

A Cognitive Grammar Approach to *to*-Infinitive Constructions

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Abstract

英語の *to* 不定詞については、これまで Wood (1956), Dixon (1984), Quirk et al. (1985), Wierzbicka (1988), Dirven (1989), Langacker (1991, 2008, 2009, 2015), Verspoor (1996, 1999), Duffley (1992, 2000, 2003, 2006, 2020), Smith and Escobedo (2001), Hamada (2002), Huddleston and Pullum (2002), Egan (2008), Smith (2009) をはじめとした多くの先行研究が存在する。これらの *to* 不定詞研究においては、多様な用法における *to* 不定詞の使用の動機づけを明らかにすることや、同じく英語の非定形節として分類される *-ing* との違いを明らかにすることが中心に行われてきた。具体的には、これらの先行研究においては、*to* 不定詞は典型的に未来性、もしくは潜在性によって使用がもたらされるという点で概ね一致した見解が述べられている。それに対して、*-ing* については、主節と補文の出来事間の時間的重なり、つまり同時性によって典型的に使用がもたらされると述べられている。

しかしながら、これまでの *to* 不定詞構文の研究においては少なくとも次の 4 つの課題が残されていると言える。1 点目は、*to* 不定詞構文の事例の分類に関する問題である。*to* 不定詞構文と *-ing* 構文の多様な事例の分類を試みている先行研究として代表的なものは Smith and Escobedo (2001) や Smith (2009) が挙げられ、これらの研究においては *to* 不定詞構文と *-ing* 構文の事例は共に大きく 4 つのグループに分類されると述べられている。しかし、Smith and Escobedo や Smith においては「何が要因となり両構文の事例を大きく 4 つに分類することをもたらしめているのか」という点については明らかにされていない。

2 点目についても *to* 不定詞構文の分類に関わるが、ここでの問題は、同じく非定形節として分類される *-ing* との言語使用場面における関係性、つまり分布 (使用範囲) に関わる。*to* 不定詞構文と *-ing* 構文を同時に扱い、分類を試みている研究としては Smith and Escobedo (2001) や Smith (2009) が挙げられる。しかし、Smith and Escobedo や Smith の分類は、*to* 不定詞構文と *-ing* 構文のそれぞれのカテゴリ内における分類の提示が行われているだけであり、実際の言語使用例の一連のサイクルにおける両構文の分布の違いを反映したものとはなっていない。

3 点目について、これまでの *to* 不定詞研究において中心的な問題となっていたのは主節述語に後続する *to* 不定詞の用法であり、*to* 不定詞の主語用法については十分な研究が行われてきたとは言えない。Egan (2008) や Duffley (2003) などによって *to* 不定詞主語の事例に対する分析は行われているものの、これらの研究においては、なぜ *-ing* と比べ、*to* 不定詞は主語として用いられることが稀であるのかという点については明らかにされていない。

4 点目は迂言的使役構文と知覚構文における (*to*) 不定詞の用法に関する問題である。両構文は能動態では (1a, c) のように原形不定詞 (*to* なし不定詞) を補文としてとるが、(1b, d) のように受動化されると *to* 不定詞が用いられる。

- (1) a. Mary made John drive the car.
 b. John was made to drive the car.
 c. They saw/heard/noticed John kick Mary.
 d. John was seen/heard/noticed to kick Mary. (Dixon 2005: 251–252)

葛西 (2004) や Dixon (2005) などは (1a, c) が (1b, d) のように受動化されることによって、直接性・同時性が失われ、間接性・非同時性 (時間的なずれ) が含意され、そのことが (1b, d) のような受動態において to 不定詞の使用をもたらしていると述べている。しかし、これらの先行研究においては、なぜ受動文 (1b, d) においては直接性・同時性が失われ、間接性・非同時性が含意されるのかという点については明らかにされていない。

本論文は認知文法のコントロールサイクル (Langacker 2002, 2009) に基づき to 不定詞構文に対して一貫した分析を行うことで、先行研究では明らかにされていない上記の 4 つの課題を考察する。コントロールサイクルとは、人との出会い、飲食、呼吸などの我々の生活や経験のあらゆる場面において遍在するとされる認知モデルである。Langacker (2002, 2009) によれば、コントロールサイクルは Baseline Phase、Potential Phase、Action Phase、Result Phase の 4 つの段階から成り、ネコがネズミを捕まえるという一連のサイクルを一例として挙げている。具体的には、ネコは通常はリラックスした状態にあるが (Baseline Phase)、ネズミが自身の視界に入ってきた場合、ネコはネズミを捕獲しようという意志を抱く (Potential Phase)。次の段階では (Action Phase)、ネコはネズミに襲いかかり、噛みつき、捕獲することが達成されると、ネズミはネコの支配下 (ドミニオン) となる (Result Phase) ということである。

Langacker (2002, 2009) はコントロールサイクルに基づき、主に that 節などの定形節を補文としてとる主節述語を分類している。例えば、(2) における主節述語である suspect、decide、know はそれぞれ認知的コントロールサイクル (epistemic control cycle)¹ の Potential Phase、Action Phase、Result Phase を表していると述べている。

- (2) She suspected/decided/knew that her husband was unfaithful. (Langacker 2009: 152)

Langacker は、コントロールサイクルに基づく考察は定形節を補文としてとる述語の分類のみに限定されるものとして考えているわけではなく、(3a, b) のように to 不定詞を取る主節述語は実効的コントロールに関わると述べている。具体的には、(3a) と (3b) にお

¹ Langacker (2009) によれば、認知的コントロールサイクルとはある知識を取り込もうとする我々の努力に関わるものであるといえる。また、この後の議論で触れることになる実効的コントロールサイクル (effective control cycle) とは、何かを引き起こそうとする我々の働きかけに関わるものであるといえる。

る主節述語はそれぞれ何かを引き起こそうとすることに対する望みや影響に関することを表していると述べている。

(3) a. She wants/hopes/aspires to become an opera diva.

b. She ordered/forced/persuaded her daughter to end the relationship. (Langacker 2009: 153)

しかし、Langacker のコントロールサイクルに基づいた分析は定形節を補文としてとる主節述語に焦点が当てられており、非定形節である *to* 不定詞を補文としてとる主節述語に対してはこれ以上のことは述べられていない。本論文では Langacker のコントロールサイクルを *to* 不定詞構文の分析に適用することで、これまでの *to* 不定詞研究では明らかにされてこなかった 4 つの課題を考察する。

本論文は 8 つの章から構成されている。第 1 章では、本論文の目的について述べ、論文の全体像を明らかにする。

第 2 章では、認知文法の理論的枠組みを概観し、コントロールサイクルをはじめとした本論文に関連する基本的な概念の説明を行う。

第 3 章では、コントロールサイクルを *to* 不定詞構文の分析に適用する妥当性について説明し、コントロールサイクルから *to* 不定詞をとる主節述語の分類を行うことで、本構文における各用例の分類をもたらす認知的要因が明らかになることを主張する。具体的には、(4a-f) のような *to* 不定詞構文の各用例は主節述語がコントロールサイクル上の Potential Phase (PP)、Action Phase (AP)、Result Phase (RP) のどの段階を表すかによって、大きく 3 つに分類されることを主張する。

(4) PP: a. I want to have him in jail.

b. I expect him to resolve his situation with us first.

AP: c. And I did this to take care of a seriously ill parent.

d. That evening, my grandfather went out to feed his animals ...

RP: e. I know you to be a resourceful lady.

f. I was surprised to find his wife waiting in the living room. (COCA)

(4a, b) の主節述語 *want*、*expect* が Potential Phase を表しているという点について考察すると、これらの述語は、ターゲット、つまり不定詞の出来事に対して (実行しようという) 意志を抱く (4a)、もしくは期待や予想をしている (4b) ということを含意しており、実際に何か行動を行っているわけでも、結果に至っているわけでもないため、Potential Phase を表していると言える。このように主節述語が Potential Phase を表す場合、ターゲット (*to* 不定詞節) はドミニオン内に取り込まれていないため、*to* 不定詞節は未来の出来事を含意す

る。次に (4c, d) のように主節述語が **Action Phase** を表している用例について考察する。(4c, d) における主節述語はターゲットである不定詞の出来事を実行しようと具体的な行為を行う (*did this*)、もしくは物理的に移動している (*went out*) ため、**Action Phase** を表していると言える。このように **Action Phase** を表す場合についても、文主語はまだターゲットを実行する局面には至っていないため、**to** 不定詞節は未来の出来事を含意する。最後に、(4e, f) については、主節述語は **Result Phase** を表しており、その理由はどちらもターゲット (**to** 不定詞節) が文主語の知識・記憶 (ドミニオン) の一部として取り込まれていることを含意しているからである。**Result Phase** ではターゲットはドミニオン内に取り込まれているため、**to** 不定詞節は事実 (4e)、もしくは実際に生じた出来事 (4f) を含意する。

このようなコントロールサイクルに基づいた分類に加えて、第 3 章ではコーパス (*Corpus of Contemporary American English, COCA*) に基づいた実証的な分析を行い、**to** 不定詞構文の事例の多くが **Potential Phase** (e.g. (4a, b)) に集中し、**Action Phase** と対応する事例 (e.g. (4c, d)) も相対的に多いと言えることを示す。また、**Result Phase** と対応する事例は (e.g. (4e, f)) は相対的に少なく、そのことは **to** 不定詞の使用を典型的にもたらす未来性などの明確な方向性が含意されないためであることを主張する。しかし、**Result Phase** と対応する用例には、認知主体側の参照点アクセスに基づく主体的方向性が喚起されており、このような主体的方向性が **to** 不定詞の使用をもたらしていることを主張する。第 3 章では、参照点アクセスとそれに基づく主体的方向性は **to** 不定詞構文全体を包摂するスキーマ的意味であり、**Potential Phase** や **Action Phase** と対応する典型的な事例から **Result Phase** と対応する非典型的な事例まで、本構文におけるすべての用例に内在する意味であることを主張する。

次に第 4 章においては、**to** 不定詞の特徴をさらに明らかにするため、コントロールサイクルに基づき、**to** 不定詞構文と **-ing** 構文を比較する。本章においては、COCA から採取した **to** 不定詞と **-ing** が主節述語に後続する事例を分析することで、**to** 不定詞構文については多くの事例の主節述語が (5a) のように **Potential Phase** を表しているのに対して、**-ing** 構文の多くの事例は主節述語が (5b) のように **Action Phase** を表していることを明らかにする。

- (5) a. I really *want to go back to her* ...
- b. I *kept thinking that I won't be able to wear it until Spring*.
- c. He *did it to make fun of me*. (COCA)

また、**to** 不定詞構文については (5c) のように **Action Phase** を表す事例も多く存在することを指摘するが、(5b) のような **-ing** 構文の事例の主節述語が典型的に表す **Action Phase** の局面と **to** 不定詞構文の事例の主節述語が表す **Action Phase** の局面はそれぞれ異なる範囲を表していると指摘する。具体的には、(5c) のような **to** 不定詞構文の場合、文主語はター

ゲットに対して行動を起こしつつも、まだ実行する段階には至っていないため、主節述語は **Potential Phase** に近い **Action Phase** の局面を表している。それに対して、(5b) のような **-ing** 構文の場合、文主語はターゲットを実際に実行していることを含意するため、主節述語は **Result Phase** に近い **Action Phase** の局面を表しているということである。

このように第4章では、COCA から実際に得られた言語データをコントロールサイクルから考察することにより、両構文の言語使用場面における関係性、つまり分布(使用範囲)の違いを示す。具体的には、**to** 不定詞構文は **Potential Phase** から **Potential Phase** に近い **Action Phase** の局面を、**-ing** 構文については **Result Phase** に近い **Action Phase** の局面を典型的に表す構文であることを明らかにし、**to** 不定詞構文と **-ing** 構文はコントロールサイクル上の連続的な段階を表していると主張する。

第3章と第4章ではコントロールサイクルから主節述語に後続する **to** 不定詞の用例を考察するが、第5章ではコントロールサイクルを **to** 不定詞の主語用法に適用した考察を展開する。(6a) の主節述語 **be** は、節命題(ターゲット)が概念化者の知識(ドミニオン)内に取り込まれていることを含意しており、そのため(6a)が **Result Phase** と対応することを示している。

(6) RP: a. *To live with regret is heavy.*

PP: b. *To live there as a student requires parental wealth ...*

AP: c. *To write such words changed the meaning.* (COCA)

対して、(6b) と (6c) の主節述語 **require** と **change** は、行為者が不定詞の出来事(ターゲット)を行うことに対して意志を抱く(6b)、もしくは不定詞の出来事を実行したこと(6c)を含意するため、それぞれの事例が **Potential Phase** と **Action Phase** と対応することを示している。

第3章と第4章では、主節主語に後続する **to** 不定詞の用法の多くは **Potential Phase**、また **Action Phase** と対応するという主張がなされるが、第5章では、COCA から採取した **to** 不定詞の主語用法を分析し、そのほとんどの事例が(6a)のように **Result Phase** と対応する事例であるということが明らかにされる。このように **to** 不定詞が主語の場合には、ほとんどの事例が **Result Phase** と対応する理由については、主語の自律性と **Potential Phase** や **Action Phase** で生じる方向性の概念による依存性の観点から説明される。つまり、文主語は概念的により自律的であることが求められるが(cf. Langacker 1987: 236)、(6b) や (6c) のように **Potential Phase** や **Action Phase** と対応する場合、行為者が不定詞の出来事を行おうとする意志(6b)や達成へと向かう行為(6c)などのターゲット(不定詞の出来事)へと向かう方向性が含意され、このような方向性は **to** 不定詞主語が行為者に依存的になることをもたらず。このように行為者に依存的になることは主語の自律性と相性が悪いいため、**Potential**

Phase と Action Phase に対応する事例は to 不定詞主語の用法では使用頻度が低いと説明される。それに対して、(6a) のような Result Phase と対応する事例においては to 不定詞主語に向けられる方向性の概念は明確には含意されず、主語としての自律性が保たれるため、より使用頻度が高いと説明することが出来る。

また、第 5 章においては、to 不定詞主語と比べ、-ing 主語の方が使用頻度が高いことが指摘され、その理由についても説明される。まずは、Emonds (1976) などにより、-ing は名詞と等位接続されるのに対して、to 不定詞はされないという言語事実が指摘されていることから、-ing がより名詞らしさを兼ね備えているという点を確認する。また、Langacker (2008: 200, 589) が名詞はモノ概念をプロファイルし、モノ概念は自律的であると主張していることを踏まえると、to 不定詞よりも-ingの方がより自律的な概念であるということが出来ることについても確認する。第 5 章では、このような両者の自律性の違いから、to 不定詞主語よりも-ing 主語の方が文主語の自律性と相性が良く、主語としての使用頻度が高いと主張する。このことに加えて、第 5 章では、to 不定詞主語と共起する主節述語が限定的であることについても確認し、その理由を方向性の観点から説明する。

第 6 章と第 7 章では、コントロールサイクルをさらに迂言的使役構文と知覚構文における (to) 不定詞の分析に適用した考察が展開される。第 6 章では (7a, b) のような迂言的使役構文を考察する。

(7) a. Mary made John drive the car.

b. John was made to drive the car.

(Dixon 2005: 251)

(7a) における主節述語 make は、被使役者 (John) が不定詞の出来事を行うこと (ターゲット) に対して使役者 (Mary) が働きかけている (強制等) ことを含意することから、Action Phase を表していると言える。しかし、それと同時に、使役動詞 make は補文の出来事が実現したことも含意するため、部分的に Result Phase も表していると言える。このような段階では原因と結果の間に直接性・同時性が含意されるため、原形不定詞が用いられる (Dixon 2005; Langacker 1991, 2009; 葛西 2004 参照)。

しかし、(7a) が (7b) のように受動化されると、結果状態の局面に焦点が当たることになるため (cf. Dixon 2005: 252; Duffley 1992: 77; Langacker 1990: 130–131)、(7b) においては Action Phase の意味が薄れ、補文の出来事が実現したという Result Phase に焦点が当たることになる。そうすると原因 (主節) と結果 (補文) の因果関係の直接性が下がり、それと同時に原因 (主節) における参与者である被使役者 (John) と不定詞の出来事との間にも概念的な距離が生じることになる。そのため、概念化者が不定詞の出来事にアクセスする際には、被使役者を参照点としてアクセスしたのちに、不定詞の出来事へとアクセスするという認知操作が必然的に伴う。そして、被使役者から不定詞の出来事へとアクセスする際

には、不定詞の出来事へと向かう認知主体側の主体的な方向性が生じることになり、この方向性が **to** 不定詞の使用をもたらしていると主張する。

第7章では、コントロールサイクルに基づき、(8a, b) のような知覚構文における (**to**) 不定詞を考察する。

(8) a. They saw John kick Mary.

b. John was seen to kick Mary.

(Dixon 2005: 252)

(8a) のような例における主節述語 **see** はターゲット (補文の出来事) の瞬間的な知覚の行為を表しているため、**Action Phase** を表していると言える。しかし、それと同時に、(8a) の知覚動詞 **see** は不定詞の出来事 **kick** の最終的な結果を知覚することも含意するため、**Result Phase** も部分的に表していると言える。この場合、主節述語 **see** と補文の出来事は同時に生起していると言え、このような同時性が原形不定詞の使用をもたらしていると言える (Dixon 2005; Langacker 1991, 2009; 葛西 2004 参照)。

しかし、(8b) のように受動化されると、結果状態の局面に焦点が当たることになるため (cf. Dixon 2005: 252; Langacker 1990: 130–131)、知覚の行為の段階である **Action Phase** の意味は薄れ、最終的な認識の結果状態である **Result Phase** に焦点が当たっていると言える。このように受動化によって **Action Phase** から焦点が外れると、直接知覚を行った瞬間の意味が薄れるため、知覚の直接性が下がり、知覚経験 (主節) と知覚対象 (補文の出来事) の間に概念的な距離が生じる。そして、知覚経験と知覚対象の間に概念的な距離が生じると、知覚経験における参与者である **John** と不定詞の出来事の間にも概念的な距離が生じる。このように概念的な距離が生じる場合、概念化者はまず **John** を参照点としてアクセスし、その後不定詞の出来事へとアクセスする。そして、**John** から不定詞の出来事へとアクセスする際には、不定詞の出来事へと向かう認知主体側の方向性が伴い、このような主体的な方向性が (8b) のような知覚構文の受動態において **to** 不定詞の使用をもたらしていると主張する。

本論文における最後の章である第8章では、本論文のまとめと今後の研究課題について述べられている。

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Chapter 3: A Network Model of *to*-Infinitive Constructions Based on the Control Cycle

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Chapter 6: The Infinitive with or without *to* in Periphrastic Causative Constructions

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Chapter 7: The Infinitive with or without *to* in Perception Constructions

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Cho, and Haruhiko Murao, 116–132, Kaitakusha, Tokyo, 2018.

Symbols and Abbreviations

?	of questionable grammaticality
*	ungrammatical
AP	the action phase of the control cycle
PP	the potential phase of the control cycle
RP	the result phase of the control cycle
<i>to</i> -INF	infinitive marked by <i>to</i>
CCALD	<i>Collins Cobuild Advanced Learner's Dictionary</i> (9th edition) (2018)
COCA	<i>Corpus of Contemporary American English</i> (https://www.english-corpora.org/coca/)
LDCE	<i>Longman Dictionary of Contemporary English</i> (6th edition) (2014)
NOAD	<i>New Oxford American Dictionary</i> (3rd edition) (2010)
OALD	<i>Oxford Advanced Learner's Dictionary</i> (10th edition) (2020)

Chapter 1

Introduction

1.1. The Aim and Scope of this Study

This dissertation provides an analysis of *to*-infinitive constructions within the theoretical framework of Cognitive Grammar. Many previous studies have attempted to explain the semantic motivation for various uses of *to*-infinitives and compared the *to*-infinitive with the *-ing* form (Wood 1956; Dixon 1984; Quirk et al. 1985; Wierzbicka 1988; Dirven 1989; Langacker 1991, 2008, 2009, 2015; Verspoor 1996, 1999; Duffley 2000, 2003; Smith and Escobedo 2001; Hamada 2002, 2016; Huddleston and Pullum 2002; Kasai 2004; Egan 2008; Smith 2009, etc.). Many of these studies agree that *to*-infinitive constructions typically evoke the notion of futurity or potentiality (see Dixon 1984: 590; Quirk et al. 1985: 1191; Wierzbicka 1988: 165; Langacker 1991: 445–446, 2009: 301, 2015: 73; Smith and Escobedo 2001: 553–554; Smith 2009: 369–373). In contrast, several previous studies state that the *-ing* form is typically motivated by sameness of time or temporal (or more general conceptual) overlap between the matrix and subordinate processes (see Wierzbicka 1988: 60–73; Langacker 1991: 445, 2008: 439; Smith and Escobedo 2001: 556–559; Smith 2009: 376–377).

However, there are at least four deficiencies in the previous studies of *to*-infinitive constructions. First, Smith and Escobedo (2001) and Smith (2009) claim that instances of *to*-infinitive and *-ing* constructions are globally divided into four groups.¹ However, they

¹ In later chapters, I argue that the groupings by Smith and Escobedo (2001) and Smith (2009) can be rearranged from a more global perspective into three groups.

do not explain what causes this division. A cognitive basis for the grouping is required because, in cognitive semantics, meaning is identified as the conceptualization that resides in cognitive processing (Langacker 2008, 2009).

Second, Smith and Escobedo (2001) and Smith (2009) simply categorize instances of each construction. Their classifications do not describe the distributional differences between the two constructions in a series of usage events, i.e. actual instances of language use (Langacker 2000: 9).

Third, the previous studies of *to*-infinitive constructions focus primarily on the *to*-infinitive as a post-predicate complement or modifier and lack any comprehensive examination of the *to*-infinitive as a clausal subject. While Duffley (2003) and Egan (2008) do provide an account of the *to*-infinitive subject, they do not explain why the *to*-infinitive subject is rarer and collocates with a narrower range of matrix predicates than *-ing* as a clausal subject.

Fourth, several previous studies (e.g. Kasai 2004; Dixon 2005) attempt to explain why *to* must be included when causative and perception verbs like (1a) and (2a) are used in the passive as in (1b) and (2b).

(1) a. They made him feel ashamed.

b. He was made to feel ashamed. (Kasai 2004: 37)

(2) a. They saw/heard/noticed John kick Mary.

b. John was seen/heard/noticed to kick Mary. (Dixon 2005: 252)

Dixon (2005) claims that the pragmatic immediacy as in (1a) and (2a) is lost in the passive because “[t]he passive verges towards being the description of a state” (p. 252), while Kasai (2004) maintains that *to* must be included in examples like (1b) because passivized instances evoke a temporal lag between the matrix and subordinate clauses. Kasai also

states that *to* is included in instances like (2b) because perception verbs in the passive do not imply direct perception. However, Dixon does not elaborate on why verging towards being the description of a state leads to indirectness (i.e. why the pragmatic immediacy of causative and perception verbs is lost in the passive). Neither does Kasai explain why a temporal lag is evoked between the matrix and subordinate events in instances like (1b) nor why perception verbs lose their directness when used in the passive as in (2b).

This dissertation addresses these issues in a consistent way by examining various instances of *to*-infinitive constructions in terms of the control cycle (Langacker 2002, 2009). For example, this study classifies instances of *to*-infinitive and *-ing* constructions in terms of the control cycle and demonstrates that these are globally divided into three groups depending on whether the matrix predicate represents the potential, action, or result phase of the control cycle. These classifications based on the control cycle also describe, in a series of usage events, the distributional differences between the two constructions: that is, that instances of *to*-infinitive and *-ing* constructions typically represent successive phases of the control cycle (the potential and action phases, respectively). This study also explains the notion of directionality involved in the *to*-infinitive as a clausal subject in terms of the control cycle and argues that this directionality renders the *to*-infinitive incompatible with the autonomy of the clausal subject. In addition, this study also explains, in terms of the control cycle, why *to* must be included in passive sentences like (1b) and (2b) and specifies the notion of directionality as the motivation for the use of the *to*-infinitive in these examples.

Furthermore, the present study is usage-based in two respects. First, *to*-infinitive constructions are examined in the spirit of a dynamic usage-based model (Langacker 2000). Second, actual usage data is observed in the *Corpus of Contemporary American English* (COCA).

1.2. Overview

This dissertation presents a consistent analysis of *to*-infinitive constructions by examining various instances in terms of the control cycle. Chapter 2 introduces the framework of Cognitive Grammar and outlines the notion of the control cycle.

Chapters 3 and 4 apply the idea of the control cycle to an analysis of the *to*-infinitive as a post-predicate complement or modifier. Chapter 3 classifies instances of *to*-infinitive constructions in terms of the control cycle and describes a network for the constructions. Chapter 4 further specifies the properties of the *to*-infinitive by comparing the *to*-infinitive with the *-ing* form in terms of the control cycle. The distributional characteristics of the two subordinate clauses are demonstrated in a series of usage events—i.e. actual instances of language use (Langacker 2000: 9)—empirically showing that the *to*-infinitive and the *-ing* form typically represent successive phases of the control cycle (i.e. the potential and action phases, respectively). Chapter 4 also examines, in terms of the control cycle, matrix predicates taking either the *to*-infinitive or the *-ing* form.

Chapter 5 applies the control cycle to an analysis of the *to*-infinitive as a clausal subject in order to explain why this use of the *to*-infinitive is rare compared with *-ing* as a subject and other uses of the *to*-infinitive (e.g. a post-predicate complement or modifier). Chapter 5 also explains why the *to*-infinitive subject collocates with a limited range of matrix predicates.

Chapters 6 and 7 examine, in terms of the control cycle, the *to*-infinitive and the bare-infinitive (i.e. the infinitive without *to*) in periphrastic causative constructions (e.g. (1a, b)) and perception constructions (e.g. (2a, b)). Chapter 6 discusses the infinitive with or without *to* in periphrastic causative constructions and explains why *to* must be included when the causative verb *make* is used in the passive. Chapter 7 examines the infinitive with or without *to* in perception constructions and explains why *to* must be included in passive sentences.

Chapter 8 recapitulates the findings and results of this dissertation and considers their implications for future research.

Chapter 2

Assumptions and Basic Concepts in Cognitive Grammar

2.1. Introduction

The theoretical framework I adopt in this dissertation is based on Langacker's theory of Cognitive Grammar. The following sections introduce some basic concepts relevant to my study of *to*-infinitive constructions.

2.2. Basic Semantic Notions

Cognitive Grammar adopts a conceptualist view of meaning that accommodates construal, i.e. "our ability to conceive and portray the same situation in alternate ways" (Langacker 2019: 140). Therefore, Cognitive Grammar presupposes that a meaning consists of both conceptual content and the manner in which that content is construed (Langacker 2008: 43, 2019: 140). The dimensions of construal include "the level of specificity at which a situation is characterized, the perspective adopted for 'viewing' it, and the degree of prominence conferred on the elements within it" (Langacker 2009: 6). This section focuses on two sorts of prominence, namely profiling and trajector/landmark organization.

An expression evokes some conceptual content as the basis for its meaning. Within this conceptual base, attention is directed to a particular substructure, called the profile: this is the substructure the expression designates (or refers to) (Langacker 2008: 66, 2009: 7). For example, Langacker (2009: 7) states that the word *arc* evokes the conception of a circle as its base and profiles any segment within this conceptual base. This is shown

diagrammatically in Figure 2.1 (a). Note that the profile is indicated by a heavy line. Langacker (2009: 7) also provides expressions that have the same conceptual content yet differ in meaning because of the different profiles they impose on this common base. For example, he notes that *husband* and *wife* both evoke as their base the conception of a male (M) and a female (F) linked in a relationship of marriage, as shown in Figures 2.1 (b) and (c). However, they differ in meaning because of the alternate profiles they impose on the same conceptual content.

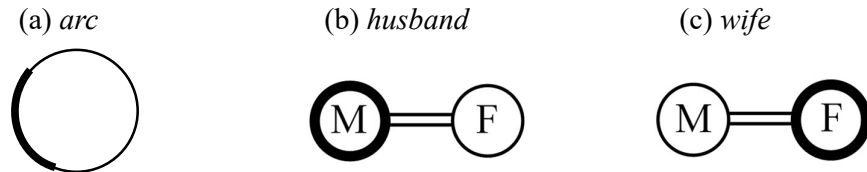


Figure 2.1: Profile and Base (Langacker 2009: 7)

Another kind of prominence is trajector/landmark alignment (see Langacker 1987: 231, 2008: 70, 2009: 8). When an expression profiles a relationship, varying degrees of prominence are conferred on its participants. The most prominent participant, called the trajector (tr), is the entity the expression is concerned with locating or characterizing. Often another participant is made prominent as a secondary focus, and this is called a landmark (lm). Langacker (2008: 71) provides the prepositions *above* and *below* as examples that have the same content, and profile the same relationships, but differ in meaning because of the alternate choices of trajector and landmark, as shown in Figures 2.2 (a) and (b).

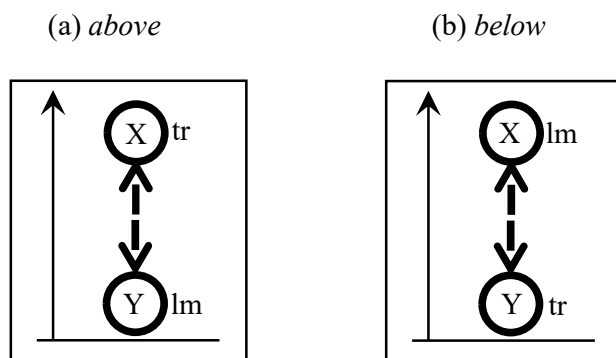


Figure 2.2: *Above* and *Below* (Langacker 2008: 71)

This section has outlined some basic notions pertaining to semantic structure, focusing on profiling and trajector/landmark alignment. These two basic notions are fundamentally important throughout this dissertation. The following section provides a historical review of categorization and outlines Langacker’s model of categorization.

2.3. From Classical Categories to Langacker’s Model of Categorization

Classical categorization (to use Taylor’s (2003) term for it¹) classifies members of a particular category in terms of a conjunction of necessary and sufficient features (see Taylor 2003: 21). The classical theory assumes categories with clear and rigid boundaries and considers all members of a category to have equal status (see Taylor 2003: 20–21; Tuggy 2007: 88–89).

Wittgenstein (2009) (first edition published 1953) points out that the classical theory fails to analyze the referential range of words. For example, he notes that the various members of the category “game” (e.g. board games, card games, ball games, athletic games, etc.) do not share a set of common properties on whose basis games can be clearly

¹ Taylor (2003: ch.2) uses the term ‘classical’ in two senses. First, “[t]he approach is classical in that it goes back ultimately to Greek antiquity” (p. 20). Second, the approach “has dominated psychology, philosophy, and linguistics (especially autonomous linguistics, both structuralist and generative) throughout much of the twentieth century” (p. 20).

distinguished from non-games (Wittgenstein 2009: 36–37). Instead, he characterizes the similarities of these different members as ‘family resemblance’ and considers the category “game” to be unbounded. (See also Taylor’s (2003: 42–43) review of Wittgenstein.)

While recognizing Wittgenstein’s insight that the classical theory fails to predict the referential range of some words, Taylor (2003: 43) notes that “Wittgenstein did not appear to have considered the possibility that some kinds of games might be better examples of the category than others, or that some other kinds might be quite marginal”. Rosch (1975) gathered and observed data on subjects’ ratings of the extent to which instances of semantic categories represent their idea or image of the meaning of the category name. Her experiment showed that degree of membership in a category is a psychologically valid notion. Given her empirical exploration of prototypes (i.e. best examples), scholars such as Fillmore (1982), Lakoff (1987) and Taylor (2003) propose descriptions of word meanings that make use of the prototype notion. To take just one example, Lakoff (1987) proposes a radical category, where the prototype of the category is predictable and the noncentral members are motivated by family resemblances to prototypical members.

The prototype notion also plays an important role in Langacker’s model of categorization. Langacker (1987: 371) considers that “[a] prototype is a typical instance of a category, and other elements are assimilated to the category on the basis of their perceived resemblance to the prototype”. The prototype theory entails, however, that a category could produce an unrestrained number of variants (see Hayase and Horita 2005: 28). In addition to the prototype notion, therefore, Langacker considers that schemas, which represent various levels of abstraction (see Langacker 2009: 4), are also organized within a category. That is, he claims that a schema is compatible with all the members of a category and defines the category with multiple variants (Langacker 1987: 371).² Let

² Taylor (2003: 69–71) also reviews the position taken by Langacker (1987). However, he states that his own study emphasizes categorization by prototype rather than categorization by schema.

us observe Langacker’s (1987: 374) account of how a child masters the concept [TREE]. When the child “encounters a tall plant with branches, leaves, and bark he readily sees it as conforming to the specifications of [TREE]” (Langacker 1987: 374). When he first encounters a pine tree, he calls it a *tree* on the basis of similarity with [TREE], even though a pine tree is not fully compatible with [TREE]. Also, when the child observes the similarity between [TREE] and [PINE], a further schema is extracted: (TREE’), which embodies the commonality of [TREE] and [PINE]. Langacker (1987: 374) depicts the categorizing process as the schematic network in Figure 2.3 (a). This kind of categorizing process can be repeated as shown in Figure 2.3 (b).

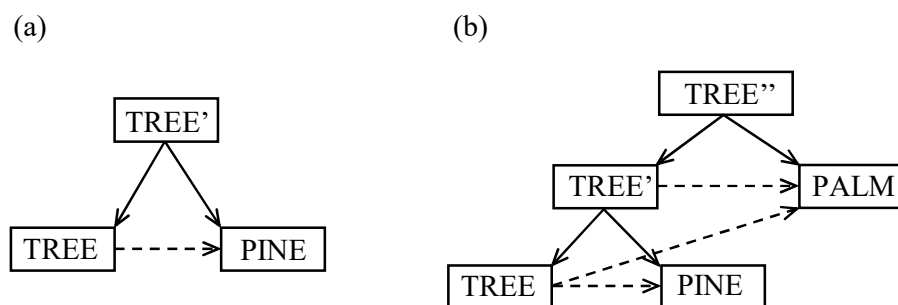


Figure 2.3: The “Tree” Category (Langacker 1987: 374)

The present study adopts Langacker’s integrated model of categorization, which accommodates both schemas and prototypes. Chapters 3 and 4 specify a cognitive basis that causes prototypical instances of *to*-infinitive constructions to evoke a future orientation (see Section 1.1). Chapter 3 also proposes a constructional schema that defines a complex category comprising multiple variants of *to*-infinitive constructions.

2.4. Constructions in Cognitive Grammar

In general, a construction is defined as any linguistic structure that is analyzable into components (Taylor 2002: 561). For example, [BLACK CAT]/[blæk kæt] constitutes a

symbolic construction where two component symbolic units (i.e. [BLACK]/[blæk] and [CAT]/[kæt]) are identified (Taylor 2002: 562). Cognitive Grammar holds that a construction can be of any size and any specificity. Therefore, Langacker (2009: 2) defines a construction as either an expression (of any size) or a schema abstracted from expressions to capture their commonality (at any level of specificity).

In Cognitive Grammar, grammatical patterns are represented by constructional schemas (i.e. schematic symbolic assemblies) (Langacker 2009: 5). Because a construction can be of any specificity, expressions and the patterns they instantiate differ only in degree of specificity, and form a continuum (Langacker 2000: 32, 2009: 5). Observe Figure 2.4, which is a fragment of the grammatical network for English ditransitive constructions.

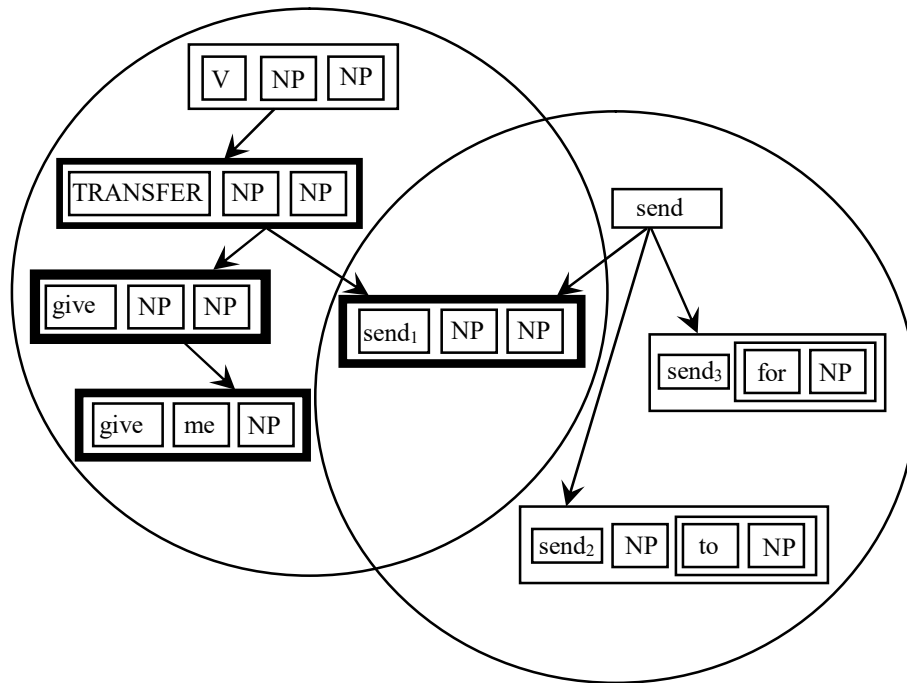


Figure 2.4: Constructional and Lexical Networks (Langacker 2000: 34)

Constructional subschemas like [[send₁] [NP] [NP]] represent the commonality inherent

in complex expressions like *send me a package*, *send your mother an eviction notice*, *send Washington a message* (Langacker 2000: 33). More specific structures, such as [[give] [me] [NP]], are also entrenched as units; Langacker (2000: 33) notes the contraction *gimme*. The constructional schema [[TRANSFER] [NP] [NP]] represents the transfer pattern involved in [[give/send₁] [NP] [NP]]. While the transfer pattern is prototypical, ditransitives are also used in many other cases (e.g. *promise*, *owe*, *permit*, *allow*, *make*, *cook*) (Langacker 2008: 243). The higher-level schema [[V] [NP] [NP]] covers all these variants. Note that the subschema [[send₁] [NP] [NP]] also belongs to the partial network of the constructional schemas describing the grammatical behavior of *send*, as shown in the circle on the right in Figure 2.4. Langacker (2000: 34–35) states that lexical items like *send* emerge by abstraction from larger symbolic assemblies like [[send₁] [NP] [NP]] and [[send_{2/3}] ([NP]) [to/for] [NP]]. Thus, Cognitive Grammar holds that lexicon and grammar form a gradation and any specific line of demarcation is arbitrary (Langacker 2000: 33, 2008: 5).

