

Parallels and contrasts between the ASD-STE Dictionary and the Ontology in FunGramKB¹

Ángel Felices Lago

Universidad de Granada
España

Ángela Alameda Hernández

Universidad de Granada
España

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Ángel Felices Lago: Departamento de Filologías Inglesa y Alemana, Facultad de Ciencias Económicas y Empresariales, Universidad de Granada. | E-mail: afelices@ugr.es

Ángela Alameda Hernández: Departamento de Filologías Inglesa y Alemana, Facultad de Traducción e Interpretación, Universidad de Granada. | E-mail: aalameda@ugr.es

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Abstract

In this article we intend to offer the results of comparing and matching basic and terminal concepts (and their corresponding lexical units) in FunGramKB with Words (and their corresponding synonyms) in the ASD-STE dictionary and determine whether the way in which this controlled language has been designed draws similarities with the way in which the conceptual information of that knowledge base is built. To provide evidence based on authentic material, we have selected the list of 190 approved verbs in the ASD-STE dictionary: a collection of units complying with the ASD-STE lexical and syntactic restrictions. These verbs are used as a representative sample to be compared with 547 verbal concepts stored in the FunGramKB #EVENT subontology (as basic or terminal concepts). The level of compatibility between both repositories offers four possibilities of conceptual and/or lexical matching at varying degrees: i) direct matching, ii) indirect matching, iii) no matching, or iv) missing. The quantitative results of this analysis may prove that a significant percentage of verbal Words in the ASD-STE dictionary (more than 50%) are directly or indirectly represented in FunGramKB, either as concepts or as lexical units associated with other concepts.

Keywords: FunGramKB; ontology; terminology; ASD-STE dictionary; controlled languages.

1 ASD-STD stands for *Aero-Space and Defence Industries Association of Europe - Simplified Technical English*. FunGramKB refers to *Functional Grammar Knowledge Base*.

1. Introductory remarks²

The main purpose of this contribution is to offer the results of comparing and matching basic and terminal concepts (and their corresponding lexical units) from FunGramKb conceptual and lexical modules³ with the Approved Words (and their corresponding synonyms) in the controlled language known as ASD-STE 100⁴, and then determine to what extent the way in which this controlled language has been designed could offer similarities with the way in which the ontological concepts (proto-microstructures) have been conceived in the building of the FunGramKB Core Ontology.

A subsidiary purpose of this study is to determine if the ASD-STE dictionary (henceforth STE dictionary) could eventually be of help to expand and improve the FunGramKB Ontology. The fact that one of the basic ASD-STE purposes was to simplify the number of many English word meanings and synonyms in order to avoid confusion among potential readers (ASD, 2013) does not shed light on the strict controls used to select some lexical units to the detriment of others considered as synonyms. “Simplicity” or “ease of recognition” (ASD, 2013: i) are claimed to be the selection criteria, but these principles are too vague or inconclusive and probably based on the terminologist or lexicographer intuition. However, in FunGramKB Core Ontology, which is based on deep semantics, the meaning postulates (MPs) comprise a group of one or more logically connected predications ($e_1, e_2 \dots e_n$), which are conceptual constructs carrying the generic features of concepts (Periñán & Arcas, 2004). In consequence, when predications are built for an NLP knowledge base in order to represent an average adult speaker’s linguistic competence, dictionaries must be the guide. Dictionaries are reliable repositories of information that several generations of expert speakers have judged to be relevant for lexical meaning (Marconi, 1997). A few years earlier, Ide and Véronis (1994) recommended using several dictionaries as sources of lexical acquisition, because what a particular dictionary lacks is usually supplied by another dictionary.

In that respect, FunGramKB might be considered a reliable knowledge base, due to the fact that it works with several machine-readable dictionaries, *Collins COBUILD English Dictionary*, *Oxford Advanced Learner’s Dictionary* and *Longman Web Dictionary*, and the linguistic taxonomy *WordNet*. Consequently, the combination of the main contribution and the subsidiary purpose described above may prove relevant for a more solid development of the current general-purpose module (FunGramKB Core Ontology) and pave the way to a robust building of domain-specific modules (Satellite Ontologies), taking into consideration that the ASD-STE specification was originally designed for technical and professional activities.

2 This article is based on research carried out within the framework of the Project FFI2014-53788-C3-1-P, which is funded by the *Spanish Ministry of Economy and Competitiveness*.

3 The main characteristics of FunGramKB will be described in chapter 2.

4 The main characteristics of ASD-STE 100 will be explained in chapter 3.

The following chapters of this study are organized as follows: section 2 will deal with an overview of FunGramKb for a better understanding of the criteria to build ontological meaning under the principles of deep semantics; section 3 describes the main characteristics of the controlled language known as ASD Simplified Technical English; section 4 explains the treatment of the units in both repositories, using “decrease” as a verbal sample; section 5 discusses the global results of the matching process (parallels and contrasts) and the four subsequent possibilities. Finally, section 6 offers some concluding remarks.

2. FunGramKB architecture

Over 25 years ago Velardi et al. (1991) distinguished two well-defined strategies when describing meaning in NLP: the cognitive content in a lexical unit can be described by means of semantic features or primitives (conceptual meaning), or through associations with other lexical units in the lexicon (relational meaning). Strictly speaking, the latter does not give a real definition of the lexical unit, but it describes its usage in the language via ‘meaning relations’ with other lexical units. Bender (2009) and Periñán (2012) maintain that it is certainly easier to state associations among lexical units in the way of meaning relations than describing the cognitive content of lexical units formally, but the inference power of conceptual meaning is much stronger. Surface semantics can be adequate in some NLP systems, but the construction of a robust knowledge base guarantees its use in most NLP tasks, reinforcing thus the concept of resource reuse. This crucial distinction set up the foundations for FunGramKB, which can be defined as a multipurpose lexico-conceptual knowledge base for natural language processing systems and natural language understanding (Periñán & Arcas, 2004). This knowledge base is made up of three major knowledge levels, consisting in turn of several independent but interrelated modules. As shown in Periñán & Arcas (2010b) and figure 1 below, these are:

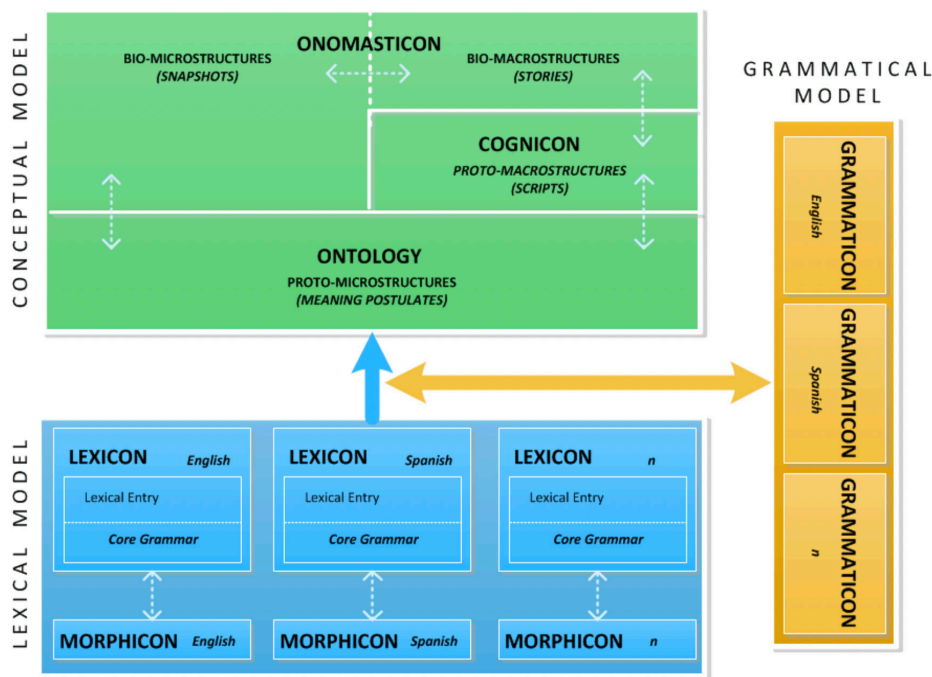
- a) The lexical level (linguistic knowledge) comprising the Lexicon, which stores morpho-syntactic, pragmatics and collocational information about lexical units in a specific language, and the Morphicon, which handles cases of inflectional morphology.
- b) The grammatical level (linguistic knowledge), formed by the Grammaticon, which stores and captures the properties that are specific to the most relevant constructional families in the languages selected.
- c) The conceptual level (non-linguistic knowledge) is represented in an interface language known as Conceptual Representation Language or COREL (Periñán & Mairal, 2009, 2010) and consists of three modules:
 1. The Ontology, a hierarchical catalogue of the concepts that a person has in mind, so here is where semantic knowledge is stored in the form of meaning postulates. The ontology consists of a general-purpose module (i.e. Core Ontology) and several do-

main-specific terminological modules or satellite ontologies (Periñán & Arcas, 2014; Felices, 2015, 2016; Felices & Ureña, 2012).

2. The Cognicon, a repository of procedural knowledge which is stored by means of scripts, that is, conceptual schemata in which a sequence of stereotypical actions is organized on the basis of temporal continuity.
3. The Onomasticon, a repository of information about instances of entities. This module stores two different types of schemata (i.e. snapshots and stories), since instances can be portrayed synchronically or diachronically.

FIGURE 1

FunGramKB Architecture



Periñán & Arcas (2010a, 2010b) refer to the fact that only the lexical and grammatical models are language-dependent, while the modules that make up the conceptual level are all language-independent (shared by all the languages in the knowledge base). Consequently, the Ontology is the module where conceptual meaning is modelled and is also the key component around which the whole knowledge base pivots. As can be seen in figure 1, the FunGramKB Ontology distinguishes three different conceptual levels, each one of them with concepts of a different type (Periñán & Arcas, 2004: 38):

- a. Metaconcepts, preceded by the symbol #, constitute the upper level in the taxonomy and are composed of 42 units distributed in three subontologies (#ENTITY for nouns, #EVENT for verbs,

#QUALITY for adjectives). They also coincide with relevant linguistic ontologies such as SIMPLE, SUMO or DOLCE, among others. Subsumption (IS-A) is the only taxonomic relation permitted.

