatic, reading (25).

- (23) It was what that she had in mind?
- (24) What I had in mind was a kind of sports model, baby.
- (25) \*Where I had that was in mind.

Examples thus far have demonstrated internal modification. External modification of the construction as a whole is also allowable (26).

(26) I **fully** *have in mind* what I need but I can't spend time to master C/C++.

An additional type of internal modification is found in this construction. A genitive pronoun may be inserted between *in* and *mind* in all senses (27-30).

(27) John has in **his** mind...

(28) This country is great in **my** mind.

(29) With this country in **my** mind, ...

(30) And I've lived **with this in my mind** for so long.

One final example of flexibility is seen with the verbally headed senses. As seen in 31-33, the verb is inflected in accordance with the larger sentence and is able to convey aspectual and temporal information. This is found only with the verbally headed senses as prepositions are not inflected.

(31) While listening, I **kept** that in mind.

(32) **Keeping** in mind always the worst-case scenario.

(33) I **will be keeping** that in mind!

#### 4. SENSES

*X in mind* can be separated into four separate senses based on constructional pattern changes, differing argument structures, and differences in semantic meaning. In each, the fixed prepositional phrase *in mind* must be present. However, an idiomatic interpretation can be licensed by various verbs or *with*. The Merriam Webster Dictionary has only one entry for *in mind*, paired with neither a verb nor the preposition *with*, as “in one’s thoughts” ([www.merriamwebster.com](http://www.merriamwebster.com)). It has two additional entries for *have in mind*, with the listed

definitions of “to be thinking of doing something such as 1.) choosing someone for a job or position or 2.) doing something” (www.merriam-webster.com). The Free Dictionary’s idiom dictionary has entries for *bear (someone or something in mind)*, *bear in mind (that)*, *bear in mind*, *keep in mind*, *bear/keep somebody/something in mind*, *bear/keep in mind that*, *have in mind*, *have someone or something in mind*, and *have someone/something in mind (for something)* (www.thefreedictionary.com). A few of these, such as *bear in mind* that and *keep/bear in mind* are redundant. Notably, there are listings for *in mind* paired with the most common three verbal heads but no listing for *in mind*, *with X in mind*, or for *X in mind* when headed by other verbs such as *maintain*. The lack of an *in mind* entry combined with the numerous and differently defined entries for common verbal heads is reflective of the assumption that *have X in mind*, and other verbal realizations such as *bear in mind* or the prepositional *with X in mind* are all fundamentally different. That is not the case. While the rules governing the combinatoric properties of *with X in mind* do differ from those of *have X in mind*, *bear in mind*, *is in mind*, *keep in mind*, and *maintain in mind* all convey a “remember, consider or possess an idea” meaning and combine in the same manner. Additionally, while *have X in mind* has two identical realizations in terms of its form value, it can mean either “possess an idea” or “intend to perform an action”. Regardless of the realization of the verbal head, *X in mind* can never appear on its own and still invoke an idiomatic reading (34-35). Thus, the head plays a vital role as the idiomatic selector.

(34) \*That in mind is terrifying.

(35) In our minds, he is guilty.<sup>1</sup>

#### 4.1. TRANSITIVE *X IN MIND* “REMEMBER, CONSIDER”

The most common sense of *X in mind* is that of “to remember, consider, or possess a thought or idea” (36-37).

(36) Keep in mind that many people have died for their beliefs.

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<sup>1</sup> This is non-idiomatic and has a different metaphorical mapping.

(37) When you speak to Lee, bear in mind he's still pretty upset about what happened.

When *in mind* carries the sense of “remember or consider”, it has three arguments: an entity experiencing a thought, a thought or idea, and the location of the thought itself. In (38), *she* serves as a proto-agent or possessor, keeping the movie in her thoughts. The theme argument *that movie* serves as the remembered thought. Finally, *in mind* serves as the location of the stored memory.

(38) She clearly had that movie in mind when conjuring up her costume.

This is a decomposable idiom, or an idiom with a composite meaning that is distributed across each of the combining elements, such that each carries an identifiable portion of the meaning of the phrase (Nunberg et al. 1994, Gibbs & Nayak 1989). In all senses, *in* provides a meaning of “inside” and *mind* provides the location of “brain or mind”. This idiom consistently makes use of the MIND is a CONTAINER metaphor. In this metaphor, the container, used as a source to understand the target of one’s mind, is a finite, bounded object. The container may be thought of as having a lid or being open but items inside the container are fixed in place and will not fall out (Lakoff 1980). This metaphor is particularly important for the verbally headed sense of *X in mind* as it explains and predicts which verbs will be allowed to select for an idiomatic reading. The idiom may only be selected for by verbs that can cause items to be fixed within a set space. Verbs must possess object manipulation properties as well as possession properties in both the source and target domains. For example, *have* in *have in mind* carries a literal “possess” meaning. When you *have* (possess) an object, it remains with you, and you cause it to remain in place with you. The sense of *keep* in *keep in mind* is that of “hold, bear, or maintain”. When you *keep* (“hold/maintain”) an object, it again remains fixed in place with you as its owner. Because this verb class is constrained, novel verbs may be judged grammatical in this position as long as they are also class members. Verbs able to convey a meaning of affixing an object securely within a space on both a vertical and horizontal axis should be judged as a better trigger for this metaphor than those locating an object within the container but not securing it in place. For example, *affix in mind*, while not unattested, is a particularly illustrative example. This sense of *affix* means “to be attached to a location”. When thinking of the MIND is a CONTAINER

