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# DYNAMICS OF SEMANTIC AND PRAGMATIC FRAMEWORK OF MODAL PROPOSITION: LINGUISTIC AND COGNITIVE ASPECTS

**Bibliographic Description:**

*Abstract*

*The article outlines the linguocognitive background for semantic and pragmatic structural dynamics of the modal proposition in planes of relevance, ambiguity, force dynamics, as well as possible worlds theories. The integrated theoretical approaches entailed the development of a relatively admissible algorithm for interpreting the modal values in a vast number of pragmatic frameworks. Due to the algorithm, a modal proposition incorporates a logical relation and a propositional domain. Logical relation integrates semantic denotation and pragmatic implication and presupposition into the linguistic coherence; whereas propositional domain represents human belief-desire system and encodes the factual or desirable state of affairs in root modalities and the individual's mental states – in epistemic modalities. Propositional domain permanently updates and extends due to the constant modelling of the novel mental inputs. Structurally, the propositional domain incorporates modal operators building the proposition into the contextual framework and linking it to another proposition, i.e. the restrictor.*

*We incorporate the notion of force dynamics to ground the link between the root and epistemic modalities. Here force serves as contributing or restricting facility to precondition the way root modalities encode the external reality and metaphorically transmit it into the language of thought producing epistemic modal values. In terms of the possible worlds theory we classified factual, regulative, desirable, and idealistic propositional domains to generally outline pragmatic extension of English modals. In the case study of distributional properties and pragmatic extensions of most commonly used English modals in their relationship to truth-conditional content, we speculated on and systematized the means via modal values such as necessity, ability, possibility, potentiality, ordering, desirability etc. are encoded in the live English speech.*

*Keywords: modality, proposition, a domain of a proposition, a modal restrictor, a modal operator.*

### *1. Introduction.*

Modal values lexicalization and processing in the natural language is outlined in various logic and philosophy theories (Blakemore 1989, 1990; Ehrman 1966; Kratzer 1977, 1981, 1991; Palmer 1986; Perkins 1983; Sperber, Wilson 1996; Talmy 1988 et al.), who seek to show the fundamental connection between human language and mind. Various approaches in scientific

survey still debate about how the human brain accumulates, preserves and processes all the variability of lexical-semantic meanings. Many scholars (Barsalou 1989; Fauconnier 1985; Lyons 1977; Talmy 1988 et al.) consider that the mental lexicon has an extremely rich internal structure able to determine the process of the external world acquisition in accordance with the pragmatically marked individual choices and needs. By its nature, this structure is polysemous and incorporates clusters of interconnected concepts and categories relevant to various contextual updates of the lexical element. In this respect, modals act as a vivid manifestation of linguistic polysemy, and modal values in turn as specific constructs fundamental for human cognition.

In logic, philosophy and linguistics, two most ground modal values are distinguished (Bybee, Fleischman 1995; Coates 1988; Lyons 1977; Kratzer 1977, 1981, 1991; Palmer 1986, 1990 et al.) – epistemic and deontic. **Epistemic modality** encodes the range an individual perceives the factuality of the proposition; **deontic modality** denotes the propositional necessity or possibility

Besides epistemic and deontic values, Palmer (1986: 22) separates the **dynamic** (or circumstantial) **modality**, incorporating mental categories of factual ability, possibility, intention, desire, etc., as in the given propositions:

*(1) I CAN speak four languages* (ability, skill).

*(2) He COULD be the best basketball player ever* (circumstantial possibility).

Traditionally, deontic and dynamic meanings refer to **agent-oriented** or **root modality**, while epistemic to **speaker-oriented modality** (see Bybee, Pagliuca 1985; Bybee, Fleischman 1995).

Despite the fact that modality is a rather developed issue, in various plains, remains a number of empirical data to speculate. Therefore, at this phase of our survey, we **aim** to develop a dynamic conceptual framework of modality that will enable identifying the scope of the semantic and pragmatic variability of its operators within the propositional domain. To depict the versatility and dynamics of modal values in the scope of the theoretical approaches considered, we set two basic **objectives**: (1) to outline the lingo-cognitive theoretical ground for semantic and pragmatic framework analysis namely within the relevance, ambiguity, force dynamics, and possible worlds theories; and (2) via pragmatic extension, to analyse contextual dynamics of most widely used English modal operators.