- b. Basic concepts, preceded by the symbol + (e.g. +HUMAN_00, +MACHINE_00, +HAPPY_00, +TRIAL_00, +WEAR_00, +MURDER_00, etc.), are mainly used as defining units which enable the construction of meaning postulates for basic concepts and terminals in FunGramKB.
- c. Terminal concepts (e.g. \$AUCTION_00, \$SUBTITLE_00, \$GRASP_00, \$CADAVEROUS_00, etc.) are headed by the symbol \$. The borderline between basic concepts and terminals is based on their definitory potential to take part in meaning postulates.

Basic and terminal concepts in FunGramKB are provided with semantic properties which are captured by thematic frames and meaning postulates. As stated in chapter 1 above, an MP is a set of one or more logically connected predications (e_1, e_2, \dots, e_n), e.g. conceptual constructs that represent the generic features of concepts.

Since metaconcepts and basic concepts are already defined in FunGramKB, it is worth noticing the importance of building adequate terminal concepts for a fine-grained knowledge base which is based on deep semantics. As a consequence, knowledge engineers have to cope with the modelling of ontological meaning, which means not only deciding on the creation of terminal concepts, but also formalizing these concepts in COREL interface language or determining which lexical units should be linked to them.

3. ASD-STE 100 or Simplified Technical English

As stated above, the criteria for the building of FunGramKB Core Ontology could be regarded as solidly founded, but the criteria to build Satellite Ontologies should be as strongly founded as those of the Core Ontology and, at the same time, it would be helpful to find resources which contribute to establish the same level of consistency. Among the repositories which might provide specialised conceptual information combining general linguistically-based units and domain-specific units, the ASD-STE 100 specification and its dictionary are particularly relevant. ASD-STE (ASD, 2013) is a controlled language developed in the early eighties to help the users of English language aeronautical maintenance documentation understand what they read and avoid misunderstandings, especially for non-native speakers (Kuhn, 2014). Over the years, this simplified language has been used for other industries (car making, ship building, agricultural engineering, etc.).

Originally inspired by a language called ILSAM⁵ (Adriaens & Schreors, 1992), the language had its origins in 1979, but it was only in 1986 when it was officially presented for the first

5 ILSAM stands for *International Language for Service and Maintenance*.

time, then under the name AECMA⁶ Simplified English. It received its current name in 2004 when AECMA merged with two other associations to form ASD.

According to Kuhn (2014: 136), “the main purpose of this language is to make texts easier to understand, especially for non-native speakers”. Today, this language is maintained by the *Simplified Technical English Maintenance Group*. ASD-STE is based on English with restrictions expressed in about 60 writing rules (part 1), and on a dictionary of controlled vocabulary (part 2).

On the one hand, the Writing Rules cover aspects of grammar and style. For example, ASD-STE requires writers to use relatively short sentences, the active voice (whenever possible), the articles (wherever possible), simple verb tenses and, at the same time, to avoid lengthy compound words. On the other hand, the dictionary specifies the general words that can be used. These words were chosen for their simplicity: “One word - one meaning”. For example, ‘start’ was chosen instead of ‘begin’, ‘commence’, ‘initiate’, or ‘originate’. Usually, each word is permitted for only one part of speech. For example, the word ‘cool’ is specified as an adjective. Therefore, the word ‘cool’ must not be used as a verb: “let the temperature cool to ambient” is not permitted, because in this sentence ‘cool’ is a verb; “...when the brakes are cool” is permitted, because in this sentence ‘cool’ is an adjective. There is a fixed vocabulary consisting of terms common to the aerospace domain, but most words are commonly used and understood by average speakers. ASD-STE also accepts the use of company-specific or project-oriented technical words (referred to in ASD-STE as “Technical Names” and “Technical Verbs”), providing that they fit into one of the categories listed in the Specification. However, if there is already an approved name or verb in the dictionary to describe the action, the approved ASD-STE word must be used. In consequence, Kuhn maintains (2014: 136) that, “even though its restrictions make ASD-STE considerably more precise than full English, it does not allow for reliable automatic interpretation. Full expressiveness and full naturalness of unconstrained English are retained, but also its complexity”.

Taking into consideration the objections raised by Kuhn with reference to the feasibility of ASD-STE to carry out a reliable automatic language processing, we think, instead, that there is a considerable compatibility between the “general” Words from the STE dictionary of controlled vocabulary and the FunGramKB Core Ontology conceptual units. This is something to be shown in the following sections.

4. The treatment of units in the two repositories: the case of “decrease”

Due to the high number of entries included in both repositories, in the following lines we will only compare and match verbal concepts in FunGramKB with verbal words (and their

6 AECMA stands for *European Association of Aerospace Industries*.

corresponding synonyms) in the STE dictionary. Therefore, FunGramKB Core Ontology has 547 conceptual verbs stored in the subontology #EVENT, either as basic concepts (+) or terminal concepts (\$). These verbal concepts are linked to 1459 verbal units in the Lexicon of English. The STE dictionary has 190 approved verbs and 699 unapproved verbs which are also listed in this dictionary with the alternatives for use next to them.

In order to compare verbs from both sources, we can select one verb as a sample and observe how it is described and, consequently, extend this methodological approach to all the units under scrutiny. For instance, “Decrease” is an approved verb in STE dictionary and a basic concept in FunGramKB Core Ontology. As can be observed in figure 2 below, the COREL representation of +DECREASE_00 MP (meaning postulate) is as follows: +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2)Theme (x3: +SMALL_00)Attribute))Result). It can be paraphrased in natural language as: “due to a change something becomes smaller”. The TF (thematic frame)⁷ involves two participants, (x1)Theme (x2)Referent, and its superordinate concept is +CHANGE_00 (see figure 2 and figure 3 below). Eleven lexical units are conceptually represented by +DECREASE_00: abbreviate, abridge, contract, damp, decrease, diminish, dwindle, dwindle away, lessen, reduce and shrink. Among them you can find “decrease”, a lexical entry expressed by the conceptual entry +DECREASE_00 (see figure 3 below).

FIGURE 2

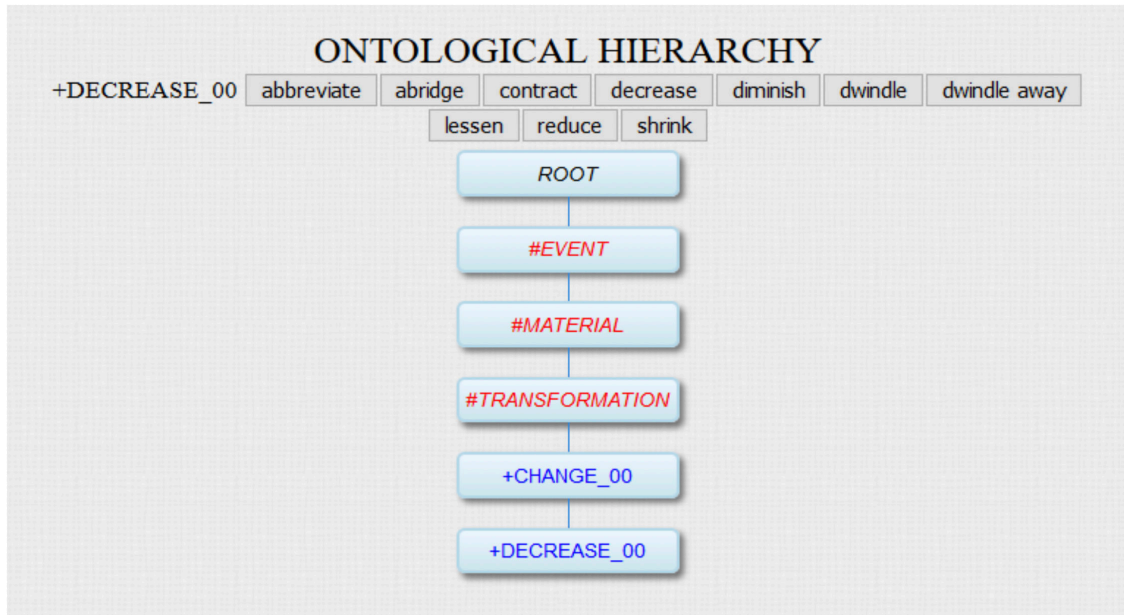
Conceptual information of +DECREASE_00 in FunGramKB editor

Conceptual Information:	
CONCEPT:	+DECREASE_00 <input checked="" type="checkbox"/>
SUPERORDINATE(S):	+CHANGE_00
THEMATIC FRAME:	(x1)Theme (x2)Referent
MEANING POSTULATE:	+(e1: +CHANGE_00 (x1)Theme (x2)Referent (f1: (e2: +BECOME_00 (x2)Theme (x3: +SMALL_00)Attribute))Result)
DESCRIPTION:	make smaller; "He decreased his staff"

7 The thematic frame in FunGramKB is a prototypical cognitive construct which states the number and type of participants involved in the cognitive situation portrayed by an event (Periñán & Arcas, 2007).

FIGURE 3

Ontological hierarchy of the basic concept +DECREASE in FunGramKB NAVIGATOR and its lexical representations in English



As can be seen in table 1 below, DECREASE is represented in upper case letters in the STE dictionary because it is an Approved Word. It can also be observed that the information of each entry in the dictionary is distributed in four columns: 1) the keyword and the part of speech; 2) the approved meaning or alternatives for each keyword; 3) approved examples; 4) not approved examples. All keywords are in bold typeface. A keyword in lower case letters shows that another word or a different construction must be used as an alternative. The approved examples (column 3) are also written in upper case letters. In this example, column 4 is blank because the keyword, DECREASE, is an approved word.