The present study adopts Langacker’s symbolic account of grammar. Chapter 3 describes a grammatical network for *to*-infinitive constructions, while Chapter 4 describes a grammatical network for complement clause (i.e. *to*-infinitive, *-ing* and *that*-clause) constructions. The following section outlines Langacker’s view of grammatical classes.

2.5. Grammatical Classes in Cognitive Grammar

This section outlines grammatical classes (or categories) from a Cognitive Grammar perspective. Langacker (2008: 98) claims that profiling (see Section 2.2) determines an expression’s grammatical category. He argues that a noun is defined as an expression that profiles a thing. Langacker represents a thing by a circle as in Figure 2.5.



Figure 2.5: Thing (Langacker 2008: 99)

According to Langacker (2008: 99), the members of other basic classes (e.g. prepositions, verbs, etc.) profile relationships. He represents relationships by lines or arrows connecting the entities participating in them as in Figure 2.6.

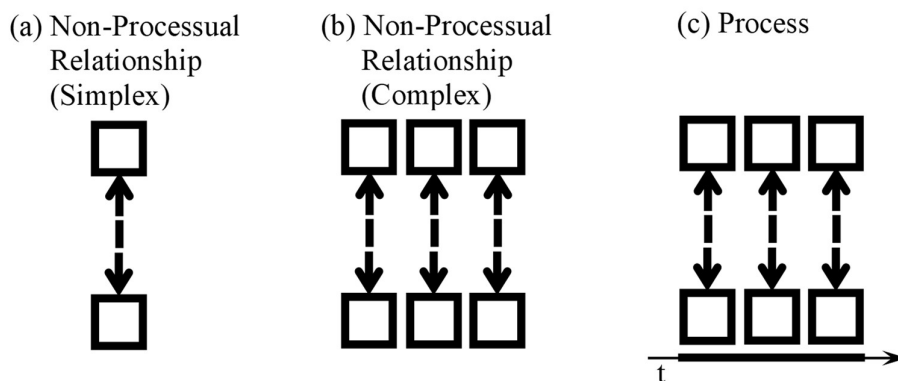


Figure 2.6: Relationships (Langacker 2008: 99)

Langacker (2008: 99) distinguishes various kinds of relationship and uses these distinctions to characterize basic grammatical categories. He distinguishes a process and a non-processual relationship. He argues that a process develops through time, represented in Figure 2.6 (c) by the arrow labeled *t*; the bar along the time arrow indicates that its evolution through time is in focus. He also notes that a process is complex in the sense that its manifestation at any one instant is itself a relationship; that is, each time-slice consists of a simplex relationship (Langacker 2008: 99, 109). Langacker (2008: 100) defines a verb as an expression that profiles a process. According to Langacker (2008: 99), a relationship that lacks these properties is non-processual. He argues that a

relationship can be non-processual by virtue of being simplex, consisting of just one component state fully manifested at a single instant, as in the spatial relationship profiled by *on* in (1a) Figure 2.6 (a).

(1) a. She is sitting *on* the roof.

b. She climbed up *onto* the roof. (Langacker 2008: 99)

In contrast to *on*, Langacker considers the relationship profiled by path prepositions like *onto* (1b) to be complex (see Figure 2.6 (b)) because the relationship develops through time (see Langacker 2008: 99); that is, the clausal subject occupies a series of positions in relation to *the roof*. However, Langacker (2008: 99) claims that the preposition *onto* leaves time in the background (i.e. it is atemporal) because the spatial relation is construed holistically, as a single, static situation observable at a single moment (see also Langacker's (2015: 67) discussion of *into*). Langacker (2008: 100) states that a number of grammatical categories—such as adjective, adverb and preposition—are characterized as profiling non-processual relationships.

Langacker (2008: 118) notes that the expressions that profile complex relationships are not limited to verbs and path prepositions. He argues that the infinitive and the *-ing* form as in (2a, b) also have this character.

(2) a. The firemen tried *to enter* the burning building.

b. They kept *finding* errors in the manuscript. (Langacker 2008: 118)

According to Langacker, since both the infinitive and the *-ing* form derive from the verb, their component states are conceived as extending through time. However, he distinguishes the two nonfinite clauses and the verb in terms of scanning. That is, while

the component states of the process profiled by the verb are scanned sequentially (i.e. each component state is activated and accessed at a different moment), the component states of the infinitive and the *-ing* form are scanned in summary fashion: that is, their component states undergo summation and are mentally superimposed, resulting in their simultaneous activation (see Langacker 2008: 111, 118–119). Langacker diagrams the infinitive and the *-ing* form as in Figure 2.7; the imposition of summary scanning is indicated by the absence of a bar along the time arrow.

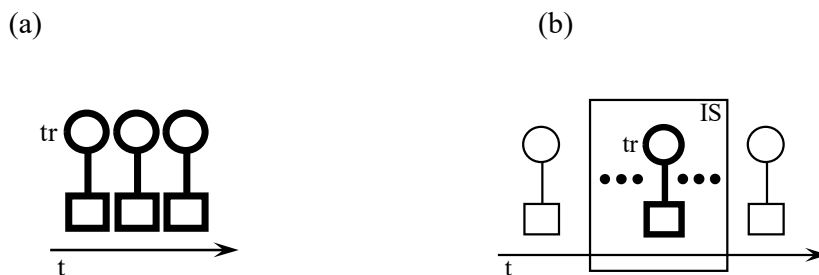


Figure 2.7: Infinitive and *-Ing* (Langacker 2008: 119–121)

As shown in Figure 2.7 (a), Langacker (2008: 120) claims that the infinitive profiles all the component states of the process. In contrast, as shown in diagram (b), *-ing* focuses attention on some internal portion of a verbal process by imposing on the process a limited immediate scope (IS), i.e. “the portion directly relevant for a particular purpose” (Langacker 2008: 63).

This section has outlined the Cognitive Grammar perspective on grammatical classes (or categories). The following section outlines that on complementation.

2.6. Complementation in Cognitive Grammar

Langacker (1991: 439) states that complement clauses are accompanied by the markings *that*, *to*, *-ing*, and zero as in (3a–d); the markings are generally referred to as

complementizers.

- (3) a. We realize that you have to make a profit.
- b. His wife pretended to believe his implausible story.
- c. Portia really enjoys walking along the beach.
- d. Numerous witnesses heard the bomb explode. (Langacker 1991: 439)

Langacker (1991: 444–445, 2009: 300–301) claims that temporal coincidence is the hallmark of zero and *-ing*. For example, he states that in (4a) the complement process fully coincides with the duration of the matrix process (Langacker 2009: 300). He also notes that the temporal coincidence in (4b) is partial because *-ing* restricts the scope of perception to some internal portion of the overall process. Therefore, in (4b) we perceive part of the ongoing process of several bombs exploding (Langacker 2009: 300–301).

- (4) a. We saw/heard/felt the bomb explode.
- b. We saw/heard/felt the bombs exploding. (Langacker 2009: 300)

In contrast to the temporal coincidence involved in zero and *-ing* as in (4a, b), Langacker (2009: 301) states that the complementizer *to* indicates non-immediacy with respect to the time of the matrix process. He claims that *to*-complements typically lie in the future, relative to the matrix process, as in (5).³

- (5) We want/expect/would like the bombs to explode. (Langacker 2009: 300)

³ Langacker (2009) refers to Wierzbicka (1988), who analyzes various instances of *to*-infinitives in terms of a future orientation.

Langacker (1991: 446) considers that the notion of futurity is attributed to the complementizer *to*. He notes that the path-goal image schema is inherent in both a prepositional phrase with *to*, as in (6a), and a *to*-infinitival clause as in (6b).⁴

(6) a. They walked to the store.

b. He did it just to annoy her. (Langacker 1991: 446)

Langacker (2015: 73) also states that the infinitival *to* “usually portrays the profiled event as being future or potential with respect to some reference point (R)”. This so-called reference point ability is defined as invoking “the conception of one entity in order to establish ‘mental contact’ with another” (Langacker 2008: 83). Langacker calls the first-invoked entity the reference point and the entity accessed via the reference point the target. He notes, for instance, that the boat is the reference point and the duck is the target in the following example: “Do you see that boat out there in the lake? There’s a duck swimming right next to it” (Langacker 2008: 83–84).

Langacker (1991) discusses the *that*-clause, the *to*-infinitive and the small clause (e.g. adjective) in terms of (in)directness. Based on Borkin’s (1973) analysis, Langacker (1991: 450) claims that (7a) “might be used if Susan had searched through her files to learn the results of consumer reaction tests”; (7b) “would be more appropriate if Susan herself had conducted such tests”; and (7c) “implies that Susan tried the bed herself and directly experienced the discomfort”.

(7) a. Susan found that the bed was uncomfortable.

⁴ There is an assumption that the infinitival *to* is semantically vacuous (cf. Chomsky 1957: 100; Radford 1997: 52). However, in addition to Langacker, both Smith and Escobedo (2001: 552–554) and Smith (2009: 368–373) argue that the notion of futurity or potentiality is attributed to the infinitival *to*. The present study agrees with Langacker and Smith.

b. Susan found the bed to be uncomfortable.

c. Susan found the bed uncomfortable. (Langacker 1991: 450)

Langacker (1991: 450) states that the indirectness involved in (7a) is partly ascribable to the conceptual distance conveyed by the complementizer *that*.⁵ In addition, he explains the (in)directness in (7a–c) in terms of semantic function. The *that*-clause in (7a), he argues, “includes not only an assessment of the bed being uncomfortable, but also its epistemic status as embodied in the grounding relationship (i.e. its location in time and reality with respect to the current speech situation)” (p. 450). Therefore, the conception attributed to Susan is abstract and propositional. Langacker argues that the other, ungrounded complements in (7b, c) evoke a simpler, less abstract conceptualization. Note, however, that their directness is not equivalent. Langacker states that in (7b), the verb *be* means that Susan conceives of the bed’s uncomfortableness as extending through some span of time, and the infinitival *to* implies that there is no specification of temporal coincidence. In contrast, he argues that the absence of *be* in the complement of (7c) means that Susan’s conception is portrayed at the moment she makes her judgment and can be interpreted as being induced by direct perceptual experience.

This section has outlined the relative immediacy and directness involved in complement clause constructions. That is, zero and *-ing*, which evoke temporal coincidence with the matrix process, imply more immediate experience than do *to*-infinitives, which entail that the complement process is subsequent to the matrix process.

⁵ Lakoff and Johnson (1980: 130) also note the semantic difference between sentence (ia) and (ib): (ib) indicates that *I* found out that the chair was comfortable by direct experience, whereas (ia) leaves open the possibility that *I* found it out indirectly. They claim that the metaphorical concept CLOSENESS IS STRENGTH OF EFFECT is reflected in sentences (ia, b). That is, “[t]he CLOSER the form *I* is to the forms *the chair* and *comfortable*, the more direct is the experience that is indicated” (p. 130). It is argued that in (ia, b) “the effect of the syntax is to indicate the directness of the experience, and CLOSENESS indicates the STRENGTH of that EFFECT” (p. 130).

(i) a. I found that the chair was comfortable.

b. I found the chair comfortable.

(Lakoff and Johnson 1980: 130)

The experience implied by *to*-infinitives is, however, more direct than that implied by *that*-clauses. The following section outlines the cognitive processing reflected in passivization.

2.7. Passivization in Cognitive Grammar

Langacker (2008: 385) states that “[t]he primary function of a passive is to provide an alternative to the default agent orientation of canonical transitives”. According to his interpretation, the passive sentence (8b) below selects as trajector the theme that is construed as landmark in the active sentence (8a).

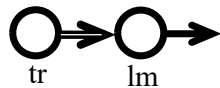
(8) a. I opened the door.

b. The door was opened.

(Langacker 2008: 385)

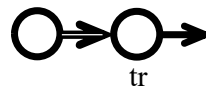
Figure 2.8 (a, b) elucidates the processing reflected in passivization. Sentence (8a) is diagrammed as in Figure 2.8 (a), where the agent is selected as trajector and the theme as landmark. Note that in Figure 2.8 (b), which diagrams the passive (8b), the theme which is construed as landmark in Figure 2.8 (a) is selected as trajector. Thus, the shift of trajector status is the primary function of passivization.

(a)



I opened the door.

(b)



The door was opened.

Figure 2.8: Active Transitive (a) and Passive (b) (Langacker 2008: 385)

Based on the cognitive processing reflected in passivization, Chapters 6 and 7

explain why *to* must be included in periphrastic causative and perception constructions in the passive. The following section outlines the control cycle (Langacker 2002, 2009).

2.8. The Control Cycle

The control cycle is “a general cognitive model applicable to many aspects of human experience” (Langacker 2009: 130).⁶ Langacker (2002: 193) sketches its basic form as in Figure 2.9. Langacker (2002: 193, 2009: 306–307) cites an example of physical capture, as when a cat (the actor, A) catches a mouse (the target, T). According to Langacker’s description, a cat is normally in a state of relaxation (the baseline phase, BP); but if a mouse should wander into its field of view, the cat immediately intends to catch the mouse and shifts into a crouching posture, its body quivering with tension (the potential phase, PP). In the next phase (the action phase, AP), the cat pounces on the mouse and bites it; and the cat succeeds in catching and mortally wounding the mouse, the mouse is then under its control (the result phase, RP).

⁶ As we have seen in Chapter 1, this dissertation presents a consistent analysis of *to*-infinitive constructions in terms of the notion of the control cycle.

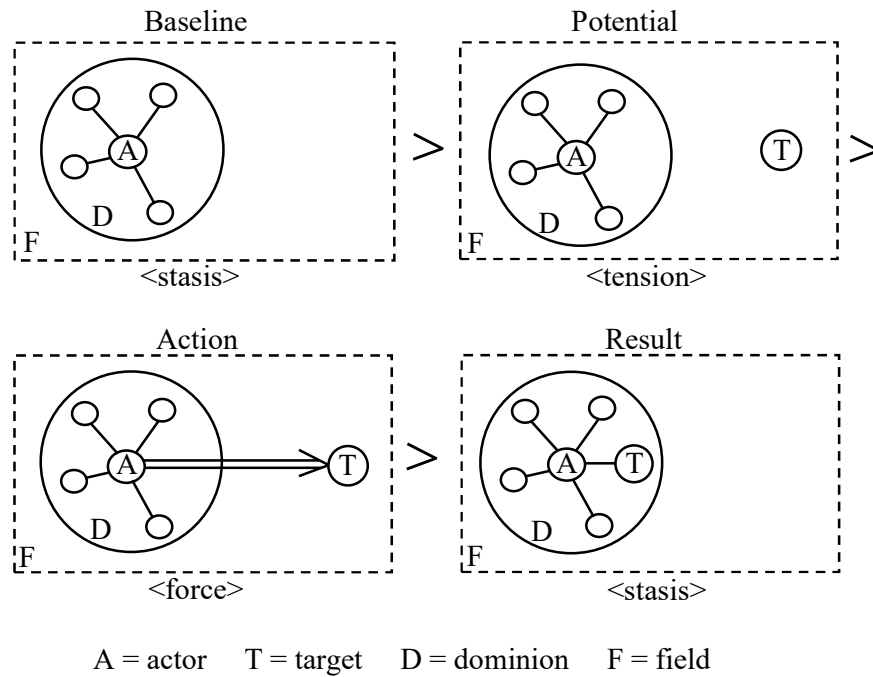


Figure 2.9: The Basic Form of the Control Cycle (Langacker 2002: 193)

Based on the control cycle, Langacker (2009) examines matrix predicates taking finite complements (e.g. *that*-clauses). For example, he claims that the matrix predicates in (9a), (9b) and (9c), respectively, profile processes residing in the potential, action and result phases of the epistemic control cycle.

(9) PP: a. I *suspect* they will never agree to my offer.

AP: b. She *learned* that his whole story was a pack of lies.

RP: c. He *knows* that Bush is a pacifist. (Langacker 2009: 132)

Langacker maintains that potential predicates as in (9a) indicate that the conceptualizer inclines toward accepting the proposition as part of her view of reality; action predicates as in (9b) profile the event of accepting the proposition; and result predicates as in (9c) indicate that the proposition is already established in the conceptualizer's reality

conception (i.e. dominion).

Langacker does not claim that the control cycle is limited to an analysis of predicates taking finite complements. He notes that matrix predicates of desire and influence as in (10) pertain to effective control⁷, i.e. they reflect our efforts to influence what happens (Langacker 2009: 153).⁸

(10) a. She wants/hopes/aspires to become an opera diva.

b. She ordered/forced/persuaded her daughter to end the relationship.

(Langacker 2009: 153)

Based on Langacker's argument, we can say that the matrix predicate in (10a) entails that the clausal subject (the actor) has volition toward carrying out the infinitive's event (the target), and the matrix predicate in (10b) performs an action (e.g. giving an instruction or intervening in some way) in order to realize the event (the target). Therefore, we can reasonably assume that the predicates in (10a) and (10b), respectively, represent the potential and action phases of the effective control cycle.⁹

However, in terms of the control cycle, Langacker focuses on matrix predicates taking finite clauses and does not pursue any further analysis of predicates taking the *to*-

⁷ According to Langacker (2009), the epistemic control cycle is relevant to our efforts to acquire knowledge about the world, and the effective control cycle is relevant to our efforts to influence what happens.

⁸ I agree with Langacker that the matrix predicates in (10) pertain to effective control, not only in (10b), where the predicates entail that the matrix subject takes action toward realizing the infinitive's event, but also in (10a), where the predicates represent the matrix subject's desire for the realization of the event. Note that the predicates in (10a) imply that the subject might later take action in order to achieve the event (i.e. to influence what happens rather than to acquire knowledge).

⁹ In addition to (10a, b), Langacker (2002: 198) discusses (ia, b) below. He suggests that the effortful activity (*strain, concentrate*) in (ia, b) is best assigned to the potential phase.

(i) a. She strained to see the dim outlines of the castle.

b. I concentrated very hard in order to hear his faint voice. (Langacker 2002: 198)

I suggest, however, that further examination is required to confirm the phase the matrix predicates in (ia, b) represent. This issue is left for future research.

infinitive. This dissertation applies the idea of the control cycle to an analysis of *to*-infinitive constructions and explains the issues left unresolved in previous studies. The following section outlines the Cognitive Grammar notion of subjectivity vs. objectivity.

2.9. Subjectivity vs. Objectivity

One of the basic tenets of Cognitive Grammar is “the asymmetry between the subject and object of conception: that is, the conceptualizer and what is conceptualized” (Langacker 2008: 260). Langacker (2008: 260) diagrams the subject and object roles in a conceptualizing relationship as in Figure 2.10.

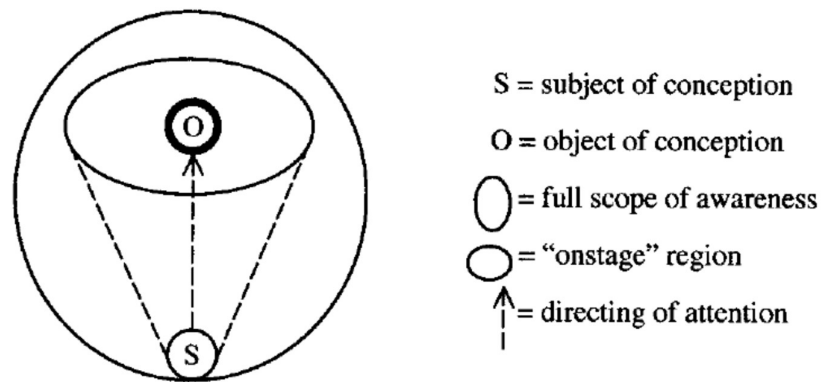


Figure 2.10: The Subject and Object of Conception (Langacker 2008: 260)

As shown in the diagram, the subject (S) engages in conceptualizing (i.e. it is the locus of conceptual experience) but it is not itself conceived. In contrast, the object (O) is conceptualized by the subject and is singled out as the focus of attention. Langacker says that the subject is construed subjectively and the object objectively.¹⁰

Langacker (2008: 261) explains the notion of subjectivity vs. objectivity in relation

¹⁰ Langacker (2008) notes that “[t]he subject and object of conception must not be confused with subject and object as specifically grammatical notions. The speaker and hearer are the principal subjects of conception, even when implicit, whereas grammatical subjects and objects are overt nominal expressions that generally refer to other entities” (p. 260).

to visual perception. “In vision, the perceiving subject is the viewer—in particular the visual apparatus (eyes, etc.), as well as the subjective locus of experience inside the head [...] The object of perception, then, is the focus of visual attention—that is, the onstage entity specifically being looked at. The eyes are construed with maximal subjectivity, for they see but cannot themselves be seen. What they see [...] is construed with maximal objectivity”, he argues (p. 261).

Langacker (2008: 528) states that mental operations, which are subjectively construed, come to be independent of the objective circumstances where they initially occur. The mental operations “are applied to situations with respect to which their occurrence is extrinsic” (Langacker 2008: 528). This is called subjectification, where “an objectively construed relationship fades away, leaving behind a subjectively construed relationship that was immanent in it (inherent in its conception)” (Langacker 2009: 85). Langacker (2008: 529) uses the sentences in (11) to illustrate one product of subjectification: the phenomenon known as fictive motion.

- (11) a. The pitcher ran from the bullpen to the mound.
- b. An ugly scar runs from his elbow to his wrist.
- c. An ugly scar runs from his wrist to his elbow. (Langacker 2008: 529)

The verb *run* and the prepositions *from* and *to* are used primarily to describe spatial movement, as in (11a). Langacker states that we conceptualize an actual motion event in such instances. Note that the motion event in (11a) (i.e. the pitcher running) is construed objectively. According to Langacker, the conceptualizer’s mental scanning is immanent in the conception of the actual motion in (11a) because “to properly apprehend this event [the motion event], C [the conceptualizer] must access the successive locations in the same order that the mover reaches them” (p. 529). He claims that the same mental

operations are applied to a static scene, as in (11b, c). “Instead of tracking an object’s movement, C scans along the path by way of building up to a full conception of the object’s spatial configuration”, he argues (p. 529).

This dissertation states that subjectification is also involved in *to*-infinitive constructions. Chapter 3 argues that the reference point ability¹¹ immanent in objective directionality (e.g. futurity as in (5) in Section 2.6) is applied even to atypical instances of *to*-infinitive constructions that do not evoke objective directionality. Chapter 3 also states that it is the subjective directionality lying in reference point ability that motivates the use of the *to*-infinitive in these atypical instances. Chapter 5 maintains that the subjective directionality based on the reference point ability also explains the use of the *to*-infinitive in *to*-infinitive subject constructions corresponding to the result phase of the control cycle. Chapters 6 and 7 explain the use of the *to*-infinitive in periphrastic causative and perception constructions in the passive voice in terms of the subjective directionality based on the reference point ability.

This chapter has introduced the framework of Cognitive Grammar and some basic concepts relevant to this dissertation. The following chapters provide an analysis of *to*-infinitive constructions from a Cognitive Grammar perspective.

¹¹ In Section 2.6, we have seen Langacker’s (2015) claim that the infinitival *to* “usually portrays the profiled event as being future or potential with respect to some reference point (R)” (p. 73). For a discussion of reference point ability, see Section 2.6.

Chapter 3

A Network Model of *to*-Infinitive Constructions Based on the Control Cycle*

3.1. Introduction

This chapter applies the control cycle (see Section 2.8) to an analysis of *to*-infinitive constructions and describes a network for the constructions. Instances of *to*-infinitive constructions are shown to correspond to respective phases of the control cycle, and the cognitive foundation for this classification is specified. The proposed network indicates the distributional information, which is supplied by specific instantiations and lower-level schemas with varying degrees of entrenchment and ease of activation. The network also demonstrates that, in contrast to *that*-clause constructions, most instances of *to*-infinitive constructions cluster in the potential or action phase of the control cycle and typically evoke volitionality and purpose toward *to*-infinitival clauses.

The organization of this chapter is as follows. Section 3.2 reviews previous studies related to the topic examined in this chapter and specifies the issues to be resolved. Section 3.3 classifies examples with *to*-infinitives, based on the control cycle. Section 3.4 describes a network for *to*-infinitive constructions, which supplies a substantial characterization for the constructions. Section 3.5 explains why some examples take *to*-infinitives even though they do not evoke a forward-looking meaning, which prototypically motivates the use of *to*-infinitives (see Langacker 1991: 446; Smith and

* Part of this chapter was presented at the 36th Conference of the English Linguistic Society of Japan held at Yokohama National University (later published in *JELS* 36, Sasaki 2019). I would like to thank the audience for their comments.

Escobedo 2001: 554). Section 3.6 summarizes and reviews my arguments.

3.2. Previous Studies of Classifications of *to*-Infinitives

3.2.1. Previous Studies of *to*-Infinitives

Many previous studies have attempted to explain the use of *to*-infinitives with various matrix verbs (e.g. Dixon 1984; Quirk et al. 1985; Wierzbicka 1988; Langacker 1991, 2008; Verspoor 1999; Smith and Escobedo 2001; Duffley 2003; Smith 2009; Hamada 2016, etc.). Most of these studies agree that *to*-infinitive constructions typically evoke the notion of futurity or potentiality.¹ Of these studies, Smith and Escobedo (2001) and Smith (2009) are the focus of this chapter because they classify *to*-infinitive constructions according to the meaning of the matrix predicate.

3.2.2. Previous Studies of Classifications of *to*-Infinitives and Their Problems

Smith and Escobedo (2001) and Smith (2009) divide the use of *to*-infinitives into four groups as in (1a–d).

- (1) a. Jethro went (out) to feed the pigs.²
b. He does those things to annoy his mother.
c. They want to start a new job.
d. It is difficult/easy to repair a VCR. (Smith and Escobedo 2001: 553–555)

In both (1a) and (1b) the subject performs an action to attain a goal (the *to*-infinitival clause). However, Smith and Escobedo differentiate between examples like these because in (1a) the infinitival *to* retains its spatial, path-like sense, while in (1b) it is a sense of

¹ Chapter 4 discusses in detail the notion of futurity by comparing *to*-infinitive and *-ing* constructions.

² Smith and Escobedo (2001) quote sentence (1a) from Langacker, Ronald W. (1992) “Prepositions as grammatical(izing) elements,” *Leuvense Bijdragen* 81.

purpose rather than a physical path that motivates the directionality of the *to*-infinitive. An example like (1c), which evokes future intention and volition, also reflects the inherent directionality of *to*, they maintain. In sentences like (1d), however, they argue that the *to*-complement does not evoke any kind of purpose, intention or apparent motion toward a goal; the motivation for *to* is that the subordinate process is construed holistically, i.e. as an event in its entirety, from start to finish.

Thus, Smith and Escobedo (2001) and Smith (2009) classify examples of *to*-infinitives in terms of the specificity of the directionality. It is reasonable to assume that the specificity of the directionality of a *to*-infinitive depends on the meaning of its matrix predicate. Besides, in cognitive semantics, meaning is identified as the conceptualization that resides in cognitive processing (see Langacker 2008: 4, 31). Therefore, we need to specify cognitive factors in the matrix predicates in order to classify instances of *to*-infinitive constructions. However, Smith and Escobedo (2001) and Smith (2009) do not specify the cognitive factors that motivate each classification. As a result, a problem arises with respect to their classifications: even though Smith and Escobedo (2001) explain each property of the examples within the same group, their groupings are still groundless. For example, they do not specify any cognitive factors in the matrix predicates to explain why (1a) should be classified as a different group from (1b). While it is true that (1b), unlike (1a), does not designate a spatial, path-like sense, both examples designate the action of a clausal subject and involve purpose toward a goal. On the basis of the cognitive factors in the matrix predicates, which can be explained in terms of the control cycle, examples (1a) and (1b) could therefore be classified together as one group.

To resolve this issue, the present study classifies instances of *to*-infinitives in terms of the control cycle and specifies the cognitive factors in the meanings of the matrix predicates that motivate the classification of the *to*-infinitives.

3.3. *To*-Infinitives and the Control Cycle

3.3.1. The Control Cycle

The control cycle is “a general cognitive model applicable to many aspects of human experience” (Langacker 2009: 130).³ As we have seen in Section 2.8, Langacker (2002, 2009) divides predicates taking a finite clause as a complement, as in (2), into different phases of the control cycle. He claims that the predicates *suspect*, *decide* and *know* respectively represent the potential, action and result phases of the epistemic control cycle.

(2) She suspected/decided/knew that her husband was unfaithful.

(Langacker 2009: 152)

Langacker also states that matrix predicates taking the *to*-infinitive as in (3) pertain to effective control (Langacker 2009: 153) and that predicates of desire and influence as in (3) reflect our efforts to influence what happens.⁴ However, in terms of the control cycle, Langacker focuses on predicates taking finite complements and does not examine in detail predicates taking *to*-infinitives.

(3) a. She wants/hopes/aspires to become an opera diva.

b. She ordered/forced/persuaded her daughter to end the relationship.

(Langacker 2009: 153)

This chapter applies the control cycle to classifying examples involving *to*-

³ Recall the discussion of the control cycle in Section 2.8. For a general discussion of the control cycle, see Langacker (2002, 2009).

⁴ As we have seen in Section 2.8 (footnote 7), the epistemic control cycle is relevant to our effort to acquire knowledge about the world, and the effective control cycle is relevant to our effort to influence what happens (cf. Langacker 2009). Based on Langacker’s analysis, I have argued that the predicates in (3a) and (3b), respectively, represent the potential and action phases of the effective control cycle (see Section 2.8 for details).

infinitives, which corroborates the cognitive foundation for grouping examples with *to*-infinitives.

3.3.2. *To*-Infinitives and the Control Cycle

In this section, I utilize the control cycle to specify the cognitive foundation for grouping examples with *to*-infinitives into several classes. Based on the control cycle, examples involving *to*-infinitives are globally divided into three classes as in (4).

(4) PP: a. I suspected it to be to the contrary.

b. I want to have him in jail.

c. I expect him to resolve his situation with us first.

AP: d. And I did this to take care of a seriously ill parent.

e. That evening, my grandfather went out to feed his animals ...

f. Searching the Internet, we discovered this to be true.

RP: g. I know you to be a resourceful lady.

h. I was surprised to find his wife waiting in the living room. (COCA)

I have selected the eight verbs as in (4) for two reasons. First, the present study requires a wide range of verbs so that there are verbs corresponding to each phase of the control cycle. Second, the present study adopts the verbs discussed in previous studies. For example, Langacker (2009) classifies *suspect*, *expect*, *discover*, *know* and *be surprised* taking finite clauses as complements in terms of the control cycle, while Smith and Escobedo (2001) deal with the verbs *want*, *do* and *go* in order to examine the semantic motivation for the use of *to*-infinitives.⁵

⁵ It should be noted that the matrix predicates examined in this chapter are rather limited due to the preliminary nature of this study, which is a first attempt to apply the control cycle to an analysis of *to*-infinitive constructions. The content of this chapter is confirmed in Chapter 4 with an observation of

The validity of applying the control cycle to classify examples with *to*-infinitives as in (4) stems from the fact that “the Control Cycle represents a fundamental pattern inherent in many aspects of living and functioning in the world” (Langacker 2009: 307). For example, according to Langacker (2009: 307), besides the case of physical capture (see Section 2.8), the control cycle applies to bodily functions like breathing, eating and drinking and, at the social level, to meeting someone new. Given that the control cycle applies to a wide range of phenomena in the world, it follows that matrix clauses with a *to*-infinitive, which symbolize some part of this world, must reside in a certain phase of the control cycle. Furthermore, note that the *to*-infinitive construction as a whole (i.e. a matrix clause plus a *to*-infinitival clause) conceptualizes an event residing in a certain phase of the control cycle, with the *to*-infinitival clause providing essential information and contributing significantly to the construction’s overall conceptual content. In addition, the *to*-infinitive is conceptually dependent on the main clause. For example, the *to*-infinitival clause depends on the matrix clause for the identification of its trajector (Langacker 2008: 438). The matrix clause also predetermines the tense-mood of the *to*-infinitival clause, and the outcome of the *to*-infinitival clause is typically dependent on the agent of the main clause (Croft 2001: 352). Therefore, the *to*-infinitival clauses in (5a–c) designate the object of the desire (5a), the purpose of the action (5b) or the cause of the emotion (5c), depending on whether their matrix clause resides in the potential, the action or the result phase, respectively.⁶

(5) PP: a. I want to win the game.

AP: b. I did my best to win the game.

RP: c. I was delighted to win the game.

more varied matrix predicates.

⁶ Sentences (5a–c) are from an informant.

Compared with *to*-infinitives, other adverbial clauses like the underlined portions in (6a–c) are relatively independent of the main clause and provide supplementary information for the sentence. The adverbial clauses in (6) always supply the background for the matrix clause and are semantically equivalent, regardless of whether their matrix clause designates a desire (6a), an action (6b) or a stable situation where the proposition (*he was nervous*) is an established part of the reality conception, as in (6c).⁷

(6) PP: a. When I danced with him, I wanted to escape from him.

AP: b. When I danced with him, I stepped on his toes.

RP: c. I knew he was nervous when I danced with him.

Therefore, it is not workable to classify adverbial clauses as in (6a–c) in terms of whether their matrix clause resides in the potential, the action or the result phase of the control cycle.

Thus, *to*-infinitival clauses are semantically varied depending on which phase of the control cycle their matrix clause resides in. Therefore, it is valid to globally classify the use of *to*-infinitives in terms of whether their matrix clause designates events in the potential, the action or the result phase of the control cycle.

Let us undertake a detailed examination of the examples in (7) in terms of the control cycle. Sentences (7a–c) are classified as the same group, the rationale of the grouping being that their matrix predicates all represent the potential phase. In (7a–c), the target designated by the *to*-infinitive is in the matrix subject's field of awareness (for a discussion of *suspect* and *expect*, see Langacker (2009)). In (7a), the subject has an impression of the truth (without certain proof) vis-à-vis the target (see NOAD: 1715),

⁷ Sentences (6a–c) are from an informant.

which motivates the *to*-infinitival clause to imply an imaginary state; the subordinate clause is profiled as likely to be true.⁸ In (7b) and (7c), the matrix subject has intentionality or belief directed toward the target, which motivates the *to*-infinitival clause to implicate a future event. None of the matrix subjects in (7a–c) carry out any action, nor do they achieve any result; they simply have an impression, intention or belief vis-à-vis the target (the *to*-infinitival clause).

- (7) PP: a. I suspected it to be to the contrary. (= 4a)
 b. I want to have him in jail. (= 4b)
 c. I expect him to resolve his situation with us first. (= 4c)
 AP: d. And I did this to take care of a seriously ill parent. (= 4d)
 e. That evening, my grandfather went out to feed his animals ... (= 4e)
 f. Searching the Internet, we discovered this to be true. (= 4f)
 RP: g. I know you to be a resourceful lady. (= 4g)
 h. I was surprised to find his wife waiting in the living room. (= 4h)

Next, the reason sentences (7d–f) are grouped together in the same class is that their matrix predicates all represent the action phase. Regarding (7d, e), the actor performs a concrete action (*did this*) or physically moves (*went out*) in order to bring the target designated by the *to*-infinitival clause under his control, which motivates the *to*-infinitival clause to imply a future event. In (7f), the verb *discover* profiles the event of accepting the target (the *to*-infinitival clause), so the example is classified as the same group as (7d, e). However, according to Langacker (2009: 132), the verb *discover* can be seen to represent not only the action phase but also part of the result phase. This is because

⁸ See Egan's (2008: 97–98) examination of judgement constructions as in (i).

(i) For a second he supposed them to be Prussian, then recognized the shape of the cloth-covered helmets. (Egan 2008: 97, from *the British National Corpus*)

discover implicates that the target comes to be established in the conceptualizer's epistemic dominion (see Langacker 2009: 132), and the *to*-infinitival clause implies a reality. As for the verbs *do* and *go* in (7d, e), this study regards them as representing only the action phase because they do not imply that the actor establishes control over the target.

Finally, let us examine sentences (7g, h). These are grouped together because their matrix predicates both represent the result phase. In both (7g) and (7h), the target (the *to*-infinitival clause) is incorporated as part of the matrix subject's knowledge (D). Sentence (7g) states that the conceptualizer knows the content of the target as part of his/her knowledge, which motivates the *to*-infinitival clause to implicate a reality. Sentence (7h) means that the target (the *to*-infinitival clause) causes the matrix subject to experience an emotion, which motivates the *to*-infinitival clause to imply the already established event: a past event.

This section has specified a cognitive foundation for the classification of *to*-infinitives in terms of the control cycle. This section has also indicated that a *to*-infinitival clause implicates various meanings depending on which part of the control cycle its matrix predicate represents. The following section presents a network for *to*-infinitive constructions based on the control cycle.

3.4. A Network Model for *to*-Infinitive Constructions

This section describes a network for *to*-infinitive constructions based on the classification in Section 3.3.2 and demonstrates that, in contrast to other related constructions (*that*-clause constructions), most instances of *to*-infinitive constructions are distributed in the potential and action phases of the control cycle. This characterization of *to*-infinitive constructions explains why instances of *to*-infinitives typically evoke the notion of futurity.

Citing Buchanan (2002), Diessel (2019: 9–10) notes that network models are frequently used across scientific disciplines to analyze a wide range of phenomena (e.g. ecosystems, social relations, the brain, economic circuits, traffic systems, cognitive processes and language). Bearing in mind the limitations of the metaphor⁹, Langacker views linguistic categories as networks (Langacker 2000, 2008). He states that a language comprises an enormous inventory of conventional linguistic units, which are abstracted from usage events; these units are connected by relationships of categorization, both elaboration and extension, and form networks (Langacker 2008: 221–222). Since “the network model is applicable to any category of linguistic relevance” (Langacker 1987: 377), the present study proposes a network for *to*-infinitive constructions and provides an essential characterization for the constructions.