### 2. Modality in Relevance Theory.

Methodologically, the *relevance theory* serves as a core basis to analyse semantic and pragmatic nature of modality (Blakemore 1989, 1990; Sperber, Wilson 1996 et al.). Generally, semantics relates to lexical values acquisition in the natural language processing; more specifically – lexical semantics characterizes the linguistically encoded meaning of a lexical item. This approach to language semantics is mentally oriented and primarily grounds on the issues of the *representational theory of mind* (Fodor 1981). First, the individual's mind perceives and processes the input data by constructing propositional representations in the language of thought; and, second, language is a specialized module in human mind aimed to convert natural language means into conceptual representations. In this plane, the grammatical structure of proposition topologizes language means into conceptual representations, i.e. into the logical form of the utterance. The logical form in turn is a specifically structured module – an algorithm to encode the language of thought.

Basically, linguistic display of logical forms consists in revealing the conceptual basis of a proposition. Therefore, system encoding of certain lexical items in a proposition gives access to the conceptual content of its modality (Sperber, Wilson 1996: 530–532). Ergo, we turn to key logical and philosophical theories (see Barsalou 1989; Papafragou 1997, 2006; Sperber, Wilson 1996) to work out the procedure for interpretation and identification of markers for modal conceptual values.

First of all, the modal proposition structure comprises the following entries: (a) ***logical***, resulting from certain logically structured deductive inferences of the subject; (b) ***encyclopaedic***, containing data about objects, events, properties, and other facts of the external reality, embodied in scripts, concepts and scenarios; and, finally, (c) ***lexical***, accumulating data on systemic and structural properties of natural-language items. Logical entries of modal values undergo *elimination rules*, enabling categorization and localization of a certain concept in the appropriate associative and semantic plane. Encyclopaedic entries incorporate most of the human knowledge about categories and phenomena of the real world represented in prototypes, i.e. category invariants. Lexical entries combine all natural-language means as a conceptual code (Sperber, Wilson 1996: 530–532).

Naturally, in the live speech, grammatical structure usually cannot fully encode the human mind implicity. Therefore, modal logic conventionally approach communication process as a set of *assumptions schemes* (see Sperber, Wilson 1996). The matter is that most commonly, the listener perceives grammatical structures of a proposition as a ground to comprehend only the hypothetical way of the speaker's thinking (i.e. propositional form of an utterance). Consequently, the listener's comprehension of the speaker's words may or may not correspond to the reality, as it is actually only an interpretive hypothesis grounded on particular pragmatic matters. Therefore, we assume that the ultimate point for processing the logical form of the utterance is a complete logico-conceptual representation, i.e. synthesis of the explicit and implicit structures of the utterance and real or possible world.

In cognitive account, the speech perception and comprehension, its semantic and pragmatic content, mostly match with linguistic encoding and assumptions. Due to the relevance theory, pragmatics exploits data derived from the grammatical structure of the utterance to ground the complete interpretation process. Obviously, such an interpretation of the semantic-pragmatic relation is not undeniable and complete. However, it is necessary to define to what extent the grammatical structure of the utterance relies on the input sensory modal stimulus and how much supplement of the non-linguistic data it needs to acquire the most factual propositional interface of the utterance the speaker intended to convey.

The fact that the natural language does not dispose enough means to fully convey the speaker's mind is neither random not trivial. Indeed, in evolutionary terms, it is quite reasonable that the lingo-cognitive economy results from the fragmentary conceptual representation of the human mind. However, due to the context-based extension of the lexical meaning, it becomes possible to open up the singular conceptual addressing in human memory pursuant to pragmatic manipulation (Barsalou 1989; Sperber and Wilson 1996; Papafragou 1997, 2006).

Obviously, every human relates to a certain mental and data environment, which accumulates particular properties and facts about the real world and its concepts. In the individual's mind, truthfulness or factuality and desirability are relevant to his way of thinking, which ultimately manifests the way he qualifies modal processes, both sensory and conceptual, as true or false. In this scope, human communication is for the most part a certain set of facts or assumptions more or less explicit to the relevant audience where the speaker usually intends to affect the listener, anticipating mental and emotional feedback of the latter.

Essentially, in communication processes the input stimulus triggers the individual to the extent it causes relevant cognitive effect (see Talmy 2000a, 2000b et al.). Sperber and Wilson (1996) separate three basic types of cognitive effects. First, the input stimulus results from the interaction with the previously acquired assumptions and leads to the pragmatically appropriate contextual implications; second, the input stimulus counterparts the acquired assumptions and results in elimination from the listener's mental repertoire; third, the input stimulus relates to the acquired assumptions and provides their enrichment in the individual's mental repertoire. The cognitive effects immensely depend on the stimulus accessibility, its form (perceptual or linguistic), length, and the assumptions accessibility in the recipient's mental repertoire. The

relevance of cognitive effects also relies on the balance between the acquired cognitive effects and efforts took to achieve the necessary results.

