

# Unpacking Modal Force:

## Understanding *Will* and *Would* through the FORCE Image-Schema

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Molly Downs  
San Francisco State University  
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### **Abstract**

This study explores the cognitive-semantic properties of the modals 'will' and 'would' through the FORCE image schema, and how they function as future and hypothetical markers. It examines the role of physical force in understanding the semantics and pragmatics of these modals, specifically in how the concept of volition is construed as a physical force that metaphorically extends to our understanding of future certainty, and furthermore, triggers hypothetical scenarios that are not limited by real-world knowledge. This study integrates key concepts from Cognitive Linguistics, primarily Force Dynamics and Conceptual Metaphor Theory, to explain and illustrate the usage of these modal verbs. Ultimately, this study aims to deepen our understanding of the relationship between the linguistic structures of modal verbs and the cognitive processes that motivate their temporal interpretations and the ways in which they can activate different types of hypothetical scenarios.

## 1 Introduction

English modals have a wide range of syntactic, semantic, and pragmatic functions. While there is already a significant amount of research on the connections between root-epistemic interpretations of modals and their multiple uses, there is still much to learn about their temporal interpretation and how certain modal verbs function as hypothetical markers. This study focuses on how physical force underpins the cognitive-semantic properties of the modals 'will' and 'would' and motivates their functions as future and hypothetical markers.

1. Jane will become a heart surgeon like her mother. (future)
2. Jane would become a heart surgeon, if she decided to pursue surgical medicine.  
(hypothetical)

'Will' is often used to express a future event that is certain to occur. This is because the core sense of 'will', by extension of 'would', is volition, which implies intent and determination. Additionally, 'will' inherently suggests a future orientation, as our understanding of volitional force as motion forward aligns with our perception of time, with the future as ahead.

This is different from most other modal verbs that express an external or internal force that causes, allows, blocks, helps, or hinders the progression of events:

3. Jane *may* leave work early. (allows)
4. Jane *can't* drive a stick shift. (blocks)

'Will' and 'would', on the other hand, express a truly self-volitional act where there is a strong intention and determination to act despite there being any potential impediments on the agent to act. This type of self-agentive causation, which I refer to as *volitional force*, is schematically construed as self-propelled motion forward despite impediments to movement.

5. Jane will win the race. (no matter what)

Furthermore, this study examines the role of volitional force in our cognitive-semantic understanding of 'will' and 'would'. This reveals their polysemous uses, such as expressing promises and immediate decisions.

6. I'll help you move on Sunday. (promise)
7. *phone rings* I'll get that! (immediate decision)

This study also explores how 'would' functions as a 'hypothetical' marker through two modes: First, its function as an epistemically distal form of 'will' conveys a distance from the speaker's grounded reality. Second, evoking volition triggers the construction of a hypothetical event that is not bound by conceived barriers in the real world, allowing the speaker to express a degree of hypotheticality that other modal verbs, like 'could' and 'might', cannot.

8. If I won the lottery, I would buy a beach house in Cabo. (completed outcome)
9. If I won the lottery, I *might* buy a beach house in Cabo. (outcome dependent on possible internal and external barriers).

Finally, this research examines the role of mental spaces (elaborated concepts built on specific contextual and situational contexts) that create new layers of meaning and contingency in conditional and counterfactual constructions with 'will' and 'would.'" With this study, we can gain a deeper understanding of the relationship between the linguistic structures of modal verbs and the cognitive processes that motivate their temporal interpretations and the ways in which they can activate different types of hypothetical scenarios.

## 2 Theoretical Framework and Background

My analysis integrates key concepts from Cognitive Linguistics, namely the theoretical frameworks of Force Dynamics (Talmy, 1988) and Conceptual Metaphor Theory (Lakoff & Johnson, 1980), to explain and illustrate how the usages of 'will' and 'would' reflect our mental representations of volition and the future.

This paper positions Talmy's force-dynamic system as a spatial source domain that structures the abstract notions of the target domain CAUSATION. Ultimately, FORCE is a high-level image schema that structures the primary conceptual metaphor CAUSES ARE FORCES, forming the basis for the more elaborate and specific metaphors. The usage of modal verbs are best understood through this lens. This paper demonstrates how the FORCE image schema underpins our understanding of volition, intent, and determination, motivating semantics and pragmatics of 'will' and 'would' – and ultimately how 'would' functions as a space builder (or mental trigger) for hypothetical scenarios.

## 2.1 Cognitive Semantics Approach

While traditional approaches to modality emphasize the logical structures underlying modal expressions, this paper adopts a cognitive semantics approach – specifically focusing on the lexical semantics of the modals ‘will’ and ‘would’ and the relationships between the distinct senses and usages of them.

Modality as a semantic category and the logical structures underlying modal expressions have long been of interest to linguistics. A significant body of research and theories differ regarding the conceptual content and cognitive reasoning that motivates our usage of modal verbs.

While interpretations vary surrounding the semantic nature of modal verbs as being semantically ambiguous or having unified interpretations, this paper aligns with the latter view. My unified analysis of ‘will’ and ‘would’ draws on the argument that the lexical meanings of modal verbs are conceptual and fundamentally rooted in our knowledge of space and motion. The core sense of these modals – our concept of volition, intent, and determination – motivate their polysemous lexical interpretations and semantics

One way to approach the semantics and pragmatics of modal verbs is by understanding the fundamental image schemas that underpin their meanings (Lakoff & Johnson, 1980). These image schemas are generalized, discrete, but interrelated spatial concepts such as MOTION, SOURCE-PATH-GOAL, and FORCE. They form the bedrock of our understanding of causation, time, and modalities like possibility, permission, and obligation. These image schemas are apparent in many idiomatic phrases, like the phrases *a long road to recovery*, and *through thick and thin*, which draw upon our experiential knowledge and activate embodied images of moving towards a destination.