3.4.1. A Usage-Based Approach to *to*-Infinitive Constructions

Networks comprise schemas and their instantiations. However, Langacker (2000: 14-16) notes that lower-level schemas, i.e. structures with greater specificity, have a built-in advantage in categorizing a usage event with respect to higher-level schemas representing what is common to the lower-level schemas, because the finer-grained detail of a low-level schema affords it a larger number of features potentially shared by the target (i.e. a usage event).¹⁰ Langacker also claims that “lower-level schemas are

⁹ Langacker (2008) states that, like any metaphor, “the network model is useful because it captures some essential properties of complex categories: that there are multiple variants, that these are related in certain ways, and that some are more central (or easily elicited) than others” (p. 227). On the other hand, he notes that the discreteness the model implies should not be taken too seriously. The model suggests that “a category has an exact number of clearly distinct members, that it exhibits a unique configuration defined by a specific set of categorizing relationships, and that a target of categorization can always be assigned to a particular category member,” he argues (p. 227).

¹⁰ According to Langacker (2000: 16), the amount of overlap between the target and a potential categorizing structure is one of the factors that determine which particular member of potential categorizing structures categorizes the target. For a discussion of schema competition (i.e. competition for the right to categorize a linguistic unit), see also Taylor (2002: ch. 16).

frequently invoked and thus essential to language structure” (2008: 237).¹¹ Therefore, the present study represents the low-level schemas specifying each verb co-occurring with *to*-infinitives as in (8a–h), which categorize actual instances like (7a–h). The ellipses without parentheses ‘...’ and with parentheses ‘(...)’ indicate, respectively, whether taking a nominal (or adverbial) expression before the *to*-infinitival clauses is obligatory or not.

- (8) PP: a. [suspect ... *to*-INF]
 b. [want (...) *to*-INF]
 c. [expect (...) *to*-INF]
 AP: d. [do (...) *to*-INF]
 e. [go (...) *to*-INF]
 f. [discover ... *to*-INF]
 RP: g. [know ... *to*-INF]
 h. [surprised *to*-INF]

The network the present study describes supplies a substantial characterization for *to*-infinitive constructions by indicating the degree of entrenchment of each low-level schema in (8). Entrenchment is defined as pertaining “to how frequently a structure has been invoked and thus to the thoroughness of its mastery and the ease of its subsequent activation” (Langacker 1991: 45).¹² Therefore, by indicating the degree of entrenchment

¹¹ Croft (2003) also argues for the construction schema specifying each verb that occurs in the construction. For example, he adopts constructional representations—what he calls *verb specific constructions*—as in (i).

(i) a. [[SBJ *permit* OBJ1 OBJ2]/[enabling XPoss by permitting]]
 b. [[SBJ *allow* OBJ1 OBJ2]/[enabling XPoss by allowing]] (Croft 2003: 58)

On the other hand, Goldberg (1995) adopts constructional representations that are more abstract than those of Croft.

¹² For a discussion of entrenchment, see also Hayase and Horita (2005: ch. 4) and Schmid (2007: 118–119).

of the low-level schemas, the network provides the distributional information of specific instantiations of *to*-infinitive constructions.

A usage-based study such as this requires hard data, so a random sample was collected from COCA. The search for examples was conducted in terms of the low-level schemas in (8), and the collected examples were limited to those containing a *to*-infinitive either immediately following the matrix verb or with fewer than four words intervening.¹³ Table 3.1 shows the result of the corpus study.¹⁴

In the table, ‘COCA’ indicates the total number of quoted instances. ‘Totals per 1,000’ indicates the number of actual instances of each low-level schema among the 1,000 pieces of collected data. ‘Projected totals’ indicates the total number of instances estimated to occur in COCA as a whole on the basis of the figures in ‘Totals per 1,000’ and ‘COCA’. In order to examine the degree of entrenchment of each low-level schema, the present study focuses on the projected totals.¹⁵ Sentences (9)–(16) are some of the downloaded instances.¹⁶

¹³ Without this limitation, the quoted instances would include a large number of examples that are irrelevant to the present study, as in (i), where *know* does not take the *to*-infinitive as its complement.

(i) But he *knew* a magistrate had ordered him *to arrest* Faine ... (COCA)

The present study’s limitation on the number of words between the matrix verb and the *to*-infinitive is based on empirical research. I examined 500 examples containing the matrix verb *want* followed by a *to*-infinitive in COCA. Of these examples, 413 are instances of *to*-infinitive constructions, 405 of which contain the *to*-infinitive following the matrix verb either immediately or with fewer than four words intervening. Besides, the present corpus study excludes *wh*-infinitives as in (ii) below because scholars (e.g. Biber et al. 1999: 685; Diessel 2004: ch. 4; Egan 2008: 12) classify the *wh*-infinitive as a different group from the *to*-infinitive as a post predicate complement or modifier.

(ii) You don’t know *what to say* to a woman who’s giving their child to you ... (COCA)

¹⁴ The format of Tables 3.1 and 3.2, which we will consider later, is based on Egan’s (2008) tables.

¹⁵ As for [do/go (...) *to*-INF] and [know ... *to*-INF], the number of totals per 1000 is not large because, in addition to *to*-infinitive constructions, many other uses are included in the collected instances. However, in terms of COCA as a whole, [do/go (...) *to*-INF] is considered to be highly entrenched, and [know ... *to*-INF] is more entrenched than [suspect ... *to*-INF], [discover ... *to*-INF], or [surprised *to*-INF].

¹⁶ The instances of [suspect/want/expect/surprised (...) *to*-INF], [do (...) *to*-INF] and [go/discover/know (...)/*to*-INF] were collected on 14, 15 and 17 October 2020, respectively.

Low-level schema	Phases	COCA	Totals per 1,000	Projected totals
[suspect ... <i>to</i> -INF]	PP	1,438	286	411
[want (...) <i>to</i> -INF]	PP	1,112,555	987	1,098,092
[expect (...) <i>to</i> -INF]	PP	113,561	994	112,880
[do (...) <i>to</i> -INF]	AP	674,390	236	159,156
[go (...) <i>to</i> -INF]	AP	909,427	220	200,074
[discover ... <i>to</i> -INF]	AP	2,609	212	553
[know ... <i>to</i> -INF]	RP	163,840	86	14,090
[surprised <i>to</i> -INF]	RP	8,499	965	8,202

Table 3.1: Projected Totals for *to*-Infinitive Constructions

- (9) a. *We suspect it to be* the environment.
b. You simply *suspect it to be* true.
- (10) a. I *want to read* all the Harry Potter books in my room in a week ...
b. I *want you to give* him this.
- (11) a. I *expect to see* more records in the upcoming decade.
b. I *expect her to protect* herself ...
- (12) a. ... he *did* everything he could *to shoot* around it ...
b. I *did* this *to see* how it would be received.
- (13) a. I *went out to get* the mail at my house in Beverly Hills a few minutes ago ...
b. ... and he *went on to own* a big fancy store of his own.
- (14) a. I also *discovered it to be* truly challenging to me ...
b. When I was *discovered to have* breast cancer, I had just turned 40.
- (15) a. You *know me to be* a professional school counselor ...
b. Sir William Murphy, a wealthy farmer, for example, is *known to have* built an eight-year primary school for 270 children.

(16) a. ... I was *surprised to find* out it was a self-published book.

b. ... I was *surprised to discover* that he had taken up etching. (COCA)

First, we can say that the low-level schema [want (...) *to*-INF] has the highest degree of entrenchment because the number of projected totals is the largest among the low-level schemas. The projected totals of the low-level schemas [expect (...) *to*-INF] and [go/do (...) *to*-INF] are also relatively larger, which means they have a higher degree of entrenchment. The degree of entrenchment of the other low-level schemas, especially [suspect ... *to*-INF] and [discover ... *to*-INF], is comparatively low.

Based on the control cycle and the corpus study in Table 3.1, a network for *to*-infinitive constructions is shown in Figure 3.1. The low-level schemas, which categorize specific instantiations of *to*-infinitives as in (4) and (9)–(16), are divided into three groups, represented as [Potential/Action/Result Predicate *to*-INF]. The higher-level schemas emerge through extracting the commonality inherent in the lower-level schemas. This process, represented by the dotted arrows in Figure 3.1, is called schematization (see Langacker 1991, 2000, 2008). The relationships between the higher-level schemas and the lower-level schemas that elaborate them are represented by the solid arrows.¹⁷

¹⁷ Figure 3.1 implies that the low-level schemas (e.g. [want (...) *to*-INF]) categorize actual instances (e.g. (9)–(16)), which are simplified in the diagram.

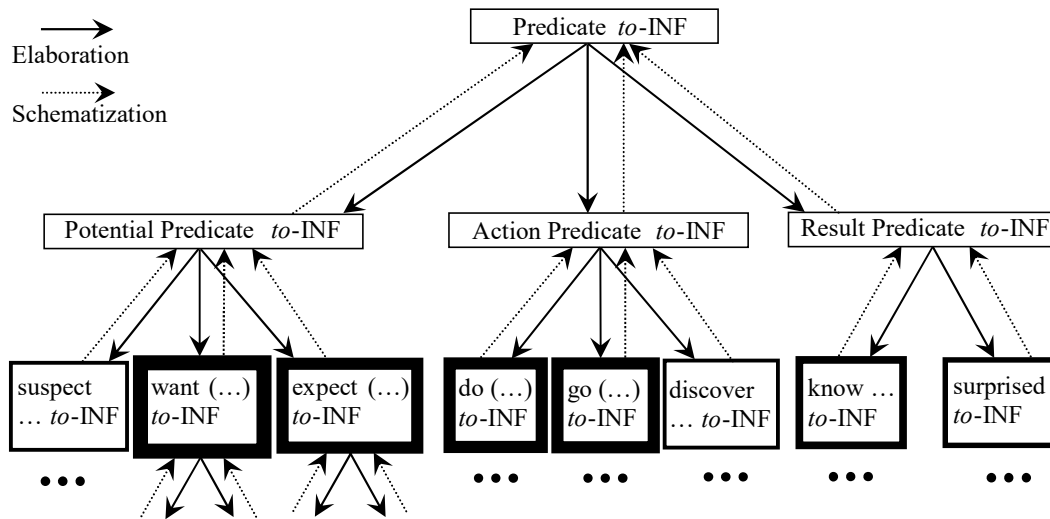


Figure 3.1: A Network of *to*-Infinitive Constructions

The proposed network is usage-based in two respects. First, the network consists of low-level schemas that are abstracted from actual usage events, as in (4) and (9)–(16), and of higher-level schemas representing what is common to the lower-level schemas. Second, the network reflects the actual usage data from COCA and represents the degree of entrenchment of each low-level schema. The thickness of each box of the low-level schemas indicates the degree of entrenchment: the highly entrenched low-level schemas [want/expect (...) *to*-INF] and [do/go (...) *to*-INF] are represented by bolder boxes; the low-level schemas [know ... *to*-INF] and [surprised *to*-INF] are represented by less bold boxes; and [suspect ... *to*-INF] and [discover ... *to*-INF] by thinner boxes. However, all the low-level schemas are represented by bolder boxes than the higher-level schemas, [Potential/Action/Result Predicate *to*-INF] and [Predicate *to*-INF], which is the highest-level schema in the present network. Lower-level schemas are more frequently activated and entrenched than higher-level schemas because lower-level schemas have a built-in advantage in categorizing a usage event (see Langacker 2000: 14–16).¹⁸

¹⁸ Chapter 4 will describe, in terms of the control cycle, a network of complement clause constructions

As shown in the network, the highly entrenched low-level schemas [want/expect/do/go (...) *to*-INF] are distributed between [Potential Predicate *to*-INF] and [Action Predicate *to*-INF]. This is because in the potential or the action phase, the actor (or conceptualizer) either has volition or belief (as in (17a, b)) or takes some action (as in (17c, d)) toward the target (the *to*-infinitive); so a potential or action predicate involving a *to*-infinitive typically evokes a forward-looking meaning (i.e. volition, belief, purpose or physical path), which prototypically motivates the use of the *to*-infinitive (see Smith and Escobedo 2001).

- (17) PP: a. I want to have him in jail. (= 4b)
 b. I expect him to resolve his situation with us first. (= 4c)
 AP: c. And I did this to take care of a seriously ill parent. (= 4d)
 d. That evening, my grandfather went out to feed his animals ... (= 4e)

As we have seen in Section 2.6, Langacker (2015: 73) claims that the infinitival *to* “usually portrays the profiled event as being future or potential with respect to some reference point (R)”. Based on this claim, the present study argues that reference point ability is immanent in the forward-looking meaning directed toward the infinitive’s event in (17a–d). When the conceptualizer construes the notions of volition (17a), belief (17b) or purpose (17c, d) directed toward the infinitive’s event, she first accesses the matrix subject’s desire (17a), *him* (17b) or the matrix subject’s action (17c, d) as a reference point to establish mental contact with the event (the target). This study maintains that subjective directionality lies in the mental access from the reference point to the target. (For a discussion of the notions of reference point ability and the subject of conception, see Sections 2.6, 2.9.) Note that reference point ability and the subjective directionality based

(i.e. *to*-infinitive, *-ing*, *that*-clause constructions).

on this ability are invoked in all instances of *to*-infinitive constructions—including atypical instances corresponding to the result phase, like (15a, b) and (16a, b)—and retained in the highest-level schema [Predicate *to*-INF] in Figure 3.1. Section 3.5 will discuss in detail the reference point ability and subjective directionality invoked in instances like (15a, b) and (16a, b).

Let us now consider example (18), which implies that the subordinate clause is realized: it is implicated that the clausal subject actually owned a big fancy store.

(18) ... and he went on to own a big fancy store of his own. (= 13b)

The present study argues that the matrix predicate in (18) represents the action phase just as in (17d) because it entails that the clausal subject proceeded to carry out the target (the *to*-infinitival clause).¹⁹ Besides, examples like (18) imply a future orientation just as do examples like (17d) because “[i]f you go on to do something, you do it after you have done something else” (CCALD: 659), and with respect to ‘having done something else’, ‘going on to do something’ is a future event.

3.4.2. Less Well Entrenched Low-Level Schemas and *that*-Clause Constructions

Compared with the four low-level schemas [want/expect/do/go (...) *to*-INF] in the potential and action phases, the low-level schemas [know ... *to*-INF] and [surprised *to*-INF] in the result phase do not have a high degree of entrenchment. This is because they are in the result phase, where the target (the *to*-infinitive) is already incorporated as part of the conceptualizer’s knowledge, i.e. dominion (D).²⁰ Therefore, unlike sentences such

¹⁹ The collected instances of [go (...) *to*-INF] include not only examples like (17d), which evoke movement toward the target (the *to*-infinitive), but also examples like (18), which do not evoke such movement. The present study treats both (18) and (17d) as variants of [go (...) *to*-INF] because both examples correspond to the action phase and use the same predicate *go* to profile the process.

²⁰ As for examples like (i), the conceptualizer is generalized and not necessarily a particular individual.

as (17a–d), examples like (19a, b) and (15a, b) or (16a, b) do not evoke a forward-looking meaning, which means they are not prototypical instances of *to*-infinitive constructions.²¹

(19) RP: a. I know you to be a resourceful lady. (= 4g)

b. I was surprised to find his wife waiting in the living room. (= 4h)

Let us examine the low-level schemas [suspect ... *to*-INF] and [discover ... *to*-INF], whose degree of entrenchment is much lower than that of the other low-level schemas. These two low-level schemas are categorized as [Potential Predicate *to*-INF] and [Action Predicate *to*-INF], respectively. However, we have seen that the low-level schemas categorized by [Potential/Action Predicate *to*-INF] tend to have a higher degree of entrenchment (e.g. [want/expect/do/go (...) *to*-INF]) because the actor (or conceptualizer) has volition or a belief toward the target, as in (17a, b), or takes some action to incorporate the target into her dominion, as in (17c, d); forward-looking meanings motivate the use of the *to*-infinitive (cf. Smith and Escobedo 2001). So why do the two low-level schemas [suspect/discover ... *to*-INF] have a much lower degree of entrenchment, even though they correspond to the potential or action phase?

First, examples like (20a) below correspond to the potential phase, just as do examples like (20b). However, while the verb *expect* is defined as “regard (something) as likely to happen” (NOAD: 609), the verb *suspect* is defined as “have an idea or impression of the existence, presence, or truth of (something) without certain proof” (NOAD: 1751).

(i) Sir William Murphy, a wealthy farmer, for example, is *known to have* built an eight-year primary school for 270 children. (= 15b)

²¹ In examples like (19b), emotional directionality toward the target (the *to*-infinitive) is evoked, motivating the use of the *to*-infinitive; Section 3.5. will discuss this issue. Section 3.5 will also examine the motivation for the use of the *to*-infinitive in examples like (19a), and (ia, b) below, in terms of the control cycle.

(i) a. I suspected it to be to the contrary. (= 4a)
b. Searching the Internet, we discovered this to be true. (= 4f)

Therefore, in contrast to (20b), examples like (20a) do not evoke a forward-looking meaning, but rather an impression of the truth (without certain proof) vis-à-vis the target. Besides, given the definitions of the verbs *expect* and *suspect*, the present study maintains that, while examples like (20b) reside in a stage where the actor has belief directed toward the target—a local stage that is very close to the action phase—examples like (20a) are further removed from the action phase. Thus, examples like (20a) do not reside in the local stage where the conceptualizer/actor has a forward-looking meaning toward the target as in (20b), and that is why the low-level schema [suspect ... *to*-INF] has a low degree of entrenchment.

(20) PP: a. I suspected it to be to the contrary. (= 4a)

b. I expect him to resolve his situation with us first. (= 4c)

Next, the low-level schema [discover ... *to*-INF] categorizes examples like (21a) and (14a, b). This low-level schema is categorized as instances of [Action Predicate *to*-INF]. However, as we have seen in Section 3.3.2, the verb *discover* represents not only the action phase but also part of the result phase. This means that examples like (21a) are not prototypical instances of the action phase, unlike (21b, c), which represent only the action phase. Also, because *discover* as in (21a) represents part of the result phase and implicates that the target (the *to*-complement) comes to be established in the conceptualizer's epistemic dominion, the instances categorized by [discover ... *to*-INF] do not evoke a forward-looking meaning toward the target. That is why the low-level schema [discover ... *to*-NF] has a low degree of entrenchment.²²

²² Bear in mind that the phase of the control cycle to which a low-level schema belongs is determined by the meaning of the matrix predicate in the construction as a whole, rather than its compatibility with the *to*-infinitive. Besides, the reason why the low-level schemas [suspect/discover ... *to*-INF] are less well entrenched than [know ... *to*-INF] is that the verb *know* is more entrenched as a component of constructions that specify its various morphological realizations than are the verbs *suspect* and

- (21) AP: a. Searching the Internet, we discovered this to be true. (= 4f)
 b. And I did this to take care of a seriously ill parent. (= 4d)
 c. That evening, my grandfather went out to feed his animals ... (= 4e)

Thus, a network providing an essential characterization for *to*-infinitive constructions has been described, based on the control cycle. That is, in *to*-infinitive constructions, their actual instantiations cluster locally in the regions of [want/expect (...) *to*-INF] and [do/go (...) *to*-INF], and the highly entrenched low-level schemas are distributed between the potential and action phases, where the actor has some intention or belief or carries out some action toward the target. Note that this characterization of *to*-infinitive constructions explains why instances of *to*-infinitives typically evoke the notion of futurity or potentiality (see Dixon 1984: 590; Quirk et al. 1985: 1191; Wierzbicka 1988: 165; Langacker 1991: 445–446, 2009: 301, 2015: 73; Smith and Escobedo 2001: 553–554).²³

Compared with *to*-infinitive constructions, *that*-clause constructions provide different distributional information. Let us examine several verbs taking a *that*-clause as in (22). The low-level schemas categorizing examples like (22) are represented in (23).

- (22) PP: a. I expect that he will abandon the attempt before too long.
 b. Scientists suspect that human VLPO neurons are similar to those in mice,
 but more experiments are needed ...

discover. Note that the verb *know* occurs in more than 1,200,000 instances in COCA, whereas the verbs *suspect* and *discover* occur in only about 22,000 and 56,000 instances, respectively (observed on 29 May 2019).

²³ In contrast, the use of *-ing* is typically motivated by sameness of time or temporal overlap between the matrix and subordinate processes (see Wierzbicka 1988: 60–73; Langacker 1991: 445, 2008: 439; Smith and Escobedo 2001: 556–559). Chapter 4 compares *to*-infinitive constructions with *-ing* constructions in terms of the control cycle.

AP: c. The team discovered that some trees had many different kinds of insects

...

RP: d. And, everybody knows that Houston needs more police officers.

(COCA)

(23) PP: a. [expect that ...]

b. [suspect that ...]

AP: c. [discover that ...]

RP: d. [know that ...]

In order to examine the degree of entrenchment of each low-level schema in (23), examples of the four verbs with a *that*-clause immediately following the matrix predicate were collected from COCA. Table 3.2 shows the result of the corpus study.²⁴

Low-level schema	Phases	COCA	Totals per 1,000	Projected totals
[expect that ...]	PP	6,715	818	5,493
[suspect that ...]	PP	5,567	960	5,344
[discover that ...]	AP	11,193	968	10,835
[know that ...]	RP	105,658	809	85,477

Table 3.2: Projected Totals for *that*-Clause Constructions

Note that in Table 3.2, as shown in ‘Projected totals’, the verbs *suspect*, *discover* and *know* have a much higher degree of entrenchment in *that*-clause constructions than when they take *to*-infinitival clauses as in Table 3.1. On the other hand, *expect* has a much lower

²⁴ The instances of [expect/suspect/discover that ...] and [know that ...] were collected on 5 and 4 May 2019, respectively.

degree of entrenchment than when it takes the *to*-infinitive as in Table 3.1. In addition, in contrast to *to*-infinitive constructions, we can reasonably assume that most of the *that*-clause constructions cluster in the result phase ([know that ...]) rather than the potential and action phases ([expect/suspect/discover that ...]).²⁵ So why are there such distributional differences between *to*-infinitive constructions and *that*-clause constructions?

Let us first observe the difference between the *to*-infinitive and the *that*-clause as in (24).

(24) a. Jane knows her to be intelligent.

b. Jane knows that she is intelligent. (Riddle 1975: 470)

Riddle (1975) claims that while (24a) expresses that the woman's intelligence is merely Jane's opinion, (24b) entails that "the woman's intelligence is attested to by an outside source" (p. 471) (see also Borkin 1973: 45–46; Langacker 1991: 450). Given Riddle's interpretation, we can say that the *to*-infinitive is more appropriate when the subordinate clause is construed as a personal opinion, whereas the *that*-clause is more appropriate when the subordinate clause is construed as a fact.

Based on this difference between the two types of subordinate clause, let us consider why the verbs *suspect*, *discover* and *know* are more compatible with the *that*-clause than with the *to*-infinitive, whereas *expect* is not. First, observe the following definitions of *know* (25a), *discover* (25b) and *suspect* (25c).

(25) a. If you **know** a fact, a piece of information, or an answer, you have it correctly

²⁵ Chapter 4 supports this assumption by observing instances from COCA that collocate with more varied matrix predicates.

in your mind. (CCALD: 840)

b. If you **discover** something that you did not know about before, you become aware of it or learn of it. (CCALD: 427)

c. You use **suspect** when you are stating something that you believe is probably true, in order to make it sound less strong or direct. (CCALD: 1520)

Based on the definition in (25a), *know* is more compatible with a complement meaning a fact rather than a personal opinion because the matrix subject is certain that the proposition is correct; it is thus incorporated as part of her knowledge, which comprises what is accepted as fact. Also, based on (25b), *discover* is more appropriate when the complement means a fact rather than a personal opinion because the matrix subject learns that the proposition is incorporated as part of her knowledge—the definition of *learn* being “If you learn something, you obtain knowledge or a skill through studying or training” (CCALD: 860). In addition, although the subordinate clause of *suspect* does not imply a reality (see Section 3.3.2), *suspect* does nonetheless involve the notion of a fact, which motivates the use of the *that*-clause. That is, based on the definition in (25c), the matrix subject is stating that something she believes is probably incorporated as part of her knowledge, comprising what is accepted as fact, rather than as her personal opinion. Thus, since the notion of a fact figures in the verbs *suspect*, *discover* and *know*, these verbs typically take the *that*-clause rather than the *to*-infinitive.

In contrast to these three verbs, the notion of a fact is not apparent in *expect*. Observe the following definition.

(26) If you **expect** something to happen, you believe that it will happen.

(CCALD: 529)

As defined in (26), when you expect something to happen, your interest lies in whether the event will happen rather than in whether the event will be accepted as fact. Also, recall that the verb *expect* evokes a forward-looking meaning. Therefore, *expect* typically takes a *to*-infinitive rather than a *that*-clause.

In addition, as we have seen in Table 3.2, many instances of *that*-clause constructions are distributed in the result phase. This is because a *that*-clause is more compatible with the subordinate clause being construed as a fact, and a fact is accepted as such when the proposition is incorporated as part of the conceptualizer's knowledge, i.e. as part of the conceptualizer's epistemic dominion.

Thus, by examining *to*-infinitive and *that*-clause constructions in terms of the control cycle, the present study specifies a cognitive basis for essentially characterizing the two constructions. That is, *to*-infinitive constructions are characterized as reflecting the distributional information that most actual instances cluster in the potential and action phases of the control cycle. In contrast, *that*-clause constructions are characterized as reflecting the distributional information that many instances cluster in the result phase. The following section will explain why instances of [know/suspect/discover ... *to*-INF] (e.g. (19a), (20a), (21a)) take a *to*-infinitive even though they do not evoke a forward-looking meaning.

3.5. Non-prototypical Examples

First, let us examine examples (27a–c) in terms of the control cycle.²⁶

(27) PP: a. I suspect Mary to be a Mormon.

²⁶ Sentence (27c) is quoted from Wierzbicka (1988), but sentences (27a, b) are from an informant. Also, see Langacker's (2009: 308) argument that *suspect*, *learn* and *know* represent successive phases of the control cycle. The present study replaces *learn* with *discover*, which also represents the action phase.

AP: b. I discovered Mary to be a Mormon.

RP: c. I know Mary to be a Mormon. (Wierzbicka 1988: 51)

In order to incorporate the target ‘Mary to be a Mormon’ into the conceptualizer’s dominion as in (27c), it is natural to pass through the potential and action phases of (27c), as in (27a, b). Even though sentences (27a, b) do not evoke a forward-looking meaning, they do evoke directionality, which motivates the use of the *to*-infinitive. In (27a, b), the conceptualizer has the mental attitude of suspicion (27a) or performs the act of discovering (27b) in order to incorporate the target (the *to*-infinitival clause) into her dominion (knowledge). In these phases, the mental attitude or the action leads the matrix subject to the conclusion that Mary is a Mormon. In other words, Mary is directed to being a Mormon by the mental attitude or the action. Therefore, directionality is evoked between Mary and the state of being a Mormon in (27a, b).

The directionality evoked in (27a, b) is diagrammed as in Figure 3.2.

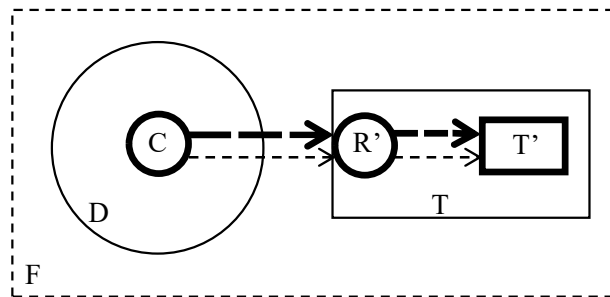


Figure 3.2: A Conceptual Structure of (27a, b)

The bold circle (C) represents the conceptualizer (that is, the matrix subjects in (27a, b)), and the bold dashed arrow from C represents the mental attitude ‘suspecting (27a)’ or the action ‘discovering (27b)’. Since (27a) resides in the potential phase and (27b) in the action phase, the target (T) (‘Mary to be a Mormon’) represented by the thin box is not

incorporated into the dominion (D). In the box, the bold circle represents Mary and the bold box the *to*-infinitival clause. The directionality evoked between Mary and the *to*-infinitival clause is represented by the bold dashed arrow between them. This study claims that this directionality is what motivates the use of the *to*-infinitive in examples like (27a, b).

Here, we have to recognize that reference point ability is immanent in the directionality. When the conceptualizer (C) directs her mental attitude to the subordinate clause or discovers the content of the subordinate clause, she (C) first has to direct her attention to Mary as a reference point (R') to establish mental contact with the state of *Mary* being a *Mormon* (T') (see Langacker 2015: 73).²⁷ This reference point ability is represented by the thin dashed arrows in Figure 3.2.

Note that the reference point ability that is immanent in the relatively objective directionality of examples like (27a, b) is also applied to examples like (27c) in the result phase. Example (27c) is diagrammed as in Figure 3.3.

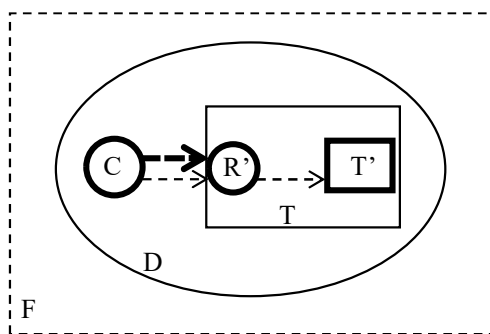


Figure 3.3: A Conceptual Structure of (27c)

²⁷ As we have seen in Section 2.6, Langacker (2015: 73) claims that the infinitival *to* “usually portrays the profiled event as being future or potential with respect to some reference point (R)”. The prime symbol (') is used to represent the reference point and the target as in R' and T' because we need to distinguish between the elements in a reference point relationship and those in the control cycle.

The matrix subject (C) mentally accesses (represented by the bold dashed arrow) the target (T) and, unlike (27a, b), incorporates the target as part of her knowledge (D) with certainty and without taking any action. Therefore, in (27c), nothing directs Mary to being a Mormon. This is represented by the omission of a bold arrow between Mary (represented by the bold circle) and the *to*-infinitival clause (represented by the bold box). However, even though the relatively objective notion of directionality has faded away, the reference point ability that is immanent in the objective directionality of (27a, b) still remains in (27c). According to Langacker (2008: 517–518), when we conceptualize a process, the subject of the clause is a reference point with respect to the profiled relationship. Therefore, as shown in Figure 3.3, when the conceptualizer (C) apprehends the subject-predicate relationship between *Mary* and a *Mormon*, she (C) first directs her attention to *Mary* as a reference point (R'), and then mentally accesses the state of *Mary* being a *Mormon* as the target (T'), wherein lies subjective directionality from *Mary* to being a *Mormon*.

Thus, by examining examples like (27c) in the successive phases of the control cycle, we can observe that the reference point ability inherent in the relatively objective directionality²⁸ of (27a, b) is naturally applied to (27c)—where the objective notion of directionality fades away²⁹—and motivates the use of the *to*-infinitive in (27c). As demonstrated in Section 3.4.1, reference point ability and the subjective directionality based on this ability are invoked in all instances of *to*-infinitive constructions and retained

²⁸ The directionality evoked between *Mary* and the state of being a *Mormon* in (27a, b) is construed objectively and is more salient than the reference point ability inherent in the directionality. In (27a, b), *Mary* is directed to being a *Mormon* by the mental attitude (27a) or the action (27b), so objective directionality is evoked between *Mary* and the state of being a *Mormon*. On the other hand, in (27c), nothing directs *Mary* to being a *Mormon*, so the objective notion of directionality is attenuated. However, in (27c), the conceptualizer directs her attention to *Mary* as a reference point, and then accesses the state of *Mary* being a *Mormon* as the target, wherein lies subjective directionality from *Mary* to being a *Mormon*. For a discussion of the subject and object of conception, see Section 2.9.

²⁹ As we have seen in Section 2.9, Cognitive Grammar calls such linguistic phenomena subjectification (Langacker 2008).

in the highest-level schema in Figure 3.1; the highest-level schema retaining reference point ability and subjective directionality defines a complex category comprising multiple variants of *to*-infinitive constructions.³⁰ Note that the notion of futurity or potentiality (see Quirk et al. 1985; Wierzbicka 1988, etc.) cannot explain the motivation for the use of the *to*-infinitive in (27c).

Finally, let us consider why instances of [surprised *to*-INF] as in (28), which also reside in the result phase and do not evoke the notion of futurity, take the *to*-infinitive.

(28) I was surprised to find his wife waiting in the living room. (= 4h)

In (28), the cause (*to find his wife waiting in the living room*) is construed as being conceptually distant from the emotion (*being surprised*) because the matrix subject felt the emotion not in the course of finding, but after she had found. Therefore, the emotion is directed toward the conceptually distant event (the cause); if the emotion were not directed to the event, the event would not be interpreted as the cause of the emotion. Inherent in emotional directionality is reference point ability. That is, in (28), the conceptualizer, who is identified with the matrix subject, first directs her attention to the emotion (*being surprised*) as a reference point and then accesses the subordinate clause (*to find his wife waiting in the living room*) as the cause of the emotion (the target) out of a set of potential targets (e.g. *to hear the news*); these potential targets are in the vicinity of the emotion and hence accessible via the emotion. The present study argues that emotional directionality involving reference point ability motivates the use of the *to*-infinitive in instances like (28).³¹

³⁰ Langacker (2000: 31) notes that “[t]he highest-level constructional schema may define a vast space of structural possibilities” (i.e. define a complex category comprising multiple variants).

³¹ Citing Langacker (2015: 73) and Sasaki (2020), Hamada (2020: 65–66) also suggests that a matrix clause as in (i) is a reference point with respect to the infinitive’s event.

(i) John was delighted to hear the news. (Hamada 2020: 65)

3.6. Conclusion

This chapter has described a network based on the control cycle that specifies a cognitive basis for characterizing *to*-infinitive constructions in relation to *that*-clause constructions. That is, most actual instances of *to*-infinitive constructions are distributed between the potential and action phases of the control cycle, in contrast with *that*-clause constructions, most of which cluster in the result phase. This chapter has shown that the category of *to*-infinitive constructions does not grow haphazardly, but within the range of the control cycle.

Chapter 4

Nonfinite Clauses and the Control Cycle

4.1. Introduction

In Chapter 3, we have seen that most instances of the *to*-infinitive construction cluster in the potential and action phases of the control cycle. This chapter confirms this observation by analyzing a wider variety of matrix predicates involved in the construction. This chapter also compares *to*-infinitive constructions with *-ing* constructions in order to further specify the properties of the *to*-infinitive. The comparison of the *to*-infinitive and the *-ing* form has been one of the central interests in the study of nonfinite clauses to date. Enlarging on previous studies (e.g. Wierzbicka 1988; Langacker 1991, 2008; Verspoor 1996, 1999; Duffley 2000, 2003, 2006; Smith and Escobedo 2001; Smith 2009; Hamada 2016), this chapter examines, in terms of the control cycle¹ (Langacker 2002, 2009), instances of *to*-infinitive and *-ing* constructions involving various matrix predicates and specifies the differences between the two contrasting constructions.

There is a broad consensus among scholars that typical instances of *to*-infinitive constructions evoke a future orientation between the matrix and subordinate processes, as in (1a, b), while *-ing* constructions typically evoke temporal overlap, as in (2a, b). This is not always the case for either construction, however, as illustrated in (1c) and (2c).

(1) a. I want to kiss a frog. (Langacker 2008: 438)

b. He did it just to annoy her. (Langacker 1991: 446)

¹ Section 2.8 discusses in detail the notion of the control cycle.

c. It is difficult/easy/tough/important/dangerous to repair a machine like that.
(Smith 2009: 375)

(2) a. She kept dancing. (Wierzbicka 1988: 24)

b. She enjoyed swallowing that spider. (Langacker 2008: 413)

c. Stan considered spending a year in Europe. (Smith 2009: 378)

Applying the idea of the control cycle to the phenomenon of the *to*-infinitive and *-ing*, this chapter argues that instances of *to*-infinitive and *-ing* constructions are distributed in the potential, action and result phases of the control cycle, which causes instances of the two constructions to be globally divided into three groups. Also, this chapter empirically shows that many instances of *to*-infinitive constructions cluster in the potential phase of the control cycle, while *-ing* constructions tend to occur in the action phase. This confirms the previous suggestions that *to*-infinitive constructions typically represent futurity and *ing* constructions temporal overlap.

The organization of this chapter is as follows. Section 4.2 reviews previous studies related to the topic of this chapter. Section 4.3 examines various uses of *to*-infinitives and *-ing* in terms of the control cycle. Section 4.4 compares the two nonfinite clauses with *that*-clause constructions. Section 4.5 examines matrix predicates taking either the *to*-infinitive or the *-ing* form. Section 4.6 summarizes and reviews the arguments presented in this chapter.

4.2. Previous Studies of Nonfinite Clauses

4.2.1. Future Orientation vs. Temporal Overlap

As we have seen in Chapters 1 and 3, many previous studies of the *to*-infinitive agree that *to*-infinitive constructions typically evoke futurity (Wierzbicka 1988: 165; Langacker 1991: 445–446, 2009: 301, 2015: 73; Smith and Escobedo 2001: 553–554; Smith 2009:

369–373) or potentiality (Dixon 1984: 590; Quirk et al. 1985: 1191; Huddleston and Pullum 2002: 1241; Langacker 2015: 73). On the other hand, previous studies of *-ing* state that the *-ing* complement is typically motivated by sameness of time (Wierzbicka 1988: 60–73) or temporal overlap (Langacker 1991: 445, 2008: 439; Smith and Escobedo 2001: 556–559; Smith 2009: 376–377) between the matrix and subordinate processes. Smith and Escobedo (2001: 556–559) claim that this temporal overlap is one aspect of the more general conceptual overlap involved in *-ing* complementation.

Previous studies attribute the notion of futurity or potentiality to the infinitival *to* (cf. Langacker 1991: 446; Smith and Escobedo 2001: 552–554; Smith 2009: 368–373), which is construed as a path or movement leading to the actualization of an infinitive’s event (cf. Duffley 1992: 16–17, 2003: 350, 2006: 26, 2020: 41–42; Smith and Escobedo 2001: 552–554; Smith 2009: 368–373).