metaphor, this sense of *affix* implies that an idea is stuck to the wall of your mind. It is unable to move upwards or downwards. You can shake the container (your mind) and the idea will not rattle about or be lost. Possession of an “affixed” idea is not only maintained, but the idea remains in the same place, undamaged and unaffected by outside forces.

Thus, the verbally headed sense is restricted to members of a class of verbs with properties of possession and object manipulation in both the source and target domains of the MIND is a CONTAINER metaphor. The head verb calls for a thematic argument structure of: agent [verb] theme location. This is seen in (39), where the agent is found in an NP preceding the verb and the optional theme is found in an NP directly following the verb or directly following the PP. When the theme follows the PP, it is the result of movement due to pragmatic focus and is often realized as a relative clause. Additionally, the theme may be moved to a pre-verbal position in cases of passivization. While movement, such as the patterns seen in (40-41) demonstrates the flexibility of this idiom, the base pattern remains NP, NP, PP.

(39) Simple pattern: John<sub>[NP1]</sub> kept it<sub>[NP2]</sub> in mind<sub>[PP]</sub>.

(40) NP movement: You<sub>[NP1]</sub> should keep in mind<sub>[PP]</sub> that traffic will be heavy at that time of day<sub>[NP2]</sub>.

(41) NP2 movement due to passivization: Fire safety<sub>[NP2]</sub> should be kept in mind<sub>[PP]</sub> at all times, especially during periods of high fire danger.

Finally, the locative, idiomatic PP *in mind* conforms to ordinary syntactic combinatoric rules within the idiom while being governed by its verbal head. It appears in the third position but can move to the second position based on the presence and realization of other arguments higher on the scale of semantic and syntactic importance. This promotion or demotion in relation to the subject and direct object is in line with preferred argument prioritization and is somewhat surprising for an idiom whose meaning is tied more to the prepositional phrase. This is a good example of the continuum between fixed phrasal idioms and completely open idioms comprised of idiomatically combining elements as the idiomatically instantiated *in mind* combines with the rest of the construction according to canonical grammatical rules.

The following subsections will discuss lexemes and lexical signs comprising this sense of the idiom. This concludes with section 4.1.3, which features an example construction demonstrating how the listemes combine. Note that these representations are descriptions and therefore are not fully specified. Instead, only necessary information is included. To this end, the feature values of FORM, SYN, and SEM will be used in this analysis.

FORM specifies the realized morphological form of lexemes. For lexical signs, it allows for the specification of a verb class, not restricting the listeme to a single verb. The SYN feature includes values for CAT(ectomy), MRKG (marking), and VAL(ence). CAT specifies values for complex grammatical categories, such as AUX or verb form. It also specifies values for XARG (external argument) and LID (lexical identifier). The XARG indicates an argument of an argument-taking structure when that argument lies outside the local domain (Sag 2012:76). Arguments listed in XARG also appear in the VAL list unless null or extracted. Unlike XARG, which may only have signs as its value, a VAL list can contain phrasal signs. VAL is used to specify arguments of an expression not yet encountered. This results in a construction that is syntactically decomposed at a local level even if the pattern itself spans many levels of familial relations. In other words, the VAL list for *in mind* reflects its selection of the NP *mind* while the VAL list for *have* in a *have*-headed sense will select the PP headed by *in*, allowing for accurately represented combinatoric and semantic representation while retaining a relationship between the working parts and the larger construction via a system of inheritance.

As set forth by Sag, the LID value “individuates lexical items systematically; the value of LID is a list of semantic frames that canonically specify the (fine-grained) meaning of a lexeme.” (Sag 2012:76). The semantic frames corresponding to the arguments listed in the ARG-ST are listed in the LID. Idiomatic meaning can also be specified here. Ordinary, canonical frames (c-fr) receive no additional marking, but idiomatic senses receive an idiomatic frame (i-fr). The LID value for non-idiomatic *mind* would be *mind-fr*. The idiomatic frame would be *i-mind[container]-fr*. Here, *i-fr* requires an idiomatic reading and is able to specify this meaning in brackets next to the word.

The marking value is used to differentiate marked from unmarked elements (Pollard & Sag 1994, Sag 2012). It traditionally is filled by any word acting as a “marker”. The goal in defining this value in such a manner is to not constrain it to one specific type of marking or even to a

particular language's marking system. All elements specifying a MRKG value must also specify a nonempty SELECT value, or the syntax value that allows an expression to select the elements it can combine with.