Lakoff and Johnson (1980) suggest that these primary image schemas not only motivate our idiomatic language, but motivate the underlying structures of language and thought – and that they are apparent even in closed-class categories such as prepositions and auxiliary verbs. Langacker (1978), in fact, argues that the structure of auxiliaries mirrors the conceptual path from the speaker to the described situation – lending to a deeper understanding of the interdependence between lexical meaning and morpho-syntactic structure. Leonard Talmy’s (1988) system of Force Dynamics draws upon the FORCE image schema to explain how modal

verbs utilize our understanding of physical force to express notions such as possibility, permission, obligation, necessity, etc.

## 2.2 Force Dynamics

Force Dynamics is a theoretical framework that explores how our understanding of physical force underpins our understanding of action and causation (Talmy, 1988). Talmy's theory is predicated on the idea that language meaning and use are based on our primary understanding of space and spatial relations, as codified in image schemas such as MOTION, SOURCE-PATH-GOAL, and FORCE.

Talmy's framework expands on the traditional understanding of causation in linguistics by broadening the scope of causative relationships. Traditionally, causativity involves direct causation where one entity causes another to act or change (A causes B to do something.) Force Dynamics expands on this concept to extend beyond the physical action and encompass various aspects of causation such as social influence, intention, control, and more abstract motivations. This includes notions of "letting", "helping", "hindering", etc.

In Force Dynamics, every causation event involves an Agonist, the force-exerting entity in focus, and an Antagonist, the opposing entity. The outcome of their interaction, whether resulting in action or inaction, is determined by the relative strength of the forces exerted by these entities. Figure 1 (adapted from Talmy (1988, p. 54)), provides the basic elements in schematic representations of force-dynamic patterns used throughout this paper.

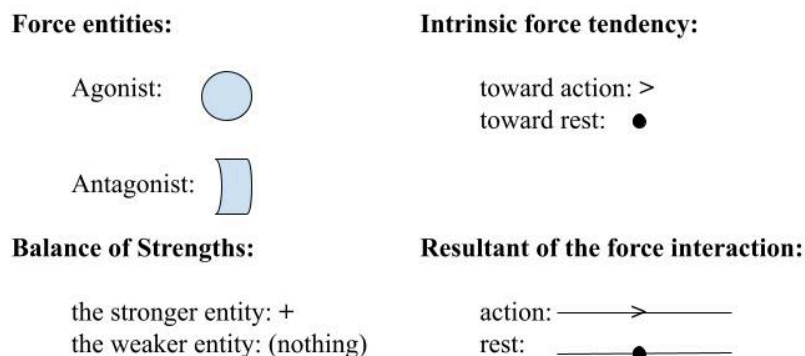


Figure 1: "Schematic Representation of Force Dynamic Patterns"

The following sentences can be analyzed within the framework of Force Dynamics:

10. Mary let Jack borrow her car.

In this sentence, the Agonist, or the entity in focus is Jack. Jack has a tendency towards action (i.e, wanting to borrow Mary’s car.) Mary, acting as the Antagonist with a stronger force, holds the authority and decides whether to allow Jack’s action or to block it.

11. Jack’s boss made him come in early.

Here, Jack is the Agonist with a tendency towards inaction (i.e not wanting to come in early.) His boss, acting as the Antagonist with a stronger force, compels Jack into action despite his reluctance.

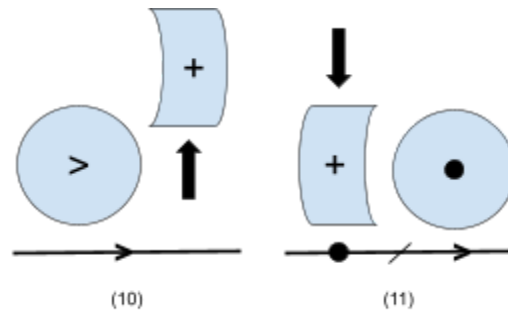


Figure 2: “Force-Dynamic Patterns in Sentences (10) and (11)”

Figure 2 illustrates the schematic representations of the force-dynamic patterns in sentences (10) and (11). The upward and downward arrows represent the Antagonist’s motion into or out of impingement. The slash on the resultant line marks the before and after states of activity.

Force Dynamics can also apply to a single agent with an internal conflict. Here, the opposing forces are of the same psyche – a divided self:

12. Jack allowed himself to sleep in on Sunday.

In this sentence, Jack serves as both the Agonist (inclined towards action, i.e, sleeping in) and the Antagonist (with a stronger tendency to block this action). Jack ultimately permits himself to act in accordance with his inclination to sleep in. Jack acts *volitionally* – in other words, his action is self-agentive. Within the limited context of this sentence, we can assume that there were no external forces at play.

### 2.2.1 Force Dynamics of Volitional Force

The example sentences thus far, show how the system of Force Dynamics can account for various types of causation, including self-agentive causation (sentence 12). In each of these types the resultant force is dependent upon the relative strengths of the Agonist and Antagonist – there must be a dynamic of opposing forces.