TABLE 1

Example of usage of an approved word in the STE dictionary



Keyword (part of speech)	Approved meaning/ ALTERNATIVES	APPROVED EXAMPLE	Not approved
DECREASE (v), DECREASES, DECREASED, DECREASED	To make or become smaller or lower	DECREASE THE HEADING INDICATIONS.	

In this respect, DECREASE is also offered as an alternative for a long list of words collected in this dictionary:

Abate (v)	Deplete (v)	Fall (n)	(be) lost (adj.)
Cool (v)	Dim (v)	Get down (v)	Reduce (v)
Decay (v)	Diminish (v)	Hinder (v)	Restrict (v)
Decelerate (v)	Drop (v)	Impair (v)	Shorten (v)
Decrease (n)	Exhaust (v)	Lose (v)	Slow down (v)

As can be seen in table 2 below, two unapproved keywords in the dictionary (diminish, reduce) are shown as an example of how DECREASE is used as the approved word or alternative for simplifying the meaning representation and, at the same time, producing approved examples without changing the operative meaning of the ones which have not been approved. If we compare the approved meaning of this verb (see table 1 above) with the meaning postulate (MP) of the concept +DECREASE_00 (see figure 2 above), the matching is evident. It is also obvious that some of the lexical units under +DECREASE_00 in FunGramKB are unapproved keywords in STE dictionary using DECREASE as alternative: Decrease (n), Diminish (v) or Reduce (v). Consequently, this example may be used as an instance of a reliable procedure to compare both repositories and establish the suitability of the STE dictionary for backing the criteria employed so far to compile FunGramKB Core Ontology, even if the founding principles and objectives of both resources are completely different. In the same vein, this comparison can also be used to test the reliability of the STE dictionary, particularly for the compilation of the general-purpose language units⁸. In the following lines we will offer the results of conceptual and/or lexical matching and the four possibilities involved according to the level of compatibility.

TABLE 2

Examples of usage of two unapproved words using DECREASE (v) as alternative in the STE dictionary

Keyword (part of speech)	Approved meaning/ ALTERNATIVES	APPROVED EXAMPLE	Not approved
diminish (v)	DECREASE	IF THE HYDRAULIC PRESSURE DECREASES, CLOSE THE VALVE	If the hydraulic pressure diminishes, close valve.
reduce (v)	DECREASE	SLOWLY DECREASE THE RATE OF DESCENT	Slowly reduce rate of descent.

8 Contrary to what one might think, most of the words compiled in the STE dictionary come from general-purpose English language, and only a small percentage of them can be considered as truly specific terms.

5. Parallels and contrasts between the two repositories

For reasons of space it is not possible to compare in detail all the entries in the FunGramKB Core Ontology and the English Lexicon with all the entries in the STE dictionary; in consequence, we have decided to select one of the categories which offers more information about the compatibility between these two resources: the verbs. In particular, the 190 approved verbs in the STE dictionary are searched for and compared with the 547 verbal concepts included in the Core Ontology and, subsidiarily, with the 1,459 lexical entries in the English Lexicon⁹. This analysis has shown that there are four levels of matching between both sources: direct matching, indirect matching, no matching or missing.

5.1. Direct matching: (STE Word (verb) ↔ FunGramKB Concept (event))

What we have called direct matching covers the instances where the approved verb in STE dictionary is a concept under the #EVENT subontology in the Core Ontology. 69 out of 190 verbs in the STE dictionary are included in FunGramKB, either as basic concepts (e.g. +OPERATE_00) or terminal concepts (e.g. \$INCLUDE_00)¹⁰. This represents 36% of the approved verbs. These verbs mainly belong to what is usually considered as general-purpose English (e.g., *hear, send, smell, see, read, walk*), and, similarly, there is a reduced number of verbal entries such as *absorb, calculate, flash, release*, etc., which are also general, but more commonly used in specialized domains.

An example of the way in which direct matching is represented can be observed in table 3 below. Two verbs have been selected. *Hear* stands for a more general word and *flash* exemplifies another general word, but commonly used in specialized contexts. The left hand side of the table shows the information in the STE dictionary (the word entry in the first column and its approved meaning or definition in the second). The right hand side refers to the correspondence in FunGramKB and shows the matching concept in the Core Ontology (third column) with its meaning postulate (fourth column). The third column includes the concept with a question mark and a yes/no answer. It should be interpreted as follows: Is +HEAR_00 or \$FLASH_00 a concept? If the answer is YES, then it is an edited basic or terminal concept in the Core Ontology. If the answer is NO, then there are two options: (i) it is not registered as a concept or lexical unit in FunGramKB, or (ii) it is registered as a lexical unit linked to a different concept in FunGramKB and could be considered as a case of indirect matching (see 5.2).

9 The global and detailed results of this process are included in the appendix of this article in alphabetical order.

10 The complete list of direct matching occurrences can be seen in the appendix of this article in alphabetical order.

TABLE 3

Examples of direct matching between STE dictionary entries and FunGramKB concepts

WORD	APPROVED MEANING	CONCEPT?	MP / MEANING
Hear	To know by sound in the ear	YES +HEAR_00	+(e1: +PERCEIVE_00 (x1)Theme (x2) Referent (f1: +EAR_00) Instrument)
Flash	To come on and go off frequently	YES, SFLASH_00	+(e1: +SHINE_00 (x1)Theme (x2) Referent (f1: +SHORT_01)Duration (f2: +OFTEN_00)Frequency)(e2: +BE_01 (x2) Theme (x3: m +BRIGHT_00)Attribute))

5.2. Indirect matching: (STE Word (verb) ↔ FunGramKB Lexical Unit (verb))

Indirect matching is the second option of compatibility between both repositories and refers to word entries in the STE dictionary that cannot find a direct match in basic or terminal concepts but, instead, can match a lexical entry (in the English lexicon) included in one of the Core Ontology concepts. This means that FunGramKB can retrieve the conceptual meaning of these lexical units through the concepts they are linked to. In total, 43 out of 190 units (22% of the approved verbs) are equated by lexical units associated to ontological concepts¹¹. As a sample of this process, table 4 below shows the word entry *assemble*, which is not a concept in FunGramKB Core Ontology, but it is a lexical unit linked to the concept +BUILD_00. Analysing and comparing the approved meaning of the word (columns 1 and 2) with the MP of the concept (columns 3 and 4), it is plausible to conclude that, at a conceptual level, there is a matching between the information compiled in the dictionary and the meaning collected in the ontology, despite the fact that the lexical entry *assemble* shares the conceptual meaning with other entries, such as *build*, *construct*, *erect*, *nest*, *put together*, *put up*, *raise* or *set up*. The way in which the meaning is inferred by FunGramKB's reasoner is through non-monotonic inheritance.

5.3. No matching: (STE Word (verb) ↔ Not the same meaning in FunGramKB)

The third possibility represents those words in the STE dictionary which apparently have similar concepts in FunGramKB ontology, but the meaning is different. That is, the MP of the concept does not correspond to the approved definition in the STE dictionary. They only represent, approximately, 5% of the verbs listed in the dictionary (10 cases out of 190). However,

11 The complete list of indirect matching occurrences can be found in the appendix of this article in alphabetical order.

TABLE 4

Example of indirect matching between the STE dictionary entry and FunGramKB lexical unit

WORD	APPROVED MEANING	CONCEPT?	MP / MEANING	LEXICAL UNITS
assemble	To attach items together	NO: but lexical Unit BUILD_00	.(e1: +CREATE_00 (x1) Theme (x2)Referent (f1: +HUMAN_00 ^ +ANIMAL_00) Beneficiary (f2)Instrument (f3: +CORPUSCULAR_00)Means (f4: (e2: +JOIN_00 (x1)Agent (x3: f3)Theme (x4)Origin (x5) Goal (f2)Instrument))Manner)	assemble , <i>build, construct, erect, nest, put together, put up, raise, set up</i>

if these occurrences are not filtered conveniently the FunGramKB's reasoner would not be able to infer the conceptual information correctly. Problems of polysemy or homonymy are implicitly involved in these cases and are always difficult to deal with. Some examples are verbs such as *prepare*, *transmit* or *wear*.

As can be seen in table 5 below, the verb *prepare* in the STE dictionary is defined as "...to put something into the necessary condition". However in FunGramKB this unit is included only as a lexical unit linked to the concept +COOK_00. Obviously, when the STE definition is compared with the MP of +COOK_00, both units differ completely at the conceptual level. Something similar happens with the verb *wear* (see table 5), which is apparently linked to the concept +WEAR_00, but its meaning "...to become damaged by friction" has no conceptual connection with "to put on clothing", which is the MP of that concept in FunGramKB Ontology. In consequence, there is no matching.

TABLE 5

Examples of no matching between STE dictionary entries and FunGramKB concepts/lexical units

WORD	APPROVED MEANING	CONCEPT?	MP / MEANING	LEXICAL UNITS
Prepare	To put something into the necessary condition	NO, but lex. Unit in +COOK_00	+(e1: +CREATE_00 (x1)Theme (x2)Referent (f1: +HUMAN_00)Beneficiary (f2)Instrument (f3: +FOOD_00)Means (f4: (e2: +HEAT_00 (x1)Theme (x3: f3)Referent))Manner)	<i>braise, cook, do, fix, prepare, stew</i>
Wear	To become damaged by friction	NO , +WEAR_00	THEMATIC FRAME: (x1: +HUMAN_00 ^ +PET_00)Theme (x2: +CLOTHING_00 ^ +ORNAMENT_00)Referent MEANING POSTULATE: (e1: +HAVE_00 (x1)Theme (x2)Referent (f1: +BODY_AREA_00)Location (f2: +ON_00)Position)	<i>be clothed in, be dressed in, dress, have on, take, wear</i>

5.4. Missing: (STE Word (verb) ↔ Not in FunGramKB)

The fourth option represents the words listed in the STE dictionary which are not present in FunGramKB, neither as a concept nor as a lexical unit, not even with different conceptual information. These units cover 37% of all the verbs in the STE dictionary (70 instances out of 190)¹². Not surprisingly, most of these words are verbs that belong, to some extent, to specialized technical domains such as aeronautical engineering or mechanical engineering (*bypass, deflate, defuel, dry-motor, energize, feather, ground, moor, pressurize, safety, taxi, etc.*). However, we also found that a considerable amount of general words such as *balance, cancel, compare, correct, count, ignore, mix, spill, turn*, among others, are not included in FunGramKB Core Ontology or the English Lexicon. This can only be explained by the fact that the Core Ontology has not been completed yet and, possibly, this research could be useful for the identification of general verbs that should have been inserted in this repository.