#### 4.1.1. MIND AS A CONTAINER VERB (MACV) LISTEME

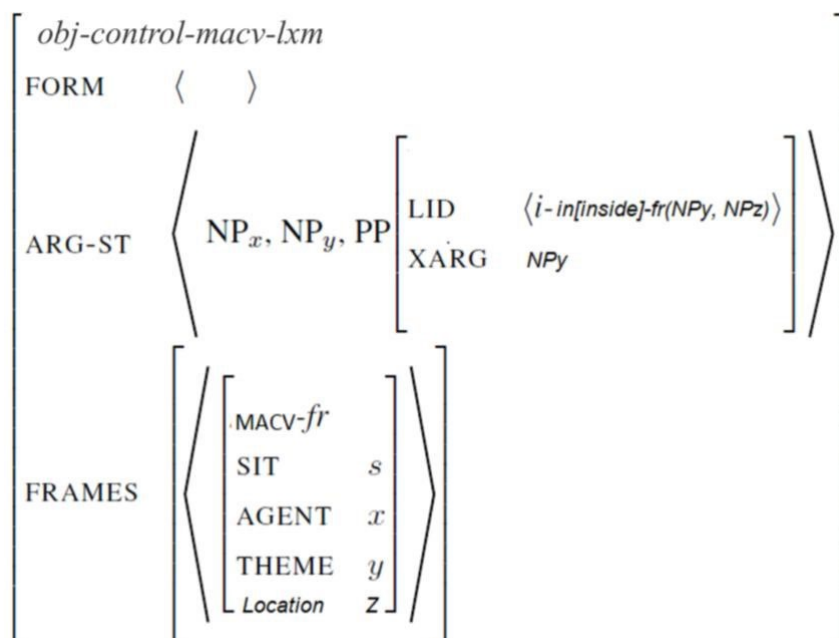


Figure 1. Entry for the MIND as a CONTAINER verb.

Figure 1 shows the listeme for MACV, which licenses all verbs that instantiate the MIND as a CONTAINER metaphor. This is accomplished by specifying a MACV lexeme class, where MACV represents any verb with properties of possession and object manipulation in both the source and target domains. In the EnTenTen18 corpus (Jakubíček et al. 2013), there are more than ten attested instances of *keep*, *bear*, *have*, *hold*, *retain*, and *be* serving as idiomatic licensors in the head verb position. A number of other verbs, such as *maintain*, *preserve*, and *carry* appear between one and ten times. Each of these verbs fits within the natural class created by MACV. Additionally, unattested verbal class members such as *encase* or *affix* would be understandable,

allowing for productive flexibility. However, verbs such as *dance*, *eat*, *make*, *hit*, *take*, or *smell* would not be permitted in this position and are blocked in this representation. Because the lexeme class is restricted to object raising MACVs, the FORM value is empty, allowing for inheritance of filled FORM values from other lexemes.

The argument structure is listed as NP<sub>x</sub>, NP<sub>y</sub>, and PP. NP<sub>x</sub> corresponds to the agentive argument preceding the verb, NP<sub>y</sub> corresponds to the optional *X* argument, and PP corresponds to the set phrase *in mind*. This verb governs the idiomatic *in mind* but combines with other sentential elements in a canonical manner. Thus, the MACV receives a canonical frame to maintain its ability to be selected by other sentential arguments but specifies the idiomatic *in* as its LID value. *In* will be selected as the head of the PP. This *in* conveys the meaning of “inside” and will have an internal argument structure of NP<sub>y</sub>, NP<sub>z</sub>. NP<sub>y</sub> is the same theme argument found in the verb’s argument structure list. NP<sub>z</sub> will be introduced in the listeme for *in* and will correspond to the set noun *mind*. The XARG for the verb is the optional *X* argument NP<sub>y</sub>.

The frames value allows for a situation (*s*) to be established. It then accounts for an agent (NP<sub>x</sub>), a theme (NP<sub>y</sub>), and the locative *in mind* (PP). Finally, a state (*l*) is established.

#### 4.1.2 The *IN* LISTEME

$$\left[ \begin{array}{l} \textit{trans-p-lxm} \\ \text{FORM} \quad \langle \textit{in} \ \rangle \\ \text{SYN} \quad \left[ \begin{array}{l} \text{CAT} \quad \left[ \begin{array}{l} \text{XARG} \quad X \\ \text{LID} \quad \langle Y \rangle \end{array} \right] \end{array} \right] \\ \text{ARG-ST} \quad \left[ \begin{array}{l} \text{NP}_y, \text{NP}_z \left[ \begin{array}{l} \text{LID} \quad \langle \textit{i-in[inside]-fr}(y, z) \ \rangle \end{array} \right] \end{array} \right] \\ \text{SEM} \quad \left[ \begin{array}{l} \text{FRAMES} \quad \left\langle Y: \left[ \begin{array}{l} \text{I-in[inside]-fr} \\ \text{LOCANDUM} \quad y \\ \text{LOCATION} \quad z \end{array} \right] \right\rangle \end{array} \right] \end{array} \right]$$

Figure 2. Entry for *in*.