I argue for an examination into a more specific type of causation event – one that involves an Agent that chooses to exert or withhold its force *despite* an opposing force. I refer to this type of causation as *volitional force*. This term is not to be confused with volitionality, for an Agent can act on their own accord in many situations that involve an opposing force. Rather this term is used throughout this paper to describe a notion of causation where the Agent expresses complete control over the outcome, despite internal or external forces.

13. Jack is determined to pass the class.

In (13), the Agonist, *Jack*, exerts a strong force tendency towards action. While one might consider potential hindrances such as the difficulty of the exam, or even Jack’s own internal conflict as an implicit Antagonist, neither the Antagonist nor its syntactic component is evident. Jack’s actions are not determined by an opposing force; he acts decisively despite any perceived opposition.

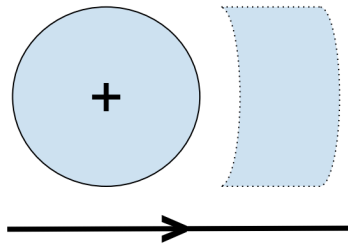


Figure 3: “Volitional Force”

Figure 3 illustrates the schematic representation of volitional force: the dotted line surrounding the Antagonist figure represents its inconsequential role to the outcome. In later sections, I will show how volitional force as a notion of causation underpins our understanding of the modals ‘will’ and ‘would.’.

### 2.3 Modals and Force Dynamics

Talmy argues that the most prominent evidence for Force Dynamics comes from analyzing modal verbs, a closed class of auxiliary verbs that allow the speaker to express varying degrees of commitment or belief in a proposition.

Force dynamics are understood in terms of how we experience the physical world, but they can also be applied to psychological and social dynamics. To illustrate this, consider the modal verb ‘can’. ‘Can’ expresses an Agonist with a force tendency towards action. The Agonist is stronger than the Antagonist, resulting in action.

14. The ball can fly out straight out of the park and into the bay.

15. Jack can go to Lucy’s party tonight.

The physical domain is depicted in (14) – The ball is able to fly beyond the parameters of the ballpark and into the bay, abiding by the laws of physics. Our understanding of physics extends to the socio-physical domain in (15). The Agonist, *Jack*, has nothing that is blocking or hindering him from attending the party – including any social hindrance such as not receiving an invite.

However, as with most modals, the Antagonist does not appear syntactically unless the force tendency is contingent upon it (e.g., in conditional statements) or in negation.

The sentences below illustrate this negation, where the Antagonist blocks the force tendency:

16. The ball *can't* fly out of the ballpark with the new dome in place.

17. I *can't* leave the house tonight. (Mom said so.)

18. I *can't* listen to this song anymore. (It reminds me of a bad experience.)

Furthermore, these force dynamics are extended to the psychological domain, specifically the intra-psychological domain, in (18). Here, the opposing forces are of the same psyche – a divided self. The Agonist's previous tendency towards listening to, or even *enjoying*, a particular song is opposed by their current psychological association with that song, resulting in an inability to listen to or enjoy it. This metaphorical extension illustrates how force dynamics shape our understanding of social constructs (like authority) and psychological factors (like inner conflicts.)



### 2.3 Root and Epistemic Modals

The metaphorical extension of force dynamics from the physical to social and psychological domains further extends to the epistemic uses of modal verbs. Sweetser (1982) argued for a unified analysis of root and epistemic modals through the framework of Force Dynamics.

19. John may go.

20. John may be right.

‘May’ is a modal that expresses a "letting" event – a weak Agonist with a tendency towards action and a stronger Antagonist that permits the Agonist towards action, resulting in action. The root use of ‘may’ is of permission, as in (19) – some authority or force does not bar John from leaving. Permission is metaphorically extended to its epistemic use in (20) – nothing is barring or blocking John from the premise that what he says is true. The role of Antagonist gives insight into why ‘may’, in its epistemic sense, is seen as a weak expression of possibility – it is reliant on a stronger Antagonist *letting* or permitting its action.

### 2.4 Conceptual Metaphor and Schematicity

Conceptual Metaphor Theory, a framework developed by George Lakoff and Mark Johnson (1980), proposes that our understanding of abstract concepts is rooted in our concrete and tangible experiences and that metaphors are a fundamental part of human thought and reasoning. Therefore, Talmy's theory of Force Dynamics is entirely compatible with the assumptions of conceptual metaphor.

The system of Force Dynamics employs FORCE as a source domain – the concrete concept we use to understand the target domain of CAUSATION (Fig.4). The conceptual metaphor CAUSES ARE FORCES helps structure more complex metaphors, like EMOTIONS ARE FORCES, and more specifically, ANGER IS PRESSURIZED SUBSTANCE IN A CONTAINER, giving way to phrases such as "the couple *burst*ed into an argument," and "he *exploded* with anger."