As we have seen in Section 2.5, Langacker (1991, 2008) argues that *-ing* focuses attention on some internal portion of a verbal process by imposing on the process a limited immediate scope (IS), i.e. the portion directly relevant for a particular purpose (see Figure 2.7 (b) in Section 2.5). In contrast, he notes that an infinitive profiles all the component states of the process (see Figure 2.7 (a) in Section 2.5). With *-ing*, Verspoor (1996: 438) states that “[t]he conceptualizer (speaker/viewer) (C) construes an event (E) as seen from very close-by so that his perceptual field includes an event in progress, but the boundaries of the event [...] are not within his perceptual scope”. Therefore, in order to impose a limited scope (IS) on the process, the conceptualizer (or the matrix subject, e.g. *she* in (2b)) necessarily construes the subordinate process at close range, so a temporal (or more general conceptual) overlap is evoked between the matrix and subordinate processes.

4.2.2. Remaining Issues

Several previous studies classify various uses of the *to*-infinitive and the *-ing* form.

For example, Smith and Escobedo (2001) and Smith (2009) classify instances of *to*-infinitive and *-ing* constructions in terms of the notions of directionality and conceptual overlap, respectively.²

As we have seen in Chapter 3, Smith and Escobedo (2001) and Smith (2009) classify instances of *to*-infinitive constructions like (3a–d) into four distinct groups. Let us review the classifications by Smith and Escobedo.

- (3) a. Jethro went (out) to feed the pigs.³
- b. He does those things to annoy his mother.
- c. They want to start a new job.
- d. It is difficult/easy to repair a VCR. (Smith and Escobedo 2001: 553–555)

Smith and Escobedo state that both (3a) and (3b) designate an action and evoke the notion of purpose toward the infinitive’s event. However, they classify (3a) and (3b) into two distinct groups because the matrix predicate in (3a) retains a spatial, path-like sense, while that in (3b) does not. In (3c), while the subject does not take any action, they state that the matrix predicate evokes future intention and volition toward the infinitive’s event. In contrast to (3a–c), they claim that (3d) does not evoke any kind of purpose, intention, or motion toward the infinitive’s event, and *to* is motivated because the subordinate process is construed holistically, i.e. as an event in its entirety, from start to finish.

As for *-ing* constructions, Smith and Escobedo (2001) and Smith (2009) also classify instances like (4a–d) into four distinct groups.

² Note that Dirven (1989), Verspoor (1999) and Egan (2008) also classify instances of nonfinite clauses from different perspectives. This chapter focuses on Smith and Escobedo (2001) and Smith (2009).

³ Smith and Escobedo (2001) quote sentence (3a) from Langacker, Ronald W. (1992) “Prepositions as Grammatical(izing) Elements,” *Leuvense Bijdragen* 81.

- (4) a. Fred enjoyed studying his reading assignment.
b. John admitted writing the letter.
c. Fran imagined living in the forest like Jane Goodall.
d. John dreaded reading *Syntactic Structures*. (Smith 2009: 376–379)

Smith claims that (4a) evokes actual temporal overlap between the matrix and subordinate processes. He argues that (4b) evokes prior, rather than actual, overlap because the subordinate event has been fully (or partially) completed prior to the time of the matrix process. In addition, he states that in (4c) the *-ing* complement is motivated because the matrix predicate evokes some kind of hypothetical or imagined conceptual overlap between the matrix and subordinate processes. In contrast to (4a–c), he claims that (4d) does not evoke overt objective overlap; however, subjective overlap is involved in (4d) and motivates the use of the *-ing* complement. (For a discussion of the notion of subjectivity and objectivity, see Section 2.9.) That is, a matrix predicate as in (4d) evokes, from the perspective of the speaker and/or conceptualizer, some kind of implied necessity or obligation between the matrix subject and the subordinate process. The selection of a matrix predicate as in (4d) therefore indicates the speaker’s construal that conceptual overlap between the matrix subject and the complement process is obligated in some way (Smith 2009: 379–380; Smith and Escobedo 2001: 558).⁴

Thus, Smith and Escobedo (2001) and Smith (2009) classify instances of *to*-infinitive and *-ing* constructions into four groups. However, they simply categorize

⁴ Smith’s claim is based on Cognitive Grammar, whose tenet is the asymmetry between the subject and object of conception. As we have seen in Section 2.9, Langacker (2008: 260) states that the subject is the locus of conceptual experience but is not itself conceived. Conversely, the object is what is conceptualized by the subject and is singled out as the focus of attention. He says that the subject is construed subjectively and the object objectively. According to Smith (2009), instances like (4a, b) evoke objective temporal or prior overlap. In contrast, the overlap involved in an instance like (4d) is subjective because it is the subject’s (i.e. the speaker’s) construal that conceptual overlap is obligated between the matrix subject and the complement process.

instances of each construction; their classifications do not describe the distributional differences of the two constructions in a series of usage events, i.e. actual instances of language use (Langacker 2000: 9). In order to describe the distributional phenomena, the two constructions must be classified in terms of a model that underlies a series of usage events. The present study suggests classifications based on the control cycle, which is fundamental to many aspects of our experience (cf. Langacker 2009) and, consequently, our language. The proposed classifications show that the *to*-infinitive and the *-ing* form typically represent successive phases of the control cycle (i.e. the potential and action phases, respectively).

In addition, the four groupings by Smith and Escobedo (2001) and Smith (2009) can be rearranged from a more global perspective. Regarding *to*-infinitive constructions, (3a) and (3b) can be classified as the same group because they both designate an action and evoke purpose toward the infinitive's event.⁵ This means that instances of *to*-infinitive constructions can be globally classified into three groups: (3a, b), (3c), and (3d).

As for *-ing* constructions, Smith and Escobedo note that the verb *dread* as in (4d) may also be compatible with the group of predicates evoking hypothetical overlap as in (4c). In addition, they argue that the notion of subjective construal may also be relevant in examples like (4c), albeit to a lesser extent than in examples like (4d). It therefore seems plausible to suggest that examples like (4c) and (4d) can be classified from a more global perspective as the same group. Thus, like *to*-infinitive constructions, instances of *-ing* constructions can be globally classified into three groups: (4a), (4b), and (4c, d).

What concerns us here is to ascertain what causes various instances of *to*-infinitive and *-ing* constructions to be globally divided into *three* groups. To resolve this issue, this study examines, in terms of the control cycle (see Section 2.8), actual instances of the two constructions in the *Corpus of Contemporary American English* (COCA) and concludes

⁵ Section 3.2.2 has also argued that (3a) and (3b) can be classified as the same group.

that these fall naturally into three groups depending on whether the matrix predicates represent the potential, action, or result phase of the control cycle.

4.3. An Analysis of the *to*-Infinitive and the *-ing* Form Based on the Control Cycle

This section empirically shows that matrix predicates taking the *to*-infinitive or the *-ing* form represent the potential, action, or result phase of the control cycle, which causes instances of each construction to fall naturally into three groups. In addition, this study empirically shows that instances of *to*-infinitive constructions are distributed primarily in the potential phase and secondarily in the action phase.⁶ It is also shown that most instances of *-ing* constructions are distributed in the action phase. This usage-based study focusing on the control cycle confirms previous suggestions that *to*-infinitive constructions typically evoke futurity and *-ing* constructions temporal overlap.

This section examines token frequency⁷ in *to*-infinitive and *-ing* constructions, in terms of the control cycle. I searched COCA for examples containing *to*-infinitives and *-ing* forms. The search yielded 15,697,128 and 18,426,096 instances, respectively, comprising 6,770 distinct *to*-infinitives (e.g. *to be*, *to do*, etc.) and 45,811 *-ing* forms (e.g. *being*, *doing*, etc.). The large number of instances made manual sorting impracticable, so I limited each total to the instances collocating with the top 20 *to*-infinitives (*to be*, *to do*, *to get*, *to make*, *to have*, *to see*, *to go*, *to take*, *to say*, *to find*, *to know*, *to keep*, *to help*, *to come*, *to give*, *to work*, *to tell*, *to use*, *to talk*, *to look*) and *-ing* forms (*being*, *doing*, *getting*, *trying*, *having*, *looking*, *making*, *using*, *saying*, *coming*, *talking*, *working*, *taking*, *thinking*, *playing*, *running*, *giving*, *watching*, *moving*, *telling*) and randomly selected 1,000

⁶ Recall that Chapter 3 has also observed that most instances of *to*-infinitive constructions cluster in the potential and action phases. This chapter confirms this observation by analyzing a wider variety of matrix predicates involved in the constructions.

⁷ Token frequency is defined as “the count of the occurrence in texts of particular words [...] or of specific phrases” (Bybee and Thompson 1997: 378).

instances of each construction.⁸ In contrast to Chapter 3, where the analysis is limited to 8 matrix predicates, no limit was set on matrix predicates in *to*-infinitive or *-ing* constructions in the present corpus study. This enabled the frequency of each matrix predicate in the two constructions to be observed in a more natural way.

4.3.1. Token Frequency in *to*-Infinitive Constructions

Let us first examine token frequency in *to*-infinitive constructions. Among the sample of 1,000 *to*-infinitives, this study found 681 tokens where the *to*-infinitive is used as a post-predicate complement or modifier; the *to*-infinitives collocate with 239 different matrix predicates.⁹ The result is shown in Table 4.1. The collected instances are categorized by lower-level schemas (e.g. [want (...) *to*-INF]), i.e. structures with greater specificity, because lower-level schemas have a built-in advantage in categorizing a usage event with respect to higher-level schemas (see Langacker 2000: 14–16).¹⁰ The ellipses without parentheses ‘...’ and with parentheses ‘(...)’ indicate, respectively, whether a nominal (or adverbial) expression is obligatory before the *to*-infinitive or not.

⁸ The instances of *to*-infinitive and *-ing* constructions were collected on 12 and 15 May 2020, respectively. Note that even though *going* was the most frequently used *-ing* form and *gon(na)* was the fourth, I didn’t select these because many instances of *going* and all those of *gon(na)* are used as a marker of futurity, as in the *be going to/ gon(na)* construction, which is outside the scope of this study. (In a random selection from COCA of 1,000 instances each of *going* and *gon(na)*, this construction accounted for 729 instances of *going* and every instance of *gon(na)*.)

⁹ This study found many other uses of the *to*-infinitive (e.g. noun modifier, adverbial at the beginning of the sentence, auxiliary verb + *to*-infinitive (like *ought to do*), etc.), which are excluded from this study. Instances of *wh*-infinitives (e.g. *what to do*) are also excluded from this study: as we have seen in Section 3.4.1 (footnote 13), Biber et al. (1999: 685), Diessel (2004: ch. 4) and Egan (2008: 12) all classify the *wh*-infinitive as a separate group distinct from the *to*-infinitive as a post-predicate complement or modifier.

¹⁰ For a discussion of the advantage of lower-level schemas in categorizing a usage event, see Section 3.4.1.

Low-level schema	Phase	Total out of 681 tokens
[want (...) <i>to</i> -INF]	PP	74
[need (...) <i>to</i> -INF]	PP	53
[seem (...) <i>to</i> -INF]	PP	28
[try <i>to</i> -INF]	AP	28
[be <i>to</i> -INF]	RP	20
[do ... <i>to</i> -INF]	AP	11
[get (...) <i>to</i> -INF]	AP	10
[appear <i>to</i> -INF]	PP	9
[be supposed <i>to</i> -INF]	PP	9
[use ... <i>to</i> -INF]	AP	9
[(be) hard <i>to</i> -INF]	RP	8
[tell ... <i>to</i> -INF]	AP	8
[(be) willing <i>to</i> -INF]	PP	8
[happen <i>to</i> -INF]	AP	7
[(would) like <i>to</i> -INF]	PP	7
[ask ... <i>to</i> -INF]	AP	6
[begin <i>to</i> -INF]	AP	6
[expect (...) <i>to</i> -INF]	PP	6
[make ... <i>to</i> -INF]	AP	6
Others		368
Total		681

Table 4.1: Totals for *to*-Infinitive Constructions

This study examines the phase of the control cycle that the matrix predicates

represent. However, we need to examine the meaning of the matrix predicate in each construction as a whole (i.e. a matrix clause plus a *to*-infinitival (or *-ing*) clause) because in some cases the meaning varies depending on the subordinate clause. For example, *remember* in (5a) represents the potential phase because it entails that, at the time the matrix subject has an awareness in her mind of something she must do (see NOAD: 1476), she does not yet take any action.

(5) a. I remembered to see the student (but by the time I looked in the waiting room
he had given up and gone home). (Dixon 1984: 591)

b. I remember dancing with the Prince of Wales. (Wierzbicka 1988: 71)

Contrastingly, *remember* in (5b) represents the result phase because it entails that the experience ‘*dancing with the Prince*’ is accepted as part of the matrix subject’s experience (dominion).¹¹

Let us now consider some actual instances. Observe the following instances of [want/need (...) *to*-INF]:

(6) a. I really *want to go* back to her ...

b. ... but Americans *need to get* the facts about universal healthcare ...

(COCA)

The matrix predicates *want* and *need* as in (6a, b) represent the potential phase of the effective control cycle because they mean that the matrix subject feels desire or necessity to carry out the target (i.e. the *to*-infinitival clause). This study maintains that the matrix

¹¹ Section 4.5 discusses in detail different meanings of the same predicate pertaining to different phases of the control cycle.

predicates in instances of [willing/(would) like, etc. *to*-INF] represent the potential phase for a similar reason.

The matrix predicates in instances of [do/tell ... *to*-INF] as in (7a, b) represent the action phase because they mean that the matrix subject performs an action (*do*) or orders someone (*tell*) to carry out the target (i.e. the *to*-infinitival clause) (see NOAD: 509, 1785). This study argues that the matrix predicates in instances of [use/ask, etc. ... *to*-INF] represent the action phase for a similar reason.¹²

- (7) a. He *did it to make* fun of me.
b. He *told me to give* him the deposit of \$1000 ...
c. He *tried to get off* the bed a couple more times ...
d. ... he has no idea how his employer *got to be* so rich ... (COCA)

This study also maintains that *try* as in (7c) represents the action phase because the predicate means that the matrix subject takes some action in order to realize the target (see CCALD: 1618).¹³ The matrix predicate in instances of [get (...) *to*-INF] as in (7d) also represents the action phase because the predicate means that the matrix subject eventually or gradually reaches a stage at which she carries out the target (see CCALD: 645).¹⁴

The matrix predicates in instances of [be/know (...) *to*-INF]¹⁵ as in (8) represent the result phase because the predicates entail that the target (the proposition

¹² The matrix predicate in instances of [happen *to*-INF], as in (i) below, also represents the action phase because the verb entails that the clausal subject (actor) carries out the infinitive's event (target) by chance.

(i) ... why don't you tell me how you *happened to find* your sister ... (COCA)

¹³ The issue of *try to do* vs. *try doing* is discussed in Section 4.5.

¹⁴ The matrix predicate in (7d) entails that the clausal subject reaches a state of being rich because the predicate *get* represents not only the action phase but also part of the result phase (cf. Langacker 2009: 131).

¹⁵ The corpus study found one instance of [know ... *to*-INF], which is included in 'others' in Table 4.1.

their role was to make Donald Trump unpopular in (8a) or the complement clause *this to be true* in (8b)) is incorporated into the conceptualizer's/subject's dominion.¹⁶

(8) a. ... *their role was to make Donald Trump unpopular*.

b. *I know this to be true* ... (COCA)

Thus, instances of *to*-infinitive constructions fall naturally into three groups, depending on whether the matrix predicate represents the potential, action, or result phase of the control cycle. Instances whose matrix predicate represents the potential or action phase evoke a future orientation (e.g. (6a, b), (7a, b)) because these predicates entail that the matrix subject desires or needs to carry out the target (the potential phase) or performs an action in order to realize the target event (the action phase). In contrast, instances whose matrix predicate represents the result phase as in (8a, b) do not evoke the notion of futurity because the target (the clausal proposition (8a) or the complement clause (8b)) is already incorporated into the conceptualizer's or subject's dominion.

This study suggests that *to*-infinitive constructions most typically describe an event in the potential phase because, from the perspective of category validity (Taylor 2012)¹⁷,

¹⁶ Even though Langacker (2009: 302–303) suggests that predicates taking an infinitival complement basically designate relationships at the effective level (like those in (6) and (7)), this study proposes that predicates as in (8a, b) are involved in the epistemic control cycle because they pertain to our effort to acquire knowledge about the world (see Section 2.8 (footnote 7)). Therefore, the target in instances like (8a, b) is the clausal proposition (8a) or the complement clause including its trajector (*this*) (8b), which can be acquired as part of the conceptualizer's/subject's knowledge. Other instances pertaining to the epistemic control cycle include examples like (ia–c) below.

(i) a. ... it now *seems to be* facing another debt crisis ...

b. He *appears to be* under some type of evil mind control and manipulation.

c. Audrey *suspected it to be* an uncut diamond. (COCA)

Seem, *appear* and *suspect* in (ia–c) represent the potential phase: the predicates entail that the target—the clausal proposition in (ia, b) and the complement clause in (ic)—is not incorporated into the conceptualizer's/subject's knowledge. (For a discussion of examples like (ic), see Chapter 3.) Unlike *want* and *need* as in (6a, b), which also represent the potential phase, the predicates in (ia–c) do not evoke the specific notion of futurity (e.g. desire or necessity to carry out the infinitive's event) because these predicates represent the potential phase of the epistemic (rather than the effective) control cycle.

¹⁷ Taylor (2012) defines category validity of constructions vis-à-vis their component words as in (ia) below and cue validity of words vis-à-vis constructions as in (ib).

to-infinitive constructions are highly predictive of *want* and *need*; the low-level schemas [want/need (...) *to*-INF] have a higher degree of entrenchment¹⁸ than the other schemas (see Table 4.1). This is not to say that these two verbs are the most frequently used predicates: in COCA, while *want* and *need* occur in 1,671,696 and 945,324 instances, respectively, *know* occurs in 2,761,533 and *do* occurs in 8,185,760 instances (observed on 22 May (*want, need, do*) and 3 June (*know*) 2020). Also, in terms of cue validity (Taylor 2012) (see footnote 17), *want* and *need* cue *to*-infinitive constructions with a high degree of probability: of 1,000 occurrences each of *want* and *need* randomly selected from COCA, 731 (*want*) and 631 (*need*) were in *to*-infinitive constructions, while of 1,000 occurrences of *do* and *get*, only 21 (*do*) and 35 (*get*) were in *to*-infinitive constructions. Taylor (2012: 193) states that “[b]oth cue and category validity [...] underline the status of certain instances of the constructions as the construction prototype”. Therefore, this study argues that instances of [want/need (...) *to*-INF] are the construction prototypes. I maintain that their prototypicality is effected by the notion of futurity: the two matrix predicates represent the potential phase, where the matrix subject—i.e. the actor, e.g. *I* and *Americans* in (6a, b)—desires or needs to carry out the target.¹⁹

Note that instances whose matrix predicate represents the action phase also occur relatively frequently (e.g. [try/do ... *to*-INF]) (see Table 4.1). This study argues that the high frequency of instances such as these is effected by the notion of futurity (e.g. purpose,

(i) a. Given an occurrence of construction *C*, what is the probability that word *w* features in [construction] *C*?

b. Given an occurrence of word *w*, what is the probability that *w* features in construction *C*?
(Taylor 2012: 189)

¹⁸ As we have seen in Section 3.4.1, “[e]ntrenchment pertains to how frequently a structure has been invoked and thus to the thoroughness of its mastery and the ease of its subsequent activation” (Langacker 1991: 45).

¹⁹ As already mentioned, the present study examines the phase of the control cycle that matrix predicates represent. Therefore, in instances like (i) below, the actor (in terms of the control cycle) is the matrix subject *I*, who has the desire (*want*) toward the realization of the infinitive’s event (the target), even though the controller—i.e. “the participant most readily understood as complement trajector” (Langacker 2008: 434)—of the infinitive *see* is *him*.

(i) I *want him to see* them.

(COCA)

volition); the matrix predicate represents the action phase, where the actor performs an action in order to realize the infinitive’s event (the target).²⁰

In contrast to instances corresponding to the potential or action phases, fewer instances were found whose matrix predicate represents the result phase. This is because the target is incorporated into the subject’s/conceptualizer’s dominion (the result phase), so the notion of futurity is not evoked.²¹

4.3.2. Token Frequency in *-ing* Constructions

Let us next examine instances of *-ing* constructions. Of the 1,000 samples of *-ing* from COCA, this study found 207 instances where the *-ing* form functions as a post-predicate complement or modifier.²² The *-ing* forms in these 207 instances collocate with 110 different matrix predicates. The result is shown in Table 4.2.

Low-level schema	Phase	Total out of 207 tokens
[stop (...) <i>-ing</i>]	AP	11
[see ... <i>-ing</i>]	AP	10
[spend ... <i>-ing</i>]	AP	10
[keep (...) <i>-ing</i>]	AP	9
[end up <i>-ing</i>]	AP	6

²⁰ In Chapter 3, we have also observed that most instances of *to*-infinitive constructions cluster in the potential and action phases. While the corpus study in Chapter 3 is limited to 8 matrix predicates, we have observed in detail the frequency of predicates like *suspect*, *discover*, *know* and *surprised*, which are less frequently used in *to*-infinitive constructions and are not found or included in ‘others’ in the corpus study in Chapter 4. Chapter 3 has also compared these predicates with predicates like *want* and *do*, which are frequently used in *to*-infinitive constructions. Chapter 4 confirms the result of the corpus study in Chapter 3 by observing a wider variety of matrix predicates in *to*-infinitive constructions.

²¹ Even though instances of [be *to*-INF] as in (8a) correspond to the result phase and do not evoke specific futurity, [be *to*-INF] is relatively well entrenched. This is because *be* is more frequently used than other predicates: *be* occurs in 42,370,595 instances in COCA, whereas *appear* and *tell* occur in 221,271 and 1,119,451 instances, respectively (observed on 21 May 2020).

²² The corpus study found many other uses of *-ing*: modifying a noun, combined with *be* to form a progressive, used as a full adverbial clause, etc.

[have ... <i>-ing</i>]	AP	6
[enjoy <i>-ing</i>]	AP	5
[start <i>-ing</i>]	AP	5
[come <i>-ing</i>]	AP	4
[continue <i>-ing</i>]	AP	4
[be like <i>-ing</i>]	RP	4
[love <i>-ing</i>]	RP	4
[avoid <i>-ing</i>]	AP	3
[consider <i>-ing</i>]	PP	3
[go (...) <i>-ing</i>]	AP	3
[remember <i>-ing</i>]	RP	3
[try <i>-ing</i>]	AP	3
[be worth <i>-ing</i>]	RP	3
[be wrong ... <i>-ing</i>]	RP	3
Others		108
Total		207

Table 4.2: Totals for *-ing* Constructions

Of note in Table 4.2 is that many of the matrix predicates in the *-ing* constructions represent the action phase. This study argues that the matrix predicates in instances of [stop/see/spend/keep (...) *-ing*] as in (9a–d) represent the action phase because these predicates mean that the matrix subject ceases to perform the action of talking (the target) (9a) (see NOAD: 1718), achieves perceptual contact with the target (the *-ing* complement) by using his/her eyes (9b)²³, takes time in carrying out the target (9c), and continues

²³ Langacker (2009: 260) notes that *see* can be used for either the action of achieving perceptual contact or the stable experience that results. The present study argues that *see* as in (9b) represents the

carrying out the target (9d) (see OALD: 1503 (*spend*), 861 (*keep*)).²⁴

- (9) a. ... and they *stopped talking* to each other ...
b. He *saw shadows moving* about the fire ...
c. ... and several of us *spent* a summer *watching* lots of taped episodes ...
d. I *kept thinking* that I won't be able to wear it until Spring. (COCA)

Since the matrix predicates in (9a–d) represent the action phase where the matrix subject reaches the target (the *-ing* complement) and performs an action while carrying out the target (or while *the target* is in process (9b)), temporal overlap is evoked between the matrix and subordinate processes. In (9b–d), temporal overlap is clearly evoked between the acts of *seeing*, *spending a summer*, and *keeping*, and the respective targets (*shadows moving*, *watching*, and *thinking*). In (9a), the notion of temporal overlap is more partial: that is, the target (*talking*) has been in process until the moment of termination (cf. Smith and Escobedo 2001: 557), which implies partial overlap between the matrix and subordinate processes.

Contrastingly, the matrix predicates in instances like (10a) and (10b) represent the potential and result phases, respectively, because the predicate in (10a) entails that the

former because the predicate describes the action of achieving temporal (rather than stable) perceptual contact with something that is moving at the moment.

²⁴ The matrix predicates in instances of [come/end up/have (...) *-ing*] as in (ia–c) below also represent the action phase because in (ia–c), respectively, the predicate entails that the matrix subject (the actor) moves while carrying out an event (the target) (see OALD: 296), carries out the event without intending to do so (see CCALD: 498), and causes (e.g. instructs, persuades) someone to perform the event (see CCALD: 706).

- (i) a. ... and he *came running* downstairs ...
b. Somehow I *ended up telling* him about Stephanie ...
c. I just *had them doing* stretch routines ... (COCA)

This study considers that *end up* and *have* as in (ib, c) also represent part of the result phase because *end up* entails that the actor (the matrix subject) reaches a particular situation after a series of events (see LDCE: 586) and *have* implies that the actor achieves a result by doing something (cf. Langacker 2009: 301). These predicates represent a local stage that is close to the action phase, a stage where the actor does not reside in a state of relaxation. Note that Langacker (2009: 131–132) also diagrams several verbs as representing not only the action phase but also part of the result phase.

matrix subject carefully thinks about carrying out the target (*getting rid of the jewelry*) before making a decision (see NOAD: 370), while the subject in (10b) has an image of *thinking* (the target) in her mind (see OALD: 1308).

(10) a. ... she seriously *considers getting rid of the jewelry* ...

b. I *remember thinking* this at the time. (COCA)

These instances do not evoke specific temporal overlap between the matrix and subordinate processes because the matrix subject either does not carry out the *-ing* target (10a) or the target is already incorporated into her dominion (10b) (*remembering* does not temporally overlap with the event that has already occurred). Therefore, instances whose matrix predicate represents the potential or result phase are not typical *-ing* constructions.

Note that instances like (10a, b) retain the notion of conceptual overlap. Sentence (10a) evokes imagined overlap (see Smith and Escobedo 2001: 557) because the matrix predicate represents the potential phase, where the target (the *-ing* complement) is imagined as concurrent with the matrix process (*consider*).²⁵ Sentence (10b) also evokes conceptual overlap between the matrix and subordinate processes. The target (the *-ing* complement) is incorporated into the subject's/conceptualizer's knowledge (the result phase), and she construes the complement process at close range (cf. Verspoor 1996: 438) while thinking about the experience. Because the experience (the target) and thinking about it (the matrix event) come close to each other, she construes the experience as conceptually overlapping with the matrix event. However, since the conceptual overlap evoked in (10a, b) is merely a hypothetical or prior one (see Section 4.2.2) rather than an actual (or temporal) one, instances of [*consider/remember -ing*] are used less frequently

²⁵ The present study refers to Wierzbicka (1988: 72), who claims that in sentence (i) the act of leaving is imagined as concurrent with the act of imagining.

(i) Bill imagined leaving.

(Wierzbicka 1988: 72)

than instances of [stop/see/spend/keep, etc. (...) *-ing*] (see Table 4.2), which correspond to the action phase and evoke temporal overlap.

From the perspective of category validity, *-ing* constructions are predictive of the words *stop*, *see*, *spend* and *keep* (see Table 4.2). As for the cue validity of these four words vis-à-vis *-ing* constructions, *stop*, *spend* and *keep* cue *-ing* constructions with a high degree of probability: of 1,000 instances each of *stop*, *spend* and *keep* from COCA, 377 (*stop*), 246 (*spend*) and 238 (*keep*) were in *-ing* constructions, while of 1,000 occurrences of *consider* and *remember*, only 70 (*consider*) and 83 (*remember*) were in *-ing* constructions. However, of 1,000 occurrences of *see*, only 35 were in *-ing* constructions.²⁶ In terms of category and cue validity, we can therefore say that instances of [stop/spend/keep (...) *-ing*] are the construction prototypes. This study argues that their prototypicality is effected by the notion of temporal (or partial) overlap.

Note that *start* and *enjoy* also have (relatively) high cue validity vis-à-vis *-ing* constructions, although *-ing* constructions are not so predictive of them (see Table 4.2): of 1,000 instances each of *start* and *enjoy* from COCA, 321 (*start*) and 154 (*enjoy*) were in *-ing* constructions. The matrix predicates in instances of [start/enjoy *-ing*] as in (11a, b) represent the action phase because the predicate in (11a) means that the matrix subject begins carrying out the target (see OALD: 1527) and in (11b) that she takes delight in carrying out the target (see NOAD: 576).

(11) a. We *started thinking* about that.

b. I *enjoyed looking* at your blog. (COCA)

²⁶ The reason for the low cue validity of *see* vis-à-vis *-ing* constructions is that *see* is highly polysemous (e.g. “perceive with the eyes”, “understand”, “meet ... socially or by chance” (NOAD: 1580)) and appears in a wide range of constructions. Note, however, that *-ing* constructions are highly predictive of *see* because the verb evokes temporal overlap between the matrix and subordinate events.

Therefore, instances of [start/enjoy *-ing*] as in (11a, b) evoke temporal overlap between the main and subordinate processes.²⁷ The notion of temporal overlap motivates *start* and *enjoy* to cue *-ing* constructions with a (relatively) high degree of probability.²⁸

Thus, in terms of the control cycle, instances of *-ing* constructions are globally divided into three groups, just as instances of *to*-infinitive constructions are. Instances whose matrix predicate represents the action phase evoke temporal overlap between the matrix and subordinate processes, as in (9a–d) and (11a, b). In contrast, instances whose matrix predicate represents the potential or result phase as in (10a, b) do not evoke *temporal* overlap.

4.3.3. A Comparison of *to*-Infinitive and *-ing* Constructions

We have observed that instances of *to*-infinitive and *-ing* constructions are distributed in different phases of the control cycle, which causes them to be globally divided into three groups. However, instances of *to*-infinitive and *-ing* constructions are primarily distributed in the potential and action phases, respectively, and instances of *to*-infinitive constructions are secondarily distributed in the action phase.

This usage-based study of the two constructions in terms of the control cycle specifies a cognitive basis that motivates *to*-infinitive and *-ing* constructions to typically evoke a future orientation and temporal overlap, respectively. Instances of *to*-infinitive constructions corresponding to the potential phase evoke futurity because the matrix predicates (e.g. *want*, *need*) entail that the matrix subject has volition or feels necessity to carry out the target (i.e. the *to*-infinitive). The present study argues that instances of *to*-infinitive constructions corresponding to the action phase (e.g. *try/do/tell ... to do*)

²⁷ For a discussion of temporal overlap evoked in instances like (11a, b), see Langacker (1991, 2008) and Smith and Escobedo (2001).

²⁸ Compared with *start -ing*, *start* has lower cue validity vis-à-vis *to*-infinitive constructions. Of 1,000 instances of *start* from COCA, 127 were in *to*-infinitive constructions. I would like to thank an anonymous reviewer of an earlier version of this chapter for drawing my attention to this issue.

typically reside in a local stage that is very close to the potential phase, a stage where the actor performs an action but the action does not convey success in carrying out the target; let us call this the initial action stage.²⁹ Therefore, instances of *to*-infinitive constructions corresponding to the action phase typically evoke futurity toward the target (the infinitive's event). Since most instances of *to*-infinitive constructions are distributed in the potential phase or the initial action stage, *to*-infinitive constructions typically evoke a future orientation.

On the other hand, instances of *-ing* constructions corresponding to the action phase primarily reside in a local stage that is close to the result phase, a stage where the action conveys success in carrying out the target (e.g. *spend/keep/enjoy/start (...) -ing*); let us call this the execution stage. In this stage, the matrix subject carries out the target and performs an action while doing so. Therefore, temporal overlap is typically evoked between the matrix and subordinate processes.

Note that *to*-infinitive and *-ing* constructions typically represent successive stages of the control cycle. That is, *to*-infinitive constructions typically represent both a stage where the actor has volition/intention toward the target and a stage where she performs some action in order to carry out the target. Instances of *-ing* constructions typically represent the next stage, where the actor reaches and realizes the target. Instances of *to*-infinitive constructions corresponding to the result phase and of *-ing* constructions corresponding to the potential/result phase are atypical of the two constructions because they do not evoke, respectively, future orientation or specific temporal overlap.³⁰

²⁹ Langacker (2009) also breaks down the potential phase into three successive stages: formulation, assessment, and inclination.

³⁰ Note that the present study classifies sentences (3a–d) and (4a–d), provided by Smith and Escobedo (2001) and Smith (2009), into three distinct groups in terms of the control cycle. That is, (3c) and (4c, d) are grouped as corresponding to the potential phase, (3a, b) and (4a) to the action phase, and (3d) and (4b) to the result phase. The present study is more comprehensive than Smith and Escobedo (2001) and Smith (2009) in that this study not only specifies a cognitive basis for this classification in terms of the control cycle, but also describes the distributional differences between the groups in a series of usage events.

Let us note in passing that, when the *to*-infinitive or the *-ing* form functions as a modifier, the matrix predicate represents the action phase.³¹ In this case, as in (12a–c), the subordinate clauses evoke the typical orientation of *to*-infinitive and *-ing* constructions (i.e. futurity and temporal overlap, respectively).

- (12) a. ... I *did* it *to get* away from you.
 b. ... they *used* it *to make* calculations.
 c. Two children *came running* out of the guesthouse ... (COCA)

When the subordinate clause functions as a complement, the matrix predicate represents the potential, action, or result phase. In this case, as in (13a–f), the subordinate clauses may evoke a range of situations: e.g. a future event (13a), an unrealized event (13b), a reality (13c), an imagined event (13d), a realized event (13e), a past event (13f).

- (13) PP: a. I really *want to go* back to her ... (= 6a)
 AP: b. I *tried to go* back to sleep. (COCA)
 RP: c. I *know this to be* true ... (= 8b)
 PP: d. ... she seriously *considers getting* rid of the jewelry ... (= 10a)
 AP: e. Moreover, I *enjoyed doing* research in Italy ... (COCA)
 RP: f. I *remember thinking* this at the time. (= 10b)

Further examination of the *to*-infinitive and the *-ing* form as a modifier or a complement is left for future research.³² The following section compares the two nonfinite clauses (i.e.

³¹ This is not to say that nonfinite clauses always function as a modifier when the matrix predicate represents the action phase, as we shall see in (13b, e).

³² I would like to thank an anonymous reviewer of an earlier version of this chapter for drawing my attention to this issue.

the *to*-infinitive and the *-ing* form) with the *that*-clause.

4.4. Nonfinite Clauses and *that*-Clause Constructions

In order to compare the two nonfinite clauses with the *that*-clause, I searched COCA for examples of *that* immediately following the matrix predicate. The search yielded 3,300,531 instances, comprising 2,134 different matrix predicates (e.g. *say, know, etc.*) collocating with *that*. I limited the total instances to the 20 most frequently used matrix predicates (*say, know, think, believe, suggest, find, see, show, mean, realize, note, argue, feel, indicate, understand, get, hope, report, hear, remember*) and randomly downloaded 1,000 instances.³³ Of the 1,000 samples, the present study found 829 tokens where the *that*-clause is used as a post-predicate complement.³⁴ The result is shown in Table 4.3.

Low-level schema	Phase	Total out of 829 tokens
[say that ...]	RP	121
[know that ...]	RP	110
[think (RP) that ...]	RP	68
[believe (RP) that ...]	RP	60
[mean that ...]	RP	51
[show that ...]	RP	44
[find that ...]	AP	38
[suggest that ...]	RP	38
[understand that ...]	RP	34

³³ The instances of *that*-clause constructions were collected on 20 July 2020.

³⁴ The corpus study also found examples that are not instances of *that*-clause constructions, as in (ia, b).

(i) a. ... and I believe *that* to be correct.

b. I don't find *that* very compelling ...

(COCA)

[hope that ...]	PP	29
[argue that ...]	RP	27
[see that ...]	RP	27
[note that ...]	AP	20
[remember that ...]	RP	20
[realize that ...]	RP	17
[think (PP) that ...]	PP	17
[believe (PP) that ...]	PP	16
Others		92
Total		829

Table 4.3: Totals for *that*-Clause Constructions.

Of note in Table 4.3 is that most of the matrix predicates in instances of *that*-clause constructions represent the result phase.^{35, 36} The present study argues that the matrix predicates in instances of [say/know/think/believe that ...] as in (14a–d) represent the result phase of the epistemic control cycle because they entail that the target (the *that*-complement) is incorporated into the subject’s/conceptualizer’s knowledge, i.e. he/she is sure that the target is true.

- (14) a. He now says that he was an adult at the time of their relationship.
b. ... I know that she is comforted after departing Citrix ...
c. People think that the economy isn’t so bad ...

³⁵ Langacker (2002, 2009) examines instances of *that*-clause constructions in terms of the control cycle (see Section 2.8). However, he does not examine token frequency in the constructions.

³⁶ Recall that Chapter 3 has also observed that most of the instances of *that*-clause constructions cluster in the result phase. While the corpus study in Chapter 3 is limited to 4 matrix predicates, we have observed the frequency of the predicates *expect*, *suspect* and *discover*, which are not observed in the corpus study in this chapter. This chapter confirms the result of the corpus study in Chapter 3 by observing a much wider variety of predicates in *that*-clause constructions.

d. ... I believe that ignorance and laziness are real and common attributes ...

(COCA)

This study argues that *say* as in (14a) represents the result phase of the epistemic control cycle because it indicates that the matrix subject accepts the proposition (*he was an adult at the time of their relationship*) as part of his knowledge (i.e. the dominion).³⁷

The matrix predicate *find* as in (15a) represents both the action phase, because the predicate describes an action of discovering that something is true (see OALD: 586), and part of the result phase, because it entails that the *that*-complement is incorporated into the subject's knowledge.³⁸ The matrix predicate *hope* as in (15b) represents the potential phase of the control cycle because the matrix subject has a desire toward the *that*-complement being realized.

(15) a. ... I found that several ex-members posted the same story along the same lines ...

b. ... he hopes that there will be a new government which would ensure stability.