### 3. Modality in Ambiguity Approach.

In the live speech, modal values are commonly interpreted in more than one way. In every given case, modal values interpretation is more or less pragmatically predictable and selected from the vast repertoire of acquired values. This selection is usually intuitive which goes far beyond pure lexical ambiguity and multiplicity of values. Palmer (1990: 54) considers such a semantic non-singularity can pragmatically derive from root potentiality, which in turn routs the processing of all performative deontic meanings caused by pragmatic extension, rather than semantic decoding. It means that pragmatic extension of values, traditionally attributed to modals, greatly enriches their semantic range (Groefsema 1995).

In the ambiguity approach, Palmer (1990) separates four basic modalities – epistemic, deontic, dynamic and simple root modal meanings. For instance, *MAY* encodes **epistemic** and **deontic possibility**, i.e. permission, and **simple root possibility** (3a-c):

*(3) a. You MAY find this film absorbing.*

*b. You MAY go home.*

*c. The problem MAY be viewed from other perspectives.*

*CAN* denotes **simple root possibility** and **subject-oriented** (4a) or **neutral ability** (4b), **deontic possibility** (4c), and **command** (4d), as follows,

*(4) a. Fibs CAN speak out.*

*b. You CAN work it out.*

*c. Every Friday staff CAN dress casually.*

*d. Kim CAN forget about the vacation – she's messed the last project up.*

*MUST* conveys **subject-oriented** or **neutral necessity** (5a-c) as in the examples,

*(5) a. You MUST be kidding me.*

*b. The company MUST set it up right now.*

*c. The waiter just MUST go around with the trey.*

*SHOULD* encodes **contingent** or **conditional necessity** in any of epistemic or dynamic values (6a-b), although in the ambiguity approach, this modal verb can acquire 'highly deontic characteristics' (Palmer 1990: 82), for instance,

*(6) a. They SHOULD be coming later on today.*

*b. The doctor said I SHOULD really cut down on smoking.*

It is clear that modal ambiguity results not only from the lack of contextual information, but also from the subject-oriented origin of a neutral modal value. For this reason, performative values of modals should necessarily incorporate the following two basic aspects – *semantic labels* (Leech 2014) and *pragmatic extensions* (Palmer 1986, 1990). Due to pragmatic extension of semantic content, *CAN* encodes a **subject-oriented dynamic ability** (7a-b) as in the given examples:

*(7) a. Rachel CAN speak Spanish and Portuguese.*

*b. Rachel CAN speak Spanish and Portuguese at the webinar, because everybody is going to understand her.*

According to Palmer (1986, 1990) and Leech (2014), we can conclude that 'traditional' modal values are actually 'by-products' of speech perception and comprehension, rather than the stable and basic semantic information that guides any pragmatic interpretation. This view allows to speak of a certain illocutionary force of modals' semantics and pragmatics, that goes far beyond lexical ambiguity.

### 4. Modals in Force-Dynamics Theory.

Modals' polysemy and wide interpretation range mostly depend on blurred margins between their nucleus and peripheral semantics (Coates 1988: 425–434). In the cognitive paradigm, the modals' polysemy synthesizes in the *metaphorical mapping* from the individual's concrete external socio-physiological experience up to the abstract inner world of his mind and

mental processes in general. Such a way to explain the modal semantics nature grounds on ***force-dynamics theory*** (Talmy 1988, 2000a, 200b). Here root modalities incorporate the notion of **force** to denote the external world and metaphorically transmit it into the human mind producing epistemic modal values.

Therefore, *MAY* and *MUST* encode the **force** as a contributing or restricting facility affecting the way of thinking and reflecting the root (8a-b) and epistemic (8c-d) modal values, such as:

*(8) a. You MAY purchase the house you want* – It is not forbidden to purchase a house someone is interested in;

*b. You MUST be back by Saturday (Our parents said so)* – Parental authority forces someone to return to Saturday;

*c. Rachel MAY have done the dishes in the meantime* – There is no reason to doubt that Rachel has washed the dishes.

*d. You MUST have had a great time on Barbados* – The available evidence suggests that someone really had a good time on Barbados.

Essentially, the metaphorical mapping of modal concepts differs substantially from other types of mapping, motivating lexical polysemy. In case of conceptual modality, its semantics primarily is enforced by all possible sensory modalities associated in a corresponding way with metaphorical mappings. Thus, sensory modality, incorporating necessary psychological feedbacks and mechanisms, precedes the linguistic tendency of producing the input stimulus value. This process can be described in terms of *the internal world metaphorical construal*, based on perceiving and reasoning of the external world (Sweetser 1990: 23).

The common drawback of ambiguity and force-dynamics theories is that they do not consider the intuitively obvious link, on the one hand, between necessity and obligation in the semantic value of *MUST*; and, on the other hand, between possibility and permission in the semantic value of *MAY* (Lyons 1977: 791).