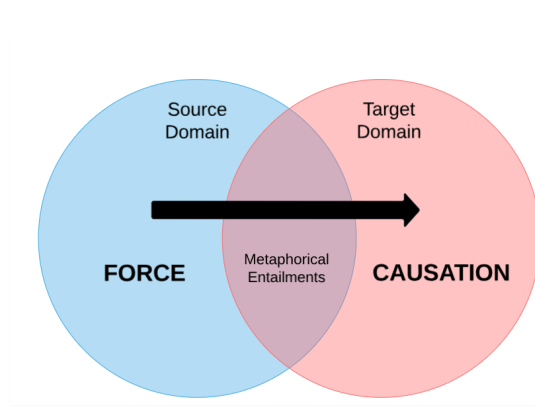


Figure 4: “CAUSES ARE FORCES”

By applying this framework to modal verbs, like ‘will’ and ‘would’, we can reveal how modals reflect our nuanced understanding of physical force across various levels of schematicity and discourse contexts. We can observe how concepts within the spatial source domain of FORCE metaphorically extends to the target domain of CAUSATION, entailing more complex concepts such as possibility, permission, obligation, and *volition*. This integrated approach offers a lens through which we can analyze and interpret the interplay between language, cognition, and conceptualization.

### 3 Presentation and Analysis

In this section, I provide a unified analysis of the modals ‘will’ and ‘would’ as modals of volition. I examine how our understanding of *volitional force* underpins the uses of these modals, and how it metaphorically extends to concepts like future certainty and hypotheticality. Finally, I examine the relationship between FORCE and mental spaces in conditional and counterfactual constructions. Examples and analyses of the diverse uses of these modals are supported through various examples, image schemas, and descriptive interpretations.

#### 3.1 ‘Will’ and ‘Would’ as Modals of Volition

The usage of *will* can be traced back to Germanic origins. In earlier English forms, *will* functioned as a verb expressing desire, intention, and volition. Etymologically related words retain aspects of this meaning—like *willpower*, *willingness*, or *exercising one's will*. Eventually, *will* underwent a grammaticalization process, becoming part of a closed-class form of auxiliary modal verbs and marking the future tense (Bradley, 1911).

There is an argument to be made that due to the progressive grammaticalization process of *will* as a future auxiliary since Middle English; there are no modal verbs that fundamentally express “desire” or “volition” as their central sense, despite the lingering traces of these notions in ‘will’ and ‘would’ (Krugg, 2000, p. 117). However, I argue that, indeed, the central notion and sense of ‘will’ and ‘would’ is very much about volition. This is not a baseless claim, but one supported by the frequent and diverse usages of these verbs in natural language beyond merely marking a future tense. Moreover, while notions of desire and volition are closely related within the realm of motivation and intention, volition entails deliberate choices and intentional actions based on one’s desires and goals.

Since there is no future morpheme in English *will* is metaphorically construed as future certainty and prescribed as a future marker, as in "He'll become a doctor like his mother." Sweetser notes that "the strongest obligation or necessity is certainty of future action" (1982). In other words, where there is certainty about future behavior or course of action, it eliminates doubt or ambiguity and ensures that expectations can be relied on with complete confidence. To better understand why and how ‘will’ is used to mark the future, we must understand how volition is understood through the FORCE schema.

The core sense of ‘will,’ and by extension ‘would,’ is volition, with entailments of intent and determination. Volition is understood as self-agentive causation and schematically construed as self-propelled motion forward. Through the Force Dynamics framework, we understand ‘will’ as having an Agonist with an exceptionally strong force tendency towards action. The force tendency of the Agonist is so dominant that there is no need for help, permission, or the need to overcome obstacles. Unlike other modals, the Antagonist is construed as either absent or inconsequential to the outcome. Therefore, volition also entails a freedom of movement *despite* impediments – a sense that the force tendency is so strong it can overcome or penetrate any obstacles encountered.

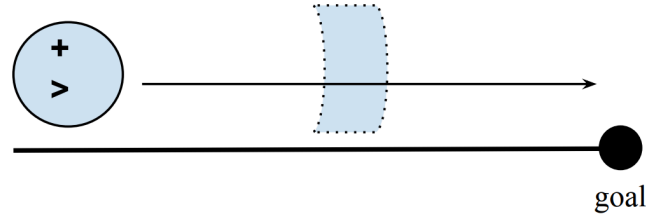


Figure 5: “Volitional Force Towards Goal”

The dynamics of volition are demonstrated in Figure 5, employing both FORCE and SOURCE-PATH-GOAL image schemas. The Agonist is represented by the blue circle with a tendency towards action – in this case, conceptualized as movement forward towards a specific goal. The dotted line around the concave figure represents the weak, or permeable, force of the Antagonist – that whatever impediments may arise, the Agonist imposes a force strong enough to move through them. In a sentence like, "I *will* get that promotion," the speaker expresses a strong enough motivation to achieve their goal that nothing can stand in their way.

In negative constructions of ‘will’ and ‘would, volition is construed as self-imposed impediments to movement rather than self-propelled movement – in other words, *unwillingness* or refusal to act. The negation of self propelled motion can be represented as the activation of a blockage of that motion. For example, in the sentence "I *won't* help you anymore", the speaker expresses an agentive refusal to help. If the speaker were experiencing an inability to help, they would be more likely to say *I can't help you with your homework*.

### 3.1.1 Promise, Immediate Decisions, and Habits

Volitional force also explains why ‘will’ is the often preferred modal to express promises, immediate decisions, and in some cases habitual actions. These concepts all expand upon and elaborate on the understanding of volitional force as self-propelled motion forward through and despite impediments to movement.

21. I'll help you move this weekend. (promise)

Volitional force aligns with our commitment to future action by embodying our intention, determination, or resolve to carry out a particular course of action. It reflects our conscious

decision-making and the personal agency behind our choices. When we express volitional force, we are indicating our commitment and dedication to realizing a specific outcome in the future.