6. Conclusions

In section 1 we stated that the main purpose of this study was to offer the results of comparing and matching basic and terminal concepts (and their corresponding lexical units) in FunGramKB lexical and conceptual modules with Words (and their corresponding synonyms) in the ASD-STE dictionary and determine whether the way in which this controlled language has been designed could draw similarities with the way in which the conceptual information of that knowledge base has been built. The evidence was based on the selection of a list with all the approved verbs in the ASD-STE dictionary (190 units). These verbs were compared with 547 verbal concepts stored in the FunGramKB #EVENT subontology (as basic or terminal concepts). The outcome of this process has provided the following conclusions:

If you combine the cases defined as direct matching and indirect matching above (sections 5.1 and 5.2), more than half of the approved verbs in the STE Dictionary (58%) are also represented in FunGramKB, either as concepts or as lexical units associated to other concepts. This is a surprisingly high percentage of matching, due to the fact that the ASD-STE Dictionary was basically conceived as a repository to help aircraft maintenance workers and, inevitably, a high number of the units included in the dictionary should be connected directly or indirectly with the characteristics of the language and the lexical resources employed by these aircraft technicians. On the contrary, FunGramKB Core Ontology was conceived as a repository of concepts based on the average knowledge of speakers and was not designed to cover domain-specific areas. However, this high level of conceptual matching might be explained by the typology of

12 The complete list of the missing verbs can be found in the appendix in alphabetical order.

routine activities carried out by aircraft maintenance experts, which, generally speaking, are not so different from other common activities performed by most people when revising or trying to repair home appliances, bicycles, etc. This is more evident in the case of verbal units, but not so much in the case of nouns, where the frequency of specialised terms is unquestionable and, consequently, the percentage of direct or indirect matching would not be so obvious¹³.

It is also a relevant fact that a high percentage of the STE verbs (42%) cannot be matched or represented in FunGramKB conceptual or lexical modules (see sections 5.3 and 5.4). On the one hand, a limited number (10 out of 190 verbs [5%]) in the STE dictionary represent “homonymy” cases, which apparently match similar concepts in FunGramKB ontology, but the relevant meanings or MPs are completely different and, as a consequence, the FunGramKB’s reasoner would not be able to infer or process the conceptual information. On the other hand, most verbs in section 5.4 (70 out of 190 units [37%]) cannot be found in FunGramKB as concepts or as lexical units and, accordingly, the reasoner would not be able to identify them. These units will have to be supplied once the relevant domain-specific ontology is constructed and the technical concepts are inserted.

The analytical comparison between both repositories has also shown that the ASD-STE Dictionary can be of help to improve and extend the FunGramKB core ontology, which is still under construction. This is the case of concepts (or words) that belong to the speaker’s general knowledge and have not been included so far in the core ontology, such as *turn*, *balance*, *cancel* or *compare*. Similarly, the specialized meaning of some verbs in the ASD-STE Dictionary is not represented FunGramKB modules. For example, the specific meaning of *fire*, *feather*, *park* or *taxi* could be used to enrich the ontological meaning. Finally, FunGramKB could also be supplemented with the building of a domain-specific ontology representing specialized knowledge in this field or, to put it in another way, the STE dictionary could be the stepping stone for the development of a new satellite ontology storing the technical knowledge implied by concepts such as *dry-motor*, *moor*, *defuel*, etc., among many others.

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8. Appendix

Parallels and contrasts between the approved verbs in the ASD-STE Dictionary and the verbal concepts (events) in FunGramKB Ontology in alphabetical order

ASD-STE APPROVED VERBS		FUNGRAMKB CORRESPONDENCE			
WORD	APPROVED MEANING	CONCEPT?	MP / MEANING	MATCH?	LEXICAL UNITS
absorb	1. To take up or into. 2. To decrease the effect of	YES: +ABSORB_00	+(e1: +ENTER_00 (x1) Agent (x2)Theme (x3)Location (x4) Origin (x5)Goal (f1) Means (f2)Instrument (f3: (e2: +BE_02 (x5) Theme (x1)Location (f4: +IN_00)Position)) Condition (f5: (e3: +BE_02 (x4)Theme (x1) Location (f6: +OUT_00) Position))Condition)	Yes, with meaning 1 of STE	absorb, breathe in, inhale, suck
accept	To make a decision that something is satisfactory	NO, but lex. Unit in 1. +AGREE_00 and 2. SAGREE_01	1. +(e1: +SAY_00 (x1) Theme (x2)Referent (x3) Goal)(e2: +THINK_00 (x1)Theme (x4: (e3: +BE_01 (x2)Theme (x5: +TRUE_00) Attribute))Referent) (e4: +THINK_00 (x3) Theme (x4)Referent)) 2. +(e1: +PROMISE_00 (x1)Theme (x2)Referent (x3)Goal (f1: (e2: past +REQUEST_01 (x3) Theme (x2)Referent (x1)Goal))Scene)	YES, meaning 1 of STE	accede, accord, acquiesce, admit, agree, allow, assent, concur, consent, grant

adapt	To change or adjust to that which is necessary	YES: SADAPT_00	.(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2)Theme (x3: +GOOD_00)Attribute (f2)Referent))Result) To gradually change your behaviour and attitudes in order to be successful in a new situation	YES	accommodate, adapt, adjust
add	To increase the number, dimension, or quantity	YES: +ADD_00	+(e1: +PUT_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal (f1: (e2: +INCREASE_00 (x1)Agent (x4) Theme))Purpose)	YES	add
adjust	To put, or to come to a specified position	NO, but lex. Unit SADAPT_00	.(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2)Theme (x3: +GOOD_00)Attribute (f2)Referent))Result) To gradually change your behaviour and attitudes in order to be successful in a new situation	NO	accommodate, adapt, adjust
agree	To be consistent with	YES: +AGREE_00 & SAGREE_01	1. +(e1: +SAY_00 (x1) Theme (x2)Referent (x3) Goal)(e2: +THINK_00 (x1)Theme (x4: (e3: +BE_01 (x2)Theme (x5: +TRUE_00) Attribute))Referent) (e4: +THINK_00 (x3) Theme (x4)Referent)) 2. +(e1: +PROMISE_00 (x1)Theme (x2)Referent (x3)Goal (f1: (e2: past +REQUEST_01 (x3) Theme (x2)Referent (x1)Goal))Scene)	YES, meaning 1 of STE	.+AGREE_00: accede, accord, acquiesce, admit, agree, allow, assent, concur, consent, grant .SAGREE_01: accede, accept, agree, assent, consent
align	To put or come into a specified position in relation to a line (TN)	NO			

apply	1. To put on. 2. To spread on	NO, but lex. Unit +USE_00	make use of or employ for a particular purpose (e1: +DO_00 (x1) Theme (x3)Referent (f1: x2)Instrument)	NO	apply, employ, use, utilize
arm	1. To install armaments. 2. To prepare for automatic operation	NO: only entity, body part or weapon			
assemble	To attach items together	NO: but lex. Unit +BUILD_00	.(e1: +CREATE_00 (x1) Theme (x2)Referent (f1: +HUMAN_00 ^ +ANIMAL_00) Beneficiary (f2) Instrument (f3: +CORPUSCULAR_00) Means (f4: (e2: +JOIN_00 (x1)Agent (x3: f3)Theme (x4)Origin (x5)Goal (f2) Instrument))Manner) make by combining materials and parts	YES	assemble, build, construct, erect, nest, put together, put up, raise, set up
attach	To stay together or to cause different items to stay together	NO: but lex. Unit +JOIN_00	.(e1: +PUT_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal (f1: (e2: nftut pos n +MOVE_00 (x5)Agent (x2)Theme (x6)Location (x4)Origin (x7)Goal))Result) connect, fasten, or put together two or more pieces	YES	attach, connect, join, link
balance	To make equal	NO			
be	1. To occur, exist. 2. To have a property, to be equal to	YES: +BE_00, +BE_01; +EXIST_00	1. BE_00: sp To equal in meaning; To have identity with; To belong to the class of. 2. BE_01: sp To have a specified qualification or characterization. 3. EXIST_00: sp To have an existence	YES. Meaning 1 +EXIST_00; Meaning 2 +BE_00 & +BE_01	be, have got, mean, exist, there be
become	To come to be	YES: +BECOME_00	.(e1: ing +BE_01 (x1) Theme (x2)Attribute) enter or assume a certain state or condition	YES	become, get, go