In Figure 2, the listeme for *in* carries the expected form value of “in”. Even though the i-frame shows that the idiomatic meaning differs from that of just “in”, the written or spoken form is simply “in”. The XARG value is that of X, which signifies an argument outside of the local span of *in* and corresponds to the subject of the head verb. The LID value, specified as Y, is detailed in the frames list as having a locandum and a location. The frame list X and Y values internally correspond to those seen in the ARG-ST list.

#### 4.1.3. THE *IN MIND* CONSTRUCTION

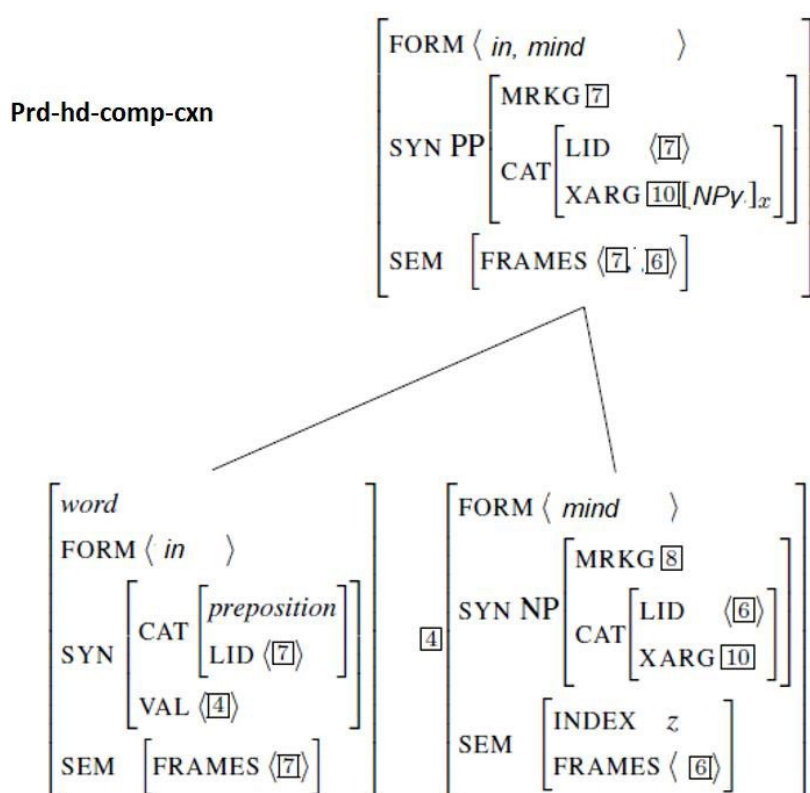


Figure 3. The *in mind* construction.

Figure 3 shows the combination of *in* and *mind*. This prepositional phrase uses the predicational head-complement-construction (prd-hd-comp-cxn) to combine. The head complement construction allows prepositional phrases to express a valence and to combine in the absence of external arguments. Here, the mother’s SYN properties are the same as those of the head daughter with the exception of VAL, which is passed up from the second daughter. This index

also appears in the mother's XARG list. The root node has a LID value matching that of the head daughter *in*. *Mind* has a non-inheritable LID value, that of i-mind-[container]-fr. The LID value of *mind* does coindex internally with its frames value. The LID and *frames* value for *in* are also internally coindexed. The LID value of *in* is passed up to the mother. The root node has a frames list indexing the frames list of both *in* and that of *mind*.

#### 4.2. *X IN MIND [TO] "INTEND OR DESIRE"*

The second verbally headed idiom carries the meaning of "intend or desire to do something" (4244). This sense allows for the optional *X* slot, although it is rarely filled. It is usually followed by a *to* infinitival marker phrase containing the intended desire. While still evoking a MIND is a CONTAINER metaphorical mapping, this sense is less flexible in terms of the realized form of the verbal head. It is nearly always realized as *have*, although a few attested instances of other verbs can be found in EnTenTen18 (Jakubiček et al. 2013). Like the verbal licenser in the first sense, *have* governs the idiomatic phrase but combines with the remainder of the sentence in a canonical manner. Therefore, while it is a part of the idiom, it acts as an idiomatic selector for *in* and receives a c-frame.

(42) I have it in mind to join that team.

(43) John had in mind to go to the store but decided he would make Mary go instead.

(44) I have in mind to see the film with my children.

In this construction, *have* acts as a subject control verb, licensing an additional 'act or action' argument. This action follows the idiom in a "*to verb X*" infinitive, with the infinitival *to* establishing a state (45-46). This creates an item in the mental container that is the mind corresponding to the concept of an action. Syntactically, the XARG of the infinitive is coindexed with that of the verb that includes the infinitival VP in its valence list.

(45) I had in mind to go to the store.

(46) I had in mind to do a mandala with my pressed fall leaves, but I didn't imagine it would turn out this satisfying!