### 5. Modality in Possible-Words Theory.

Due to the theoretical approach provided by Ehrman (Ehrman 1966), Haegeman (Haegeman 1983) et al., Kratzer (Kratzer 1977, 1981, 1991) considered modals in the plane of **possible-worlds theory** and separated three basic modal operators: the modal relation, the modal base and the ordering source.

The modal relation incorporates possibility and necessity concepts. The modal base (or *conversational background*) involves assumptions allowing to acquire the modal relation; they are commonly implicit although can become explicit via expressions such as, *from the point of view*, *from the perspective of*, etc. In possible-worlds theory, epistemic modal values ground on what is known; teleological – on what is predetermined by certain aims and objectives; deontic – on what is ordered; bouletic – on what is desirable. Relevant modal values variability is in the following examples of *MUST*:

*(9) a. Monika MUST be Ross's sister: they have the same eyes* (available evidence).

*b. Chandler MUST buy a car to get to and from Tulsa every week* (obvious goal).

*c. You MUST leave right at the moment* (direct order).

The above modal meanings are elements of possible worlds, which in turn define the modal operator. In the live speech, modal meanings are contextual and the type of modal base relevant to their interpretation is pragmatically motivated. Obviously, when interpreting any given modal proposition, it is impossible to consider all possible worlds incorporated in the modal base. As for instance, in proposition (8a), due to some assumptions, the speaker does not consider the possibility that Monika and Ross have the same eyes, as some of them may use contacts; or maybe the fact that they have same eyes is just a coincidence. The matter is the ordering source make us rank alternative worlds in relation to their proximity to the common state of affairs and to determine the degree of their deviation considering what looks most

common to the given real world (Lewis 1975, 1981). Therefore, modal value of *MUST* encodes the **unambiguous allowability** of the family relationship between Monika and Ross.

Regardless of the ontological status of possible worlds, their acquisition and representation are cognitive, and therefore, subjective. As for the relevance theory, it can be, along with some other theories, a good try to overcome the gap between modal semantics and pragmatics as it takes *evidentiality* for the relevance criteria which in fact comprises both sensory and conceptual modalities (Groefsema 1995). Let us consider the following example:

*(10) Rachel and Ross MUST be married.*

Here epistemic *MUST* encodes the relevant possibility, that Rachel and Ross are married for they are going to have a baby and they live together that is *evident*.

The synthesis of the above theories allows to derive a relatively universal formula to interpret modal propositions. Therefore, scientists (Sperber, Wilson 1996; Papafragou 1997, 2006 et al.) assume that the semantics of a modal proposition ***P*** incorporates two elements: 1) a **logical relation *R*** – the *entailment* for correlation between semantic denotation and pragmatic implication and presupposition, as well as *linguistic coherence*; and 2) a **propositional domain *D***. Schematically, the modal proposition can be depicted as follows:

***R(D, p)***.

This formula reflects the general three-component structure necessary for analysing a number of quantificational devices in the natural language, such as conditionals, when-clauses, quantificational determiners such as *everyone, all* or adverbs such as *always*, *generally*, *often* etc. (Lewis 1975; 1981). Still, the explanation of the modal value structure demands the following expanded tripartite formula (Krifka, Pelletier, Carlson, ter Meulen, Link and Chierchia 1995):

***O(rm)***.

Here the **modal operator O** builds a proposition into the **matrix M** and links it to another proposition – the **restrictor R**. In modal propositions, the operator is a logical relation (entailment or coherence), the matrix – an entailed utterance, and the restrictor – the domain of the proposition, relevant to the matrix, which defines various types of modal values encoded in multiple communication contexts.

In the live speech, modal restrictor is linguistically encoded in a particular way, as in the proposition (11a), or is represented as a pragmatic inference (guess, assumption, etc.), as in the proposition (11b):

*(11) a. As you betrayed me, we MUST split up.*

*b. We MUST split up.*

Regardless of the linguistic encoding of a restrictor in the explicit structure of a modal proposition, the semantic content of a modal element potentially refers to other possible restrictors it is logically related with. Herewith, the modal input stimulus may not point to any other restrictor, leaving its specification in pragmatic plane. One way or another, modal values and relations are specified, both synchronically and diachronically, via explicit and implicit restrictors that define the semantics of every propositional element, as well as the overall proposition.