22. *phone rings* – I'll get it! (immediate decisions)

The strong force tendency towards action aligns with the need for immediacy in decision-making. Additionally, volitional force can be metaphorically mapped over to non-sentient entities, particularly, if not exclusively, in negative constructions. For example, in the sentence "The door *won't* open," the door's 'refusal' to open is not understood by there being an external barrier (or else the modal *can't* would be more appropriately applied). The Agonist is the door itself and is metaphorically construed as an unyielding or stubborn entity.

23. Everytime I see Mark, he'll go on and on about his relationship problems. (present habit)

24. We would spend two weeks every summer in San Diego. (past habit)

While present simple tense typically denotes habitual actions in the general present, 'will' adds a layer of semantic complexity – to convey a feeling of annoyance by the speaker (23). This is due to the additional volitional quality added – emphasizing the Agonists' sense of agency over the action or the event. The action is construed as more intentionally persistent rather than compulsive.

To express past habits, we can use 'would' (24). However, it should be noted that 'would' cannot be used with stative verbs, since states are not conceptualized as actions progressing towards a specific goal or destination.

## 3.2 Metaphorical Extension to Futurity

This study has so far illustrated that the semantics of 'will' and 'would' derive from an expression of volition. In this section, I argue that their usage as a future auxiliary is a metaphorical extension of volition.

### 3.2.1 Root Future Certainty

'Will', as an expression of future tense, is a metaphorical extension of volitional force. The primary metaphor we use to think about time is as a landscape we move through, with the past behind us and the future forward. We move towards the future and conceptualize future events as destinations on our temporal path. If we think of volition as self-propelled motion, we can also consider it motion forward. When we initiate movement independently and determine how and

when we progress forward, and there are no impediments to our movement forward, we can be confident of our trajectory, speed, and, ultimately, the timing of the arrival at our goals. This is how we understand ‘will’ when we use it to convey future predictions or facts about the future. The image-schema in Figure 5 illustrates future certainty, with the future event or action depicted as the goal.

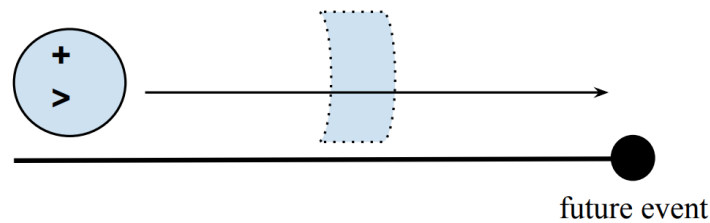


Figure 7: “Volitional Force Construed at Future Certainty”

Traditionally, the following sentences are analyzed through the lens of ‘will’ and ‘would’ modals of volition, metaphorically extended to convey future certainty:

25. The sun will set at 7:15 tonight.

Future ‘will’ is most commonly used to express facts or predictions and future events with the most definite degree of certainty. This certainty aligns with our understanding of volition as involving control and initiative.

26. We’ll finally find out who the murderer is in the finale.

The speaker uses ‘will’ as a linguistic device to emphasize their confidence and certainty in their assertion that the events of the finale will inevitably proceed to the revelation of the murder.

27. By that time the following year, I *would* be back in San Francisco.

Here ‘would’ illustrates a past-future perspective, reflecting a future outcome (being back in San Francisco) from a past standpoint.

28. Jack will be home by now. (epistemic)

Sweetser (1982) notes that the epistemic form of the future ‘will’ is that of future verification or validation. Essentially, the speaker in (28) is saying, *‘I believe that Jack will be home by now.’* This does not, however, change the force dynamics but instead embeds an

additional mental space and viewpoint – one of the speaker's current reality and one of the speaker's imagining John's.

### 3.3 Volitional Force and Hypotheticality

Up to this point, we have explored how force dynamics contribute to our understanding of ‘will’ and ‘would’ through the source domain of FORCE and the target domain of VOLITION.

Volitional force is metaphorically mapped to promises, immediate decisions, future certainty, and habitual actions. The question we arrive at now is how volition plays a role in our understanding of ‘would’ as a hypothetical marker.

#### 3.3.1 Epistemic Distance

First, we must examine the role of distance. Langacker (1978) argues that past morphemes in English do not merely express tense but also distance from the speaker's grounded reality. He argues that these 'distal' forms express temporal distance (as in past tenses) and *epistemic* distance – which measures the distance between the communicated information and what the speaker knows or believes to be true. In other words, epistemic distance removes the situation from the speaker's conceived reality.

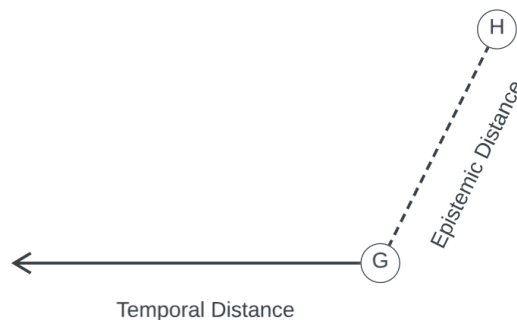


Figure 9: “Temporal and Epistemic Distance”

The image schema in Figure 7 illustrates these two types of distance. G symbolizes the speaker's grounded reality – anchoring the event within the speaker's perception of reality at the time of the speech act. The horizontal line represents the established history of events – or, in

simpler terms, the known past. The dashed line represents the epistemic distance from the speaker's grounded reality, progressing further into a hypothetical present or future.