#### 4.2.1 THE *HAVE* LISTEME

The frame for *have* must account for both the verbally headed idiom as well as the infinitival intended action. This can be seen in Figure 4, which calls for an NP agent, the possible realization of a theme NP, the locative *in mind* PP, and finally the *to*-headed infinitival VP.

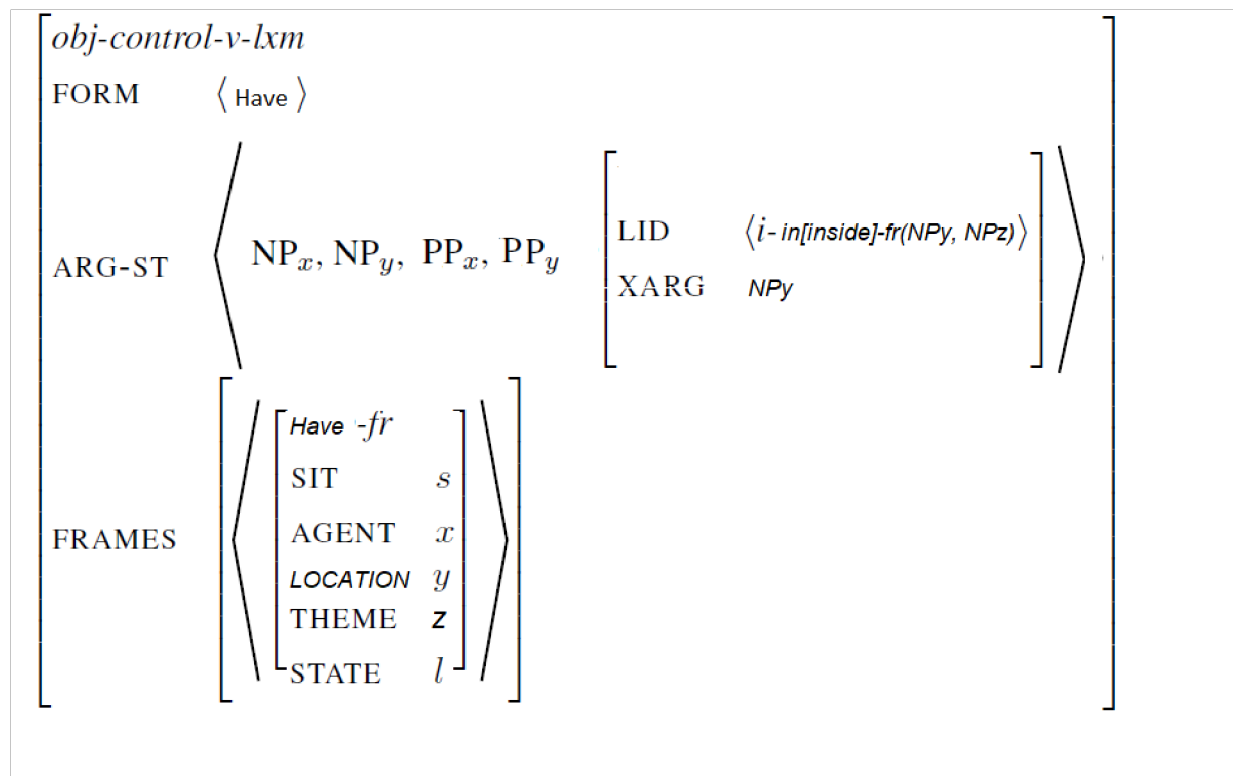


Figure 4. Entry for *have*.

The LID value selects for the idiomatic “in/inside” frame. The argument structure of the locative PP remains the same. When combining with the larger phrase, *have* will make use of the object control construction, noted at the top of Figure 4. In the final construction, *have* would license the *to* headed PP<sub>y</sub>. However, the special syntactic processes that take place within it are not a part of the idiom, need not be accounted for by it, and are governed by canonical grammatical rules.

The argument structure is listed as NP<sub>x</sub>, NP<sub>y</sub>, PP<sub>x</sub>, and PP<sub>y</sub>. NP<sub>x</sub> corresponds to the agentive argument preceding the verb, NP<sub>y</sub> corresponds to the optional *X* argument. PP<sub>x</sub> corresponds to

the set phrase *in mind* and PPy corresponds to the optional *to* headed infinitival phrase containing the theme or desired act. NPy and PPy corefer. NPy is realized as a pronoun, serving as a place marker within the idiom for the intent (47). Notably, it cannot be fully realized in this position which raises the question of whether there are two control processes occurring or if this is a case of extraposition (48). However, this is a question outside the control of the idiom.

(47) I had it in mind to join the team.

(48) \*I had to join the team in mind.

The frames value allows for a situation (s) to be established. It then accounts for an agent, the locative *in mind*, and the theme. Finally, it allows for the establishment of a state (l). This list shows the theme in the final position. This is because information filling the *X* slot within the idiom does not contain meaningful information on its own but requires the *to* infinitival marker to establish its referential meaning. As *in* and *mind* are not affected by the argument structure changes induced by subject-control *have*, they will not be repeated here.