(COCA)

Note that matrix predicates like *think* and *believe* also represent the potential phase (e.g. (16a, b)) rather than the result phase (e.g. (14c, d)), depending on what their complement means (see Table 4.3). The matrix predicates in (16a, b) represent the

³⁷ In order to confirm the phase of the control cycle the matrix predicates in (14) represent, the present study refers to Langacker (2009: 132, 312). Langacker (2009: 312) claims that interactive predicates (e.g. *say*, *suggest*, *argue*) imply two conceptualizers. Based on this claim, the present study argues that *say* as in (14a) implies two conceptualizers: the matrix subject and his interlocutor. Therefore, while *say* in (14a) suggests that the matrix subject accepts the proposition as part of his knowledge (the result phase), it also implies his interlocutor, who is either considering the proposition for inclusion in her knowledge (the potential phase) or learning the proposition (the action phase). For a discussion of interactive predicates in terms of the control cycle, see Langacker (2009: 312).

³⁸ The present study refers to Langacker's (2009: 132) analysis of *find out* and *discover*.

potential phase because, while the matrix subjects incline toward accepting the target proposition (the *that*-complement) into part of their view of reality, they have not yet incorporated it into part of their dominion.³⁹

- (16) a. Every year there are people who *think that* the Rangers will draft a goalie in the first round ...
- b. ... and we *believe that* He [sic] will yet reveal many great and important things pertaining to the Kingdom of God ... (COCA)

Thus, in terms of the control cycle, instances of *that*-clause constructions are globally divided into three groups, just as instances of *to*-infinitive and *-ing* constructions are. As we have seen in Section 3.4.2, instances of *that*-clause constructions are typically distributed in the result phase because the *that*-clause is more compatible with the subordinate clause being construed as a fact, and a fact is accepted as such when the proposition is incorporated as part of the conceptualizer's knowledge, i.e. as part of the conceptualizer's epistemic dominion.

In Sections 4.3 and 4.4, we have observed the token frequency in *to*-infinitive, *-ing* and *that*-clause constructions in terms of the control cycle. Based on the distributional information of specific instantiations of the three constructions, the present study argues that the three subordinate clauses (i.e. the *to*-infinitive, the *-ing* form and the *that*-clause) play different roles in linguistic manifestations: that is, the *to*-infinitive, the *-ing* form and the *that*-clause typically express part of an event corresponding to the potential, action and result phases of the control cycle, respectively. The distributional information of the three constructions explains why the *to*-infinitive, the *-ing* form and the *that*-clause typically evoke futurity, temporal overlap and a fact, respectively.

³⁹ The present study refers to Langacker's (2009: 132–133) examination of *think* and *believe*.

A network of complement clause constructions (i.e. *to*-infinitive, *-ing* and *that*-clause constructions) is shown in Figure 4.1.

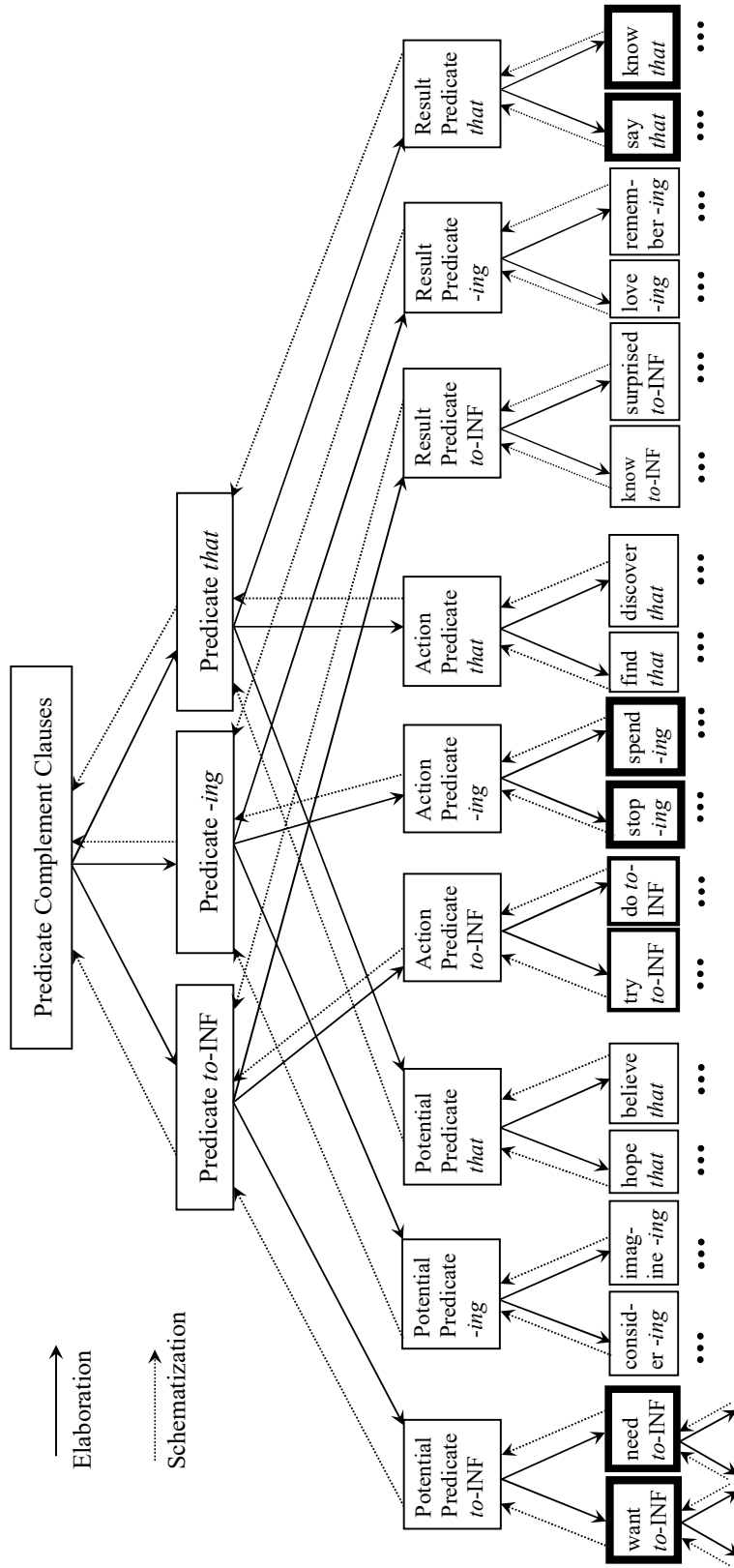


Figure 4.1: A Network of Complement Clause Constructions

The low-level schemas (e.g. [want *to*-INF]) of each construction, which categorize specific instantiations of the *to*-infinitive, the *-ing* form and the *that*-clause, are divided into three groups, the groupings being represented as [Potential/Action/Result Predicate *to*-INF/*-ing/that*]. As we have seen in Section 3.4.1 (Figure 3.1), the higher-level schemas (e.g. [Potential Predicate *to*-INF]) emerge through extracting the commonality inherent in the lower-level schemas; this process, called schematization, is represented by the dotted arrows. The relationships between the higher-level schemas and the lower-level schemas that elaborate them are represented by the solid arrows. The thickness of each box of the low-level schemas indicates the degree of entrenchment: the highly (or relatively) entrenched low-level schemas ([want/need/try/do *to*-INF], [stop/spend *-ing*], [say/know that]) are represented by the bolder boxes. The network shows that the highly entrenched low-level schemas of *to*-infinitive, *-ing* and *that*-clause constructions are distributed in [Potential Predicate *to*-INF], [Action Predicate *-ing*] and [Result Predicate *that*], respectively, and the secondarily entrenched low-level schemas [try/do *to*-INF] are distributed in [Action Predicate *to*-INF]. Thus, the network indicates that the *to*-infinitive, the *-ing* form and the *that*-clause typically express part of an event corresponding to the potential, action, and result phase of the control cycle, respectively. Note that the *to*-infinitive secondarily expresses part of an event corresponding to the action phase (or the initial action stage; see Section 4.3.3).

4.5. Matrix Predicates Taking Either the *to*-Infinitive or the *-ing* Form

As the final topic of this chapter, this section examines, in terms of the control cycle, matrix predicates that take either the *to*-infinitive or the *-ing* form. These matrix predicates evoke different senses of the verb depending on which complement type it takes (cf. Smith and Escobedo 2001: 559–561). The present study maintains that such semantic differences are effected on the basis of the phase (or the stage) of the control

cycle the matrix predicate represents.

In (18a), *remember* implies that Jack recalls he is supposed to carry out the subordinate process, while in (18b) it signifies that he has a memory of carrying out the subordinate process (cf. Smith and Escobedo 2001: 560).

(18) a. Jack remembered to mail the letter this afternoon.

b. Jack remembered mailing the letter this afternoon.

(Smith and Escobedo 2001: 560)

Remember in (18a) represents the potential phase because it means that at the time *Jack* has awareness in his mind of something he must do (see NOAD: 1476), he does not yet carry out any action. In contrast, *remember* in (18b) represents the result phase because it entails that *Jack* has an image of *mailing the letter* (the target) in his memory, or dominion (see OALD: 1308). The difference between *regret to do* and *regret doing* would be explained in a similar way.

The difference between *like to do* and *like doing* as in (19) can also be explained in terms of the control cycle.

(19) I like to run but don't like running.

(Langacker 2008: 440)

Like taking the *to*-infinitive represents the potential phase because it indicates a positive inclination (cf. Langacker 2008) toward the target (the idea of running) that lies outside the subject's dominion (experience). In contrast, *like* taking the *-ing* form represents the result phase because it describes a general attitude based on the actual experience of *running* (cf. Langacker 2008) that is incorporated into the subject's dominion.

As for (20a, b), both matrix predicates represent the action phase. In (20a), *John* (at

least) took action in order to get the ball to stay on his head (see CCALD: 1618), while in (20b) he made an attempt and succeeded in balancing the ball (Dixon 1984: 590–591).

(20) a. John tried to balance the ball on his head.

b. John tried balancing the ball on his head. (Dixon 1984: 590)

However, with *try to do* as in (20a), the realization of *try* does not entail the realization of the subordinate process, while with *try -ing* as in (20b), it does (cf. Langacker 2008: 439). The difference depends on whether the matrix predicate represents the initial action or the execution stage of the action phase. *Try* in (20a) represents the initial action stage because it entails that, while *John* took some action in order to carry out the subordinate process, he did not achieve the subordinate process (Dixon 1984: 590). On the other hand, *try* in (20b) represents the execution stage because it entails that *John* actually balanced the ball (Dixon 1984: 590). The difference between *stop to do* and *stop doing* would be explained in a similar way.⁴⁰

Note that the matrix predicates discussed in this section represent the potential phase or the initial action stage with the *to*-infinitive and the result phase or the execution stage with the *-ing* form. Of 1,000 instances each of *remember*, *like* and *regret* randomly selected from COCA, 83 (*remember*), 29 (*like*) and 146 (*regret*) represent the result phase and take the *-ing* form, whereas 22 (*remember*), 294 (*like*) and 18 (*regret*) represent the potential phase and take the *to*-infinitive. Also, of 1,000 instances each of *try* and *stop*, 758 (*try*) and 14 (*stop*) represent the initial action stage and take the *to*-infinitive, whereas 31 (*try*) and 377 (*stop*) represent the execution stage and take the *-ing* form.⁴¹

⁴⁰ In *stop to do/doing*, however, *to do* functions as a modifier but *doing* as a complement with respect to *stop*. This issue is left for future research.

⁴¹ Further explanation is needed as to why these predicates have such distributional differences and a preference for taking either the *to*-infinitive or the *-ing* form. This issue is left for future research.

Thus, matrix predicates that take either the *to*-infinitive or the *-ing* form prototypically represent a certain phase or stage, i.e. the potential/result phase (*like to do*, *remember/regret doing*) or the initial action/execution stage (*try to do*, *stop doing*), and are extended to represent another phase or stage and take the other complement type (*like/try doing*, *remember/regret/stop to do*). Predicates that take only one complement type (e.g. *want*, *keep*) represent only one phase or stage and are not extended to represent another phase or stage.⁴²

Let us note in passing that the predicates that primarily represent the potential (*like to do*) or result phase (*remember/regret doing*) are extended to represent the result (*like doing*) or potential phase (*remember/regret to do*) but not the action phase. Also, the predicates that primarily represent the initial-action (*try to do*) or execution stage (*stop doing*) are extended to represent the execution (*try doing*) or initial action stage (*stop to do*) (i.e. in the range of the action phase) but neither the potential nor the result phase. We can explain this in terms of a similarity between the potential and result phases and a distinctive property of the action phase. That is, while the target (the *to*-infinitive or the *-ing* form) is outside the actor's/conceptualizer's dominion in the potential phase but incorporated in it in the result phase, in both of these phases the actor/conceptualizer has a mental attitude (e.g. having a preference (*like*), feeling repentant (*regret*)) toward the target. Therefore, the matrix predicates primarily representing the potential/result phase are extended to represent the result/potential phase. On the other hand, the action phase is a transition between the two phases (cf. Langacker 2009: 133, 263), and the actor/conceptualizer takes some action, rather than having a mental attitude, toward the target. Therefore, the predicates primarily representing the initial action or execution stage are not extended to represent the potential or the result phase but remain in the range

⁴² We need to explain the semantic difference between predicates that can be extended to represent another phase or stage and ones that cannot. This issue is left for future research.

of the action phase.⁴³

4.6. Conclusion

This chapter has argued that instances of *to*-infinitive and *-ing* constructions fall naturally into three groups depending on which phase of the control cycle the matrix predicate represents. This chapter has also indicated that many instances of the *to*-infinitive and the *-ing* form are distributed in the potential and action phases of the control cycle, respectively, confirming previous suggestions that the *to*-infinitive construction typically evokes futurity and the *-ing* form temporal overlap. In addition, this chapter has examined, in terms of the control cycle, matrix predicates taking either the *to*-infinitive or the *-ing* form.

⁴³ I do not claim that all predicates show such extension. For example, as we have seen in Section 4.3.2 (footnote 23), the predicate *see* represents either the action phase as in (ia) or a stable experience (the result phase) as in (ib) (cf. Langacker 2009: 260).

(i) a. He *saw* shadows *moving* about the fire ...

b. I *see* it very clearly.

(= 9b)

(Langacker 2009: 260)

Chapter 5

The *to*-Infinitive as a Clausal Subject*

5.1. Introduction

This chapter discusses the use of the *to*-infinitive as a clausal subject, as in (1), and explains why this is a rare occurrence compared with the use of *-ing* as a subject and other uses of the *to*-infinitive.

- (1) a. *To write* a novel is a lie.
b. *To love* the earth is a sacred responsibility ...
c. *To win* on the court requires teamwork and collaboration ... (COCA)

This chapter empirically shows that the *to*-infinitive is used much less frequently than *-ing* as a clausal subject and that the *to*-infinitive subject also occurs much less frequently than other uses of the *to*-infinitive, such as a post-predicate complement or modifier, as in (2a, b).

- (2) a. He desperately wants *to win*.
b. And then we're going to work together *to win* the future of our country for the American people. (COCA)

* Part of this chapter was presented at the 15th International Cognitive Linguistics Conference held at Kwansai Gakuin University, Nishinomiya, Japan. I would like to thank the audience, and Elizabeth Riddle in particular, for their comments.

The infrequency of the *to*-infinitive as a clausal subject is explained with the argument that the notion of directionality (e.g. futurity), which typically motivates the use of the *to*-infinitive, as in (2), is incompatible with the conceptual autonomy of the clausal subject. That is, the notion of directionality makes the *to*-infinitive conceptually dependent on who- or whatever has the direction (e.g. volition) toward the *to*-infinitive, and this directionality makes the *to*-infinitive incompatible with the autonomy of the clausal subject. This chapter also shows that the *to*-infinitive as a clausal subject collocates with a very limited range of matrix predicates. It is argued that this, too, is due to the notion of directionality. A cognitive basis for the notion of directionality involved in the use of the *to*-infinitive subject is explained in terms of the control cycle (Langacker 2002, 2009).

The organization of the chapter is as follows. Section 5.2 reviews previous studies related to the topic of this chapter. Section 5.3 examines the token frequency of *to*-infinitives as a clausal subject. Section 5.4 examines, in terms of the control cycle, the notion of directionality involved in instances of *to*-infinitive subjects. Section 5.5 explains why the *to*-infinitive subject is rare and collocates with a limited range of matrix predicates. Section 5.6 summarizes and reviews the arguments presented.

5.2. Previous Studies of the *to*-Infinitive as a Clausal Subject

As we have seen in Chapters 1, 3 and 4, many previous studies of the *to*-infinitive argue that *to*-infinitive constructions typically evoke the notions of ‘futurity’ (Wierzbicka 1988: 165; Langacker 1991: 445–446, 2009: 301, 2015: 73; Smith and Escobedo 2001: 553–554) or ‘potentiality’ (Dixon 1984: 590; Quirk et al. 1985: 1191; Langacker 2015: 73). Smith and Escobedo (2001: 552–554) consider that the notion of futurity (e.g. purpose, volition) is directional because this notion is derivable from the source-path-goal schema. They state that “in the physical domain, a goal clearly lies at the endpoint of the path and is reached only after the path is traversed from the starting point” and that

“[r]eaching the goal thus occurs in the future relative to the time when movement along the path begins” (Smith and Escobedo 2001: 554). They also argue that “[t]he future-oriented sense of *to* thus evokes the conceptual transfer of the source-path-goal schema from the concrete physical domain to the temporal domain” (Smith and Escobedo 2001: 554). The notion of potentiality is also considered to be directional. Dixon (1984: 590–592) employs an arrow to indicate the potentiality marked by the *to*-infinitive and argues that this kind of *to*-infinitive “involves an agent moving towards some unrealised activity” (p. 592) (i.e. an infinitive’s event). Thus, the notions of futurity and potentiality are described as a directionality toward an infinitive’s event.¹ Some of the authors (Langacker 1991: 446; Smith and Escobedo 2001: 552–554; Dixon 1984: 589–592) attribute the notion of futurity or potentiality to the infinitival *to*, which they interpret as a path leading to a goal, i.e. the infinitive’s event (see Duffley 2003: 350; Smith and Escobedo 2001: 552–554).

The central interest in these studies is to explain the semantic motivation for the use of the *to*-infinitive as a post-predicate complement or modifier, as in (2); the use of the *to*-infinitive as a clausal subject, as in (1), is not comprehensively examined. Egan (2008) and Duffley (2003) do, however, provide accounts of *to*-infinitive subjects, which are worth reviewing.

Egan (2008) downloaded instances from *the British National Corpus* (BNC) of infinitival subjects comprising an initial *To* followed immediately by one of the four verbs *live*, *love*, *win* and *write*—the first two stative, the third an achievement and the fourth either an activity or an accomplishment. His corpus study yielded 40 instances of *to*-infinitive subjects, which he observes are rare in themselves and collocate with a very

¹ The directionality does not, therefore, include the notion of ‘leading up to the time of speaking’. I would like to thank an anonymous reviewer of an earlier version of this chapter for drawing my attention to this issue.

limited range of predicates.² He notes that more than two-thirds of the downloaded instances collocate with a copular predicate, as in example (3a), and the other instances (with one exception) collocate with *involve*, *require*, *demand* or *mean*, as in (3b, c).

- (3) a. *To love* a human being is still the only thing worth living for; without this love you really do not live.
- b. *To live* life to the full involves awareness of the physical, emotional, mental and spiritual self.
- c. *To win* a significant amount of new business would require a big cultural change at the company. (Egan 2008: 100, from BNC)

However, 40 instances are insufficient to provide a comprehensive account of the use of the *to*-infinitive as a clausal subject, and Egan (2008) does not explain why the *to*-infinitive subject is rare in itself and collocates with a very limited range of predicates.

Duffley (2003) examines 129 instances of the *to*-infinitive used as a clausal subject in the Brown and LOB corpora and explains the semantic motivation for the use of a *to*-infinitive subject in terms of the notion of directionality. He states that the infinitival *to* evokes “the bare infinitive’s event as the end point of a path or movement leading up to its actualization” (Duffley 2003: 350). For example, he claims that a *to*-infinitive subject collocating with a verb of requirement is used in future or conditional contexts, as in (4).

- (4) *To find* a place for them in their theory of knowledge would require them to revise the theory radically ... (Duffley 2003: 341, from Brown Corpus)

² In addition to the data from the corpus, Egan (2008) refers to Biber et al. (1999: 722) to support his observation that occurrences of the *to*-infinitive subject are rare.

The present study concurs with Duffley’s observations in that the use of the *to*-infinitive itself is typically motivated by the notion of directionality. When the *to*-infinitive is used as a clausal subject, however, this study empirically shows that examples that lack any specific directionality, as in (5a, b), occur much more frequently than examples that do evoke a relatively specific directionality, as in (4).

(5) a. *To love* the earth is a sacred responsibility ...

b. *To live* was then in itself a delight ... (COCA)

The present study explains why the *to*-infinitive is more often used as a subject that does not evoke specific directionality. In the following section, the token frequency³ of *to*-infinitive subjects is examined by observing actual usage data in the *Corpus of Contemporary American English* (COCA).

5.3. The Token Frequency of the *to*-Infinitive as a Clausal Subject

For this study, a corpus study was conducted in order to confirm that the *to*-infinitive rarely occurs as a clausal subject. Building on Egan’s (2008) corpus study (see Section 5.2), examples comprising an initial *To* followed immediately by one of the four verbs *live*, *love*, *win* and *write* were downloaded from COCA; recall that the first two verbs are stative, the third an achievement, and the fourth either an activity or an accomplishment. This corpus study yielded 180 instances of *to*-infinitive subjects, collocating with 21 different matrix predicates. As shown in Table 5.1, the *to*-infinitive collocates with the verb *be* in about 76 percent of the examples, followed by *mean*, *require*, *show*, *take*, etc. Sentences (6a–f) are some of the downloaded examples.

³ As we have seen in Section 4.3 (footnote 7), token frequency is defined as “the count of the occurrence in texts of particular words, such as *broken* or *have*, or of specific phrases, such as *I don’t think*” (Bybee and Thompson 1997: 378).

Matrix Predicate	To live	To love	To win	To write	Total
be	51	39	11	35	136 (75.6%)
mean	9	3	0	2	14 (7.8%)
require	4	0	1	1	6 (3.3%)
show	1	1	1	0	3 (1.7%)
take	0	0	1	2	3 (1.7%)
Others (change, seem, etc.)	8	1	2	7	18 (10.0%)
Total	73	44	16	47	180

Table 5.1: Totals for *to*-Infinitives as a Clausal Subject

- (6) a. *To live* with regret is heavy.
 b. *To love* God means to love the world.
 c. *To live* there as a student requires parental wealth ...
 d. *To win* at home over Portland without Jalen Rose showed Larry Bird's group just might be primed to make a title run.
 e. *To win* against Cancer takes everything you have.
 f. *To write* such words changed the meaning. (COCA)

Another search of COCA was conducted for examples beginning with *Living*, *Loving*, *Winning* and *Writing*. This yielded 1,957 instances of *-ing* subjects, indicating that this construction is used much more frequently than the *to*-infinitive as a clausal subject.⁴

⁴ The examples of *to*-infinitive and *-ing* subjects were downloaded on 3 March 2020. Note that the total for *-ing* as a clausal subject includes 7 instances collocating with 2 matrix predicates and 1 instance with 3 matrix predicates, as in (ia, b), respectively.

- (i) a. *Writing* a book is good, but doesn't automatically qualify you to be speaking.
 b. *Winning* ended the game, sent the kings bounding merrily away, and sealed up the window.

Besides, the downloaded instances collocate with 223 different matrix predicates, which shows that *-ing* subjects collocate with a wider variety of matrix predicates than do *to*-infinitive subjects. As shown in Table 5.2, approximately 54 percent of the instances collocate with the verb *be*, followed by *mean*, *make*, *give*, *require*, etc. While *-ing* subjects also collocate with a somewhat limited range of matrix predicates—like *to*-infinitive subjects (see Table 5.1), they tend to collocate with the verbs *be*, *mean* and *require*⁵—this corpus study shows that *-ing* subjects collocate with a wider variety of matrix predicates than do *to*-infinitive subjects. Sentences (7a–d) are some of the downloaded examples.

Matrix Predicate	Living	Loving	Winning	Writing	Total
be	352	55	327	330	1,064 (54.4%)
mean	47	11	25	8	91 (4.6%)
make	44	3	12	30	89 (4.5%)
give	25	1	11	13	50 (2.6%)
require	13	0	22	15	50 (2.6%)
help	12	0	7	28	47 (2.4%)
have	14	1	10	4	29 (1.5%)
allow	13	0	4	9	26 (1.3%)
take	7	0	7	10	24 (1.2%)
seem	5	0	6	12	23 (1.2%)
become	8	1	3	8	20 (1.0%)
others (feel, prove, etc.)	157	17	139	131	444 (22.7%)

(COCA)

⁵ In Section 5.5.2, I discuss the commonalities between *to*-infinitive and *-ing* subject constructions and explain why both *to*-infinitive and *-ing* subjects tend to collocate with these three verbs.

Total	697	89	573	598	1,957
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Table 5.2: Totals for *-ing* as a Clausal Subject

- (7) a. *Living* in reality is a good thing.
 b. *Loving* our children certainly means having compassion for them ...
 c. *Writing* things down makes them tangible, visible and somehow real.
 d. *Living* in America gives us amazing opportunities and freedom in terms of food and nourishment. (COCA)

For the present study, examples containing all uses of the four previously researched *to*-infinitives were also examined in order to clarify how rare the *to*-infinitive is as a subject compared with its other uses. Searches of COCA for *to live*, *to love*, *to win* and *to write* occurring in any position yielded 68,860, 17,018, 52,306, and 42,843 instances respectively, which made manual sorting impracticable. One thousand examples were therefore randomly downloaded from each total. Among the 4,000 downloaded examples, the corpus study found only 24 instances of the *to*-infinitive used as a clausal subject. In contrast, as many as 2,509 of the examples had the *to*-infinitive placed as a post-predicate complement or modifier, as in (8a, b).⁶

- (8) a. We want *to live* in a city that provides people the opportunity to live, work and shop in the same neighborhood.
 b. ... the Republican Party needed to join together *to win* the White House ...

⁶ The search found many other uses of *to*-infinitives (e.g. noun modifiers (ia), adverbials at the beginning of the sentence (ib), *wh*-infinitives (ic), etc.). This study does not take up all these uses.

- (i) a. Now he has a chance *to win* the ring that has eluded him ...
 b. In order *to win* they must trust others and collaborate with them.
 c. They were classically trained and they knew how *to write* very powerful orchestral music ... (COCA)

Thus, the corpus study revealed that the *to*-infinitive as a subject is rare compared with both *-ing* as a subject and other uses of the *to*-infinitive and that, while both *to*-infinitive and *-ing* subjects tend to collocate with the verbs *be*, *mean* and *require*, *to*-infinitive subjects collocate with a narrower range of matrix predicates than do *-ing* subjects.

Section 5.4 examines, in terms of the control cycle, the notion of directionality involved in the *to*-infinitive subject. Based on the examination in Section 5.4, Section 5.5 explains why the *to*-infinitive subject is rare and collocates with a limited range of matrix predicates.

5.4. The Notion of Directionality Involved in the *to*-Infinitive Subject

5.4.1. The Control Cycle and *to*-Infinitives

In this section, a cognitive basis for the notion of directionality involved in the *to*-infinitive subject is explained in terms of the control cycle (see Section 2.8). In Chapters 3 and 4, I have applied the idea of the control cycle to an analysis of predicates taking the *to*-infinitive as a post-predicate complement or modifier, as in (9). Also, we have seen that the matrix predicates in (9a) and (9b) are classified as respectively representing the potential and action phases of the control cycle because the matrix predicate designates intention in (9a) and physical movement in (9b) toward the target (the *to*-infinitival clause). I have argued that forward-looking meanings such as these (i.e. intention or physical movement toward the target) prototypically motivate the use of the *to*-infinitive.

(9) PP: a. I want *to have* him in jail.

AP: b. That evening, my grandfather went out *to feed* his animals ...

RP: c. I know you *to be* a resourceful lady. (COCA)

We have also seen that the matrix predicate in (9c) is classified as representing the result phase because the *to*-infinitival clause (the target) is incorporated as part of the conceptualizer's knowledge, or dominion (D). I have argued that, since the *to*-infinitival clause is already under the conceptualizer's control, (9c) does not evoke a forward-looking meaning and is therefore not a prototypical example of *to*-infinitive constructions.

However, the analysis based on the control cycle in Chapters 3 and 4 is limited to the *to*-infinitive as a post-predicate complement or modifier, and no previous study has ever examined the *to*-infinitive as a clausal subject in terms of the control cycle. This chapter applies the control cycle to explain the notion of directionality involved in instances of *to*-infinitive subjects.

5.4.2. An Analysis of the *to*-Infinitive Subject Based on the Control Cycle

This section examines, in terms of the control cycle, the notion of directionality involved in instances of *to*-infinitive subjects, as in examples (10a–f).

- (10) PP: a. *To live* there as a student requires parental wealth ... (= 6c)
b. *To win* against Cancer takes everything you have. (= 6e)
AP: c. *To win* at home over Portland without Jalen Rose showed Larry Bird's
group just might be primed to make a title run. (= 6d)
d. *To write* such words changed the meaning. (= 6f)
RP: e. *To live* with regret is heavy. (= 6a)
f. *To love* God means to love the world. (= 6b)

As in Langacker (2002, 2009) and Chapters 3 and 4 in this dissertation, the present study

examines the meanings of the matrix predicates in order to classify the examples in terms of the control cycle. The matrix predicates (*require, take, show, change*) in (10a–d) indicate that these sentences pertain to effective control of the *to*-infinitive functioning as the subject; effective control concerns our effort to influence what happens (see Section 2.8 (footnote 7)). The matrix predicates (*require, take*) in (10a, b), for example, entail that the actor, who is generalized and not coded linguistically, has volition or intention to carry out the infinitive’s event, or target (the potential phase); and the matrix predicates (*show, change*) in (10c, d) entail that the actor carries out the infinitive’s event, or target (the action phase). In contrast, the matrix predicates (*be, mean*) in (10e, f) indicate that these sentences pertain to epistemic control of the clausal proposition—epistemic control being related to our efforts to acquire knowledge about the world (see Section 2.8 (footnote 7))—since the matrix predicates in these examples indicate that the clausal proposition (the target), with the *to*-infinitive as its subject, is accepted as part of the conceptualizer’s knowledge or belief (the result phase). This section claims that instances pertaining to the potential or action phases, as in (10a, b) and (10c, d) respectively, evoke volition or an action directed toward the infinitive’s event, whereas instances pertaining to the result phase as in (10e, f) do not evoke any specific directionality.

Let us first examine examples (10a, b), which correspond to the potential phase of the effective control cycle. In both these sentences, the matrix predicate entails that the event designated by the *to*-infinitive is presented as something aimed at.⁷ This means that the actor, who may be generalized and not necessarily the speaker or a particular individual, has some volition toward carrying out the event; the source of the direction is the actor, the path is the course of the volition and the goal is the infinitive’s event. The conceptual

⁷ This study refers to Duffley (2003: 340–341) for his analysis of *to*-infinitive subjects collocating with *require*. The present study is more comprehensive than Duffley’s in that this study explains, in terms of the control cycle, why *to*-infinitive subjects that do not involve the specific notion of directionality occur more frequently than those that do evoke specific directionality (see Section 5.2).

structure of sentences (10a, b) can be diagrammed as in Figure 5.1.

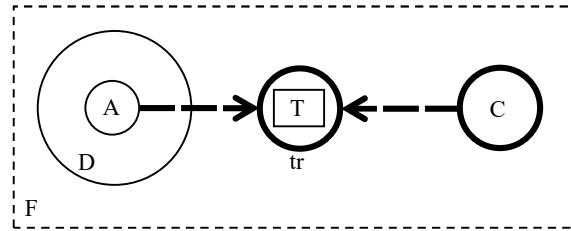


Figure 5.1: The Conceptual Structure of (10a, b)

The volitional direction is represented by the bold dashed arrow from the actor (A) to the target (T) (i.e. the infinitive’s event). The source of the direction (A) is not profiled, but the path and the goal are profiled by the infinitival *to* and the infinitive, respectively. Trajector status (tr) (i.e. “primary focal prominence” (Langacker 2008: 374); see Section 2.2 in this dissertation) is conferred on the target (the infinitive’s event) rather than the actor (A) and is elaborated as a subject; the target is not incorporated into the actor’s dominion (D). Also, the *to*-infinitive (T) profiles a thing (represented by a bold circle) rather than a relationship, which is usually represented by a box or a line.⁸ The requirement (i.e. *parental wealth* in (10a), *everything* in (10b)) that the actor needs to meet in order to carry out the target is represented as the cause (C) because the requirement, in effect, causes the *to*-infinitive’s event. This causal relationship is represented by the bold dashed arrow from C to T.

Let us next examine sentences (10c, d). The matrix predicates (*show*, *change*) entail that the actor carries out the infinitive’s event (the action phase). The conceptual structure of (10c, d) can be diagrammed as in Figure 5.2.

⁸ Langacker (2008: 118–120) notes that a *to*-infinitive used as in (ia) still profiles a relationship (or a relation), but its profile shifts to a thing in examples like (ib), where the *to*-infinitive functions as a clausal subject.

(i) a. The firemen tried *to enter* the burning building.

b. *To complain* would be futile.

(Langacker 2008: 118–119)

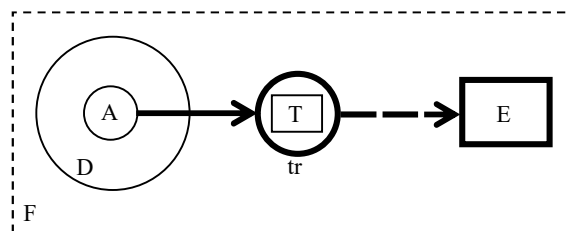


Figure 5.2: The Conceptual Structure of (10c, d)

As shown in the diagram, trajector status (tr) is conferred on the target (T) (the infinitive's event); and, just as in the diagram of (10a, b) in Figure 5.1, the target (T) is not incorporated into the actor's (A) dominion (D). In contrast to (10a, b), however, the actors in (10c, d) have neither volition nor intention toward the target because sentences (10c, d) imply that the target (the *to*-infinitive) is already carried out. However, the actors in (10c, d) do perform an action (playing against an opponent in (10c), writing certain words in (10d)) to reach the target, so their action is directed toward the infinitive's event. The direction toward the target is represented by the solid arrow from A to T; the source of the direction (i.e. the actor) is not profiled, but the path (i.e. the action directed toward the infinitive's event) and the goal (i.e. the infinitive's event) are profiled by the infinitival *to* and the infinitive, respectively. The effect (E) (i.e. *showing a strong possibility of making a title run* in (10c), *changing the meaning* in (10d)) represents what is caused by the actor's action reaching the target. This causal relationship is represented by the bold dashed arrow from T to E. ⁹

⁹ While the matrix predicates in (10a, b) and (10e, f) are in the present tense, those in (10c, d) are in the past tense. The tense, however, does not determine the phase of the control cycle to which each example corresponds. As we have seen, this study focusses on the meaning of the matrix predicate(s), rather than the tense or the meaning of the sentence as a whole, to classify examples in terms of the control cycle. I therefore claim that *show* and *change* in the present tense as in (ia, b) also indicate that these instances correspond to the action phase because the predicates describe a causal relationship whose effect (i.e. *showing natural ability* in (ia), *changing the meaning* in (ib)) is caused by the actor actually carrying out the target (i.e. the infinitive's events). (Sentences (ia, b) are from an informant.)

(i) a. *To win* without training shows natural ability.

Note that (10a, b) and (10c, d), which respectively pertain to the potential and action phases of the effective control cycle, show reverse causality. That is, in (10a, b), the infinitive's event is construed as the effect caused by the requirement (i.e. *parental wealth* in (10a), *everything* in (10b)). Contrastingly, in (10c, d), the infinitive's event is interpreted as causing the effect (i.e. *showing a strong possibility of making a title run* in (10c), *changing the meaning* in (10d)). In Section 5.5.2, we will see that causal relationships are partially involved in limiting the matrix predicates with which the *to*-infinitive subject collocates.

Finally, let us discuss sentences (10e, f). The matrix predicates (*be*, *mean*) indicate that these sentences pertain to epistemic control, which concerns our efforts to acquire knowledge about the world (see Section 2.8 (footnote 7)). Therefore, the target in the epistemic control cycle is the clausal proposition, which can be acquired as part of the conceptualizer's knowledge. The matrix predicate entails that the clausal proposition containing the *to*-infinitive as its subject is accepted as part of the conceptualizer's knowledge (the result phase). The conceptual structure of (10e, f) is sketched in Figure 5.3.

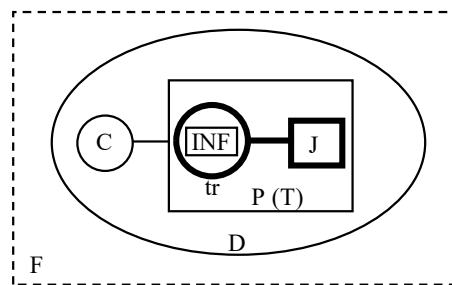


Figure 5.3: The Conceptual Structure of (10e, f)

In Figure 5.3, the target proposition (P) is established in the conceptualizer's (C) reality

b. *To write* such words changes the meaning.

conception (D). Therefore, the conceptualizer (C) does not have any specific direction (e.g. volition) toward the proposition (P). She has only judgment (J) (i.e. *heavy* in (10e), *to love the world* in (10f)) of the *to*-infinitive as the subject (INF).¹⁰ The relationship between the *to*-infinitive and the judgment is represented by the bold line between INF and J and is designated by *be* in (10e) and *mean* in (10f).¹¹

This section has provided a cognitive basis to explain what motivates the *to*-infinitive as a subject to evoke the notion of directionality. That is, examples like (10a–d) evoke a relatively specific notion of directionality (i.e. volition or an action directed toward a *to*-infinitive) because they pertain to the potential or action phases of the control cycle. On the other hand, examples like (10e, f) do not evoke any specific directionality because they pertain to the result phase, and the target propositions are already incorporated into the conceptualizer’s dominion. This study claims that instances like (10e, f) occur more frequently than instances like (10a–d) (see Table 5.1) because the lack of specific directionality in the former makes the *to*-infinitive compatible with the conceptual autonomy of the clausal subject. The following section discusses this issue in detail by considering the respective phases of the control cycle to which these instances correspond.