bend	To change or cause to change from straight to curved	YES: +BEND_00	.(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BE_01 (x2) Theme (x3: +CURVE_00 Attribute))Result)	YES	arc, bend, curve, fold, incurvate, swell
bleed	To let a gas out of	NO: but lex. Unit +EXPEL_00	..+LEAVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5) Goal (f1)Instrument (f2: (e2: +BE_02 (x4) Theme (x1)Location (f3: +IN_00)Position)) Condition (f4: (e3: +BE_02 (x5)Theme (x1) Location (f5: +OUT_00 Position))Condition)	YES	bleed
blow	To cause gas to move.	NO: but lex. Unit +EXPEL_00, +WHISTLE_00, +BURST_00	see BLEED --> +EXPEL_00	NO	
bond	1. To make an electrical bond. 2. To attach firmly or become firmly attached with another material. Note. Refer also to Rule 1.13	No: but lex. Unit +STORE_00	provide storage for or keep in storage +(e1: +HAVE_00 (x1) Theme (x2)Referent (f1)Location (f2: +LONG_01)Duration)	NO	
break	To cause to separate or become separated into parts by force.	YES +BREAK_00	become separated into pieces or fragments +(e1: +DAMAGE_00 (x1) Theme (x2)Referent (f1: (e2: +SPLIT_00 (x1)Theme (x2) Referent))Result)	YES	break
breathe	To get gas into or out of the lungs.	YES +BREATHE_00	take air into the lungs and then expel it as a regular physical process +(e1: +ABSORB_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5) Goal (f1: +MOUTH_00 +NOSE_00)Means (f2)Instrument) +(e2: +EXPEL_00 (x1) Agent (x2)Theme (x3) Location (x5)Origin (x4)Goal (f1)Means (f2)Instrument)	YES	breathe, respire

burn	To cause or undergo combustion (TN)	YES +BURN_00	to cause to be set on fire +(e1: +DAMAGE_00 (x1) Theme (x2)Referent (f1: +FUEL_00)Instrument)	YES	burn, combust, conflagrate, ignite, inflame, kindle, light
bypass	To change a circuit (TN) so that it goes past something, instead of through it.	NO			
calculate	To find a result by mathematics (TN)	YES +CALCULATE_00	make a mathematical calculation or computation +((e1: +THINK_00 (x1) Theme (x2)Referent (e2: +COMPRISE_00 (x2)Theme (x3: +NUMBER_00)Referent))	YES	budget, calculate, compute, estimate, figure, reckon
calibrate	To measure and adjust the precision of something.	NO			
can	Helping verb that means to be possible, to be able to, or to be allowed to.	YES SCAN_00 And lex. Unit +DISMISS_00	1. SCAN_00: +((e1: +PRESERVE_00 (x1) Theme (x2)Referent (f1: (e2: +PUT_00 (x1)Agent (x2)Theme (x3)Origin (x4: +CONTAINER_00) Goal))Means)(e3: +BE_01 (x4)Theme (x5: +METAL_00)Attribute) (e4: n +COMPRISE_00 (x4)Theme (x6: +AIR_00) Referent (f1: +IN_00) Position)(e5: n +BE_01 (x4)Theme (x7: +OPEN_00)Attribute)) 2. +DISMISS_00: +(e1: +TRANSFER_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal (f1: (e2: n +WORK_01 (x3) Theme))Result)	NO	
cancel	To deselect a function or indication	NO			

cause	To be the cause of	NO: but lex. Unit +DO_00	engage in MP: sp	YES	act, behave, cause, come about, do, get, happen, have, induce, lead, make, occur, perform, stimulate, take place
clean	To remove dirt (TN) or unwanted materials	YES +CLEAN_01	make clean by removing dirt, filth, or unwanted substances from (e1: +CHANGE_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: n +BE_01 (x2) Theme (x3: +DIRTY_00 Attribute))Result)	YES	clean, cleanse, dust, floss, flush, preen, spruce up, swab
close	1. To move together, or to move to a position that stops or prevents materials from going in or out. 2. To operate a circuit breaker to make an electrical circuit	YES +CLOSE_00	move so that an opening or passage is obstructed (e1: +CHANGE_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: n +BE_01 (x2) Theme (x3: +DIRTY_00 Attribute))Result)	YES. Meaning 1	close, shut
collect	To come, or cause to come, together in one (TN) location	YES +COLLECT_00	get together (e1: +TAKE_00 (x1) Theme (x2)Referent (f1: s +PLACE_00)Origin (f2)Instrument)	YES	collect, garner, gather
come	To move to something	NO: but lex. Unit +ARRIVE_00	reach a destination (e1: +MOVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5)Goal (f1: (e2: +BE_02 (x2)Theme (x5) Location))Result)	YES	arrive, come, get, land, reach
come on	To become bright with light (TN) when an internal power (TN) source is energized	NO			
compare	To examine for differences	NO			

complete	To bring to an end	NO: but lex. Unit +FINISH_oo	come or bring to a finish or an end +(e1: egr pres +DO_oo (x1)Theme (x2)Referent) +(e2: npast +DO_oo (x1)Theme (x2)Referent)	YES	complete, end, finish, stop
compress	To decrease or cause to decrease in dimension or volume	NO			
connect	To come together or to cause to come together to make one (TN) unit or system	NO: lex. Unit +JOIN_oo	connect, fasten, or put together two or more pieces +(e1: +PUT_oo (x1)Agent (x2)Theme (x3)Origin (x4)Goal (f1: (e2: nfut pos n +MOVE_oo (x5)Agent (x2)Theme (x6)Location (x4)Origin (x7)Goal))Result)	YES	attach, connect, join, link
contain	To have in something or hold in something	YES +CONTAIN_oo	have within +(e1: +BE_o2(x1)Theme (x2)Location (f1: +IN_oo)Position)	YES	bear, carry, contain, hold
continue	To stay or keep in current condition or operation	YES +CONTINUE_oo	exist over a prolonged period of time +(e1: past +EXIST_oo (x1)Theme) +(e2: pres +EXIST_oo (x1)Theme) *(e3: nfut +EXIST_oo (x1)Theme)	YES	continue
control	To give or send signals (TN) that adjust, operate, or keep something to a limit, or that cause something to operate	YES: +CONTROL_oo and lexical unit in +OPERATE_oo	1. +CONTROL_oo: +(e1: +DO_oo (x1)Theme (x3: (e2: +DO_oo (x2)Theme (x4: (e3: +WANT_oo (x1)Theme (x5)Referent))Referent))Referent) exercise authoritative control or power over. 2. +OPERATE_oo: +(e1: +USE_oo (x1)Theme (x2)Referent (f1)Instrument (f2: (e2: +DO_oo (x2)Theme (x3)Referent)) Purpose) to use and control a machine or equipment	YES, operate	1. command, control, lead. 2. control, function, go, handle, operate, run, start, start up, switch on, turn on, work

correct	To make correct	NO (as a verb, but it exists as a “quality”)			
count	To add the number of objects or occurrences to get a total	NO			
cut	1. To divide into parts. 2. To remove with a sharp tool. 3. Rule 1.13.2.b	YES +CUT_00	penetrate injuriously, separate into parts or portions (split) +(e1: +SPLIT_00 (x1) Theme (x2)Referent (f1: +SCISSORS_00 ^ +KNIFE_00)Instrument)	YES	behead, cut, sever,
decrease	To make or become smaller or lower	YES: +DECREASE_00	make smaller +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2) Theme (x3: +SMALL_00 Attribute))Result)	YES	abbreviate, abridge, contract, decrease, diminish, dwindle, lessen, reduce, shrink
de-energize	To remove power (TN) from	NO			
deflate	To make or become smaller as a result of depressurization	NO			
defuel	To remove fuel (TN)	NO			
deploy	To move or cause to move from a specified position of storage and into operation	NO			
digitize	To change an analog signal into a digital signal	NO			
disarm	1. To remove armaments. 2. To prevent automatic operation	NO			
disassemble	To take an assembly apart	NO			
discard	To not use again	NO			

disconnect	To cause to be not connected.	NO			
disengage	To release from something that engages	NO			
divide	1. To make into parts or groups. 2. To do mathematical division (TN)	NO; but lex. Unit +SPLIT_00	separate into parts or portions +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: +EXIST_00 (x3: +PART_00) Theme))Result)	YES Meaning 1	divide, split, separate, split up
do	1. To complete a procedure, task or step. 2. Make. 3. As a helping verb. (a) as part of a negative command or statement. (b) as part of a question	YES +DO_00	engage in MP: sp	YES Meanings 1 and 2	act, behave, cause, come about, do, get, happen, have, induce, lead, make, occur, perform, stimulate, take place
drain	To remove liquid	NO; but lex. Unit +DRY_01	remove the moisture from and make dry +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: n +BECOME_00 (x2) Theme (x3: +WET_00) Attribute))Result)	YES	air-dry, blow-dry, dehumidify, dehydrate, desiccate, drain, drip-dry, dry, dry out, dry up, evaporate, exsiccate, torrefy, vaporize
dry	To remove liquid	YES +DRY_01	remove the moisture from and make dry +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: n +BECOME_00 (x2) Theme (x3: +WET_00) Attribute))Result)	YES	air-dry, blow-dry, dehumidify, dehydrate, desiccate, drain, drip-dry, dry, dry out, dry up, evaporate, exsiccate, torrefy, vaporize
dry-motor	To turn an engine rotor (TN) with the starter (TN), but without fuel (TN) and without ignition (TN)	NO			

eject	To move or to cause a person or item to move from an aircraft or equipment with force (TN)	NO			
energize	To supply power (TN) to	NO			
engage	To correctly align and come together	NO			
erase	To remove data from a medium	NO			
examine	To look carefully at	YES +EXAMINE_00	consider in detail and subject to an analysis in order to discover essential features or meaning +(e1: +SEE_00 (x1) Theme (x2)Referent (f1: +CAREFUL_00)Manner) +(e2: +THINK_00 (x1) Theme (x2)Referent (f1)Manner)	YES	analyze, examine, quiz, study, test
expand	To increase in dimension, volume, or time	NO: but lex. Unit +INCREASE_00	become bigger or greater in amount +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2) Theme (x3: +BIG_00 Attribute))Result)	YES	dilate, expand, enlarge, extend, grow, increase, mount
extend	To increase, or cause something to increase, in dimension or range	NO: lex. Unit +INCREASE_00	become bigger or greater in amount +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2) Theme (x3: +BIG_00 Attribute))Result)	YES	dilate, expand, enlarge, extend, grow, increase, mount
extinguish	To stop burning	NO			
feather	To put a propeller (TN) to a position of minimum drag (TN)	NO			