The modal 'may', for example, is used epistemically to convey possibility. The force dynamics of its root meaning of permission are metaphorically mapped to possibility:

29. It may rain tomorrow.

The use of 'may' in (29) creates a sense of detachment from the speaker and the proposition, expressing the speaker's belief that rain is only a potential outcome of the present circumstances.

30. It might rain tomorrow.

The use of 'might', the distal form of 'may', in (30) increases the epistemic distance. This lends reasoning as to why 'might' is used to express a greater uncertainty than 'may'. 'Might' in this context also conveys a conditional contingency, prompting the speaker to set up an additional mental construction of possible outcomes. This contingency makes the event less likely, as it depends on certain conditions to be met.

### 3.3.1 Hypothetical 'Would'

Of all the epistemically distal modals, 'would' expresses the furthest distance from reality. 'Would', unlike the distal forms of other modals such as 'could' or 'might', allows the speaker to construct a scenario in its complete form with no other possible outcomes. This is possible because of our understanding of volition through the FORCE domain. To compare, let us return to the force dynamics of 'might'. 'Might' must abide by the Antagonist with a greater force tendency to grant permission for the Agonist to continue forward, opening up at least two hypothetical outcomes. Additionally, the conditional contingency of 'might' anchors the speaker to the restraints of the speaker's conceived reality. The possible outcomes the speaker imagines are tethered to the speaker's real-world assumptions on the proposition.

'Would', on the other hand, employs an Agonist that does not abide by another force entity to achieve its goal. Therefore it is not constrained by the speaker's assumptions of reality, propping up an alternate reality that, while it might share elements of the speaker's grounded reality, is not contingent on it. Additionally the volitional force is so strong, that whatever conceivable barriers to the goal arrive, the force tendency of the Agonist is strong enough to overcome them.



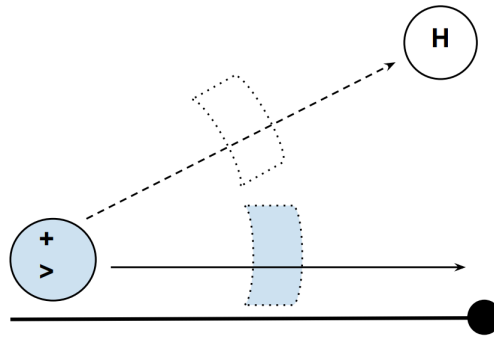


Figure 10: “Extension of Volitional Force to Hypothetical Would”

The image schema in Figure 10 illustrates the metaphorical extension of the force dynamics of ‘will’ to hypothetical ‘would’. The Agonist can move freely towards the hypothetical space, penetrating any barriers. Additionally, it is not contingent upon the speaker’s assumption of reality but rather confidently moves forward without constraint.

### 3.4 Conditionals and Counterfactuals

To understand how ‘will’ and ‘would’ construct meaning in actual discourse, and in particular in conditional and counterfactual constructions, we need to consider an additional factor in the force-dynamic system. So far, I have illustrated how the force-dynamic patterns of ‘will’ and ‘would’ are unique in that the resultant force is not determined nor hindered by an Antagonist. Talmy notes that in most modal constructions, the Agonist’s force tendency is an abiding property; however, most modal construction also relies on a force tendency that is *contingent* (Talmy, 1988. pg 82.) This contingent force is externally transferred to the agonist, and may not be considered an inherent property.

31. I’ll help you with your homework, if you buy me a coffee.

32. If I won the lottery, I would first pay off my student loans.

In conditional and counterfactual sentences like (31) and (32), a layer of contingency is added to the force-dynamic patterns of ‘will’ (and ‘would’) in the main clause. Essentially, the

if-clause becomes an external Antagonist, creating that determines whether or not the Agonist will proceed with its abiding tendency – if certain conditions are met, it will propel the Agonist into its natural course of action.

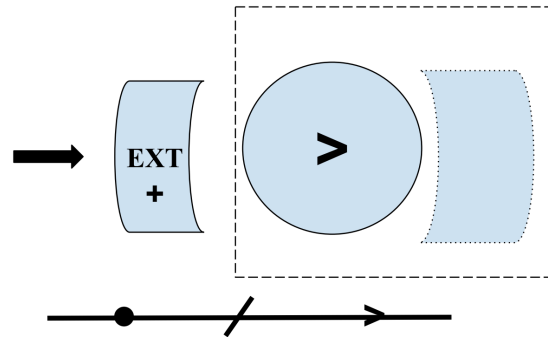


Figure 10: “If 1 VP, 2 *will/ would* VP.”

The contingent force is illustrated in Figure 10 by the external (EXT) antagonist, that determines whether or not the Antagonist acts on its abiding property – in the case of ‘will’ and ‘would’, its volitional force.

### 3.4.1 Mental Spaces

Another way to approach conditionals and counterfactions is through the lens of Mental Space Theory (Fauconnier, 1994). Fauconnier’s Mental Space Theory proposes that humans construct *mental spaces* to organize and process information. These mental spaces are temporary and local structures that are constructed in our minds as we think and communicate.

Kövecses (2017) suggests that conceptual metaphors operate on a hierarchy of levels of schematicity – basic image schemas rooted in the experiential realm give way to elaborate frames and contextually specific metaphors. In actual discourse, meaning is constructed situationally and contextually; frames are elaborated on through specific information that fits the situation or context. This is the *mental space* level. They are structured by various levels of schematicity but also to our specific, detailed experiences and within the context of the specific discourse. They represent our working memory experiences rather than concepts deeply embedded in our knowledge structures and long-term memory.