5.5. The Rare Occurrence of the *to*-Infinitive as a Clausal Subject

This study claims that the rare occurrence of the *to*-infinitive subject is due to the

¹⁰ We will discuss the conceptual motivation for the use of the *to*-infinitives in (10e, f) in Section 5.5.2.

¹¹ This study does not claim that the matrix predicate of instances pertaining to epistemic control always indicates that the target proposition is accepted as part of the conceptualizer’s knowledge or belief (the result phase). There are, for example, instances whose matrix predicate indicates that the target proposition is not yet accepted as part of the conceptualizer’s knowledge or belief, as in (i). The matrix predicate (*seem*) entails that the conceptualizer inclines toward accepting (i.e. is considering) the target proposition (the potential phase). A detailed analysis of examples as in (i) has been left for future research.

(i) *To write* it all off to volcanoes just seems like so much hand waving to me. (COCA)

notion of directionality, which makes the *to*-infinitive conceptually dependent and therefore incompatible with the conceptual autonomy of the clausal subject. This section also claims that the notion of directionality is involved in limiting the range of matrix predicates with which the *to*-infinitive subject collocates.

5.5.1. The Directionality of the *to*-Infinitive vs. the Conceptual Autonomy of the Clausal Subject

In Section 5.4.2, we have seen that instances pertaining to the potential or action phases (e.g. (10a–d)) evoke relatively specific directionality, which motivates the use of the *to*-infinitive, whereas instances pertaining to the result phase (e.g. (10e, f)) do not evoke any specific directionality. However, as we have seen in Table 5.1, examples collocating with the matrix predicates *require*, *take*, *show* and *change*, as in (10a–d), occur much less frequently than examples collocating with *be* and *mean*, as in (10e, f). Therefore, based on the data in Table 5.1 and the examination in Section 5.4.2, it seems reasonable to suppose that the specific notion of directionality involved in examples like (10a–d) is incompatible with a *to*-infinitive subject and that examples that do not evoke any specific directionality, as in (10e, f), are more compatible with a *to*-infinitive subject. Given previous studies of *to*-infinitives, this proposition might seem odd at first because many previous studies agree that the notion of directionality motivates the use of the *to*-infinitive (see Section 5.2). So why are examples that evoke the specific notion of directionality incompatible with a *to*-infinitive subject?

To answer this question, we must first discuss the conceptual autonomy of the clausal subject. Langacker (1987: 236) notes that, compared with the direct object, the subject is relatively autonomous vis-à-vis the verb. He also states that the subject/nonsubject distinction is similar to figure/ground asymmetry: the likelihood of an entity being construed as a distinct figure is enhanced to the degree that the contrast with its

surroundings is sharp and the entity is discrete. Based on Langacker's characterization of the clausal subject, we can say that the entity favored as a clausal subject is conceptually autonomous vis-à-vis its surroundings.

The conceptual autonomy of the clausal subject enables us to explain why the notion of directionality is incompatible with the use of the *to*-infinitive in this role. That is, while the notion of directionality typically motivates the use of the *to*-infinitive, it also makes it conceptually dependent; this conceptual dependence is incompatible with the autonomy of the clausal subject. For example, in (11 a, b), the notion of directionality (i.e. the volition or the action directed toward achieving the *to*-infinitive's event) makes the *to*-infinitive dependent on the actor who has the volition or carries out the action toward the infinitive's event.

- (11) a. *To live* there as a student requires parental wealth ... (= 6c)
b. *To win* at home over Portland without Jalen Rose showed Larry Bird's group
just might be primed to make a title run. (= 6d)

On the other hand, as we have seen in Section 5.4.2, the matrix predicates (*be*, *mean*) in (12a, b) indicate that these two examples pertain to the result phase of the epistemic control cycle, which means they do not evoke the specific notion of directionality toward the *to*-infinitive as their subject. Nor do they imply an actor who has any such direction. It is therefore plausible to say that, compared with examples like (11 a, b), the *to*-infinitive subject is relatively autonomous in instances pertaining to the result phase of the epistemic control cycle, as in (12a, b). For this reason, as we have seen in Table 5.1, most of the downloaded instances of *to*-infinitive subjects collocate with the verb *be*, followed by *mean*, since these two verbs entail that the target proposition is established in the

conceptualizer's reality conception (D) (the result phase of the epistemic control cycle).¹²

(12) a. *To live* with regret is heavy. (= 6a)

b. *To love* God means to love the world. (= 6b)

Since instances pertaining to the potential or action phases of the effective control cycle evoke specific directionality, trajector status tends to be conferred on the actor who is the source of the directionality, as in (9a, b); Langacker (2008: 367) notes that “[t]he actor tends strongly to be the focus of attention”. However, examples like (11a, b), which pertain to the potential and action phases, confer trajector status on the infinitive's event rather than the actor. Therefore, examples like (11a, b) are relatively rare. On the other hand, instances pertaining to the result phase of the epistemic control cycle, as in (12a, b), evoke neither the specific notion of directionality nor an actor who has any such direction. This makes the *to*-infinitive subjects in these examples conceptually autonomous and therefore relatively plausible as candidates for trajector status. For this reason, the *to*-infinitive is more often used as a subject pertaining to the result phase, rather than the potential or action phases, of the epistemic control cycle. Thus, the present study explains why instances of clausal subjects collocating with the matrix predicates *be* and *mean* occur more frequently than those collocating with the verbs *require*, *take*, *show* and *change* by considering the phase of the control cycle to which these instances correspond.

However, the *to*-infinitive, including the instances when it collocates with *be* and *mean* as in (12), is used much less frequently than *-ing* as a clausal subject (see Tables 5.1 and 5.2). This disparity between the two constructions is due to a difference in their

¹² However, examples collocating with *be* occur much more frequently than examples with *mean* (see Table 5.1). One reason for this is that *be* is much more common in general than *mean*: *be* occurs in 42,372,603 instances in COCA, whereas *mean* in only 748,840 instances (observed on 6 May 2020). Further examination has been left for future research.

“nouniness”. Observe the following sentences:

(13) a. She once liked watching television and physical exercise both.

b. *She once liked to watch television and physical exercise both.

(Emonds 1976: 132)

Emonds (1976) notes that *-ing* forms and nominals are conjoined, while *to*-infinitives and nominals are not, as illustrated in (13a, b). Of the two constructions, the *-ing* form therefore bears a closer resemblance to a noun because “in a coordinate structure the conjuncts are parallel and co-equal” (Langacker 2009: 349). Duffley (2003) agrees that a gerund is similar to a noun and states that gerund + gerund constructions as in (14a)¹³ can be compared to a sentence with two nouns as in (14b).

(14) a. *Complimenting* is lying. (Jespersen 1940: 168, in Duffley 2003: 345)

b. Politics is trickery. (Duffley 2003: 346)

Langacker (2008: 200, 539) notes that a noun profiles a “thing”; and—in contrast to a relationship (or a relation), which is conceptually dependent on its participants—a thing is conceptually autonomous. This means that the *-ing* form, too, is conceptually autonomous. So *-ing* is construed as being autonomous and, as Emonds (1976: 133) notes, can be put in the focus position of cleft constructions as in (15a),¹⁴ whereas the *to*-infinitive cannot, as illustrated in (15b).¹⁵

¹³ Jespersen (1940) quotes sentence (14a) from Jonathan Swift (1892), *Polite Conversation*.

¹⁴ Emonds (1976) observes the use of gerund clauses in examples like (13a) and (15a) to confirm their membership in the category NP (noun phrase).

¹⁵ Observing examples as in (13) and (15), Hamada (2002) also examines gerunds and infinitives in terms of “nouniness” and “objectification”. He states that gerundive complements are thing-like (i.e. a conceptually objectified or independent concept) whereas infinitival complements are eventive or processual (i.e. a conceptually dependent concept).

(15) a. It was buying a new hat that I enjoyed.

b. *It was to buy a new hat that I wanted. (Emonds 1976: 133)

Based on the data in (13), (14) and (15), it is plausible to say that, compared with the *to*-infinitive, the *-ing* form is closer to nominalization, and the nouniness of this construction makes it conceptually autonomous and therefore suitable as a clausal subject. In contrast, the *to*-infinitive, with its lower degree of nouniness, retains both the conception of a relationship and conceptual dependence, even when it functions as a clausal subject and shifts its profile to a thing. We have seen that the *to*-infinitive as a subject is conceptually more autonomous in instances that correspond to the result phase of the control cycle, as in (12a, b), than in those corresponding to the potential or action phase, as in (11a, b). Compared to *-ing* as a clausal subject, however, the present study proposes that, even in examples like (12a, b), the *to*-infinitive still retains the conception of a relationship and does not completely lose its dependence.¹⁶ The inherent dependence invoked in the *to*-infinitive makes it incompatible with the autonomy of the clausal subject. That is why this construction, even when corresponding to the result phase, is used less frequently than the *-ing* form as a subject.

The difference in degree of conceptual dependence (or autonomy) of the *to*-infinitive and the *-ing* form is also reflected in examples (16a–c) and (17a–c).

(16) a. *To live* a free life is to accept the limit of one's human life ... (COCA)

b. *?*To live* a free life is accepting the limit of one's human life.

c. ?*To love* is accepting the other.

¹⁶ The conceptual dependence in (12a, b) will be examined in detail in Section 5.5.2 in terms of the subjective directionality involved in those instances.

- (17) a. *Living* a free life is accepting the limit of one's human life.
 b. ?*Living* a free life is to accept the limit of one's human life.
 c. ?*Loving* is to accept the other.

Example (16a) corresponds to the result phase, where the conceptualizer expresses a judgment of the *to*-infinitive subject (i.e. *is to accept the limit of one's human life*). In (16a), the conceptualizer uses the conceptually dependent *to*-infinitive (*to accept*) to express a judgment of the *to*-infinitive subject, which is also conceptually dependent. On the other hand, (16b) is perceived as “impossible” or “sounds awkward”, and (16c) seems “unusual and strange”¹⁷ because the conceptualizer expresses a judgment of the *to*-infinitive subject using the *-ing* form, which, unlike the clausal subject, is conceptually autonomous. Sentences (17a–c) also illustrate the difference in degree of conceptual dependence (or autonomy) of the *to*-infinitive and the *-ing* form. In (17a), the conceptualizer uses the conceptually autonomous *-ing* form (*accepting the limit of one's human life*) to express a judgment of the likewise conceptually autonomous *-ing* subject. On the other hand, (17b, c) are perceived as “unusual and strange”¹⁸ because the conceptualizer uses the conceptually dependent *to*-infinitive to express a judgment of the conceptually autonomous *-ing* subject. The collocation of the *to*-infinitive + the *-ing* form, or the *-ing* form + the *to*-infinitive, as in (16b, c) and (17b, c), is considered unacceptable or strange due to the shift in point of view from either the conceptually dependent to the autonomous or the conceptually autonomous to the dependent element.¹⁹ Thus, the

¹⁷ Two out of three informants said that (16b) is wrong, and one of them said that (16b), while not wrong, is unusual and sounds awkward. All three informants said that (16c), while not wrong, is unusual and strange.

¹⁸ All three informants said that (17b, c), while not wrong, are unusual and strange.

¹⁹ The present study refers to Duffley's (2003: 346) examination of sentence (i). He claims that (i), “while perhaps not strictly impossible, sounds very awkward due to the shift in point of view from the entitative [i.e. denoting a thing with independent existence] to the eventive” (Duffley 2003: 346); as we have seen in (14a, b), he notes that the gerund resembles a substantial noun (see Duffley 2003: 346). The present study is more comprehensive than Duffley's in that this study explains why the *to*-

differences in acceptability in (16a–c) and (17a–c) reflect the difference in the degree of conceptual dependence (or autonomy) of the *to*-infinitive and the *-ing* form.²⁰

The present study also explains why the use of the *to*-infinitive as a subject is rare compared with its use as a post-predicate complement or modifier, as in (18a–c) (see Section 5.3). Sentences (18a–c) evoke the specific notion of directionality (i.e. volition in (18a), intention in (18b) and purpose in (18c)) toward the event designated by the *to*-infinitive as the post predicate complement or modifier. Also, in (18a–c) trajector status is conferred on the actor (i.e. the source of the direction in each case), which is consistent with the strong tendency of the actor to be the focus of attention (see Langacker 2008: 367). In addition, in keeping with their inherent dependence, the *to*-infinitives in these examples profile relationships rather than things; the actors are the trajectors of the relationship they designate. These characteristics of the *to*-infinitive lead to its inherent suitability and relatively frequent use as a post-predicate complement or modifier.

- (18) a. I want *to live* in the country.
- b. I thoroughly intend *to live* with someone I love.
- c. The wingnuts would have needed a minimum of 60% of the white vote *to win*
 this election. (COCA)

Conversely, as we have seen, conceptual dependence and specific directionality are incompatible with the autonomy of the clausal subject. The conceptual motivation for the use of the *to*-infinitive therefore conflicts with its use as a clausal subject. Furthermore, conferring trajector status on the *to*-infinitive's event rather than the actor is inconsistent

infinitive is less suitable as a clausal subject than the *-ing* form in terms of the conceptual dependence of the *to*-infinitive and the conceptual autonomy of the *-ing* form.

(i) *?Slandering is to expose the faults of another in his absence. (Duffley 2003: 346)

²⁰ I would like to thank an anonymous reviewer of an earlier version of this chapter for drawing my attention to this issue.

with the strong tendency of the actor to be the focus of attention. This conflict resulting from the prototypical motivation for the use of the *to*-infinitive, combined with the irregularity of removing the focus of attention from the actor, leads to the relative unsuitability and resulting low frequency of the *to*-infinitive as a clausal subject.

5.5.2. Directionality and Matrix Predicates

The remaining question is why the *to*-infinitive as a subject collocates with a very limited range of matrix predicates. This section explains the reason for this in terms of both the notion of directionality and the reference-point ability that is invoked when the *to*-infinitive is used as a subject.

Let us first review the reference-point alignment involved in *to*-infinitive constructions. Langacker (2015: 73) claims that the infinitival *to* “usually portrays the profiled event as being future or potential with respect to some reference point (R)”. Based on Langacker’s claim, in Chapter 3, we have seen that in sentence (19) the conceptualizer first directs her attention to *Mary* as a reference point to establish mental contact with the target (i.e. the state of *Mary* being a Mormon). In this chapter, it is proposed that the *to*-infinitive subject also invokes this reference-point ability.

(19) I know *Mary* to be a Mormon. (Wierzbicka 1988: 51)

Let us examine some examples of *to*-infinitive subjects in (20a, b). When we interpret examples pertaining to the potential phase of the effective control cycle, we first access the actor as a reference point to establish mental contact with the infinitive’s event as the target. The infinitive’s event functions, in turn, as the next reference point to access one of the associated entities. Since sentences (20a, b) pertain to the potential phase of the effective control cycle, we interpret the volition directed toward the infinitive’s event. The

volition limits the associated entities to ones such as a requirement to carry out the infinitive's event (i.e. *parental wealth, everything you have*) because when we intend to carry out an event we need to know what (the object of *require* and *take*, respectively) causes the goal (the infinitive's event). (For a discussion of the causal relationship, see Section 5.4.2.) This limitation, in turn, restricts the range of matrix predicates to ones that designate the causal relationship between the infinitive's event and the requirement to carry out the event. Therefore, the matrix predicates that collocate with a *to*-infinitive subject in instances pertaining to the potential phase, as in (20a, b), are limited to verbs like *require* and *take*, both of which express the idea of needing something.

- (20) a. *To live* there as a student requires parental wealth ... (= 6c)
 b. *To win* against Cancer takes everything you have. (= 6e)

As for examples pertaining to the action phase of the effective control cycle, as in (21a, b), we first access the actor as a reference point to establish mental contact with the infinitive's event as the target. The infinitive's event functions as the next reference point to access one of the associated entities. Since sentences (21a, b) correspond to the action phase, they entail that the actor performs an action (e.g. playing against the opponent (21a), writing each word (21b)) toward the infinitive's event in order to achieve the event. The achievement of the infinitive's event limits the associated entities to ones such as an effect (i.e. *showing the strong possibility of making a title run* in (21a) or *changing the meaning* in (21b)), because the actor's achievement of the target event causes an effect. The verbs *show* and *change* are compatible with designating the causal relationship because *show* means "to make [something] clear" (OALD: 1439) and *change* means "to make [somebody/something] different" (OALD: 243). Note that *make* means "to cause [somebody/something] to feel, show or have a particular quality: to cause

[somebody/something] to be or become [something]” (OALD: 948).²¹ Therefore, the matrix predicates that collocate with a *to*-infinitive subject in instances pertaining to the action phase, as in (21a, b), are limited to verbs like *show* and *change*.

- (21) a. *To win* at home over Portland without Jalen Rose showed Larry Bird's group
just might be primed to make a title run. (= 6d)
- b. *To write* such words changed the meaning. (= 6f)

As for examples pertaining to the result phase of the epistemic control cycle, as in (22a, b), no specific direction is evoked. However, since the target proposition is already established in the conceptualizer's reality conception, her mental access to the infinitive's event limits the entities accessible through the infinitive's event to ones whose relationship with the infinitive's event is established as part of the conceptualizer's reality conception. This limitation further restricts the range of matrix predicates to ones that designate the established relationship between the infinitive's event and the accessed entity. Therefore, the matrix predicates that collocate with a *to*-infinitive subject in instances pertaining to the result phase, as in (22a, b), are limited to verbs like *be* and *mean*; these two verbs are appropriate for designating an established relationship because *be* means “having the state, quality, identity, nature, role, etc.” (NOAD: 142), and *mean* is defined as “necessarily or usually entail or involve” (NOAD: 1084).

- (22) a. *To live* with regret is heavy. (= 6a)
- b. *To love* God means to love the world. (= 6b)

²¹ Instances pertaining to the action phase also collocate with the verb *make* as in (i), which entails that the achievement of the infinitive's event causes the effect (*her feeling whole*), just as in (21a, b).

(i) *To praise* God made her feel whole ... (COCA)

We can explain the conceptual motivation for the use of the *to*-infinitives in (22a, b) in terms of reference-point ability. Let us first note Langacker’s (1995: 189) claim that in a reference-point chain with C (the conceptualizer) as its origin, C is both the conceptualizer and the initial reference point (R₀); and the target (T₀) accessed through R₀ functions, in turn, as the next reference point (R₁) to access the next target (T₁), and so on ((R₂) to (T₂) ...). Based on Langacker’s claim, sentences (22a, b) can be diagrammed as in Figure 5.4.

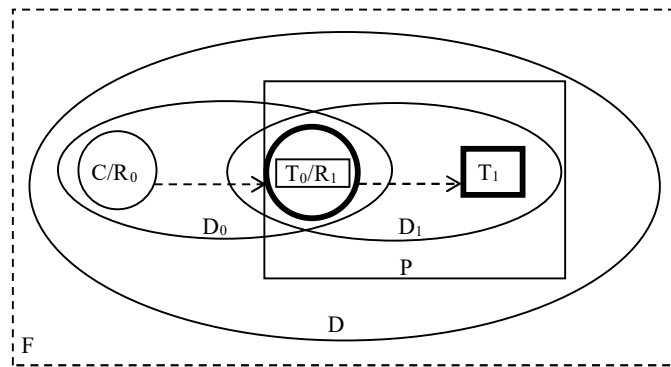


Figure 5.4: The Reference Point Relationship in (22a, b)

As we have already seen, since the target proposition (P) is incorporated into the conceptualizer’s dominion (D), the conceptualizer (C) has no specific direction toward the proposition. However, reference-point ability is applied and motivates the use of the *to*-infinitives in (22a, b). That is, when the conceptualizer (C) mentally accesses the target proposition, she first directs attention to the infinitive’s event as a reference point (R₁) to establish mental contact with her judgment as the target (T₁) out of the associated entities (D₁). It should be noted here that the conceptualizer (C) acts as the starting point (R₀) of the reference-point chain, so the mental access from R₀ to the infinitive’s event (T₀) is invoked in (22a, b). The present study claims that subjective directionality lies in directing attention from R₀ to T₀. Therefore, while no specific direction (e.g. volition as in (20a, b))

is evoked in (22a, b), the reference-point ability that is immanent in the specific direction from the actor to the infinitive's event in (20) and (21) remains in (22a, b), and the subjective directionality lying in the reference-point ability motivates the use of the *to*-infinitives in (22a, b).²² This subjective directionality also makes the *to*-infinitives dependent on the conceptualizer.²³

Note, however, that the degree of dependence is lower in (22a, b) than in (20a, b) and (21a, b) because the subjective directionality is much less specific in (22a, b) than the specific directionality evoked in (20a, b) and (21a, b). Thus, in instances pertaining to the result phase, the *to*-infinitive is relatively autonomous and therefore more suitable as a clausal subject than in instances pertaining to the potential or action phases.

The subjective directionality involved in the *to*-infinitive explains why the *to*-infinitive subject as in (23a) tends to imply an agent, while the *-ing* subject as in (23b) does not (see Wood 1956: 11).

(23) a. To lie is wrong.

b. Lying is wrong.

(Wood 1956: 11)

Wood (1956: 11) states that when we say (23a) “we are thinking of you, me or anyone else telling lies; that is to say we think of it in connection with a subject, though not with any particular subject”. On the other hand, he notes that when we say (23b) “we are thinking of the activity or the practice in a universal sense, as a vice having an existence independent of the individual who succumbs to it” (Wood 1956: 11). The present study

²² In Cognitive Grammar, this is called subjectification (see Langacker 2008). (For a discussion of subjectification, see Section 2.9.) In Chapter 3, we have seen that sentence (i) does not evoke objective directionality, but the reference-point ability involving subjective directionality from *Mary* to a *Mormon* remains and motivates the use of the *to*-infinitive.

(i) I know Mary to be a Mormon. (= 19)

²³ This dependence makes the *to*-infinitive less compatible than the *-ing* form with the conceptual autonomy of the clausal subject (see Section 5.5.1).

proposes that the subjective directionality lying in the mental access from the conceptualizer (R_0) to the infinitive's event (T_0) makes the *to*-infinitive subject dependent on the controller (i.e. the conceptualizer),²⁴ thus implying someone who controls the *to*-infinitive subject.²⁵ In contrast, as we have seen in Section 5.5.1, the *-ing* form is closer to nominalization and therefore conceptually autonomous, which makes it independent of any agent. The conceptual dependence of the *to*-infinitive subject explains why (23a) is less common and natural than (23b): that is, the conceptual dependence of the *to*-infinitive is incompatible with the autonomy of the clausal subject.²⁶

Let us also discuss instances like (24), where the agent of the *to*-infinitive subject is

²⁴ Langacker (2008) defines the “controller” as “the participant most readily understood as complement trajector when all relevant conceptual factors are taken into account” (p. 434). Given his definition of the controller, even though the conceptualizer is not coded in (23a), she is the only one who can be understood as the trajector of the *to*-infinitive subject; no other candidate is involved in (23a). Recall that the *to*-infinitive retains the conception of a relation even when it functions as a clausal subject and shifts its profile to a thing (see Section 5.5.1). Also, the present study claims that the conceptualizer associated with the mental access to the infinitive's event in (23a) need not be the one invoked for the grounding of the matrix predicate but can be a generalized one (cf. Langacker 2008: 441–442).

²⁵ Duffley (2014: 40) deals with the question of generic control in instances like (i). He claims that the *to*-infinitive subject in (i) has generic control and that the subject (i.e. the controller) of the *to*-infinitive could be anyone. The present study is more comprehensive than Duffley's in that this study specifies that the generic controller is a generalized conceptualizer who has mental access to the infinitive's event. Further examination of the controller of the *to*-infinitive subject is left for future research.

(i) Indeed in the case of, say, painkilling drugs, to go on methodically taking them even if the pain ceases to be troublesome would be foolish.

(Duffley 2014: 40, from *the Great Britain component of the International Corpus of English*)

²⁶ All three informants said that (23b) is more common and natural than (23a). The conceptual dependence of the *to*-infinitive subject also explains why (ia) is less natural than (ib): all three informants said that (ib) is more natural than (ia). That is, the subjective directionality involved in the *to*-infinitive subject makes it conceptually dependent on the conceptualizer, which causes the *to*-infinitive to be incompatible with the autonomy of the clausal subject. Also, while the controller of the *to*-infinitive subject in (ia) is generalized, the conceptual dependence makes the *to*-infinitive subject imply someone who controls it, which causes it to suggest a particular (or individual) event and to be incompatible with the adverb *generally*. On the other hand, the *-ing* subject is conceptually autonomous and independent of any agent, which causes it to suggest a general event and to be compatible with the adverb (*generally*). (Sentences (ia, b) were supplied by an anonymous reviewer of an earlier version of this chapter.)

(i) a. *To live* in Australia is generally hassle-free and easy.

b. *Living* in Australia is generally hassle-free and easy.

Hamada (2016: 50–51) also discusses the particularity of the infinitive subject and the generality of the gerund subject by claiming that the former is proximal to the speaker's domain, whereas the latter is distal to it.

coded by the prepositional phrase *for you*.

(24) *For you to blame* one party is completely wrong. (COCA)

The matrix predicate entails that the clausal proposition is accepted as part of the conceptualizer's knowledge (the result phase). Therefore, the conceptualizer does not have any specific direction toward the proposition. However, just as in (22a, b), reference-point ability is applied and motivates the use of the *to*-infinitive in (24). That is, the conceptualizer (R₀) first directs attention to *you* (T₀) in the prepositional phrase as a reference point (R₁) to establish mental contact with the infinitive's event (*to blame one party*) as the target (T₁); the *to*-infinitive's event functions in turn as the next reference point (R₂) to access the judgment (*wrong*) (T₂). Subjective directionality lies in directing attention from the conceptualizer (R₀) to *you* (T₀), then from *you* (R₁) to the infinitive's event (T₁), and motivates the use of the *to*-infinitive. This subjective directionality makes the *to*-infinitive dependent on the agent (*you*) as well as making the structure *for* + noun + infinitive dependent on the conceptualizer. Note, however, that the degree to which the structure *for* + noun + infinitive depends on the conceptualizer is relatively low because the directionality from the conceptualizer to the structure is only subjective.²⁷

The conceptual dependence of the *to*-infinitive also explains why instances like (25b) are more natural than instances like (25a).²⁸

(25) a. To lie is wrong. (= 23a)

b. It is wrong to lie.

²⁷ An anonymous reviewer of an earlier version of this chapter suggested that I examine an example like (24). I would like to thank him/her for this suggestion.

²⁸ All three informants said that (25b) is more natural and common than (25a).

In (25b), trajector status is conferred on *it*, which designates the field in reference to the control cycle (see Langacker 2009: 143–146, 287). The field (*it*) is “interpretable as the array of knowledge brought to bear in assessing” (Langacker 2009: 287)²⁹ the infinitive’s event. The conceptualizer accesses the field as a reference point to establish mental contact with the infinitive’s event as the target. In directing her attention from the field to the infinitive’s event, however, she directs the judgmental attitude (*wrong*) toward the infinitive’s event, which makes the *to*-infinitive dependent on the conceptualizer. This judgmental directionality and conceptual dependence leads to the suitability of the *to*-infinitive in (25b).³⁰ On the other hand, in (25a), trajector status is conferred on the infinitive’s event, and the *to*-infinitive is used as a clausal subject, which should be conceptually autonomous (see Section 5.5.1). Also, while reference-point ability is applied in (25a) and the subjective directionality lying in the mental access from the conceptualizer (R₀) to the infinitive’s event (T₀) motivates the use of the *to*-infinitive, the subjective directionality is less specific in (25a) than the judgmental directionality evoked in (25b). In (25a), the inherent conceptual dependence and directionality invoked in the *to*-infinitive conflict with the inherent conceptual autonomy of the clausal subject and its lack of specific directionality, making this use of the *to*-infinitive less common than in instances like (25b).³¹

²⁹ According to Langacker (2009), the field (F) designated by the impersonal *it* as in (i) is “interpretable as the array of knowledge brought to bear in assessing” (Langacker 2009: 287) the target proposition (i.e. the *that*-clause).

(i) It is certain that beer prevents cancer. (Langacker 2009: 286)

³⁰ Note that the judgmental directionality evoked in (25b) is less specific than the notions of volition, intention, and purpose, which are evoked in (18a), (18b) and (18c), respectively.

³¹ Swan (2016: §8: 92.1) also states that (ib) is more usual than (ia). He explains the reason for this in terms of the principle of end-weight: “[l]onger and heavier structures usually come last in a clause or sentence” (Swan 2016: §25: 267.4). The present study examines (25a, b), where the infinitive expression (*to lie*) is short and simple, and explains the suitability of the *to*-infinitive in (25b) in terms of judgmental directionality and conceptual dependence (rather than in terms of the principle of end-weight).

(i) a. To wait for people who were late made him angry.

b. It made him angry to wait for people who were late. (Swan 2016: §8: 92.1)

An anonymous reviewer of an earlier version of this chapter suggested that I discuss examples like (25a) and (25b). I would like to thank him/her for this suggestion.

As we have seen in Section 5.3, *-ing* as a subject collocates with various matrix predicates. In contrast to the *to*-infinitive as a subject, the *-ing* form does not involve directionality that would limit both the range of the associated entities and the matrix predicates with which it collocates. Rather, *-ing* as a subject is conceptually autonomous and more typical than the *to*-infinitive as a clausal subject (see Section 5.5.1). Therefore, *-ing* as a subject has various associated entities, as in (26a–g): e.g. a judgment (*a good thing, having compassion*) in (26a, b); a requirement (*American troops*) in (26c); something made easier (*disentangling thoughts*) in (26d); an effect (*drawbacks*) in (26e); a feeling the speaker started to have (*being natural*) in (26f); something the speaker learned (*that*) in (26g). Hence, in addition to the matrix predicates *be*, *mean* and *require*, as in (26a–c)—which were also found to collocate with *to*-infinitive subjects in the present corpus study—*ing* as a subject collocates with various predicates, as in (26d–g), which designate the relationship between the *-ing* subject and its various associated entities.³²

- (26) a. *Living* in reality is a good thing. (= 7a)
 b. *Loving* our children certainly means having compassion for them ... (= 7b)
 c. *Winning* the war in Afghanistan will probably require more American troops.
 d. *Writing* in general helps me disentangle my thoughts ...
 e. *Living* in the technological age has its drawbacks ...
 f. *Living* with sickness almost became my natural [sic].
 g. *Living* with a man taught me that. (COCA)

Let us note, however, that while *-ing* subjects collocate with a wider variety of matrix

³² This chapter focuses on an examination of the *to*-infinitive as a clausal subject. A more detailed comparison of the *to*-infinitive and the *-ing* form as a subject is left for future research.

predicates than do *to*-infinitive subjects, *-ing* subjects are also somewhat limited vis-à-vis the matrix predicates with which they collocate. That is, both *-ing* subjects and *to*-infinitive subjects tend to collocate with the verbs *be*, *mean* and *require* (see Tables 5.1 and 5.2).³³ In order to explain this issue, we need to discuss the commonalities between *to*-infinitive and *-ing* subject constructions. In addition to the imposition of summary scanning on the verbal process (see Section 2.5), both the *to*-infinitive and the *-ing* form as a subject shift their profile to a thing identifiable as a conceptual reification of the verbal process (cf. Langacker 1991: 25–26, 2008: 119–120). Instances of the two constructions confer trajector status on the reified event (i.e. the event designated by the *to*-infinitive subject or the *-ing* subject). When we confer primary focal prominence (trajector status) on the event rather than the actor who carries it out, we describe some aspect of the event. Most commonly, we express a judgment of the event (e.g. (22a, b), (26a, b)). We also commonly describe what is required to carry out the event (e.g. (20a), (26c)). Therefore, in *to*-infinitive and *-ing* subject constructions, both the *to*-infinitive and *-ing* subjects tend to collocate with the verbs *be*, *mean* and *require*, which are frequently used to describe a judgment of the event (*be*, *mean*) or a requirement to carry out the event (*require*).³⁴

Section 5.5 has explained why the *to*-infinitive is rarely used as a clausal subject, compared with *-ing* as a subject and other uses of the *to*-infinitive. While both *to*-infinitive and *-ing* subjects have certain limitations on the matrix predicates with which they collocate, this section has also explained why the *to*-infinitive collocates with a less varied range of matrix predicates.

³³ I would like to thank an anonymous reviewer of an earlier version of this chapter for drawing my attention to this issue.

³⁴ *To*-infinitive and *-ing* subjects also tend to collocate with verbs like *show* or *make* (see Tables 5.1 and 5.2), which designate a causal relationship whose effect is caused by carrying out the event of the subject, as in (21a) or (i). This is because, when we confer focal prominence on an event (rather than the actor), it is also common for us to describe what is caused by carrying out the event.

(i) *Writing* always made me feel immortal ... (COCA)

5.6. Conclusion

In order to explain why the *to*-infinitive as a subject occurs much less frequently than the *-ing* form as a subject and other uses of the *to*-infinitive, this chapter has presented the argument that the notion of directionality makes the *to*-infinitive incompatible with the autonomy of the clausal subject. It has also been argued that the notion of directionality is involved in limiting the range of matrix predicates with which the *to*-infinitive subject collocates. The present study has provided a cognitive basis for this directionality in terms of the control cycle. In addition, this chapter has explained why instances of the *to*-infinitive as a subject collocating with the matrix predicates *be* and *mean* are relatively frequent, compared with instances collocating with the verbs *require*, *take*, *show* and *change*, by considering the respective phases of the control cycle to which these instances correspond.

Chapter 6

The Infinitive with or without *to* in Periphrastic Causative Constructions*

6.1. Introduction

In Chapters 3–5, we have compared the *to*-infinitive with the *-ing* form and the *that*-clause. The rest of this dissertation (i.e. Chapters 6 and 7) compares the *to*-infinitive with the bare-infinitive (the infinitive without *to*) in terms of the control cycle. This chapter examines the infinitive with or without *to* in periphrastic causative constructions as in (1a, b) and explains why *to* must be included when the causative predicate *make* is used in the passive, as in (1b).¹

(1) a. Mary made John drive the car.

b. John was made to drive the car. (Dixon 2005: 251)

This chapter argues that the causative predicate *make* as in (1a) represents the action phase of the effective control cycle. When the construction is passivized as in (1b), however, the past participle *made* represents the result phase. This study states that the specific directionality (e.g. futurity or potentiality) evoked in instances like *I want to kiss*

* Part of this chapter was presented at the 2021 Annual Meeting of the English Literary Society of Hakodate held at Hokkaido University of Education, Hakodate. I would like to thank the audience for their comments. This chapter also discusses some problems that were left unsolved in Sasaki (2021).

¹ Chapter 7 will examine the infinitive with or without *to* in perception constructions as in (ia, b) below.

(i) a. They saw/heard/noticed John kick Mary.

b. John was seen/heard/noticed to kick Mary. (Dixon 2005: 252)

a frog (Langacker 2008: 438) is no longer present in (1b). However, the reference point ability inherent in specific directionality remains, and the subjective directionality lying in reference point ability motivates the use of the *to*-infinitive in instances like (1b).² This chapter also describes, in terms of the control cycle, the distributional differences between the *to*-infinitive and the bare-infinitive in a series of usage events, i.e. actual instances of language use (Langacker 2000: 9).

The organization of this chapter is as follows. Section 6.2 observes the definition of (periphrastic) causative constructions. Section 6.3 reviews previous studies related to the topic of this chapter. Section 6.4. discusses the validity of applying the idea of the control cycle to an analysis of periphrastic causative constructions. Section 6.5 explains, in terms of the control cycle, why *to* must be included when the causative predicate *make* is used in the passive, as in (1b). Section 6.6 summarizes and reviews the arguments presented in this chapter.

6.2. The Definition of Causative Constructions

Shibatani (1976: 1–3) defines the causative construction by characterizing the situation that the construction expresses. He argues that two events constitute a causative situation if the following two conditions hold:

- (2) a. The relation between the two events is such that the speaker believes that the occurrence of one event, the “caused event,” has been realized at t_2 , which is after t_1 , the time of the “causing event.”
- b. The relation between the causing and the caused event is such that the speaker

² As we have seen in Sections 3.4.1 and 3.5, reference point ability and the subjective directionality based on this ability are invoked in all instances of *to*-infinitive constructions, including atypical instances corresponding to the result phase of the control cycle (e.g. (1b)). For a discussion of the subjectification (see Section 2.9) of directionality in *to*-infinitive constructions, see Section 3.5.

believes that the occurrence of the caused event is wholly dependent on the occurrence of the causing event; the dependency of the two events here must be to the extent that it allows the speaker to entertain a counterfactual inference that the caused event would not have taken place at that particular time if the causing event had not taken place, provided that all else had remained the same. (Shibatani 1976: 1–2)

Based on (2a, b), Shibatani (1976: 2) notes that (3a, b) are not causative sentences. He argues that (3a) “does not commit the speaker to the belief that the event of John’s going occurred after his telling him to do so” (Shibatani 1976: 2). Also, while (3b) does commit the speaker to the belief that John went, the sentence is not a causative sentence because “the event of John’s going is in no way dependent on the speaker’s knowing that the event took place” (Shibatani 1976: 2).

(3) a. I told John to go.

b. I know that John went. (Shibatani 1976: 2)

On the other hand, Shibatani (1976: 2) states that sentences (4a–d) below are all causative sentences for the following two reasons. First, “all of these sentences commit the speaker to the belief that the events of John’s going or the door’s becoming open took place” (Shibatani 1976: 2).³ Second, these sentences imply that “the speaker believes that the event of John’s going or the door’s becoming open would not have occurred unless he did something to John or the door” (Shibatani 1976: 2).

³ Note that the caused event (John’s going, the door’s becoming open) took place after the time of the causing event (the clausal subject’s doing something to John or to the door) (see Shibatani’s (1976) definition of the causative construction (2a)).