fill	To put into a container to the maximum level or, if specified, to a given level, pressure, or quantity	YES +FILL_00	make full +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BECOME_00 (x2) Theme (x3: +FULL_00 Attribute))Result)	YES	charge, fill, load, stock, stuff
find	To discover, to examine something so that you know	YES +FIND_00	come upon after searching; find the location of something that was missed or lost +(e1: +OBTAIN_00 (x1) Theme (x2)Referent (f1)Origin (f2: (e2: +SEARCH_00 (x1)Theme (x2)Referent))Reason)	YES	find
fire	To ignite, or to operate items that contain an explosive material. [Also TV (Rule 1.13.3.b)]	NO			
flash	To come on and go off frequently	YES \$FLASH_00	To shine with a sudden bright light, especially as quick, regular flashes of light +((e1: +SHINE_00 (x1) Theme (x2)Referent (f1: +SHORT_01)Duration (f2: +OFTEN_00) Frequency)(e2: +BE_01 (x2)Theme (x3: m +BRIGHT_00)Attribute))	YES	blink, flash, flicker, glint, glitter, sparkle, twinkle
flow	To move as a fluid moves	NO; but lex. Unit +MOVE_00	change location +(e1: +DO_00 (x1) Theme (x6)Referent (f1: x3)Location (f2: (e2: +BE_02 (x2)Theme (x4) Location))Condition (f3: (e3: n +BE_02 (x2)Theme (x4)Location))Result (f4: (e4: +BE_02 (x2)Theme (x5)Location))Purpose)	YES, though STE is more specific in connection to liquids	advance, flow, go, move, run

flush	To remove something or to operate with a flow of liquid	NO; but lex. Unit +CLEAN_01	make clean by removing dirt, filth, or unwanted substances from +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: n +BE_01 (x2) Theme (x3: +DIRTY_00 Attribute))Result)	NO, near	clean, cleanse, dust, floss, flush, preen, spruce up, swab
fold	To double over or to cause to double over on itself	NO; but lex. Unit +BEND_00	form a curve +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +BE_01 (x2) Theme (x3: +CURVE_00 Attribute))Result)	NO, more specific in STE, double	arc, bend, curve, fold, incurvate, swell
freeze	To go or to cause to go to a temperature below the freezing point of a liquid (usually of water)	YES +FREEZE_00	change to ice +(e1: +COOL_00 (x1) Theme (x2)Referent (f1: +MUCH_00)Quantity (f2: (e2: +BECOME_00 (x2) Theme (x3: +SOLID_00 Attribute))Result)	YES	freeze
give	To provide	YES +GIVE_00	transfer possession of something concrete to somebody +((e1: +TRANSFER_00 (x1)Agent (x2)Theme (x1)Origin (x3)Goal (f1: +HAND_00)Instrument) (e2: +BE_02 (x1)Theme (x3)Location (f2: m +NEAR_00)Position))	YES	deliver, pass, give, receive, serve, surrender
go	To move to or from something	NO; but lex. Unit +MOVE_00	change location +(e1: +DO_00 (x1) Theme (x6)Referent (f1: x3)Location (f2: (e2: +BE_02 (x2)Theme (x4) Location))Condition (f3: (e3: n +BE_02 (x2) Theme (x4)Location)) Result (f4: (e4: +BE_02 (YES	advance, flow, go, move, run
go off	To become dark when an internal power (TN) source is de-energized	NO			

ground	To connect to the ground or to a large object of zero potential (TN)	NO			
hang	To attach or to be attached to something above with no support (TN) from below	YES +HANG_00	to put something in a position so that the top part is fixed or supported, and the bottom part is free to move and does not touch the ground *((e1: +PUT_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal)(e2: +BE_02 (x4)Theme (x5: +UP_00)Location))	YES	hang, hang up
have	To possess as a part or quality	YES +HAVE_00	have or posses MP: sp	YES	belong, carry, have, have got, keep, own, possess
hear	To know by sound in the ear (TN)	YES +HEAR_00	perceive sound; perceive by the auditory sense +(e1: +PERCEIVE_00 (x1) Theme (x2)Referent (f1: +EAR_00)Instrument)	YES	catch, hear
help	To make something easier or better	YES +HELP_00	be supportive of +(e1: +DO_00 (x1)Theme (x3)Referent (f1: (e2: pos +DO_00 (x2)Theme (x4) Referent))Purpose)	YES	aid, assist, help, support
hit	To touch suddenly and with much force (TN)	YES +HIT_00	deal a blow to, either with the hand or with an instrument +(e1: +PUT_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal (f1: +FAST_00)Speed (f2: +HARD_00)Manner)	YES	collide, hit, kick, peck, run into, strike
hold	1. To continue to have in the hand or grip. 2. To continue to have in a specified location, position, or condition	YES +HOLD_00	have or hold in one's hands +(e1: +HAVE_00 (x1) Theme (x2)Referent (f1: +HAND_00 +ARM_00)Location)	YES	bear, have, have got, hold, support

ignore	Not to think about something, not to do something about	NO			
include	To make, or to be, part of	YES SINCLUDE_00	have other other thing as one of its parts +((e1: +COMPRISE_00 (x1)Theme (x2)Referent) (e2: +BE_01 (x2)Theme (x3: s +PART_00)Attribute))	YES	contain, embody, embrace, encompass, include, incorporate
increase	To make or become larger or higher in value	YES +INCREASE_00	become bigger or greater in amount +(e1: +CHANGE_00 (x1)Theme (x2)Referent (f1: (e2: +BECOME_00 (x2)Theme (x3: +BIG_00)Attribute))Result)	YES	dilate, expand, enlarge, extend, grow, increase, mount
inflate	To make or become larger as a result of pressurization by a gas	NO; but lex. Unit SSWELL_00	to become larger and rounder than normal, used especially about parts of the body +(e1: +DO_00 (x1)Theme (x2)Referent (f1: (e2: +BECOME_00 (x2)Theme (x3: m +BIG_00)Attribute))Result)	YES, but STE is more specific: using a gas	
install	To attach an item in or to a second (TN) item	NO			
interchange	To put or use each of two (TN) things in the place of the other without change	NO			
isolate	To prevent a supply or connection to	NO			
keep	To continue to have or hold	NO, but lex. Unit +HAVE_00 and +STORE_00	1. to have or possess MP: sp 2. provide storage for or keep in storage MP: +(e1: +HAVE_00 (x1)Theme (x2)Referent (f1)Location (f2: +LONG_01)Duration)	YES, +STORE_00	accumulate, bond, garner, hoard, hold, keep, monopolize, save, stock, stockpile, store, stow, warehouse

kill	To cause death (TN)	YES, +KILL_00	cause somebody to die +(e1: +DO_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: +DIE_00 (x2) Theme))Result)	YES	kill
know	To be sure of data, to have data ready to use	YES, +KNOW_00	accept as true; take to be true +((e1: +THINK_00 (x1) Theme (x2)Referent) (e2: +BE_01 (x2) Theme (x3: +TRUE_00 +POSSIBLE_00) Attribute))	YES	believe, know, think
latch	To hold something in a position with a latching device. [Also Rule 1.13.4]	NO			
let	To give opportunity	NO, but lex. Unit +PERMIT_00	to let someone do or have something, or let something happen +(e1: +SAY_00 (x1)Theme (x4: (e2: perm +DO_00 (x3)Theme (x2)Referent)) Referent (x3)Goal)	YES	allow, let, permit
lift	To move something up	NO, lex. Unit +RISE_00	move upward +(e1: +MOVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5) Goal (f1: (e2: +BE_02 (x4) Theme (x6: +DOWN_00) Location))Condition (f2: (e3: +BE_02 (x5) Theme (x7: +UP_00) Location))Condition)	YES	arise, come up, go up, lift, move up, raise, rise
listen	To use your ears (TN) to hear or find	YES, +LISTEN_00	hear with intention +(e1: +HEAR_00 (x1) Theme (x2)Referent (f1: +ATTENTION_00) Manner)	YES	lend an ear, listen, pin back one's ear, prick up one's ear
lock	To attach something, or hold it in position with a locking device	NO			
lock on	To find and stay on a target or signal (TN) automatically	NO			

look	To use your eyes (TN) to see or find	NO, but lex. Unit +SEE_00	perceive by sight +(e1: +PERCEIVE_00 (x1) Theme (x2)Referent (f1: +EYE_00)Instrument)	YES	look, see
loosen	To cause to be not tight	NO			
lower	To move something down	NO			
lubricate	To apply lubricant (TN)	NO			
make	To manufacture, to cause to occur or to become	NO, but lex. Unit +CREATE_00	bring into existence +((e1: +DO_00 (x1) Theme (x3)Referent (f1: +HUMAN_00 ^ +ANIMAL_00) Beneficiary (f2) Instrument (f3: x2) Result)(e2: rpast n +EXIST_00 (x2)Theme))	YES	create, develop, make, produce
make sure	To verify and/or do the necessary steps	NO			
measure	To find the dimensions, capacity, or quantity of something	YES, +MEASURE_00	have certain dimensions +(e1: +BE_01 (x1) Theme (x2)Attribute) +(e2: +BE_00 (x2)Theme (x3: +LENGTH_00 ^ +WIDTH_00 ^ +DEPTH_00)Referent)	YES	measure
melt	To change from solid to liquid because of heat	YES, +MELT_00	cause to thaw and become soft or liquid again +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: +HEAT_00 (x1) Theme (x2)Referent)) Manner (f2: (e3: +BECOME_00 (x2) Theme (x3: +SOFT_00 +LIQUID_00) Attribute))Result)	YES	dissolve, flux, liquefy, melt, thaw
mix	To put together two or more materials to make one combination	NO			