*6. Propositional Domain as a Modal Restrictor.*

Any given modal category can be represented as a domain due to the corresponding semantic or pragmatic sense via encoding means of any particular language. Due to Sperber, Wilson (1996) and Papafragou (1997, 2006) et al., we assume modal propositions are input, configured, preserved, and represented in the human language cognition, reflecting the truth-conditional nature of the state of affairs in the factual world. Modal proposition is actually and most commonly a *factual assumption* (in relevance theory it is viewed as the *descriptive use of proposition* (see Sperber, Wilson 1996)). **Factual domain** (or factual assumption) is a general concept of the real or possible world that has two main types of linguistic encoding. *First,* factual data describe large-scale empirical generalizations regarding the whole groups of objects and phenomena; *second,* specific factual data, conditional or idealistic modal propositions, represent

individual objects and phenomena related to their certain temporal-spatial modes. Noticeably, the factual assumption is the default and basic means facilitating human communication, since it preforms the rich and accessible contextual background. This background in turn supplies lingo-cognitive processing of incoming modal stimuli immediately after their sensory perception and identification.

Modal propositions describe not only the factual world (in its past, present, or future manifestations), although primarily relevant to a single factual domain, but also reflect the state of affairs in relation to the stereotype and regulatory world constructing **regulatory domain**. This domain incorporates in the first place moral and ethical norms or convictions, generally accepted rules and laws, orders, prescriptions, instructions, codes, conventions, etc., which constitute the '*purpose-specific internal module*' for any given individual as a representative of a particular macro- and micro-community (Premack, Premack 1994).

Other types of the propositional domains also include modalities handled as descriptions of states of affairs in worlds *desirable* or *idealistic* from someone or other's point of view. In fact, **desirability domain** is a tripartite predicate (interconnecting *speakers ↔ setting ↔ listener*), where the speaker usually prioritizes the assumption as a description of a setting in the world *desirable* from his own perspective or from the point of view of another person. Finally, **idealistic domain** encodes abstract representations/hypotheses or abstract representations of representations, which is a sample of what the relevance theory claims the *interpretative use of propositions* (see Sperber, Wilson 1996). Here, the main structural property of modal propositions belongs to in-built indexes (Kuroda 1982) (other terms – *mental spaces* (Fauconnier 1985) or *domains of discourse* (Recanati 1996)). In factual assumptions, these indexes equal zero, since these assumptions are the most natural representation of the real world. Yet other types of assumptions ground on the description and correlation of the real and alternative worlds in the human mind.

Consequently, we assume the **propositional domain** is a specifically organized human belief-desire system with a rich internal structure permanently updated and extended due to the novel mental areas modalizing. In the root interpretative plane, propositional domains incorporate modalities encoding the factual state of affairs; in the epistemic – the individual' mental states. This does not mean that subjective views no longer remain truth-conditional properties of the state of affairs. However, the truthfulness range of modal propositions is relevant to the modal restrictor catalysing reality and human mind so it is more or less obvious how much of the factual proposition is compatible with the settings or facts of the real external world.

To maintain a framework for modality, propositional domains set a notional space, which fulfils the following objectives. First, it grounds the pragmatic computation of restrictors for modal relations. Second, it establishes a *conceptual pool* for grammaticalisation processes – a set of recurrent conceptual variants, methods and purposes to precondition perception and comprehension of a *new* input stimuli that undergoes permanent mutation and selection due to internal and external reasons, and overall results in the conceptual algorithm mutation. Therefore, the propositional domain becomes a practical tool for describing and comparing modal elements used in the plane of mono- and polylingualism to trace the diachronic development of modal values in general. Even if it is inappropriate to consider the propositional domain to be the basic linguistic structure underlying grammaticalisation, still it plays a decisive part in establishing of semantic values, since it marks the modal structure.

### 7. Semantic Values of Modal Operators.

Semantic values of most commonly used English modals *MAY*, *CAN*, *MUST*, and *SHOULD* undergo various pragmatic modifications encoded in numerous interpretations of propositions. For instance, in the modal proposition (11), most appropriately *MAY* encodes the ability/capability to gain adequate cognitive effect in a manner compatible with both speaker and listener's capabilities and pReferences

*(12) The migration service MAY cancel the decision on your depot, you only need to provide a certificate of marriage to confirm your matrimonial status.*

In modal propositions (12a-c), *MAY* encodes the **presence** or **absence** of a certain conditional **barrier**:

*(12) a. Monika and Chandler are engaged, so they MAY start making arrangements for the wedding.*

*b. To make lasagna, any sort of tomato sauce MAY be used.*

*c. I told my students, during the seminar, they MAY interrupt me as often as they need.*

Proposition (12a) indicates the ability of starting making arrangements for the wedding related to the overall evident circumstances. Example (12b) encodes certain recipe deviation or variability acceptable in a particular normative domain. In our opinion, we should a bit more speculate on the modal value of (12c). We may assume the lecturer himself has made a proposal. In the given case, students can interrupt the lecture if he does not mind. Here the propositional domain determines the semantic value of the modal verb in the way preferable for the very lecture. Thus, even if students interrupt the lecturer as often as *they* find it necessary, the lecturer still is the prior authority at the seminar, and thus his decision can be interpreted as **permission** (or elimination of the barrier).