- (4) a. I caused John to go. (Shibatani 1976: 2)
 b. I made John go.
 c. I opened the door.
 d. I sent John to the drug store. (Shibatani 1976: 2)

Causative constructions with an infinitival complement as in (4a, b), where separate predicates express the notions of cause (*cause, make* in (4a, b)) and effect (*to go, go* in (4a, b)), are called periphrastic (or analytic) causative constructions (cf. Comrie 1981:160; Araki and Yasui 1992: 233–234; Nishimura 1998: 132–133; Hollman 2007: 193). This chapter discusses the infinitive with or without *to* in periphrastic causative constructions.

6.3. Previous Studies of Periphrastic Causative Constructions

6.3.1. Causative Predicates Taking the Infinitive with or without *to*

Many previous studies have discussed the periphrastic causative construction: Shibatani (1976), Quirk et al. (1985), Langacker (1991, 2009), Araki and Yasui (1992), Duffley (1992), Nishimura (1998), Huddleston and Pullum (2002), Kasai (2004), Dixon (2005), Takami (2011), Swan (2016), etc. According to these studies, instances of the construction collocate with matrix predicates like *cause, force, get, make, have* and *let*, as in (5a–f); the former three take *to*, whereas the latter three do not.

- (5) a. John caused Harry to die. (Shibatani 1976: 7)
 b. He forced me to laugh. (Duffley 1992: 67)
 c. I can't get that child to go to bed. (Swan 2016: §9: 108. 2)
 d. John made the dog walk. (Araki and Yasui 1992: 233)
 e. They had me repeat the message. (Quirk et al. 1985: 1206)

f. Let me introduce myself.

(Nishimura 1998: 121)

Dixon (2005: 251) notes that *make* is also used in the passive, in which case *to* is included, as in (6a). In contrast, he states that “[*let* is only used in the passive in a few idiomatic combinations and no *to* is included” (Dixon 2005: 251), as in (6b). He also notes that the causative sense of *have* is not used in the passive.

(6) a. John was made to drive the car. (= 1b)

b. The balloons/pigeons/prisoners were let go. (Dixon 2005: 251)

Therefore, *make* is the only periphrastic causative predicate that takes *to* in the passive voice but not in the active.

6.3.2. Temporal (Non-)Immediacy of the (*to*-)Infinitive

Scholars have attempted to explain why instances of periphrastic causative constructions like (5a–c) include *to*, whereas those like (5d–f) do not. They have also tried to explain why *make* does not take *to* in the active voice but does include it in the passive.⁴

Langacker (2009: 301–302) explains the use of the infinitive with or without *to* in periphrastic causative constructions in terms of (non-)immediacy. With zero (i.e. the bare-infinitive), he claims that the matrix and complement events (the causing and its effect) are temporally immediate or coincident, as in (7), for example.⁵

(7) I made/let the fire go out.

(Langacker 2009: 302)

⁴ Previous studies of *be made to do* will be reviewed in Section 6.3.3.

⁵ For a discussion of the temporal immediacy of *make ... do*, see also Langacker (1991: 444) and Duffley (1992: 60–61).

Similarly, Duffley (1992: 69–73) states that *have* as in (8) calls for the bare-infinitive because the action of producing an effect coincides in time with the appearance of the effect. He argues that in (8) “the infinitive evokes the actual realization of the action of calling from beginning to end in the past time-stretch referred to by *had*” (Duffley 1992: 18).

(8) I had nine people call. (Duffley 1992: 18)

In contrast, Langacker (2009: 300–301) claims that the infinitival *to* indicates non-immediacy with respect to the time of the matrix process. He argues that in (9), for example, something that occurs at one moment—doing something (like opening a window)—causes the fire to go out at a later time.⁶

(9) I caused the fire to go out. (Langacker 2009: 302)

Duffley (1992: 69) also argues that *to* must be included in (10a, b) because *get* evokes something—prolonged efforts in (10a), persuasion winning over unwillingness in (10b)—that precedes the effect.

(10) a. He got us to laugh.
b. She got me to look stupid. (Duffley 1992: 69)

Like *cause* and *get*, Duffley (1992: 66–67) claims that *force* denotes antecedent causality. He argues that *force* “refers to something prior to the effect’s coming into being” because

⁶ For a discussion of the temporal non-immediacy of *cause ... to do*, see also Langacker (1991: 444) and Duffley (1992: 59–63).

the predicate “evokes the means used to bring about the realization of this effect, namely force” (Duffley 1992: 66). For example, he argues that (11) implies “an action one was pushed into by means of force rather than one performed under coercion” (Duffley 1992: 67).

(11) He forced me to do it. (Duffley 1992: 67)

Langacker’s and Duffley’s explanations for the use of the *to*-infinitive in periphrastic causative constructions like (9), (10) and (11) are compatible with previous studies of the *to*-infinitive. As mentioned earlier (Sections 1.1, 4.2.1, 5.2), many previous studies of the *to*-infinitive argue that instances of *to*-infinitive constructions as in (12a–c) typically evoke futurity (Wierzbicka 1988: 165; Langacker 1991: 445–446, 2009: 301, 2015: 73; Smith and Escobedo 2001: 553–554; Smith 2009: 369–373) or potentiality (Dixon 1984: 590; Quirk et al. 1985: 1191; Huddleston and Pullum 2002: 1241; Langacker 2015: 73).

- (12) a. Elly May walked (over) to help with the chores.
b. They want/intend to start a new job.
c. Mary expects to write her thesis next year. (Smith 2009: 371–372)

Langacker (2009) and Duffley (1992) claim that *cause*, *get* and *force* as in (9), (10) and (11) refer to something prior to the effect (the *to*-infinitive), and Langacker argues that the matrix and complement processes are temporally non-immediate. This means that, while instances like (9), (10) and (11) entail that the infinitival event actually occurs, the event designated by the infinitival clause is posterior to and future-oriented with respect to the matrix event. It is this future orientation that motivates the use of the *to*-infinitive in instances like (9), (10) and (11).

6.3.3. A Remaining Issue

One question that remains to be answered regarding periphrastic causative constructions is why *to* is used with *make* in the passive voice but not in the active, as in (13a, b).

(13) a. Mary made John drive the car. (= 1a)

b. John was made to drive the car. (= 1b)

Dixon (2005: 252) attempts to explain why *to* is included in the passive in (13b). He claims that the pragmatic immediacy of (13a) is lost when it is expressed in the passive as in (13b). “The passive verges towards being the description of a state, and that is why *to* is included”, he argues (p. 252). However, Dixon’s analysis is not clear as to why verging toward being the description of a state leads to the use of the *to*-infinitive in (13b).

Duffley (1992: 77) notes that the passive (like (13b)) is by its very nature resultative: focusing on the effect (i.e. the infinitive’s event).⁷ He therefore claims that the causative construction in the passive evokes the effect produced on the patient (rather than the producing of the effect by the agent). Since the infinitive represents the effect, he states that, for the infinitive to represent a result produced on the patient, the infinitive must necessarily come after the operation of producing the effect. He concludes that the *to*-infinitive is used in order to express the before/after relationship between the two events (i.e. the cause and the effect).

⁷ Dixon (2005) does not define the word *state* in his explanation. *State* could mean either a resultant state or a stative verb. Given Duffley’s (1992) argument that the passive (like (13b)) is resultative, the present study considers that *state* in this case means the former. This study agrees with Duffley in that passivized causative constructions like (13b) designate (or direct attention to) a resultant state. Expanding on Duffley’s argument, I will later propose that the past participial *made* as in (13b) represents the result phase of the effective control cycle; this enables us to explain why *to* must be included in instances like (13b).

As Shibatani (1976: 1) and Langacker (2009: 301) note, however, all instances of periphrastic causative constructions, including those that take the bare-infinitive like (13a), evoke the before/after relationship between the cause (the matrix event) and the effect (the infinitive’s event).⁸ The reason the causative predicates *cause*, *get* and *force* take the *to*-infinitive as in (9), (10) and (11) is that they evoke a *specific* temporal lag between the cause and the effect. Therefore, if we are to explain the motivation for the use of the *to*-infinitive in instances like (13b) in terms of the before/after relationship, we must be able to demonstrate that a specific temporal lag is evoked between the cause and the effect, as in (9), (10) and (11). Although Duffley explains the before/after relationship in instances like (13b), he cannot identify a specific temporal lag between the cause and the effect that would elucidate the motivation for the use of the *to*-infinitive.

Kasai (2004) attempts to explain, in terms of a temporal lag, why *to* must be included in the passivized causative construction. Citing Zandvoort and van Ek (1975: 19)—who consider *make* in the passive as in (14) to be synonymous with *cause*—Kasai (2004: 45) claims that the matrix and complement events in instances like (14) are temporally non-immediate.

(14) He was made to repeat everything. (Zandvoort and van Ek 1975: 19)

However, Kasai fails to explain why temporal non-immediacy (or a temporal lag) is involved when *make* is used in the passive.

I have previously addressed this problem in Kasai (2004) and attempted to explain the reason for the temporal non-immediacy of *make* in the passive (Sasaki 2021). I argued that, in instances like (13a, b), passivization shifts the trajector status (i.e. “primary focal prominence” (Langacker 2008: 374)) from the causer (*Mary* in (13a)) to the causee (*John*

⁸ Recall Shibatani’s definition of causative constructions (2a).

in (13b)) with the result that the causer is unspecified and the causality less direct in instances like (13b). Citing Wierzbicka (1988: 44), I also pointed out that the causee is unwilling to carry out the infinitival event. I concluded that the indirectness of the causality and the causee's unwillingness cause a temporal lag between the cause (the matrix event) and the effect (the infinitival event), and it is this temporal lag that motivates the use of the *to*-infinitive in instances like (13b).

As we have seen, however, Dixon (2005) and Duffley (1992) argue that passivized constructions like (13b) focus on a state or a result. Their arguments indicate the implausibility of Kasai's (2004) and my own (Sasaki 2021) claims that a temporal lag is evoked between the cause and the effect in instances like (13b). Recall that in (9), (10) and (11), a specific temporal lag is evoked between the cause and the effect. For a temporal lag to be evoked, both the cause and the effect must necessarily be focused. However, since instances like (13b) focus exclusively on the resultant state (cf. Duffley 1992; Dixon 2005), it follows that the causer's action (the cause) is defocused. This means that passivized causative constructions like (13b) do not meet the necessary condition for a temporal lag to be evoked between the cause and the effect.

The present study proposes that the use of the *to*-infinitive in instances like (13b) is motivated by the notion of directionality rather than a temporal lag. As we have seen, many previous studies of the *to*-infinitive argue that *to*-infinitive constructions typically evoke the notions of futurity or potentiality (see Sections 1.1, 4.2.1, 5.2, 6.3.2). We have also seen in Section 5.2 that the notions of futurity and potentiality are described as directionality toward an infinitive's event (cf. Smith and Escobedo 2001: 552–554; Dixon 1984: 590–592).

The present study maintains that instances of periphrastic causative constructions that take the *to*-infinitive, as in *cause/force/get ... to do*, evoke the specific notion of directionality (e.g. a future orientation). On the other hand, causative constructions, like

make/have/let ... do, do not evoke the notion of directionality. Moreover, this study argues that the passivized causative construction *be made to do* invokes subjective directionality, and it is this directionality that motivates the use of the *to*-infinitive.

In addition, we have seen that the passivized causative construction *be made to do* focuses on a resultant state (cf. Duffley 1992; Dixon 2005). This suggests that the passivized causative construction *be made to do* focuses attention on the final (or result) stage in a series of causation, where the causer does something to the causee (the causing event) and then she (the causee) carries out the infinitive's event (the caused event). This chapter examines periphrastic causative constructions in terms of the control cycle (see Section 2.8) and specifies to which stage in a series of causation the instances correspond. This analysis based on the control cycle makes it possible to explain the notion of directionality that motivates the use of the *to*-infinitive in the construction *be made to do*.

6.4. Periphrastic Causative Constructions and the Control Cycle

As we have seen in Section 2.8, Langacker (2009) states that predicates of desire and influence taking the *to*-infinitive as in (15) pertain to effective control and reflect our effort to influence what happens.

(15) a. She wants/hopes/aspires to become an opera diva.

b. She ordered/forced/persuaded her daughter to end the relationship.

(Langacker 2009: 153)

However, in terms of the control cycle, Langacker (2002, 2009) focuses on matrix predicates taking a finite clause (e.g. a *that*-clause) and does not examine matrix predicates taking the *to*-infinitive any further.⁹

⁹ For Langacker's analysis based on the control cycle, see Section 2.8.

Based on Langacker's claim, I have argued that the predicates in (15a) and (15b), respectively, represent the potential and action phases of the effective control cycle (see Section 2.8). As we have seen, *force* as in (15) is a causative predicate: it entails the realization of the complement event, and the occurrence of the complement event is dependent on the occurrence of the matrix event (see Shibatani's (1976) definition of causative constructions (2)). Note that other periphrastic causative predicates, such as *cause*, *get*, *make*, *have* and *let*, also pertain to the effective control cycle because they represent what the causer does to realize the complement event: that is, they are relevant to the causer's action to influence what happens.¹⁰ This chapter specifies which phase or stage of the effective control cycle the causative predicates represent. I explain, in terms of the control cycle, why *to* must be included when the causative predicate *make* is used in the passive.

6.5. An Analysis of Periphrastic Causative Constructions Based on the Control Cycle

This section examines periphrastic causative constructions in terms of the control cycle. The present study states that the use of the *to*-infinitive in instances of *force/cause/get O to do* is motivated by a specific notion of directionality, while the use of the bare-infinitive in instances of *make/let/have O do* is motivated by the notion of temporal immediacy (see Section 6.3.2). This study also argues that subjective directionality is invoked and motivates the use of the *to*-infinitive in *be made to do*.

This section states that causative predicates represent successive stages or phases of the effective control cycle and the notion of directionality or temporal immediacy is evoked depending on which stage or phase of the control cycle the causative predicate represents.

¹⁰ Recall that the effective control cycle is relevant to our effort to influence what happens (see Section 2.8 (footnote 7)).

6.5.1. Causative Predicates Taking the *to*-Infinitive

Let us first discuss instances like (16).

(16) a. I want you to look at the unique design. (COCA)

b. She ordered her daughter to end the relationship. (Langacker 2009: 153)

Instances like (16) are not causative constructions because the matrix predicate does not entail the realization of the complement event. The matrix predicates in (16) do, however, pertain to the effective control cycle and take a noun + *to*-infinitive collocation just as periphrastic causative predicates do.

As we have seen in Chapter 3, *want* as in (16a) represents the potential phase because the predicate entails that the matrix subject has intention or desire directed toward the target (the complement clause). Therefore, (16a) evokes the notion of futurity (directionality), which motivates the use of the *to*-infinitive.

As for (16b), Langacker (2009: 153) notes that *order* pertains to influencing what happens (i.e. effective control) (see Section 2.8). While Langacker does not analyze the matrix predicate in (16b) in terms of the control cycle any further, Verspoor (1996: 434) claims that the matrix subject in (17) directly exerted force to *John* through some medium (words).

(17) I ordered John to leave. (Verspoor 1996: 434)

Given Langacker's and Verspoor's claims above, I suggest that the predicate *order* as in (16b) and (17) represents the action phase of the effective control cycle. Also, while the order is given directly to *her daughter* in (16b) and *John* in (17), the matrix predicate does

not entail the realization of the complement event; the infinitive's event "may occur some time after the order was uttered" (Verspoor 1996: 434). Therefore, instances like (16b) and (17) evoke the notion of futurity (directionality), which motivates the use of the *to*-infinitive.

Let us next examine instances of periphrastic causative constructions as in (18a–c).

- (18) a. They forced him to steal for them ...
b. They got her to move her car ...
c. They caused me to stop breathing for a second ... (COCA)

The causative predicates *force* and *get* as in (18a, b) represent the action phase of the control cycle because they entail that the actor (the matrix subject) performs an action in order to realize the target (for the causee to carry out the infinitive's event), just as *order* in (16b) and (17) does. In contrast to *force* and *get* as in (18a, b), which relate to coercion (cf. Dixon 2005: 197, 252)¹¹ and efforts to realize the infinitive's event (cf. Duffley 1992: 69), *cause* as in (18c) is used of indirect action that brings about a result.¹² *Cause* as in (18c) also represents the action phase, however, because the predicate implies that something the causer does has an influence on the causee (i.e. exerts a force on the causee) that causes her to stop breathing for a second. Unlike the predicate *order* in (16b) and (17), which represents only the action phase, the causative predicates in (18a–c) represent not only the action phase but also part of the result phase because they entail that the

¹¹ Dixon (2005) states that *force* implies coercion—i.e. forcing an unwilling person to do something by using threats (see OALD: 287)—as in (i) below.

(i) I forced the old lady to change her will in my favour by holding a gun at her head.

(Dixon 2005: 197)

¹² As Dixon (2005: 252) notes, *cause* can be used of indirect action. The indirectness of *cause* can also be clarified by observing Langacker's (2009: 301) analysis of sentence (i) below (see Section 6.3.2).

(i) I caused the fire to go out.

(= 9)

causer makes the causee carry out the infinitive's event (i.e. the target is incorporated into the actor's dominion).¹³

Figure 6.1 (a–c) illustrates the differences between the matrix predicates in (16a), (16b)/(17) and (18a–c).¹⁴

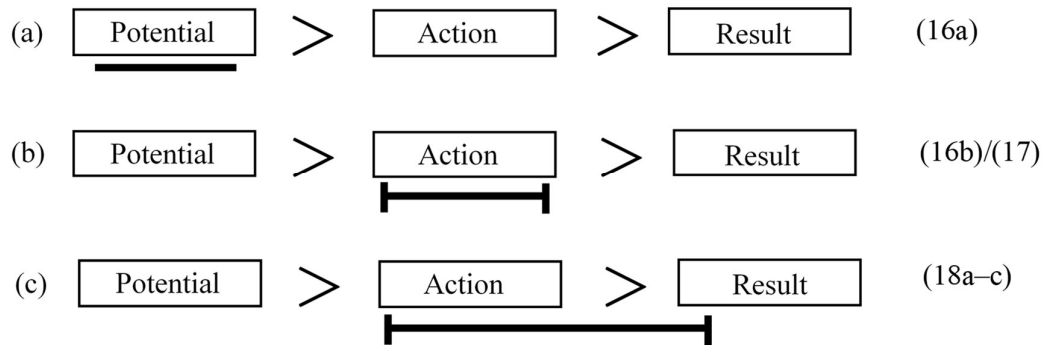


Figure 6.1: The Range of the Control Cycle Represented by the Matrix Predicates in (16a), (16b)/(17) and (18a–c)

Figures 6.1 (a) and (b) indicate that the matrix predicates in (16a) and (16b)/(17) represent the potential and action phases, respectively. Figure 6.1 (c) shows that the matrix predicates in (18a–c) represent not only the action phase but also part of the result phase.

As described in Figure 6.1 (c), the causative predicates in (18a–c) represent a temporally extensive range (from the action phase to the result phase) of the control cycle. This explains why examples like (18a–c) evoke a temporal lag (or temporal non-immediacy) between the cause (the matrix event) and the effect (the infinitive's event) (Langacker 2009, Duffley 1992).¹⁵ The matrix predicates in (18a, b) (*force, get*) entail

¹³ The reason this study claims that the matrix predicates in (18a–c) represent *part* of the result phase is that they entail that the target is incorporated into the actor's dominion but not that the actor resides in a stable state. Note that Langacker (2009: 131) also suggests that the verbs *catch* and *get* represent not only the action phase but also part of the result phase.

¹⁴ The format of Figure 6.1, as well as that of Figures 6.3 and 6.5, is based on Langacker's (2009: 131–132) figures.

¹⁵ For a discussion of the temporal lag between the cause and the effect, see Section 6.3.2.

that the causer performs an action (e.g. ordering) toward the causee (the action phase) and the force or the effort (see Duffley 1992: 66–69) involved in the action then brings about the realization of the infinitive’s event (the result phase). Also, the matrix predicate in (18c) (*cause*) entails that something the causer does indirectly influences the causee (the action phase) and this indirect action then provokes the occurrence of the infinitive’s event (the result phase). Thus, sentences (18a–c) evoke a specific temporal lag between the cause and the effect because their matrix predicates represent a temporally extensive range (from the action phase to the result phase) of the control cycle.

When the matrix predicate represents a temporally extensive range of the control cycle as in (18a–c), the notion of directionality is evoked between the causee and the infinitive’s event. That is, the matrix predicates in (18a, b) entail that the causer performs an action toward the causee (the cause, the action phase) and the force or the effort (cf. Duffley 1992: 66–69) involved in the action directs the causee toward the infinitive’s event (the effect). Also, the matrix predicate in (18c) entails that something that occurs at one moment (Langacker 2009: 301) has an influence on the causee (i.e. exerts a force on the causee) (the action phase) and the force involved in the influence directs the causee toward the infinitive’s event (the effect). The present study argues that it is this directionality from the causee to the realization of the infinitive’s event that motivates the use of the *to*-infinitive.

The conceptual structure of (18a–c) is diagrammed in Figure 6.2.

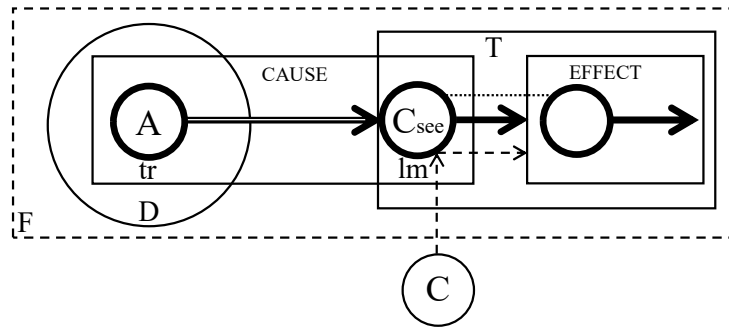


Figure 6.2: The Conceptual Structure of (18a–c)

Trajector status (tr) is conferred on the causer (the actor, A) and landmark status (lm) on the causee (Csee).^{16, 17} The double arrow from the causer (A) to the causee (Csee) represents the action the causer takes toward the causee (CAUSE); the causer’s action causes the causee to perform the infinitive’s event (EFFECT)—i.e. to incorporate the target (T) (for the causee to perform the infinitive’s event) into the actor’s (A) dominion (D)).¹⁸ The action the causer takes evokes the force or the effort that directs the causee toward the infinitive’s event; the directionality is represented by the bold arrow from the causee (Csee) to the infinitive’s event (EFFECT). Based on previous studies of the *to*-infinitive (Langacker 1991: 446; Smith and Escobedo 2001: 552–554; Smith 2009: 368–373) (see Section 4.2.1), the present study attributes to the infinitival *to* the notion of directionality

¹⁶ For definitions of trajector and landmark, see Section 2.2.

¹⁷ Langacker (2009: 32–33) claims that in the Luiseño sentence (i) below, the object ‘him’ functions as the semantic object of ‘make’ and as the semantic subject of both ‘want’ and ‘leave.’ He also notes that not only ‘him’ but also ‘him want to leave’ is construed as a landmark.

(i) Noo poy ngee-vichu-ni-q. ‘I made him want to leave.’

I him leave-want-make-TNS (Langacker 2009: 33)

Based on Langacker’s argument, we can suggest that in (18a–c) (Figure 6.2) not only the causee but also the complement event as a whole (e.g. *him to steal for them* in (18a)) is construed as a landmark. For ease of representation, this issue (i.e. the subordinate event being construed as a landmark) is omitted in the diagrams in this chapter.

¹⁸ As described in Figure 6.1 (c), the matrix predicates in (18a–c) represent not only the action phase but also part of the result phase. The issue of representing part of the result phase is omitted in Figure 6.2, for ease of representation. Note that while Figure 6.1 describes the range of the control cycle the matrix predicates represent, Figure 6.2 describes the conceptual structure of sentences (18a–c). Also, in Figure 6.2, the dotted line between the causee (Csee) and the circle in the infinitive’s event (EFFECT) indicates that they are identical.

from the causee to the infinitive’s event. Also, this study argues that reference point ability is immanent in the objective directionality from the causee to the infinitive’s event. Based on Langacker (2015: 73), we have seen that when the conceptualizer construes a *to*-infinitival complement, she first directs her attention to some reference point to establish mental contact with the infinitive’s event (see Sections 2.9, 3.4.1, 3.5, 5.5.2). The present study argues that in (18a–c) (Figure 6.2) the conceptualizer (C) directs her attention to the causee as this reference point. This reference point ability is represented by the dashed arrows in the diagram.

6.5.2. Causative Predicates Taking the Bare-Infinitive

This section examines instances of causative constructions where the matrix predicate takes the bare-infinitive, as in (19a–c).

- (19) a. ... Mr. Todd made me move out because he wanted his privacy.
 b. He had me repeat most of these things a few times ...
 c. ... I let her go with just two guards. (COCA)

This study argues that the matrix predicates in (19a–c) represent the action phase because they entail that the causer performs an action—e.g. forcing (CCALD: 914 (*make*)), persuading or ordering (CCALD: 706 (*have*))—toward the causee or allows her to carry out the infinitive’s event (the target) (see CCALD: 868 (*let*)).¹⁹ Also, because the matrix predicates in (19) entail the realization of the complement event, they represent part of the result phase, just as the matrix predicates in (18a–c) do (see Section 6.5.1).²⁰

¹⁹ The causative predicate *let* entails that the causer brings about the realization of the complement event by not preventing the causee from doing it (i.e. by allowing or leaving alone) (cf. Takami 2011: 209). Therefore, it is plausible to suggest that *let* represents the action phase of the effective control cycle, just as *make* and *have* do.

²⁰ The present study argues that the matrix predicates in (19) represent *part* of the result phase because,

Note, however, that the causative predicates in (19) represent a local stage of the action phase that is very close to the result phase because they represent the stage where the actor’s action immediately (or coincidentally) makes the causee perform the infinitive’s event (i.e. the actor reaches the target); they do not represent the stage close to the potential phase where the matrix subject performs an action in order to reach the target.²¹ This means that the causative predicates in (19) represent the local range from the latter stage of the action phase to part of the result phase. Therefore, these predicates entail that the effect follows the cause immediately (see Section 6.3.2). Figure 6.3 describes the range of the control cycle that the causative predicates in (19) represent.

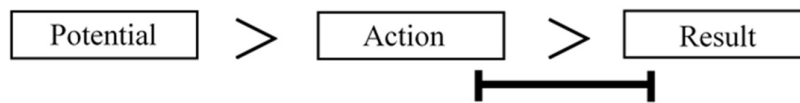


Figure 6.3: The Range of the Control Cycle Represented by the Matrix Predicates in (19a–c)

The conceptual structure of (19a–c) is diagrammed in Figure 6.4. The causer’s (A) action to the causee (Csee) (CAUSE) overlaps the infinitive’s event (EFFECT), indicating that they occur coincidentally.

while they entail that the target is incorporated into the actor’s dominion, they do not mean that the actor resides in a state of relaxation. (See also footnote 13.)

²¹ Recall that Langacker (2009) also breaks down the potential phase into three stages: formulation, assessment, and inclination.

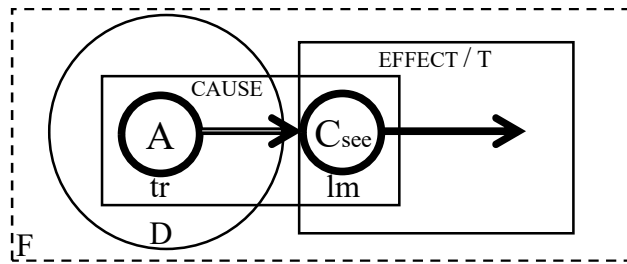


Figure 6.4: The Conceptual Structure of (19a–c)

As we have seen, when the causative predicate represents the local range from the latter stage of the action phase to part of the result phase as in (19a–c) (shown in Figure 6.3), the cause and the effect are construed as occurring coincidentally because the actor (the causer) reaches the result phase (i.e. brings about the realization of the complement event) immediately after she performs an action toward the causee (the latter stage of the action phase). Therefore, (19a–c) do not evoke the notion of directionality between the causee and the infinitive’s event. In contrast to Figure 6.2, where an arrow extends from the causee (Csee) to the infinitive’s event (EFFECT), no arrow is depicted between them in Figure 6.4. Therefore, the matrix predicates in (19a–c) take the bare-infinitive, which evokes temporal immediacy between the cause and the effect (see Section 6.3.2).

6.5.3. Directionality of the *to*-Infinitive in Passivized Causative Constructions

Let us finally discuss (20). In contrast to (19a), where *make* takes the bare-infinitive, passivized instances like (20) take the *to*-infinitive.

(20) He was made to stand naked for 45 minutes. (COCA)

In Section 6.3.3, we have seen that passivized causative constructions like (20) designate (or direct attention to) a resultant state (cf. Duffley 1992, Dixon 2005). In

addition, Langacker (1990: 130–131) states that the past participle *stolen* in (21) designates the resultant state (or the final state) of the verbal process *steal*.²²

(21) That watch you bought is probably stolen. (Langacker 1990: 130)

Therefore, as shown in Figure 6.5, the past participle *made* in (20) focuses attention on the result phase (represented by the bold line), where the causee (*he*) performs the infinitive’s event as a result of some unspecified action; the action phase, where someone (or something) performs an action toward the causee, is defocused.

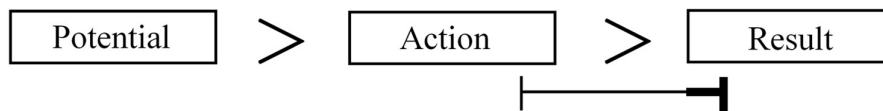


Figure 6.5: The Range of the Control Cycle Represented by *Made* in (20)

The conceptual structure of (20) is diagrammed in Figure 6.6.

²² Langacker (1990: 131–132) states that passive expressions not only designate the resultant state of the verbal process as in (21) and (ia) below but also are processual (i.e. they designate all the states within a process, not just the final state), as in (ib).

(i) a. The town was (already) destroyed (when we got there).

b. The town was destroyed (house by house).

(Langacker 1990: 131)

Given Duffley’s claims that the passivized causative construction is resultative (or stative), the present study argues that the past participle *made* in a passivized causative construction like (20) designates a resultant state.

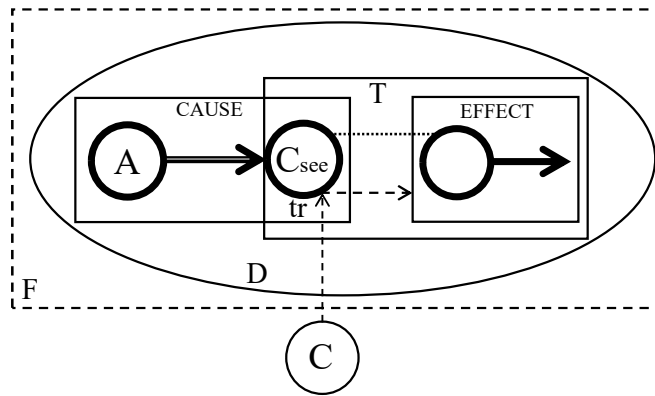


Figure 6.6: The Conceptual Structure of (20)

Note the shift of trajector status (tr) from the causer (A) to the causee (Csee), which is construed as a landmark in causative constructions in the active voice as in (19a) (Figure 6.4).²³ Figure 6.6 indicates that (20) corresponds to the result phase by showing that the target (T) is incorporated into the dominion (D).

The present study argues that the two consequences of passivization (i.e. corresponding to the result phase and the shift of trajector status from the causer to the causee) result in an indirect relationship between the action (the cause) (cf. Dixon 2005: 252) and the effect. That is, when the causative predicate *make* is used in the passive and represents the result phase as in (20), the causer's action toward the causee (the action phase) is defocused, as shown in Figure 6.5. In addition, the shift of trajector status from the causer (A) to the causee (Csee) as in Figure 6.6 means that the source of the cause is unspecified. In instances like (20), due to the defocusing of the causer's action and the implicature of the causer, the cause of the effect is unspecified or vague. This means that the cause, which brings about the effect, is construed as being indirect. Since the cause is indirect, it follows that the relationship between the cause and the effect must also be

²³ According to Langacker (2008: 119), a passive sentence selects as trajector the theme, which is construed as a landmark in an active sentence (see Section 2.7). Shibatani (1985: 830) also argues that the primary function served by the passive is that of defocusing the agent.

indirect; we cannot construe a causal relationship as being direct when the causer's action is defocused and the source of the cause (i.e. the causer) is unspecified.²⁴

The indirectness of the causal relationship means that conceptual distance is evoked between the cause and the effect.²⁵ In Figure 6.6, therefore, the cause is represented as being separated from the infinitive's event (EFFECT). Conceptual distance between the cause and the effect means that the causee is conceptually distant from the infinitive's event (the effect) because the causee is a participant in the relationship representing the cause. When the conceptualizer (C) construes the conceptually distant relation between the causee and the infinitive's event (EFFECT), she first directs attention to the causee as a reference point to establish mental contact with the infinitive's event (EFFECT); this reference point ability is represented by the dashed arrows in Figure 6.6. This study argues that subjective directionality lies in directing attention from the causee (Csee) to the infinitive's event (EFFECT). Thus, while no specific directionality (e.g. futurity) is evoked, reference point ability is involved in passivized causative constructions like (20). The subjective directionality inherent in reference point ability motivates the use of the *to*-infinitive in instances like (20). The following is my main proposal.

²⁴ I have argued previously (Sasaki 2021) that the shift of trajector status from the causer to the causee results in an indirect relationship between the cause and the effect. At that time, however, I took no account of Duffley's (1991) claim that the causative construction in the passive designates a resultant state. Also, given that the passivized causative construction designates a resultant state, it is evident that the semantic motivation for the use of the *to*-infinitive is not a temporal lag between the cause and the effect (see Section 6.3.3). However, as we have seen in Section 6.3.3, I have attempted to explain, in terms of a temporal lag, the semantic motivation for the use of the *to*-infinitive in passivized causative constructions.

²⁵ Conceptual distance between the cause and the effect is different from a temporal lag or non-immediacy between them (see Section 6.3.2). Conceptual distance means that the two concepts (i.e. the cause and the effect) are construed as not being closely connected. As we have seen, the causal relationship involved in a passivized causative construction like (20) is construed as being indirect. This means the cause and the effect are construed as not being closely connected. On the other hand, a temporal lag (or non-immediacy) means a period of time between the cause and the effect. For example, Langacker (2009: 302) notes that in (i) below something that occurs at one moment (the cause) causes the fire to go out at a later time (the effect) (see Section 6.3.2).

(i) I caused the fire to go out.

(= 9)

(22) When a causative construction is passivized as in (20), the past participle represents the result phase and trajector status is shifted from the causer to the causee. This makes the causee conceptually distant from the infinitive's event. When the conceptualizer construes the relation between the causee and the infinitive's event, she first directs attention to the causee as a reference point to establish mental contact with the infinitive's event. The subjective directionality lying in this reference point ability motivates the use of the *to*-infinitive.

We have seen that reference point ability is immanent in the objective (or specific) notion of directionality (e.g. the force, the effort) from the causee to the infinitive's event in (18a–c) (Figure 6.2) (see Section 6.5.1). In (20) (Figure 6.6), while the objective notion of directionality fades away, the reference point ability remains; and the subjective directionality inherent in reference point ability motivates the use of the *to*-infinitive. Cognitive Grammar calls such linguistic phenomena “subjectification, indicating that the operations come to be independent of the objective circumstances where they initially occur and whose apprehension they partially constitute” (Langacker 2008: 528).²⁶

Recall that Sections 3.5 and 5.5.2 have also discussed the subjectification of directionality in *to*-infinitive constructions. In Sections 3.4.1 and 3.5, we have seen that reference point ability and the subjective directionality based on this ability are invoked in all instances of *to*-infinitive constructions and retained in the highest-level schema defining a complex category comprising multiple variants of the constructions.

This chapter has also described the distributional differences between the bare-infinitive and the *to*-infinitive in a series of usage events, i.e. actual instances of language use (Langacker 2000: 9). Let us observe Figure 6.7 (a–c), which corresponds to Figures

²⁶ For a discussion of subjectivity vs. objectivity and the notion of subjectification, see Section 2.9.

6.1 (c), 6.3 and 6.5, respectively.

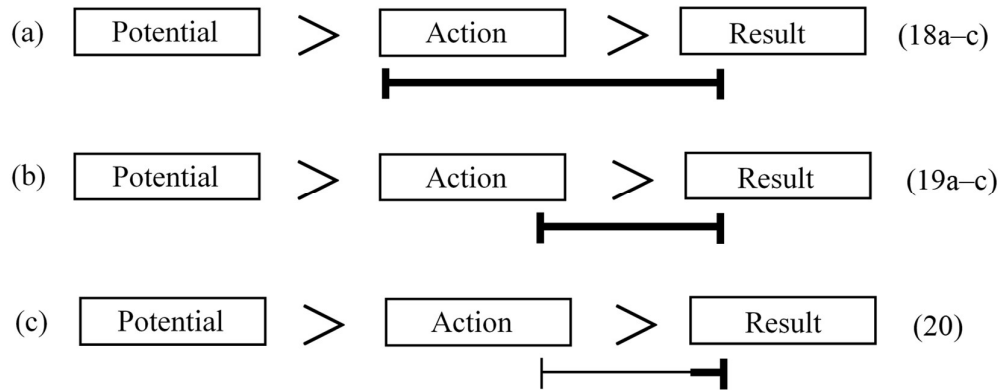


Figure 6.7: The Range of the Control Cycle Causative Predicates Represent

When a matrix predicate represents the local range from the latter stage of the action phase to part of the result phase as in Figure 6.7 (b), the causative predicate takes the bare-infinitive because the cause and the effect are construed as occurring coincidentally. Contrastingly, when a causative predicate represents the temporally extensive range from the action phase to the result phase as in Figure 6.7 (a), or only the result phase as in Figure 6.7 (c), it takes the *to*-infinitive because the notion of directionality is evoked between the causee and the infinitive's event.

6.6. Conclusion

This chapter has compared the *to*-infinitive with the bare-infinitive by examining instances of periphrastic causative constructions in terms of the control cycle. We have seen that the *to*-infinitive evokes the notion of directionality, whereas the bare-infinitive evokes temporal immediacy between the cause and the effect. We have also seen that, when the periphrastic causative construction is passivized, the past participle *made* represents the result phase and the subjective directionality lying in reference point ability

motivates the use of the *to*-infinitive. The following chapter will compare the *to*-infinitive with the bare-infinitive by examining instances of perception constructions.