Mental spaces give us a mechanism to describe the nuances of meaning construction. When looking at how ‘will’ and ‘would’ operate in conditional and counterfactual constructions, mental spaces become essential in understanding how the speaker's perspective, knowledge, contextual information, and the hypothetical nature of the conditions interact to shape the interpretation of the proposition.

The *base space* represents the speaker’s knowledge of the real world; while *space builders* are the elements in a sentence that activate new mental representations that are related to but distinct from the base space. Fauconnier suggests that we use mental spaces to blend different ideas and create new meanings. This theory is used to explain how language allows us to express abstract or complex ideas by manipulating these mental spaces and blending different conceptual elements together.

Dancygier and Sweetser (2005) write extensively on mental spaces and conditional constructions – arguing that if-clauses in conditionals establish specific mental spaces where meaning is constructed by a variety of space builders within conditional structures (e.g., prepositions, verb tenses, modals) and ultimately the experiences of the speaker and context of the discourse.

Hager (2016) demonstrates how different modal verbs act as different types of *space builders* in double modal constructions (a feature of some varieties of English) such as, “*You might should exercise three times a week.*” Hager argues that epistemic modals (e.i. ‘might’) set up a possibility space, while the root modals (e.i. ‘should’) set up a suggestion space, forming a blended space that conveys a potential directive.

Mental space theory can account for the nuances of how ‘will’ and ‘would’ are used in natural language, and how our usages of them are drawn from multiple levels of schematicity from the spatial source domain of FORCE. Let’s analyze how this works, looking at a few examples of conditional and counterfactual constructions.

### 3.4.2 Mental Spaces in Conditional Constructions

33. I’ll help you with your homework if you buy me a coffee.

34. If he wins Michigan, he’ll win the election.

The if-clauses in (33) and (34) prompts the speaker to set up a possibility space which is dependent on the conditions being met. The conditions (i.e, buying me a coffee, winning

Michigan) play a role much like an Antagonist that can block or permit an action. The result clause in (33) expresses a promise made by the speaker, while (34) expresses future certainty – both setting up a space, motivated by our understanding of volition, in which there is only one outcome, so long as the conditions in the possibility space are met.

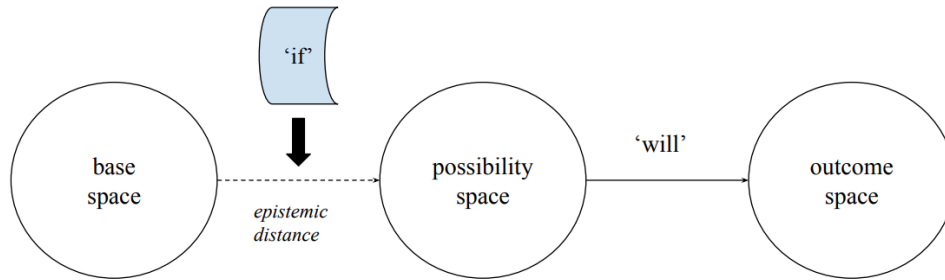


Figure 11 “Mental Space Representation of ‘If 1 VP, 2 will Vp’”

Figure 11 illustrates the most basic elements of mental spaces in conditional ‘will’ constructions. The base space represents real-world knowledge; ‘if’ introduces an antagonistic impediment that determines the outcome and establishes an epistemic distance between the base space and the possibility space; and ‘will’ acts as a space builder, ensuring certainty of the outcome based on the possibility space.

### 3.4.1 Mental Spaces in Counterfactual Constructions

While conditional constructions express possible outcomes under circumstances grounded in our knowledge of the real world, counterfactuals express hypothetical outcomes under circumstances we know are not true in reality. Counterfactuals mark this hypotheticality through epistemically distal verbs in both the if-clause and result-clause.

35. If I won the lottery, I would first pay off my student loans.

36. If I were you, I would wear the red hat.

The if-clause in (35) and (36) also sets up a possibility space contingent on the specific conditions being met. However, the distal marking of the verbs (e.i, *won*, *were*) express additional epistemic distance, and signals that these are not true conditions in the real world but purely hypothetical. (In (35), the hypothetical possibility is extremely unlikely, while in (36) it is impossible.) In the result clause, the distally marked ‘would’ increases the epistemic distance

further, and through our understanding of volition prompts the speaker to construct a fully realized, and yet completely hypothetical outcome – contingent solely upon the conditions met in the possibility space.

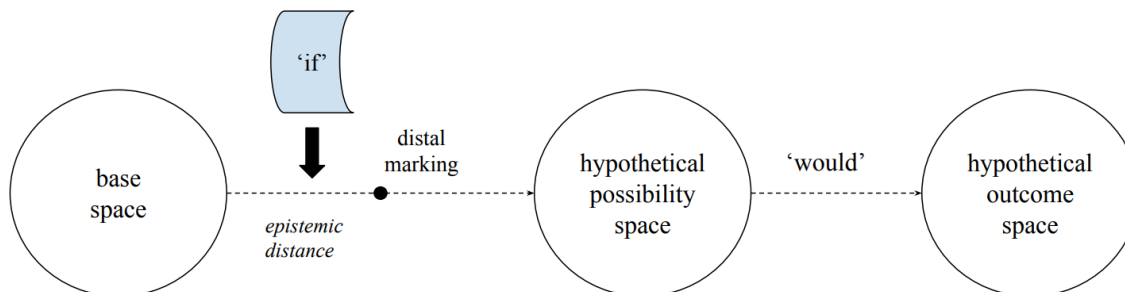


Figure 12 “ Mental Space Representation of ‘If 1 DIST VP, 2 would Vp’”

Figure 12 illustrates the basic elements of counterfactual ‘would’ constructions. The distally marked verbs in the if-clause increases the epistemic distance, as does the use of *would* in the result clause.