monitor	To look at something for a period to see if there is a change	NO			
moor	To attach something to the ground	NO			
move	To change position or location	YES, +MOVE_00	change location +(e1: +DO_00 (x1) Theme (x6)Referent (f1: x3)Location (f2: (e2: +BE_02 (x2)Theme (x4) Location))Condition (f3: (e3: n +BE_02 (x2)Theme (x4)Location))Result (f4: (e4: +BE_02 (x2)Theme (x5)Location))Purpose)	YES	advance, flow, go, move, run
obey	To do that which the procedures or instructions tell you	YES, +OBEY_00	be obedient to +(e1: +DO_00 (x1)Theme (x3)Referent (f1: (e2: +COMMAND_00 (x2) Theme (x3)Referent (x1)Goal))Reason)	YES	obey
occur	To be found, to come to be, to take place	NO, but lex. Unit +DO_00	engage in MP: sp	YES though more specific STE	act, behave, cause, come about, do, get, happen, have, induce, lead, make, occur, perform, stimulate, take place
open	1. To move or cause to move from a closed position. 2. To operate a circuit breaker to interrupt an electrical circuit (TN)	YES, +OPEN_01	cause to open or to become open *(e1: +MOVE_00 (x1) Agent (x2)Theme (x3)Location (x4) Origin (x5)Goal (f1: +HAND_00 ^ +FOOT_00) Instrument (f2: (e2: +BE_01 (x2)Theme (x6: SOPEN_N_00) Attribute))Condition (f3: (e3: +BE_01 (x2) Theme (x7: +OPEN_00) Attribute))Result)	YES, Meaning 1. But not Meaning 2 of STE	open
operate	To put, keep, or be in action	YES, +OPERATE_00	to use and control a machine or equipment +(e1: +USE_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: +DO_00 (x2)Theme (x3) Referent))Purpose)	YES,	control, function, go, handle, operate, run, start, start up, switch on, turn on, work

override	To prevent the automatic operation of a part of a system	NO			
paint	To apply paint (TN) to something	NO, but lex. Unit +COVER_00	To place or spread something over somebody or something in order to protect it or hide it +(e1: +PUT_00 (x1) Agent (x2) Theme (x3) Origin (x4) Goal (f2: +ON_00) Position (f1) Instrument (f3: (e2: +HIDE_00 (x1) Theme (x4) Referent)) Purpose ^ (f4: (e3: +PROTECT_00 (x1) Theme (x4) Referent)) Purpose)	YES, though FGKB's concept is too general	bury, cover, dress, entomb, flood, inter, paint, put on, spread
park	To stop an aircraft and to let it stay in one (TN) position on the ground. [Also Rule 1.13.4]	NO			
point	1. To show the position or direction of 2. To turn something in a specified direction	YES, SPOINT_00	To show something to someone by holding up one of your fingers or a thin object towards it +((e1: +SHOW_00 (x1) Theme (x2) Referent (f1) Goal (f2: 1 +FINGER_00) Instrument (e2: +BE_02 (x2) Theme (x3) Location))	YES, meaning 1	point
polish	To make smooth or shiny. [Rule 1.13.1.e]	YES, +POLISH_00	make shiny +(e1: +RUB_00 (x1) Agent (x2) Theme (x3) Location (x4) Origin (x5) Goal (f1: (e2: +CLEAN_01 (x1) Theme (x3) Referent (f2: x2) Instrument)) Purpose (f3: (e3: +EMIT_00 (x3) Theme (x6: +LIGHT_01) Referent)) Result)	YES	burnish, polish

prepare	To put something into the necessary condition	NO, but lex. Unit +COOK_00	prepare for eating by applying heat +(e1: +CREATE_00 (x1) Theme (x2)Referent (f1: +HUMAN_00) Beneficiary (f2) Instrument (f3: +FOOD_00)Means (f4: (e2: +HEAT_00 (x1)Theme (x3: f3) Referent))Manner)	NO	braise, cook, do, fix, prepare, stew
pressurize	To supply pressure (TN)	NO			
prevent	To make sure that something does not occur	NO			
pull	To put a force (TN) on something that causes it to move in the direction of the force (TN)	YES, +PULL_00	to hold sth firmly and use force in order to move it or try to move it towards yourself +((e1: +MOVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5) Goal (f1: +HAND_00) Instrument (f2: (e2: +SEIZE_00 (x1)Theme (x2)Referent))Condition) (e3: +BE_00 (x1)Theme (x5)Referent))	YES	drag, draw, pull
push	To put a force (TN) on something that causes it to move away from the force (TN)	YES, +PUSH_00	to use your hands, arms or body in order to make sb/ sth move forward or away from you +(e1: +MOVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5) Goal (f1: +HAND_00) Instrument (f2: (e2: +TOUCH_00 (x1)Agent (x6: f1)Theme (x1)Origin (x2)Goal))Condition)	YES	force, press, push
put	To cause something to move or to be in a specified position or condition	YES, +PUT_00	put into a certain place +(e1: +MOVE_00 (x1) Agent (x2)Theme (x5) Location (x3)Origin (x4) Goal (f1: (e2: +BE_02 (x2) Theme (x4)Location (f2: +ON_00 ^ +IN_00 Position))Result)	YES	position, put, set

put on	To cover your skin or face with clothing (TN), or other items that give protection	NO, but lex. Unit +COVER_00	To place or spread something over somebody or something in order to protect it or hide it +(e1: +PUT_00 (x1) Agent (x2) Theme (x3) Origin (x4) Goal (f2: +ON_00) Position (f1) Instrument (f3: (e2: +HIDE_00 (x1) Theme (x4) Referent)) Purpose ^ (f4: (e3: +PROTECT_00 (x1) Theme (x4) Referent)) Purpose)	YES	bury, cover, dress, entomb, flood, inter, paint, put on, spread
read	To come to know data with the eyes (TN) or electronically	YES, +READ_00	to examine and understand the meaning of something written +((e1: +EXAMINE_00 (x1) Theme (x3: +WORD_00) Referent (f1: (e2: +UNDERSTAND_00 (x1) Theme (x3) Referent)) Purpose) (e3: +BE_02 (x3) Theme (x2) Location))	YES	peruse, read
receive	To get energy (TN), material, or a signal (TN) from a different source	NO, but lex. Unit +GIVE_00	transfer possession of something concrete to somebody +((e1: +TRANSFER_00 (x1) Agent (x2) Theme (x1) Origin (x3) Goal (f1: +HAND_00) Instrument) (e2: +BE_02 (x1) Theme (x3) Location (f2: m +NEAR_00) Position))	YES, though STE is more specifif	deliver, pass, give, receive, serve, surrender
recommend	To advise that which is best	NO, but lex. Unit +ADVISE_00	give advice to someone +(e1: adv +SAY_00 (x1) Theme (x4: (e2: pos +DO_00 (x3) Theme (x2) Referent)) Referent (x3) Goal)	YES	advise, counsel, point, propose, recommend, suggest

record	1. To make notes of and keep data to use subsequently. 2. To put data on storage material electronically or as photos (TN)	NO, but lex. Unit +WRITE_00 and SREGISTER_00	1. Write: to produce writing or images on paper MP: +(e1: +CREATE_00 (x1) Theme (x2)Referent (f1: +PENCIL_00 ^ +PEN_00 ^ +MACHINE_00) Instrument (f2: +SURFACE_00)Location (f3: +ON_00)Position) 2. Register: record in writing; enter into a register MP: +(e1: +STORE_00 (x1) Theme (x2)Referent (f1: +ARTEFACT_00) Instrument (f2:(e2: fut +PERCEIVE_00 (x1)Theme (x2) Referent))Purpose)	YES	1. annotate, caricature, chalk, compose, crayon, describe, draw, imprint, jot down, note down, paint, pencil, print,, record, run off, stamp, take down, trace, type, write, write down. 2. record, register
refer	To tell a person where to find information	NO			
refuel	To supply with fuel (TN)	NO			
reject	To make a decision that something is unsatisfactory	NO, but lex. Unit +REFUSE_00	to say that you will not do or accept something +(e1: +SAY_00 (x1)Theme (x4: (e2: fut n +DO_00 (x1)Theme (x2)Referent) Referent (x3)Goal (f1: (e3: past +REQUEST_01 (x3)Theme (x2)Referent (x1)Goal))Scene)	YES	decline, pass up, reject, refuse, turn down
release	To make free, to let go	YES, SRELEASE_00	To let someone go free, after having kept them somewhere +(e1: perm +LEAVE_00 (x1)Agent (x2: +HUMAN_00)Theme (x3)Location (x4)Origin (x5)Goal (f1: (e2: past +STORE_00 (x1)Theme (x2)Referent))Condition)	YES	release

remove	To take or move something way from its initial position	NO, but lex. Unit +TRANSFER_00	.+MOVE_00 Agent Theme Location Origin Goal: +HAVE_00 Theme 2Referent Condition f2: e3: n +HAVE_003Theme 2 Referent Result f3: e4: +HAVE_00 Theme 2Referent Purpose	YES	remove, transfer, withdraw
repair	To make an item serviceable	YES, +REPAIR_00	restore by replacing a part or putting together what is torn or broken +(e1: +CHANGE_00 (x1) Theme (x2)Referent (f1: (e2: past +DAMAGE_00 (x3)Theme (x2) Referent))Reason (f2: (e3: pos +OPERATE_00 (x4)Theme (x2) Referent))Result)	YES	fix, mend, repair
replace	To remove an item and to install a new or serviceable item	NO			
retract	1. To pull in(to). 2. To move in(to)	NO			
rub	To move or cause something to move with pressure (TN) and friction (TN) along a surface	YES, +RUB_00	move over something with pressure +(e1: +PUSH_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5)Goal (f1: (e2: +BE_02 (x2)Theme (x3) Location (f2: +ON_00) Position))Condition)	YES	rub
safety	1. To prevent accidental operation. 2. To make sure that something does not become loose	NO			
schedule	To put in a time sequence	NO			
seal	To prevent access and prevent leaks	NO			