There is a common belief that the recurrent modal value of *CAN* is **potentiality** (Bolinger 1989), which the real world usually presupposes, as for instance:

*(13) PPP CAN co-occur with more traditional forms of computer-based learning.*

Modal proposition (13) encodes potentiality due to quite real circumstances such as, maybe, (a) total and accessible technical support for schooling, (b) teachers' encouraging position, or (c) the recommendations from the education department.

The value of **ability** commonly prescribed to *CAN*, we consider (due to Foolen 1992) does not fully correspond to the root meanings of the verb as it derives from enrichment of its semantic value due to various interpretations of potentiality. Consider the following examples:

*(14) a. Rachel CAN speak Spanish and Portuguese.*

*b. Rachel CAN speak Spanish and Portuguese at the webinar, because everybody is going to understand her.*

Given propositions indicate to a certain property of Rachel along with some other qualities and skills of hers. Evidently, the factual scope of the proposition (14a) differs from the proposition (14b) by the fact that the situation the former describes justifies the well-known fact – Rachel speaks Spanish and Portuguese. Proposition (14b) is characterized with the richer factual domain – besides Rachel's qualities it also exploits the very situation of the meeting and the qualities of its other participants (obviously, they also speak Spanish and Portuguese). Therefore, the proposition (14b) does not encode the ability in its 'pure' sense as opposed to the proposition (14a).

The value of **potentiality** delegated to *CAN* may be interpreted as a particular subject or object's property in the proposition, which implies some specific and broader factual considerations with respect to this property. Moreover, in case there are no restrictions for the semantic value of *CAN* within the potentiality domain, we can speak of its naturally predicted root potentiality, which will conceptually join every given individual property in the proposition, for instance:

*(15) a. Hurricane CAN smash the crops.*

*b. The project CAN be split into several micro-projects.*

This approach explains the relation between *CAN* and *BE ABLE TO*, where the latter encodes a natural ability/skill relevant or irrelevant to the individual's desires and wishes, as in the example below:

*(16) a. Ted CAN/IS ABLE TO meet deadlines, if he likes.*

*b. We CAN/ARE ABLE TO offer you a suite room, if you wish.*

Next, we consider **suggestion** and **offer** as a recurrent modal value of *CAN*. This interpretative value presupposes the following contextual assumptions: (a) a proposition represents a state of affairs definitely desirable or beneficial for both the speaker and the listener; (b) the speaker is responsible for ensuring the state of affairs described in the proposition; and **(c)** the speaker takes no obligation to ensure this state of affairs, as for instance:

(17) a. *We CAN have a drink on Friday.*

b. *I CAN give you a lift.*

Finally, *CAN* and *MAY* encode the deontic value of **permission**, as in the given propositions:

(18) a. *In Tulsa, you CAN smoke in the room unless someone does not like it.*

b. *You MAY smoke in this room.*

Let us suppose the given contextual assumptions are mutually transparent for the speaker and the listener. In this case, the state of affairs when the listener smokes in the room (a) is desirable in the speaker's view; (b) is within the speaker's powers; or (c) the listener has particular manipulative power on the speaker. Therefore, the modal proposition (18a) encodes the speaker informs the listener that in fact there are no obstacles that would prevent him from smoking in the room. In other words, the circumstances are that he is allowed to smoke. Instead, the modal proposition (18b) shows that smoking in the room is compatible not only with the speaker's powers but also with his preferences.

As a rule, this interpretation grounds why *MAY* is considered to be a more polite form of permission unlike *CAN* as the former encodes greater involvement of the speaker himself. However, this is not always the case. For instance, let us assume in the utterance (19) the commander reveals a permission, although given the mandatory rules in the military discipline, the soldier is obliged to go home rather than he is allowed to do so:

(19) *You MAY go home, Terence.*

This is the case of *'context-induced reinterpretation'* within a particular grammaticalisation chain (Heine 1995). Here, the context virtually rejects the assumption (let us label it the assumption *z*) that the chance to go home is desirable for Terence himself. Actually, the fact that Terence acts as the *object* of the conversation automatically presupposes the opposite view: he cannot go home freely having no permission. However, it is difficult to grasp what was the commander's intension and whether this intention was optimally relevant to Terence's, unless the commander believed or knew that the assumption *z* was true. In the given situation, the assumption *z* can be interpreted only as a background relevant to the assumption of the subject of the proposition (for instance, he knows that the assumption *z* is false). Although there is no contextual precondition, there is no reason to suppose that the commander deliberately ignores the soldier's wish. In the same way, we know nothing if Terence had previously appealed to gain the permission to go home. Possibly, *MAY* can encode some negative sense if the commander orders Terence to leave the military base as a disciplinary punishment being as subjected to a removal from military service. In this case, let us suppose *MAY* encodes a one-way rejection of the formal communicative protocol in the way of top-bottom subordination relevant to the commander's strong dissatisfaction by Terence's military service.