#### 4.3. WITH X IN MIND (ABSOLUTIVE CLAUSE) “REMEMBER, THINK ABOUT”

The third sense of *in mind* is the *with*-headed “remember, think about” sense. *With* heads an absolutive clause and is limited in scope to arguments within the clause. The clause often establishes a pre-condition or a pre-requisite for a potential future act, which is realized in the main clause (49-50). While there is a relationship between the condition established and the action in the main clause, this cannot be accounted for by the idiom.

(50) With memories of his bear fridge in mind, John went to the store.

(51) And with that in mind, let me bring in a couple of guests.

Across its realizations, *X in mind* projects a uniform argument structure, with an experiencer, thought, and location. In the verbally headed phrase, this is locally and explicitly instantiated. However, the experiencer is typically not overtly expressed within the immediate constructional domain. Instead, it appears in the matrix clause.

Thus far, not much has been made of the *X* argument. In the first two senses, this argument was completely flexible and optional. When headed by a preposition, the *X* slot must be filled. This *X* is a representation of a truly flexible idiom slot pattern (Kay & Michaelis 2012, Michaelis 2017, Kay et al. 2015) in that it restricts by part of speech only. Specifically, it can be filled by pronouns, single nouns, or noun phrases (52-55).

(52) With this in mind, a group of 35 specialists met last weekend.

(53) With Mary in mind, John phoned the flower store.

(54) With meeting in mind, a group of 35 specialists assembled.

(55) \*With met in mind, a group of 35 specialists assembled.

#### 4.3.1. THE *WITH* LISTEME

Although a preposition, FrameNet (Fillmore, 2003) groups this sense of *with* in a class also containing *have*, called *Have\_Association*. This sense grouping includes sentences such as “Stephen now had two presidents he hated” and is in line with the sense of *have* found in the first case of the idiom, that of “remember, consider”. Accordingly, this idiomatic selector functions in a manner similar to *have*. *With* calls for a thematic argument structure of agent, theme, and location. The agent NP precedes the preposition but is always elided. The theme is found in an NP directly following the verb. Unlike the verbally headed “remember, consider” sense, the theme argument is not optional. This slot must be filled, and it can only be filled by an NP. Finally, the locative, idiomatic PP *in mind* concludes the clause. This PP is always found in the third position, and it cannot switch places with the theme NP (56-57).

(56) With that in mind, one hospital airlifted 10 additional patients.

(57) \*With in mind that, one hospital airlifted 10 additional patients.

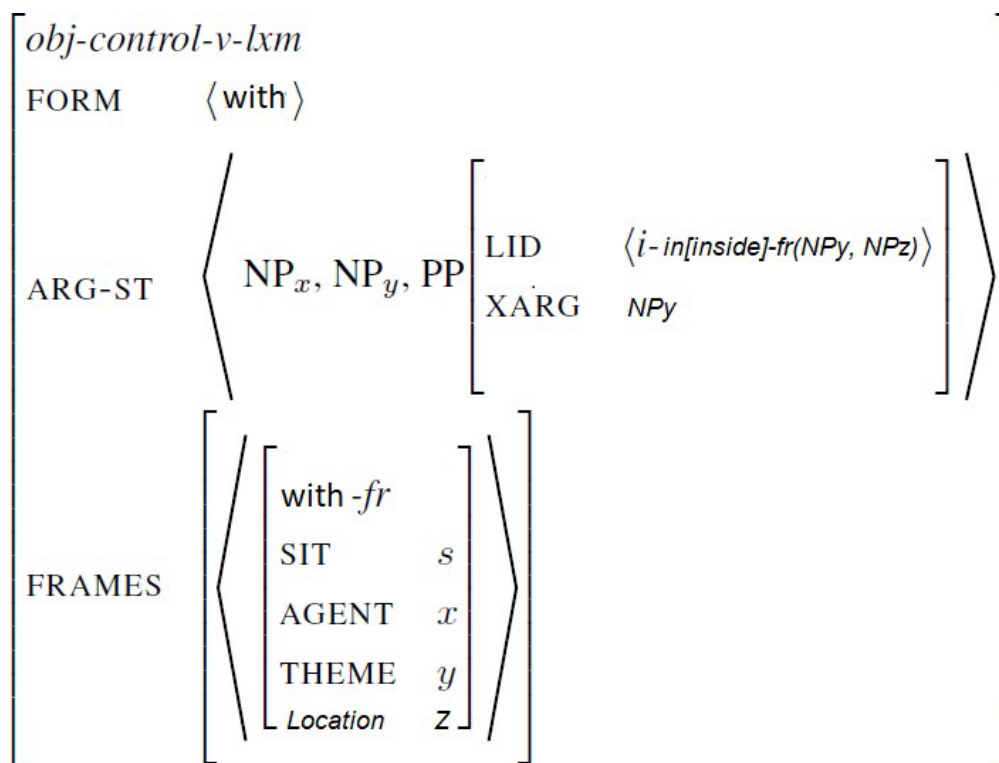


Figure 5. Entry for *with*.