see	To know with the eyes (TN)	YES, +SEE_00	perceive by sight +(e1: +PERCEIVE_00 (x1) Theme (x2)Referent (f1: +EYE_00)Instrument)	YES	look, see
send	To cause to go	YES, +SEND_00	to cause to be taken, directed, or transmitted to another place +((e1: +TRANSFER_00 (x1)Agent (x2)Theme (x3)Origin (x4)Goal (f1) Instrument)(e2: +BE_02 (x1)Theme (x4)Location (f2: +FAR_00)Position))	YES	send
sense	To get an input automatically	NO, but lex. Unit +FEEL_00	seem with respect to the sensation given; of physical states, indicating as health, etc.	YES	experience, feel, sense
set	To put something into a given adjustment, condition, or mode	NO, but lex. Unit +PUT_00 and +DESCEND_00	1. put into a certain place MP: +(e1: +MOVE_00 (x1)Agent (x2)Theme (x5)Location (x3)Origin (x4)Goal (f1: (e2: +BE_02 (x2) Theme (x4)Location (f2: +ON_00 ^ +IN_00) Position))Result) 2. move downward MP: +(e1: +MOVE_00 (x1)Agent (x2)Theme (x3)Location (x4) Origin (x5)Goal (f1: (e2: +BE_02 (x4)Theme (x6: +UP_00)Location (f2: x5)Referent))Condition (f3: (e3: +BE_02 (x5) Theme (x7: +DOWN_00) Location (f4: x4) Referent))Condition)	NO, FGKB is limited to location	position, put, set come down, descend, dismount, drip, fall, fall down, go down, set
shake	To move or cause to move quickly up and down or from side to side	YES, +SHAKE_00	move back and forth +((e1: +MOVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5)Goal (f1: +FAST_00) Speed (f2: s +TIME_01) Frequency (f3: (e2: +HOLD_00 (x1)Theme (x2)Referent))Condition) (e3: +BE_02 (x4)Theme (x5)Location (f4: +UP_00 ^ +RIGHT_00)Position))	YES	agitate, rock, shake, wag

show	1. To cause to be seen. 2. To be in view or come into view	YES, +SHOW_00	let somebody see something +(e1: +DO_00 (x1) Theme (x3: (e2: pos +SEE_00 (x4)Theme (x2) Referent))Referent)	YES	appear, display, show
simulate	To make a condition that is the same as one (TN) that can occur in operation	NO			
smell	To sense with the nose	YES, +SMELL_00	inhale the odor of; perceive by the olfactory sense +(e1: +PERCEIVE_00 (x1) Theme (x2)Referent (f1: +NOSE_00)Instrument)	YES	smell
smoke	To breathe tobacco (TN) smoke	YES, +SMOKE_01	inhale and exhale smoke from cigarettes, cigars, pipes +(e1: +BREATHE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5) Goal (f1: +MOUTH_00 +NOSE_00)Means (f2)Instrument)	YES	smoke
soak	1. To put something into a liquid and keep it there until it is fully wet or soft. 2. To stay in liquid until fully wet or soft	NO			
speak	To use a voice to make words	NO, lex. Unit +SAY_00	to speak or tell sb sth, using words MP: sp	YES	ask, enquire, express, inquire, mouth, say, speak, talk, tell, utter, verbalize
spill	To accidentally flow, or cause to flow, out of a container	NO			
spray	To apply as a spray.	NO			

start	1. To begin a procedure, movement or operation. 2. To come into being, activity or operation	NO, but lex. Unit +BÉGIN_00 and +OPERATE_00	1. take the first step or steps in carrying out an action MP: +(e1: ing pres +DO_00 (x1) Theme (x2)Referent) +(e2: npast n +DO_00 (x1)Theme (x2)Referent) 2. to use and control a machine or equipment MP: +(e1: +USE_00 (x1) Theme (x2)Referent (f1)Instrument (f2: (e2: +DO_00 (x2)Theme (x3) Referent)))Purpose)	YES, meanings 1 and 2	begin, commence, get, start, control, function, go, handle, operate, run, start, start up, switch on, turn on, work
stay	To continue to be in a location or condition	NO, but lex. Unit +BE_02	occupy a certain position or area MP: sp	YES	be, remain, stay
stop	1. To cause the end of a procedure, movement or operation. 2. To come to an end	YES, +STOP_00 and lex. Unit in +FINISH_00	1. to no longer move; to make sb or sth no longer move +(e1: +DO_00 (x1)Theme (x3)Referent (f1: (e2: egr +MOVE_00 (x4) Agent (x2)Theme (x5) Location (x6)Origin (x7)Goal))Result) 2. +(e1: egr pres +DO_00 (x1)Theme (x2)Referent) +(e2: npast +DO_00 (x1) Theme (x2)Referent)	YES	stop complete, end, finish, stop
stow	To move or cause to move into a specified position of storage	NO, lex. Unit in +STORE_00	provide storage for or keep in storage +(e1: +HAVE_00 (x1) Theme (x2)Referent (f1)Location (f2: +LONG_01)Duration)	YES, though STE is more specific, movement	accumulate, bond, garner, hoard, hold, keep, monopolize, save, stock, stockpile, store, stow, warehouse
subtract	To take from a number or quantity	NO			
supply	To give something that is necessary	YES, +SUPPLY_00	to provide people with something that they need or want, especially regularly over a long period of time +(e1: +PROVIDE_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal (f1: +OFTEN_00)Frequency)	YES	purvey, supply

tag	To put a tag (TN) on	NO			
tap	To hit lightly and quickly	NO			
taxi	To move an aircraft with engine power (TN)	NO			
tell	To give information to a person or thing	NO, lex. Unit +SAY_00	to speak or tell sb sth, using words MP: sp	YES	ask, enquire, express, inquire, mouth, say, speak, talk, tell, utter, verbalize
think	To have an opinion	YES, +THINK_00	use or exercise the mind +(e1: +USE_00 (x1) Theme (x3: +BRAIN_00) Referent (f1: (e2: +CREATE_00 (x1) Theme (x2) Referent)) Goal)	YES	cogitate, consider, think meditate, plan, reason,
tighten	To cause to be tight	YES, +TIGHTEN_00	make tight or tighter +(e1: +CHANGE_00 (x1) Theme (x2) Referent (f1: (e2: +BECOME_00 (x2) Theme (x3: +TIGHT_00 Attribute)) Result)	YES	fasten, tighten
tilt	To move at an angle (TN) or to put something at an angle (TN) between the vertical (TN) and the horizontal (TN)	NO			
torque	To tighten to a specified torque (TN)	NO			
touch	To be in contact	YES, +TOUCH_00	make physical contact with, come in contact with +(e1: +PERCEIVE_00 (x1) Theme (x2) Referent (f1: +BODY_PART_00 Instrument)	YES	touch
tow	To pull something along	NO			

transmit	To send energy (TN) or a signal (TN)	NO, but lex. Unit +BROADCAST_00	to transmit a program or information on television or radio +(e1: +SEND_00 (x1) Agent (x2)Theme (x3) Origin (x4)Goal (f1: +TELEVISION_00 +RADIO_00) Instrument)	NO, FGKB is limited to tv or radio	
try	To make an effort to do something	YES, +TRY_00	make an effort or attempt +(e1: ing +DO_00 (x1) Theme (x3)Referent (f1: x2)Purpose)	YES	assay, attempt, essay, seek, try
tune	To adjust equipment to the best performance	NO			
turn	To move or cause to move around an axis (TN) or a point	NO			
twist	1. To use a force (TN) that turns something and causes a distortion (TN). 2. To turn or change shape as a result of torsion	NO, but lex unit in \$CONTORT_00	To twist or bend violently and unnaturally into a different shape or form +(e1: +BEND_00 (x1) Theme (x2)Referent (f1: +VIOLENT_00)Manner)	YES	contort, twist
unfold	To open or straighten from a folded position or condition	NO			
unlock	To release or become released from a locked condition	NO			
unwind	To remove or become removed from around an object	NO			
use	To make something do its specified function	YES, +USE_00	make use of or employ for a particular purpose +(e1: +DO_00 (x1) Theme (x3)Referent (f1: x2)Instrument)	YES	apply, employ, use, utilize

walk	To move on foot (TN) from one (TN) location to a different location	YES, +WALK_00	use one's feet to advance; advance by steps +(e1: +MOVE_00 (x1) Agent (x2)Theme (x3) Location (x4)Origin (x5)Goal (f1: +LEG_00) Instrument)	YES	hoof, pace, toddle, wade
wear	To become damaged by friction (TN)	YES, +WEAR_00	+WEAR_00, but it has the meaning to put on	NO	
weigh	1. To measure the weight of something. 2. To have a specified weight	YES, +WEIGH_00	have a certain weight +(e1: +BE_01 (x1) Theme (x2)Attribute) +(e2: +BE_00 (x2)Theme (x3: +WEIGHT_00) Referent)	YES, meaning 2. But not meaning 1	
wet-motor	To turn an engine with the starter (TN), with fuel but without ignition (TN)	NO			
will	Helping verb that shows simple future tense. NOTE: no other forms of this verb	NO			
wind	To move around and around an object	NO			
write	To record data or information as words, letters, or symbols	YES, +WRITE_00	to produce writing or images on paper +(e1: +CREATE_00 (x1) Theme (x2)Referent (f1: +PENCIL_00 ^ +PEN_00 ^ +MACHINE_00) Instrument (f2: +SURFACE_00)Location (f3: +ON_00)Position)	YES	annotate, caricature, chalk, compose, crayon, describe, draw, imprint, jot down, note down, paint, pencil, print, record, run off, stamp, take down, trace, type, write