It is important to note that Figure 11 and Figure 12 are very general mappings and do not encompass all the numerous elements that work together to structure and articulate different layers of meaning within conditional and counterfactual constructions. As mentioned previously, the speaker’s experiences and knowledge, as well as the context of the discourse are entirely essential in setting up mental spaces.

## 4 Suggestions for Further Research

This study offers a unified analysis of the modal verbs 'will' and 'would' in terms of their lexical meanings, semantic properties, polysemous uses, and temporal interpretations. Additionally, this study offers a lens to explore hypothetical language and highly imaginative mental spaces, providing insight into the cognitive processes that motivate the usage of these modals.

### 4.1. Language Learning and Instruction

This study and research provides practical implications for language learning and instruction – designing curriculum and implementing tasks should be informed and motivated by cognitive

linguistic theory. By understanding the cognitive-semantic properties of modal verbs, language learners can gain a deeper understanding of their usage and develop more nuanced language skills. A straightforward task, for example, would be to have students analyze various examples of the same modal verb used in different contexts and discuss how the interpretation of the modals are different and yet interrelated. This can be supported by basic images and diagrams that illustrate the force-dynamic patterns of root modals (i.e, permission represented as a barrier being lifted) and a deeper discussion of how these concepts relate to their epistemic uses (i.e, permission gives way for possibility.)

#### 4.1 ‘Would’ to Convey Indirectness and Politeness

Furthermore, this study suggests several avenues for future research, including a deeper exploration into the pragmatics of modals in natural language, such as the use of 'would' to convey indirectness or politeness in offers and requests, as in “*Would you like a cup of coffee?*”

The phrase ‘*would like*’ acts as a polite alternative to ‘*want to*’, and has become more or less idiomatic in nature. While its modern usage might not reflect precisely the same cognitive processes as the use of ‘would’ to express hypothetical situations, its modern meaning and usage may share elements with hypothetical ‘would’.

Robin Lakoff (1973) proposed a theory of politeness that argues linguistic expressions that create a sense of distance between the speaker and addressee (such as passives and indirect expressions) tend to be interpreted as polite. The use of ‘would’ to convey politeness reflects this theory, in that it not only conveys epistemic distance, but it presents a scenario for the interlocutors to consider before making a decision.

#### 4.2 Intonation and Prosody

Other ways to broaden the scope of this study is research into intonation and prosody in adding layers of meaning to modal expressions. Consider the following sentences where the bold font highlights the stressed words.

37. If **I** were you, I would wear the red hat.

38. If I were **you**, I would wear the red hat. .

The stress acts as a space builder to activate new layers of meaning that build and shape the mental spaces between the interlocutors. In (39) the stress on ‘*I*’ forefronts the speaker’s

personal preference into the possibility space – emphasizing their own decision making processes; while in (40), the stress on ‘*you*’ forefronts the speaker’s ideas about the addressee’s decision making process.

## 5 Conclusion

This study sheds light on the cognitive-semantic properties that underlie the meanings of the modal verbs 'will' and 'would' and how they function as future and hypothetical markers. I argue that our understanding of physical force is the key concept that motivates the semantics and pragmatics of modals. Furthermore, the usage of modal verbs is best understood through the lens of the FORCE image schema, which underpins our understanding of volition, intent, and determination.

The concept of *volitional force*, schematically construed as ‘self-propelled motion forward despite impediments to movement’, plays a central role in our understanding of 'will' and 'would.' I argue that 'will' and 'would' express a truly self-volitional act where there are no impediments on the agent to achieve its goal. This lends reasoning for the more elaborate and specific ways we use these modals to express promises, decisions, future certainty. Additionally, volitional force allows the hypothetical usage of ‘would’ to construct fully hypothetical scenarios that are not bound by conceived barriers in the real world, allowing the speaker to express a degree of hypotheticality that other modal verbs cannot.

Furthermore, this study examines the role of mental spaces in constructing new layers of meaning and contingency in conditional and counterfactual constructions with 'will' and 'would', allowing the speaker to explore a possibility space with specific outcomes. For example, in the sentence "*If I won the lottery, I would buy a beach house in Cabo,*" the speaker is able to consider the possibility of winning the lottery and simultaneously construct the ultimate outcome of that possibility – buying a house in Cabo.

Overall, this study contributes to the growing body of research on the cognitive-semantic properties of modality. Ultimately, this study provides a framework to deepen our understanding of the relationship between the linguistic structures of modal verbs and the cognitive processes that motivate their temporal interpretations and how they can activate different types of hypothetical scenarios. On a broader scale, this study sheds light on how language is shaped by our cognitive processes.

This research also has practical implications for language teaching and learning, as it provides a framework to deepen the understanding of the meanings and functions of modal verbs. Finally, I provide suggestions for ways to broaden the scope of this research, including a pragmatic analysis of the use of ‘would’ to convey indirectness and the ways intonation can add layers of meaning to modal expressions.



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