In Figure 5, the form value for the lexical sign is *with*. The argument structure is listed as  $NP_x, NP_y$ , and *PP*.  $NP_x$  corresponds to the agentive argument preceding the preposition. Even though it is elided, it can still be listed as a part of the argument structure.  $NP_y$  corresponds to the theme argument, and *PP* corresponds to the set phrase *in mind*. Additionally, while the XARG would be coindexed with the XARG of the main clause, the VAL list of *with* is the same as that of the verbally headed senses, with each specifying an experiencer, thought, and location.

This preposition governs the idiomatic *in mind* but combines with other sentential elements in a canonical manner. *With* receives a canonical or “c” frame, allowing it to be selected by other sentential arguments but specifies an idiomatic *in* as the LID value. Idiomatic *in* will be selected as the head of the locative *PP* and only idiomatic *in* may appear here. As with the other senses, the idiomatic *in* will have the meaning of “inside” and will have an internal argument structure of  $NP_y, NP_z$ . This  $NP_y$  is the same theme argument found in the argument structure list.  $NP_z$  can

be found in the listeme for *in* and will correspond to the fixed noun *mind*. The XARG for the verb is the theme argument NPy.

The frames value allows for a situation (s) to be established. It then accounts for an agent (NPx), a theme (NPy), and the locative *in mind* (PP). Finally, a state (l) is established.

#### 4.4. *WITH X IN MIND* (SIMPLE PREPOSITIONAL PHRASE) “CONSIDER, AN IDEA WEIGHING HEAVILY UPON ONE”

The final sense of the idiom is that of “consider”, similar to that of the verbally headed first sense (58-59). This sense gives the impression of a thought weighing heavily on someone.

(58) John walked home with her parting words heavily in mind.

(59) Let’s listen with that in mind.

The structure of this sense is identical to that of the absolute sense of the idiom. The *X* argument expressing the thought is not optional and must be realized as a pronoun, single noun, or a noun phrase, and the prepositional phrase expressing the location *in mind* must be present. However, the experiencer is typically not overtly expressed within the immediate constructional domain, instead appearing in the matrix clause.

The difference between this sense and the absolute sense lies only in meaning and the role the phrase plays in the larger sentence. Unlike the absolute senses, this sense does not establish a pre-condition or denote a pre-existing state. Further, it does not relate, lead to, or establish a platform for a future act. It functions as a simple prepositional phrase. It does not form a clause or act in any way other than as a basic prepositional phrase, modeling something close to the manner in which something is done. As the listeme for *with* is identical to that detailed in 5.3 and *in mind* is the same as that found in 5.1, no additional listemes will be introduced here.