Similar meaning conveys the following modal proposition:

(20) a. *You CAN forget about holidays – you did poorly at school.*

b. *You CAN start looking for a new job.*

Modal connotation of *MUST* can be rather clearly considered in the following propositional domain:

(21) *I MUST sneeze.*

The most logical interpretation of this utterance may be as follows: Monika sneezing is a natural reaction for being cold, given, for example, the low air temperature and physical condition caused by the factor. Here, the modal domain specification *narrows* the very

proposition to the factual value. On the contrary, the following propositions contextually *extend* the semantic value of *MUST*:

*(22) a. To start a football match, one player MUST kick the ball from the middle of the filed.*

*b. The candidates MUST stop the campaign in a week before the President election.*

*c. You MUST remain silent throughout the trial. Let your lawyer talk.*

All of the above given propositions relate to the normative domain of various types and encode the **necessity** in relation to the rules of the football game (22a), the constitutional rules (22b) and the proceedings of court sessions (22c).

The modal *MUST* also conveys restrictive or circumstantial value, i.e. necessity, as in the following cases:

*(23) I (Amy) MUST lose weight.*

Let us assume slimming relates to Amy's need or desire to become attractive. The proposition of this type is qualified as a *practical syllogism* and conveys faith or conviction in the appropriateness of certain actions relevant to the particular intent (Kratzer 1981, 1991). Practical syllogism has roughly the following general structures:

*(24) a. I want to attain $y$.*

*b. Unless $z$ is done, $y$ will not be attained.*

*в. Therefore, $z$ must be done.*

Considering the given practical syllogism, we can extend the proposition (23) as follows:

*(25) a. Amy wants to become attractive.*

*b. Unless she loses weight, Amy will not become attractive.*

*c. Therefore, Amy MUST lose weight.*

Consequently, slimming for Amy is an unavoidable precondition to achieve her purpose; this is the very necessity *MUST* encode.

However, in the following proposition we can witness *MUST* acquiring a **deontic obligation-imposing** value:

*(26) You MUST transcribe 'favourable' twenty times, unless you learn to do it perfectly well.*

In the given case, *MUST* reveals the **powers** of the subject in the normative domain making emphasis on his ordering and instructing authority. It is also obvious that the subject is empowered to highlight the state of affairs in the proposition.

In addition, obligatory *MUST* encodes **imperative suggestions** or **offers**:

*(27) a. We MUST go for a drink one day.*

*b. I absolutely MUST give you a lift.*

*c. You MUST come and see Emma sometime.*

In the utterance (27a), the speaker offers his companion to go for a drink sometime. Given that the listener must accept the speaker's offer due to the social status of their relationships, we can interpret the proposition as an urgent proposal.

Unlike *MUST*, the modal verb *SHOULD* usually denotes an **obligation** or certain established **rules** of a weaker sense, such as:

*(28) She eats. She drinks. So, once in a while, she SHOULD do the washing up.*

In the plane of the proposal domain, *SHOULD* commonly encodes a necessity relative to existing stereotypes, norms or expectations. The modal value of *SHOULD* relies quite heavily on the sort of structured knowledge humans acquire in their everyday life. In the human logical-semantic system, the acquired normative knowledge attains its regulatory status, so that the root value of *SHOULD* approximates *MUST*. Still, *SHOULD* tends to encode what is more expected or normal, which reduces its status of prescription or urgent kind of necessity and makes it indistinguishable from *OUGHT TO*, as a moral and ethical norm, for example:

*(29) You SHOULD/OUGHT TO respect your parents.*

As we known (see Warner 1993), *SHOULD* eventually aligned its original status as the past form of *SHALL* and entered the modal system as a separate item. Still, the verb can be used in the numerous ways, which continue to preserve some sense of its original meaning, unrelated to secondary interpretations (Ehrman 1966; Coates 1983; Palmer 1990). Therefore, *SHOULD* is used in ways similar to a hypothetical *WOULD* (30a), as a hypothetical marker with inverted word order (30b), or as zero contribution to meaning in the quasi-subjunctive construction (30c):

*(30) a. I SHOULD be grateful if we could forget about it.*

*b. SHOULD you require any further recommendations, please feel free to tell me.*