#### 4.5. THE *WITH THAT IN MIND* CONSTRUCTION

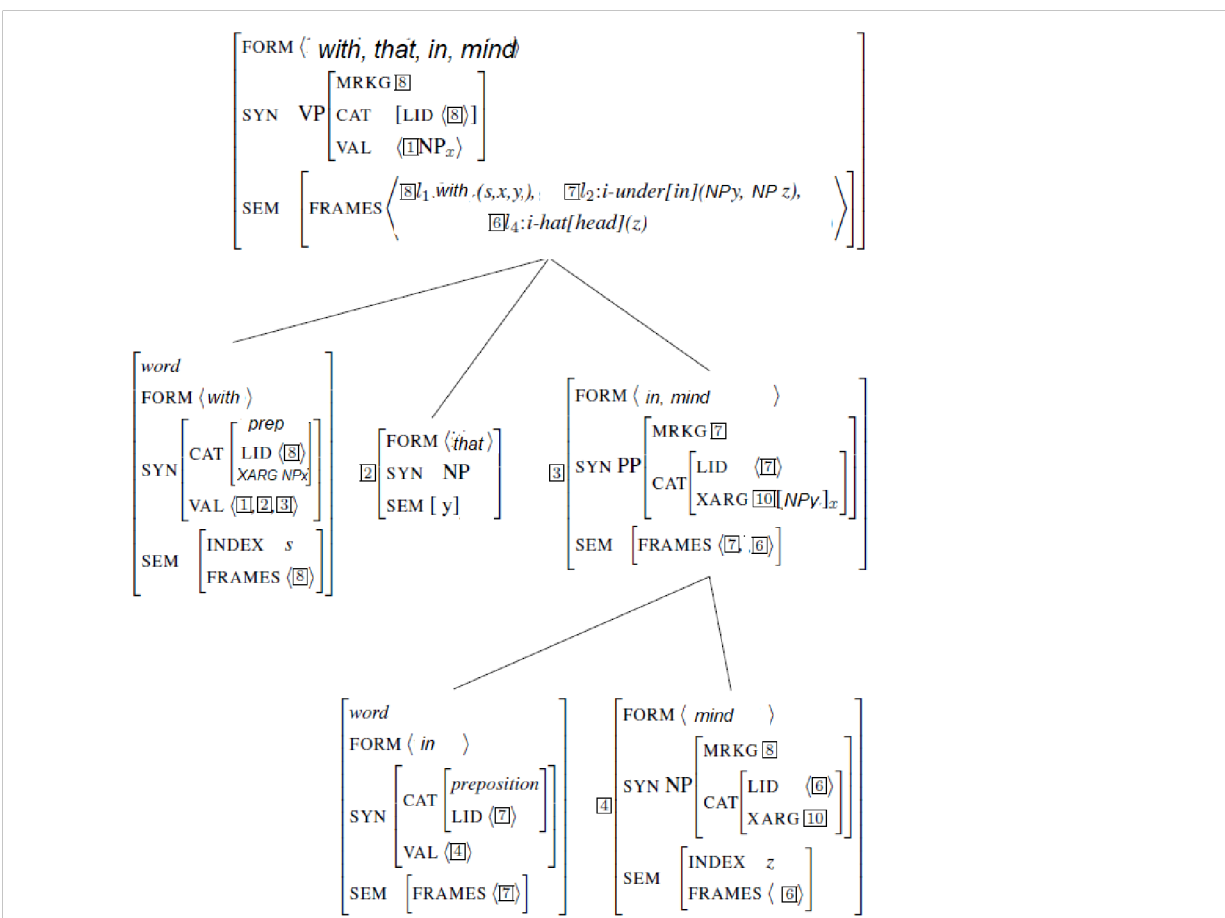


Figure 6. The *with that in mind* construction.

In Figure 6, the construction shows the grammatically licensed combination of *with that in mind*. The tree differs from individual listemes as feature values and coindexing are determined by the interaction of the features. Beginning with the root constituent, *with* has four arguments: the event variable  $s$ ,  $NP_x$ ,  $NP_y$ , and PP. The variable  $NP_x$  serves as referent to a null instantiation of the subject of *with* and is shown as the XARG of the head daughter. It is inherited by the mother from the head daughter and appears as the VAL value in the root node. The head daughter *with* has a VAL list of  $NP_x$ ,  $NP_y$ , and PP.  $NP_y$  serves as a referent to the required  $X$  argument (where  $X$  refers to the  $X$  slot of  $X$  in *mind*, not the variable  $X$ ). This argument must be realized as a noun phrase. In the construction above, the realized form is *that*. The SYN value for *that* is simply NP, requiring only a marking indicating it belongs to the category noun. This NP does not add other semantic value to the construction.

The prepositional phrase *in mind* combines by way of the predicational head-complement-construction (prd-hd-comp-cxt). The mother's SYN properties are the same as that of the head daughter with the exception of VAL, which is passed up from the second daughter. This index also appears in the mother's XARG list. The mother node has a LID value matching that of the head daughter *in*. The LID value of *mind* is not passed to the mother's LID, though the LID value of *mind* does coindex internally with the frames value. The LID and frames value for *in* are also internally coindexed. The LID value of *in* is passed up to the mother. The mother node has a frames list indexing both the frames list of *in* and that of *mind*.

This construction restricts the idiomatic expression from being triggered by any word. Only specific words are able to invoke the idiomatic reading, and they govern this by selecting for an i-frame. The construction further specifies the realization of an NP preceding the locative *in mind*. It does not allow for a verb, preposition, adjective, or other type of phrase to occupy this spot. The locative preposition *in* is able to call for a fixed noun, *mind*, constraining this more fixed portion of the idiom by selecting a specific word rather than licensing a class.

## 5. CONCLUSION

Sign-based construction grammar offers powerful tools for a more complete analysis of idioms such as *X in mind*. It shows that this semi-flexible idiom is more complex than one might initially imagine. It has four distinct senses which vary not only in meaning but also in syntactic structure and degree of flexibility. The idiom is headed by either a verb or a preposition. The verb may have a required realization of the form *have* or it may be flexible, requiring only that the idiomatic selector be a member of the "mind-as-container" verb class. The *X* may be required or may be optional. This slot may allow any type of phrase to fill it, or it may be restricted to noun phrases only. The prepositional phrase *in mind* is required in all senses, however it also displays flexibility, as a genitive pronoun may be inserted between *in* and *mind*. Despite this flexibility, the pattern is predictable and stable. Sign based construction grammar allows for an analysis of the idiom as a semantically decomposable expression rather than as a set phrase where shifts and changes within the expression are hard to account for. By using a system of inheritance, local models of relations, i-frames to control for idiomatic versus canonical

interpretations, and feature structure values such as VAL to restrict words from appearing where they are not governed, an accurate representation of the construction can be created. Listemes and constructions are able to show that the verb class in first sense of the idiom is not simply open to any verb nor is it restricted to a set few. They are able to account for internal movement due to processes such as focus and are able to account for changes due to combination with the larger sentence which may affect the construction, such as in the have in mind [to] construction. This results in an account able to handle argument movement while assuming constituents retain their individual meaning, accurately showing internal idiomatic combinatoric potentials as well as combinatoric potentials and influences from the larger sentence without the need for transformations.

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