*c. Fibs does not like, that she SHOULD be left alone over the weekend.*

Finally, contrasting semantic values encoded by *MUST*, *SHOULD* and *OUGHT TO* we see the following:

*(31) In this game, you MUST/SHOULD/OUGHT TO kick the ball to the player next to you.*

*(32) Chief scout to the reporter:*

*a. You MUST pass the article by midnight, although it is fine if you don't.*

*b. You SHOULD pass the article by midnight, although it is fine if you don't.*

*c. You OUGHT TO pass the article by midnight, although it is fine if you don't.*

Therefore, in the proposition (31), *MUST* does not have any semantic constraints and matches the normative propositional domain of the rules of the game. *SHOULD*, nevertheless, has its individual modal-semantic specificity and shades the proposition in somewhat different manner. Although the rules of the game are mandatory and constitute a regulatory limitation domain, one can assume that this particular game may be far from the common gaming activity (for example, a game on a playground, etc.). Since there are no contextual hints about prescriptiveness of the game rules, *SHOULD* and *OUGHT TO* have less urgent and more recommendatory meaning.

On the contrary, the modal proposition (32a) denotes the commitment due to a number of contextual assumptions regarding the editor's authority and the reporter's duties. In the utterance (32b), the editor communicates his expectations regarding the task to be done by the reporter so that there is no contextual hint of pressure or authority on the part of the editor as for the task performing. Finally, the proposition (32c) encodes the editor's priorities or particular considerations regarding the publishing deadlines and the quality/fulfilment level of the reportage done by one of his subordinate, depending on what the editor can accept for the finished reportage.

Consequently, a detailed outline of the modal values encoded by most widely used modal operators, considered in the plane of the relevance, ambiguity, force dynamics, and possible worlds theories, shows that the discrepancy in contextual interpretations can be adequately predicted by extending their semantic structure, as well as through a multifunctional and powerful pragmatic devises. Moreover, the considered modality theories clearly demonstrate the ability to show all its semantic multidimensional nature due to concrete contextual assumptions that derive from the nature of social relations and the logical inferences of the communicants.

Hereby, we can claim that the semantic and pragmatic interpretation of the modal values can go beyond their traditional lexical ambiguity and polysemy, which points to the powerful illocutionary power of their semantics and pragmatics. Considering the propositional domain as a modal restrictor, we have identified its basic types as factual, regulatory, desirable, and idealistic. Modal domain as a context interpretive scope encodes a vast diversity of epistemic, deontic and dynamic values of English modal operators, namely possibility, ability, permission, intention, ordering, potentiality, necessity, etc.

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*Анотація*

*У статті представлено лінгвокогнітивну основу семантичної та прагматичної структурної динаміки модальних пропозицій у площині теорій релевантності, неоднозначності, силової динаміки та можливих світів. Такий інтегрований теоретичний підхід дозволив розробити відносно універсальний алгоритм інтерпретації модальних значень, актуалізованих у різних прагматичних площинах. Відповідно до алгоритму, модальна пропозиція включає в себе логічне відношення і пропозиційне поле. Логічне відношення інтегрує семантичну денотацію і прагматичну імплікацію та пресупозицію, що виражається в лінгвістичній когерентності, тоді як пропозиційне поле становить систему переконань-бажань людини, що виражає фактичний або бажаний стан справ у кореневих модальностях та психоемоційний стан людини – в епістемічних. Пропозиційне поле безперервно оновлюється та розширюється у зв'язку з постійною модалізацією нових вхідних стимулів. Структурно пропозиційне поле включає модального оператора, який інкорпорує пропозицію в контекстну структуру та пов'язує її з іншою пропозицією, тобто рестриктором.*

*У дослідженні застосовано категорію силової динаміки, щоб пояснити зв'язок між кореневими та епістемічними модальностями. В цій площині сила служить сприятливим чи обмежувальним засобом, який показує, як кореневі модальності кодують зовнішню реальність і метафорично транслюють її в мові думки, формуючи епістемічні модальні значення. У термінах теорії можливих світів запропоновано класифікацію пропозиційного поля як фактичного, регулятивного, бажаного та ідеалістичного, щоб загалом показати прагматичне розширення англійських модальних операторів. В аналізі дистрибутивних властивостей та прагматичних розширень найбільш уживаних англійських модальних дієслів у їх співвідношенні з правдиво-умовним змістом пропозиції описано та систематизовано засоби вираження таких модальних значень, як необхідність, здатність, можливість, потенціальність, наказовість, бажаність тощо в живому англійському мовленні.*

*Ключові слова: модальність, пропозиція, пропозиційне поле, модальний рестриктор, модальний оператор.*