Chapter 7

The Infinitive with or without *to* in Perception Constructions*

7.1. Introduction

As the final topic of this dissertation, this chapter discusses the *to*-infinitive and the bare-infinitive in perception constructions. Perceptual verbs take the bare-infinitive as their complement, as in (1a). However, they collocate with the *to*-infinitive when they are used in the passive as in (1b).

(1) a. They saw/heard/noticed John kick Mary.

b. John was seen/heard/noticed to kick Mary. (Dixon 2005: 252)

The main purpose of this chapter is to explain why *to* must be included when perception verbs like (1a) are used in the passive as in (1b).

This chapter examines perception constructions in terms of the control cycle. It is argued that the perceptual predicates in (1a) represent the action phase of the control cycle, just as do the causative predicates *make*, *let* and *have*, which also take the bare-infinitive as their complement (see Chapter 6). When (1a) is passivized as in (1b), however, the participial predicates represent the result phase. This study argues that reference point ability is involved in (1b) and the subjective directionality inherent in reference point ability is what motivates the use of the *to*-infinitive.¹ In order to explain this subjective

* Part of this chapter discusses some problems that were left unresolved in Sasaki (2017).

¹ In Chapter 6, the motivation for use of the *to*-infinitive in *be made to do* was also explained in terms of subjective directionality.

directionality, this chapter applies Langacker's (2009) view of two conceptualizers—i.e. the clausal subject (C_1) and the speaker (C_0)—to an analysis of perception constructions. The present study argues that in perception constructions in the passive as in (1b), C_1 is made implicit and the implicitness of C_1 makes the perception of the complement clause indirect because C_1 is directly responsible for the complement clause.

This chapter also discusses instances whose perception verbs take the *-ing* form as their complement as in (2a) and do not include *to* even when they are passivised as in (2b).

(2) a. I saw her running.

b. She was seen running.

The organization of this chapter is as follows. Section 7.2 reviews several previous studies on perception constructions and raises problems remaining to be discussed. Section 7.3 observes Langacker's view of two conceptualizers (C_1 and C_0), which is closely related to my proposal in this chapter. Section 7.4 specifies the reason for the obligatory appearance of *to* as in (1b). Section 7.5 discusses instances whose perception verbs take the *-ing* form as their complement as in (2a) and do not include *to* even when they are passivised as in (2b). Section 7.6 summarizes and reviews my arguments.

7.2. Previous Studies of Perception Constructions

7.2.1. The Immediacy and Directness of the Bare-Infinitive and the Non-Immediacy and Indirectness of the *to*-Infinitive

There is a broad consensus among scholars that perceptual verbs as in (3a, b) take the bare-infinitive as their complement because these verbs imply direct perception of some activity and coincidence in time between the action of perceiving and the event

perceived (cf. Duffley 1992: 29; Langacker 1991: 442–443, 2009: 300–301; Kasai 2004: 24–25; Dixon 2005: 252).

(3) a. I saw him cross the street. (Duffley 1992: 29)

b. We saw/heard/felt the bomb explode. (Langacker 2009: 300)

In contrast, Langacker (2009: 300–301) notes that the *to*-infinitive indicates non-immediacy with respect to the time of the matrix process and lies in the future with respect to the matrix process, as in (4).

(4) We want/expect/would like the bombs to explode. (Langacker 2009: 301)

Dixon (2005: 201, 251–252) discusses the difference between the bare-infinitive and the *to*-infinitive in terms of directness and indirectness. He observes that (5a), without *to*, is likely to imply that *John* gave direct help. In contrast, he claims that sentence (5b) is more likely to be used if *John* gave indirect assistance.

(5) a. John helped Mary eat the pudding (he ate half).

b. John helped Mary to eat the pudding (by guiding the spoon to her mouth, since she was still an invalid). (Dixon 2005: 201)

7.2.2. Remaining Issues

Matrix predicates in perception constructions take the bare-infinitive as their complement as in (6a), but *to* must be included when they are used in the passive as in (6b).

(6) a. They saw/heard/noticed John kick Mary. (= 1a)

b. John was seen/heard/noticed to kick Mary. (= 1b)

Dixon (2005: 252) considers why *to* is omitted in the active voice as in (6a) but included in the passive as in (6b). He argues that *to* is omitted in sentence (6a) because *see*, *hear* and *notice* imply direct perception of some activity. He claims, however, that (6a) loses its pragmatic immediacy when it is passivized. “The passive verges towards being the description of a state, and that is why *to* is included”, he argues (p. 252).²

Similarly, Kasai (2004) claims that *to* must be included in sentence (7) because *see* in the passive does not imply direct perception, and this lack of directness is compatible with the indirectness of the *to*-infinitive.

(7) She was seen to go. (Kasai 2004: 230)

Duffley (1992: 41) also attempts to explain the reason for the obligatory appearance of *to* in instances like (8a, b).

(8) a. He was seen to enter the building at 10:00.

b. She was heard to shut the door a few minutes later. (Duffley 1992: 37)

He claims that perception in instances like (8a, b) is thought of as the condition allowing one to assert that the infinitive event actually occurred. Since the condition is conceived as an abstract before-position with respect to the result, the infinitive event, which is

² As we have seen in Section 6.3.3 (footnote 7), Dixon does not define the word *state* in his argument; *state* could mean either a resultant state or a stative verb. The present study considers that *state* in this case means the former because Duffley (1992) argues that the passive is by its very nature resultative (see Section 6.3.3). Therefore, the present study argues that passivized perception constructions like (6b) designate (or direct attention to) a resultant state.

considered to be the result, is conceived as an after-position, and that is why the *to*-infinitive, rather than the bare form, is used in instances like (8a, b), he argues.

However, there are several problems in these studies that remain to be discussed. First, Kasai does not specify why perception verbs lose their directness in passive sentences. Second, in Dixon's analysis, it is not clear why verging toward being the description of a state leads to the use of the *to*-infinitive. Third, while Duffley attempts to explain the use of the *to*-infinitive in the passive by considering the perception verb as a condition and the infinitive's event as a result, his analysis is insufficient to explain the appearance of *to* in instances like (8a, b). As we have seen in Chapter 6, instances of periphrastic causative constructions like (9) evoke the before/after relationship between the cause (the matrix event) and the effect (the infinitive's event) because cause usually precedes effect (cf. Langacker 2009: 301; Shibatani 1976: 1). However, the matrix predicates in (9) take the bare-infinitive, rather than the *to*-infinitive, because the effect follows the cause immediately, i.e. the time lag between them is very short (cf. Langacker 2009: 301).

(9) I *made/let* the fire go out.

(Langacker 2009: 302)

Therefore, in order to explain the use of the *to*-infinitive in (8a, b) in terms of a before-after relationship, as Duffley does, we need to identify a specific temporal lag between the matrix and infinitive events. However, Duffley simply indicates the before-after relationship in (8a, b); he does not identify a specific temporal lag. Just as the before-after relationship involved in the causal relationship in instances like (9) does not motivate the use of the *to*-infinitive, the before-after relationship that Duffley claims to be involved between the condition (the matrix event) and the result (the infinitive event) in instances like (8a, b) does not explain the motivation for the use of the *to*-infinitive.

As discussed in Chapter 6, the present study maintains that the motivation for the use of the *to*-infinitive can be explained in terms of the notion of directionality, rather than a temporal lag. In addition to the control cycle (see Section 2.8) and the cognitive processing reflected in passivization (see Section 2.7),³ this chapter applies the Cognitive Grammar view of conceptualizers to an analysis of perception constructions to explicate the notion of directionality involved in instances like (8a, b). The following section observes Langacker's view of two conceptualizers, i.e. the clausal subject and the speaker.

7.3. Two Conceptualizers

In this section, we see that, with respect to complement clauses, there are two conceptualizers, the main clause subject (C_1) and the speaker (C_0).

Langacker (2009: 275) argues that, in a sentence like (10), there are two conceptualizers with respect to the proposition expressed by the complement clause.

(10) Joe suspects Alice is unhappy. (Langacker 2009: 273)

He demonstrates that, on one level, the complement clause constitutes the proposition toward which the main clause subject (C_1) inclines while, at the same time, the speaker (C_0) also apprehends the proposition as an inherent part of conceptualizing C_1 's propositional attitude toward it.

On the basis of Langacker's argument, in sentence (11), there are two conceptualizers with respect to the complement clause: one is the main clause subject (C_1) (i.e. they), and the other the speaker (C_0). This means that not only the matrix subject (C_1) but also the speaker (C_0), who apprehends the whole sentence, is responsible for the

³ In Chapter 6, we have examined, in terms of the control cycle and the cognitive processing reflected in passivization, periphrastic causative constructions, whose predicates take a noun + (*to*-)infinitive collocation just as perception predicates do.

complement clause.

(11) They saw/heard/noticed John kick Mary. (= 1a)

In this section, we have seen that two conceptualizers—the clausal subject (C_1) and the speaker (C_0)—are involved in a complement clause in instances like (10) and (11). In addition to the notion of conceptualizers, I also apply the control cycle and the cognitive processing reflected in passivization to explain why *to* must be included when perception constructions are passivized.

7.4. The *to*-Infinitive and Passivization

Given the previous studies mentioned in Sections 7.2 and 7.3, in this section I specify why *to* must be included when perception verbs are used in the passive. In Section 7.4.1, we take a look at Wierzbicka (1988), who provides a crucial analysis for complement clauses and passive sentences. Section 7.4.2 presents the main proposal of this chapter.

7.4.1. Wierzbicka's (1988) Analysis

Wierzbicka (1988) claims that sentence (12) expresses personal, experiential knowledge rather than public knowledge, which means the main clause subject is responsible for the complement clause. The following semantic formula shows this:

(12) I know Mary to be a Mormon. \Rightarrow
I know this of Mary: she is a Mormon
I don't want to say: people say this
I say: I know this (Wierzbicka 1988: 51)

On the other hand, Wierzbicka gives the passive sentence (13) the following semantic formula:

- (13) Mary is known to be dishonest. \Rightarrow
people know this of Mary: she is dishonest
I don't want to say: I say this
I say: people say this (Wierzbicka 1988: 48)

Wierzbicka's semantic formula in (13) shows that the passive de-emphasizes the speaker's own responsibility for the assertion. Additionally, she points out the distancing function of the passive as follows:

- (14) In a sense, if we say that somebody "is known to be dishonest" we cannot completely disassociate ourselves from the assertion in question. One cannot say, for example:

*She is known to be dishonest, but I don't know if this is true.

Nonetheless, the passive turn of phrase allows us to de-emphasize our personal responsibility for the assertion: the formula 'I don't want to say: I say this; I say: people say this' allows us to capture the speaker's attitude.

(Wierzbicka 1988: 48)

What should be noted in (14) is Wierzbicka's claim that, while the speaker is not completely detached from the assertion in a passive sentence like (13), passivization de-emphasizes her personal responsibility for the assertion.

Regarding Wierzbicka's analysis, I claim that we need more generalized proposals that elucidate passive sentences in a more comprehensive and natural way. First, rather

than the assertion that “we [speakers] cannot completely disassociate ourselves from the assertion”, I propose that the speaker is explicitly responsible for the passive sentence itself. In the next section, we see that this proposal explains why one cannot say “*She is known to be dishonest, but I don’t know if this is true” in a more natural way. Second, instead of saying “the passive turn of phrase allows us [speakers] to de-emphasize our personal responsibility for the assertion”, I claim that, while the speaker is explicitly responsible for the passive sentence itself, passivization makes implicit who is directly responsible for the complement clause. In the next section, we see that the latter proposal can elucidate examples like (6a, b), where the speaker is not necessarily directly responsible for the complement clause. My proposal is therefore more comprehensive than Wierzbicka’s.⁴ In the following section, I demonstrate that my proposal can also explicate the relationship between passivization and the implicitness of responsibility for the complement clause.

7.4.2. Epistemic Indirectness and Subjective Directionality

This section applies some basic notions of Cognitive Grammar—the two conceptualizers, the control cycle, and the cognitive processing reflected in passivization—to explain why *to* must be included in perception constructions in the passive voice.

In Section 7.3, we have seen Langacker’s (2009) argument that, in a sentence like

⁴ Wierzbicka (1988: 51) argues that sentence (ib) below, where the main clause subject is the speaker, is more natural than sentence (ia).

(i) a. ?John knows Mary to be a Mormon.

b. I know Mary to be a Mormon.

(Wierzbicka 1988: 51)

This may be the reason why she claims the speakers’ responsibility is deemphasized by passivization. While her claim is valid for the verb *know* as in (i), we also need to discuss other verbs as in (ii, b) below, where the main clause subject in the active is not the speaker. This means we need a more comprehensive proposal.

(ii) a. They saw/heard/noticed John kick Mary.

(= 1a)

b. John was seen/heard/noticed to kick Mary.

(= 1b)

(10), there are two conceptualizers with respect to the complement clause. On the basis of this argument, we have seen that in sentence (15), too, there are two conceptualizers with respect to the complement clause, one being the main clause subject (C_1) (i.e. they) and the other the speaker (C_0).

(15) They saw/heard/noticed John kick Mary. (= 1a)

The notion of the two conceptualizers means that not only the main clause subject (*they*) but also the speaker, who apprehends the whole sentence, is responsible for the complement clause. Also, the matrix predicates in (15) represent the action phase of the control cycle⁵ because they represent the action of achieving perceptual contact with the target (the infinitival complement).⁶ This study argues that these perceptual predicates represent a local stage of the action phase that is very close to the result phase because they represent the stage where the clausal subject reaches the target (i.e. achieves perceptual contact with the target); they do not represent the stage close to the potential phase where the clausal subject does something in order to reach the target. The perceptual predicates also represent part of the result phase because they entail that the clausal subject perceives the entire event of John's kicking, including the final state (i.e.

⁵ According to Langacker (2009: 300–302), the perceptual verbs in (i) below designate a relationship at the effective level rather than the epistemic level because they describe one event involving the perception of another; they do not describe the acceptance of a proposition. He claims that “[e]ffective relations (those holding between events) are not limited to causation or the physical level: they can perfectly well be mental, one event involving the apprehension of another” (p. 302). Therefore, the present study argues that the perceptual predicates in (15) represent the action phase of the effective (rather than the epistemic) control cycle.

(i) We saw/heard/felt the bomb explode. (= 3b)

⁶ As we have seen in Section 4.3.2 (footnote 23), Langacker (2009: 260) notes that perceptual verbs (e.g. *see*) can be used for either the action of achieving perceptual contact or the stable experience that results. The present study argues that the perceptual verbs in (15) represent the former because they describe the action of achieving temporal (rather than stable) perceptual contact with someone who carries out an action concurrently with the perceptual process. (For a discussion of *see ... -ing*, see Section 4.3.2.)

the resultant state) of *kick* (cf. Langacker 2009: 300). Thus, the matrix predicates in (15) represent a local stage that encompasses the latter stage of the action phase and part of the result phase—a stage where the matrix process (i.e. the perceptual experience) temporally coincides with the duration of the target event (the infinitival complement).⁷ The range of the control cycle the matrix predicates in (15) represent and the conceptual structure of (15) are diagrammed in Figures 7.1 and 7.2, respectively.

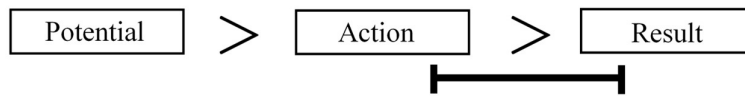


Figure 7.1: The Range of the Control Cycle the Matrix Predicates in (15) Represent

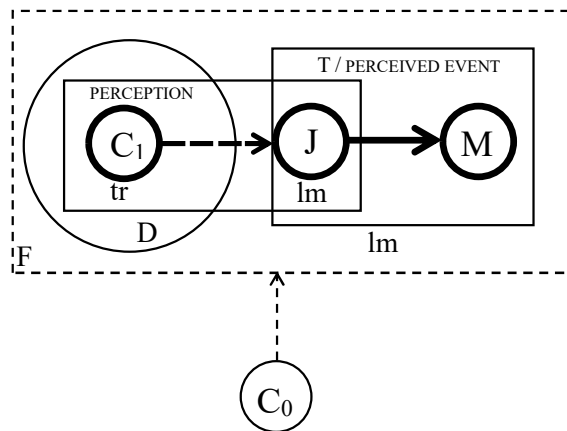


Figure 7.2: The Conceptual Structure of (15)

Figure 7.1 indicates that the perceptual verbs in (15) represent part of the result phase as well as the stage of the action phase that is close to the result phase. In this local stage between the action phase and the result phase, the matrix event (the perceptual experience) coincides with the occurrence of the infinitive’s event (the target).

⁷ For a detailed discussion of the temporal coincidence involved in the bare-infinitival complement, see Langacker (2009: 300–302).

Figure 7.2 illustrates how the two conceptualizers—the main clause subject (C_1) and the speaker (C_0)—apprehend the event of the complement clause: the speaker (C_0) apprehends the complement clause as an inherent part of conceptualizing the whole sentence. The overlap in the diagram between the perceptual experience (PERCEPTION) and the complement event (the target (T) / PERCEIVED EVENT) indicates that they occur concurrently. Trajector status (tr) is conferred on the matrix subject (C_1). It is also indicated that both John and the whole event of the complement clause ('John kick Mary') are construed as landmarks (lm).⁸

The validity of Figure 7.2, where there are two landmarks (i.e. 'John' and 'John kick Mary'), is shown by the following three analyses. First, as I have noted previously (Sasaki 2017: 84), in sentence (16) the pronoun is marked for the accusative case (i.e. *her*), which means that '*her*' is an object and is construed as a landmark.

(16) They saw her go. (Kasai 2004: 22, in Sasaki 2017: 75)

Second, Langacker (1991: 442–443) notes that, in an instance like (17a) below, the object of perception is both a thing (*the ship*) and the process in which that thing participates. Therefore, he argues that not only the thing (*the ship*) but also the process (*the ship sinking*) is construed as landmark. Also, as we have seen in Section 6.5.1 (footnote 17), Langacker (2009: 32–33) argues that in the Luiseño sentence in (17b), the object 'him' has multiple roles: as the semantic object of 'make' and as the semantic subject of both 'want' and 'leave.' Therefore, he claims that not only 'him want to leave' but also 'him' functions as a landmark.

(17) a. We saw the ship sinking. (Langacker 1991: 442)

⁸ For a discussion of trajector/landmark status, see Section 2.2.

in the active sentence. Therefore, when (15) is passivized, *John* is focused as trajector as in (19), which means the main clause subject (C_1) loses its trajector status.¹⁰

(19) John was seen/heard/noticed to kick Mary. (= 1b)

Also, in Section 7.2.2, we have seen Dixon's (2005) claim that "[t]he passive [like (19)] verges towards being the description of a state" (p. 252). The present study considers that the word *state* in this case means a resultant state (see Section 6.3.3 (footnote 7)). In addition, as we have seen in Section 6.5.3, Langacker (1990: 130–131) notes that the participial predicate *stolen* in (20) designates the final state (i.e. the resultant state) of the process *steal*.¹¹

(20) That watch you bought is probably stolen. (Langacker 1990: 130)

Given Dixon's and Langacker's arguments, it is plausible to conclude that the participial predicates *seen*, *heard* and *noticed* in (19) designate the resultant state of the perceptual experience and represent the result phase of the control cycle. Therefore, as diagramed in

¹⁰ When (ia) below is passivized, the status of trajector is shifted to *her* and coded as a subject as in (ib). I have provided an informant's comment that (ic), while not ungrammatical, is very unusual and would almost never be used (Sasaki 2017: 85). I have not, however, explained why the shift of trajector status to the event *her go* is unusual. As we have seen in Section 5.5.1, a relationship (e.g. *go*) is conceptually dependent on its participants, whereas a thing (e.g. *her*) is conceptually autonomous (Langacker 2008: 200). Citing Langacker (1987: 236), we have also discussed the conceptual autonomy of the clausal subject. Therefore, a relationship is incompatible with the autonomy of the subject and tends not to be focused as clausal trajector.

- (i) a. They saw her go. (= 16)
b. She was seen to go. (Kasai 2004: 22)
c. ?That she went was seen. (Sasaki 2017: 85)

¹¹ As we have seen in Section 6.5.3 (footnote 22), Langacker (1990: 131–132) states that passive expressions could be processual as in (i) below rather than a resultant state.

- (i) The town was destroyed (house by house). (Langacker 1990: 131)

Given Dixon's claim that passivized perception constructions like (19) verge toward being the description of a state—which is considered to mean a resultant state (see Section 6.3.3 (footnote 7))—the present study argues that perceptual predicates in the passive voice as in (19) designate a resultant state.

Figure 7.3, the meaning of the action of achieving perceptual contact (see Section 7.4.2) is rendered tenuous; instead, the predicates profile the resultant state of the perceptual experience. (For a discussion of *be made to do*, see Section 6.5.3.)

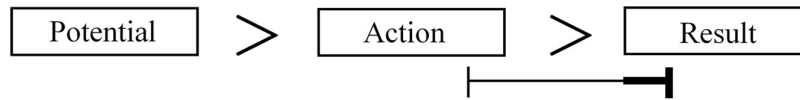


Figure 7.3: The Range of the Control Cycle the Participial Predicates in (19) Represent

The conceptual structure of (19) is diagrammed in Figure 7.4.

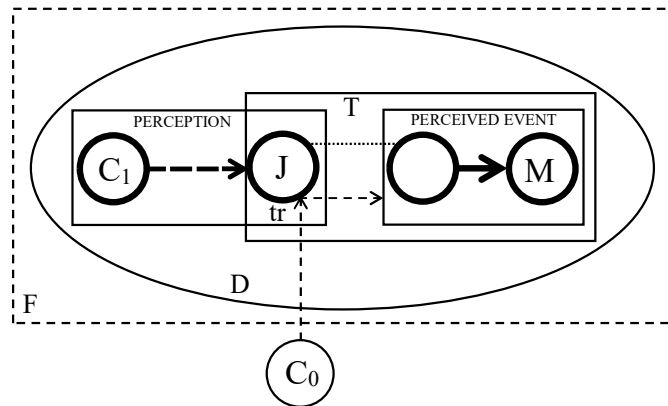


Figure 7.4: The Conceptual Structure in (19)

The diagram illustrates that trajector status (*tr*) is shifted from C_1 to John (*J*) with the result that C_1 , who is directly responsible for the complement clause, is unspecified. Also, since the participial predicates in (19) represent the result phase, the target (*T*) is incorporated into the dominion (*D*).

The analysis above explains the indirectness of the perception involved in (19).¹²

¹² As we have seen in Section 7.2.2, Dixon (2005) claims that the passivized perception construction loses its pragmatic immediacy: “[t]he passive verges towards being the description of a state, and that is why *to* is included” (p. 252). Kasai (2004) also states that *see* in the passive does not imply direct

That is, passivization shifts the status of trajector from C_1 to John, which makes C_1 implicit. The implicitness of C_1 makes the perception of the complement clause indirect because C_1 is directly responsible for the complement clause. Also, since the participial predicates represent the result phase, sentence (19) defocuses the meaning of the action of achieving perceptual contact. The implicitness of C_1 and the defocusing of the perceptual action make the perception of the target indirect.

The perceptual indirectness in (19) causes conceptual distance¹³ between the perceptual experience (PERCEPTION) and the infinitive's event (PERCEIVED EVENT). At the same time, this conceptual distance entails that *John*, who is perceived by C_1 , is also rendered conceptually distant from the infinitive's event (PERCEIVED EVENT) because *John* is a participant in the perceptual experience. In Figure 7.4, therefore, the perceptual experience (PERCEPTION)—including *John* (J) as its trajector—is represented as being separated from, rather than overlapping, the infinitive's event (PERCEIVED EVENT).¹⁴ When the conceptualizer (C_0) construes the conceptually distant relation between *John* (J) and the infinitive's event (PERCEIVED EVENT), she first directs attention to *John* as a reference point to establish mental contact with the infinitive's event; this reference point ability is represented by the thin dashed arrows in Figure 7.4. The present study claims that subjective directionality lies in directing attention from *John* to the infinitive's event. That is, while no specific directionality (e.g. futurity, purpose) is evoked, reference-point ability is involved in (19), and the subjective directionality lying in reference-point ability motivates the use of the *to*-infinitive in (19).¹⁵ The following is my main proposal.¹⁶

perception. However, in Dixon's analysis, it is not clear why verging toward being the description of a state leads to the use of the *to*-infinitive. Neither does Kasai explain why perceptual predicates in the passive lose their directness (see Section 7.2.2).

¹³ For a discussion of conceptual distance, see Section 6.5.3 (footnote 25).

¹⁴ The dotted line between *John* (J) and the circle in the infinitive's event (PERCEIVED EVENT) represents their identification.

¹⁵ For a discussion of subjectivity, see Section 2.9.

¹⁶ This proposal is partly based on Sasaki (2017), where the terms "surrogate speaker and actual speaker" (Langacker 1991) are used instead of " C_1 and C_0 " (Langacker 2009). The present study also

(21) When sentence (15) is passivized as in (19), trajector status is shifted from C_1 to *John* and the action of achieving perceptual contact is defocused. The shift of trajector status and the defocusing of the perceptual action cause *John* to be conceptually distant from the infinitive's event. The conceptualizer (C_0), therefore, accesses *John* as a reference point to establish mental contact with the infinitive's event. The subjective directionality involved in reference-point ability motivates the use of the *to*-infinitive in (19).

As we have seen in Sections 3.4.1 and 3.5, reference point ability and the subjective directionality involved in the ability are invoked in all instances of *to*-infinitive constructions. I have argued that reference point ability and subjective directionality are retained in the highest-level constructional schema that defines a complex category comprising multiple variants of *to*-infinitive constructions.

Proposal (21) is more comprehensive than Wierzbicka's (1988) because it can also elucidate examples where the main clause subject is not the speaker; Wierzbicka's proposal that passivization de-emphasizes the speaker's responsibility cannot elucidate such examples.

My analysis also explains why the statement “*She is known to be dishonest, but I don't know if this is true” (Wierzbicka 1988: 48) is unacceptable. Wierzbicka attempts to explain this by arguing that, although passivization de-emphasizes the speaker's responsibility, the speaker cannot completely disassociate herself from the assertion. However, as we have seen, Wierzbicka's analysis does not cover all passivized sentences (cf. (15), (19)). The present study argues that, although passivization makes implicit C_1 ,

refers to the relationship between the defocusing of the perceptual action and the perceptual indirectness, which is not discussed in Sasaki (2017). Neither does Sasaki (2017) refer to the reference point ability and subjective directionality involved in mental access.

who is directly responsible for the complement clause, the speaker's (C₀) responsibility for the passivized sentence itself remains explicit. Therefore, in the sentence “*She is known to be dishonest, but I don't know if this is true” (Wierzbicka 1988: 48) the speaker's responsibility is still explicit for the whole sentence. In addition, *know* is “semantically factive” (Wierzbicka 1988: 50). These two points—the speaker's explicit responsibility for the whole sentence and the factivity of *know*—entail that the speaker embraces the passive sentence, which presupposes the truth of its complements (see also Sasaki 2017: 87). It follows that the combination of “she is known to be dishonest” and “but I don't know if this is true” indicates a lack of “consistency in the speaker's mental attitude” (Kasai 1998: 22)¹⁷.

Let us review the differences between Wierzbicka's (1988) analysis and mine. Wierzbicka claims that passivization de-emphasizes the speaker's responsibility. However, she also argues that the speaker is not completely disassociated from the assertion and this is why “*She is known to be dishonest, but I don't know if this is true” is unacceptable. In contrast, I propose that the speaker's (C₀ in the present study) responsibility is still explicit, even when the sentence is passivized and the subject (C₁ in the present study), who is directly responsible only for the complement clause, is made implicit through passivization. My proposal is supported by the fact that the complement clause in passivized sentences is verbalized as a *to*-infinitive, which means the complement clause is negotiated¹⁸ and construed by the speaker (C₀) as being indirect and conceptually distant from the matrix subject (e.g. *John* in (19)). If the speaker does not negotiate the complement clause, then after passivization, which makes C₁ implicit, there is no one to regard the complement clause as being indirect and conceptually distant from the subject, from which it follows that the complement clause would not be coded

¹⁷ Kasai (1998: 22) claims that the speaker's mental attitude must be consistent.

¹⁸ According to Langacker (2009: 231–235), “being negotiated” means that a proposition is purported to represent the speaker's (C₀ in the present study) actual position.

as being indirect and involving (subjective) directionality.

Of course, my proposal here can explain sentences (22a, b), where C_1 is identified as the speaker.

(22) a. I know Mary to be a Mormon. (= 12)

b. Mary is known to be dishonest. (= 13)

In sentence (22a), the speaker has two roles, C_0 and C_1 , so she is directly responsible for both the complement clause and the whole sentence. However, when sentence (22a) is passivized, C_1 (the speaker in this sentence), who is directly responsible for the complement clause, is made implicit. Therefore, in the passivized sentence (22b), the speaker's responsibility for the complement clause is de-emphasized (see Wierzbicka's (1988: 48) proposal in (14)), and she (the speaker) is directly responsible only for the whole sentence. My proposal here is supported by the fact that the speaker cannot say “*She is known to be dishonest, but I don't know if this is true.” That is, although the speaker's responsibility for the complement clause is de-emphasized through passivization, she is still explicitly responsible for the whole sentence, which presupposes the truth of its complement clause, since we do not doubt what we have accepted as being real.

In this section, I have explicated why *to* must be included in passive sentences like (19). In Section 7.5, I will discuss an example where it is unnatural to include *to* in the complement clause.

7.5. The *-ing* form as a Complement

As the final issue we discuss in this chapter, observe the following sentences:

- (23) a. I saw her running.
b. ?She was seen to be running.
c. She was seen running.

The passivized version of (23a) is sentence (23c) rather than (23b).¹⁹ Why is (23c) with an *-ing* complement more usual than (23b) with *to be + -ing*?

As we have seen in Section 4.3.2, *see* in instances like (23a) represent the action phase because the verb represents the action of achieving perceptual contact (cf. Langacker 2009: 260) with the target (the *-ing* complement). In Section 7.4.2, we have seen that *see* as in (24) below represents not only the action phase but also part of the result phase because the predicate entails that the matrix subject perceives the entire event of John's kicking, including the resultant state of *kick*.

- (24) They saw John kick Mary. (Dixon 2005: 252)

However, the present study argues that *see* as in (23a) represents only the action phase because it entails that the matrix subject perceives some internal portion of the overall process *run* (cf. Langacker 2009: 300)²⁰; the matrix subject does not perceive the resultant state of the entire event. The range of the control cycle the matrix predicate in (23a) represents is diagrammed in Figure 7.5.

¹⁹ Four out of five informants said that (23b), while not ungrammatical, is unusual and never used. One of them said (23b) is natural.

²⁰ In Sections 2.5 and 4.2.1, we have seen that *-ing* focuses attention on some internal portion of a verbal process by imposing a limited immediate scope on the process (Langacker 1991, 2008). We have also seen that in order to impose a limited scope on the process, the conceptualizer (or the matrix subject, e.g. *I* in (23a)) necessarily construes the subordinate process at close range (cf. Verspoor 1996: 438), so a temporal (or more general conceptual) overlap is evoked between the matrix and subordinate processes (see Section 4.2.1).

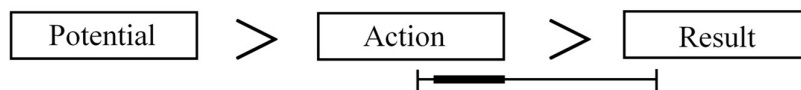


Figure 7.5: The Range of the Control Cycle the Matrix Predicate in (23a) Represents

The present study argues that the matrix predicate in (23a) represents a local stage of the action phase, a stage where the matrix event temporally overlaps with an internal portion of the overall process *run*.²¹ The restriction of the scope of the process (cf. Langacker 2009: 300) and the temporal overlap between the matrix and subordinate processes motivates the use of the *-ing* form. (For a discussion of instances like (23a), see also Chapter 4.)

In Section 7.4.2, we have seen that the participial predicate in a passivized sentence designates the final state of a process profiled by its verb form (see Langacker 1990: 130–131) and that instances like (25) defocus the action of achieving perceptual contact because the participial predicate represents the result phase (see Figure 7.3).

(25) John was seen to kick Mary. (Dixon 2005: 252)

This study argues that the participial predicate in (23c) also designates the final state of the process profiled by *see* in (23a) and defocuses the action of achieving perceptual contact.²² Although the participial predicate in (23c) designates the final state of *see* in (23a), however, this is still in the range of the action phase because the verb *see* used in

²¹ Langacker (2009: 300–301) notes that *-ing* as in (i) below restricts the scope of perception to an internal portion of the overall event. Therefore, he argues that *-ing* as in (i) indicates partial temporal coincidence with the perceptual event.

(i) We saw/heard/felt the bombs exploding. (Langacker 2009: 300)

²² The present study states that the participial predicate in (23c) designates the *final* (rather than the result) state of *see* in (23a) because, as already mentioned, *see* in *see ... -ing* as in (23a) represents only the action phase, not the result phase (see Figure 7.5), and neither does its participial form *seen* designate the result phase.

see ... -ing as in (23a) represents only the action phase, as illustrated in Figure 7.5. The range of the control cycle the participial predicate in (23c) represents is diagrammed in Figure 7.6.

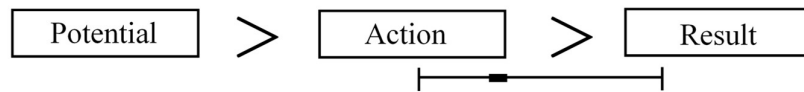


Figure 7.6: The Range of the Control Cycle the Participial Predicate in (23c) Represents

Therefore, the participial predicate in (23c) still represents a local stage of the action phase, where the matrix event temporally overlaps with the target, and this temporal overlap motivates the use of the *-ing* form (see Chapter 4). Also, even though passivization makes C_1 implicit in (23c) and the perceptual meaning is construed as being indirect compared with that of (23a), (23c) still evokes the notion of temporal overlap between the matrix and subordinate processes, the notion that motivates the use of the *-ing* form. Therefore, instances of *see ... -ing* like (23a) do not include *to* even when they are passivized as in (23c).

7.6. Conclusion

In this chapter, by focusing on the subjective directionality involved in perception constructions in the passive voice, I have specified why *to* must be included when perception verbs are used in the passive. I have explained the directionality in terms of the control cycle, the notion of two conceptualizers—i.e. the main clause subject (C_1) and the speaker (C_0)—and the cognitive processing reflected in passivization. This chapter has also explained why perception constructions with an *-ing* complement do not take a *to*-infinitive even when they are passivized.

Chapters 6 and 7 have described the distributional differences of *to*-infinitive and

bare-infinitive constructions in a series of usage events. That is, when a matrix predicate represents either the result phase (e.g. *be made/seen/heard*) or the temporally extensive range from the action phase to the result phase (e.g. *force, get, cause*), it takes the *to*-infinitive because the notion of directionality is evoked in the construction. On the other hand, when a matrix predicate represents the local range from the latter stage of the action phase to the result phase (e.g. *make, have, let, see, hear*), it takes the bare-infinitive because the matrix process temporally coincides with the duration of the infinitive's event.²³ Chapter 7 has also confirmed the argument of Chapter 4 that *-ing* constructions are typically distributed in the action phase. This chapter has argued that when a perceptual predicate (e.g. *see, be seen*) represents a local stage of the action phase—a stage where the matrix event temporally overlaps with an internal portion of the target process—it takes the *-ing* form.

²³ For a discussion of the distributional differences between *to*-infinitive and bare-infinitive constructions, see also Section 6.5.3.

Chapter 8

Concluding Remarks

8.1. Summary

This dissertation has provided an analysis of *to*-infinitive constructions from a Cognitive Grammar perspective. Problems in previous studies of the constructions have been resolved by examining various uses of the *to*-infinitive in terms of the control cycle.

Chapter 2 has introduced some basic concepts of Cognitive Grammar and reviewed the notion of the control cycle. We have seen that Langacker (2002, 2009) examines matrix predicates taking finite clauses in terms of the control cycle. It has been noted however, that, although he suggests that the model of the control cycle can be applied to an analysis of matrix predicates taking the *to*-infinitive, Langacker does not pursue a detailed examination of *to*-infinitive constructions.

Chapters 3 and 4 have applied the control cycle to an analysis of the *to*-infinitive as a post-predicate complement or modifier. Chapter 3 has classified instances of *to*-infinitive constructions depending on which phase of the control cycle their matrix predicate represents and specified a cognitive foundation for classifying instances of the constructions. It has also been argued that the subjective directionality lying in reference point ability motivates the use of the *to*-infinitive in atypical instances whose matrix predicate represents the result phase of the control cycle. In order to further specify the properties of the *to*-infinitive, Chapter 4 has compared, in terms of the control cycle, the *to*-infinitive with the *-ing* form. The distributional differences of the two subordinate clauses have been described in a series of usage events by empirically showing that the

to-infinitive and the *-ing* form typically represent successive phases of the control cycle: that is, most instances of *to*-infinitive constructions cluster from the potential phase to the initial stage of the action phase, whereas many instances of *-ing* constructions cluster in the following stage (i.e. the execution stage of the action phase).

Chapter 5 has applied the idea of the control cycle to an analysis of the *to*-infinitive as a clausal subject and explained why this is a rare occurrence compared with the use of *-ing* as a subject and other uses of the *to*-infinitive. The chapter has also explained why the *to*-infinitive subject collocates with a very limited range of matrix predicates.

Chapters 6 and 7 have further applied the control cycle to an analysis of causative and perception constructions, respectively, and explained why *to* must be included when these two constructions are used in the passive.

8.2. Future Issues

The development of Cognitive Grammar can be divided into two broad phases, each aiming at a unified account of language (Langacker 2016: 24, 2017: 262). The first phase (Langacker 1987, 1990, 1991, 1999) provides a unified account of lexicon, morphology and syntax where these are inherently meaningful, comprising a continuum of symbolic structures (i.e. form-meaning pairings). The second phase (Langacker 2001, 2008, 2009, 2012, 2016, 2017) indicates how the approach outlined in Langacker's earlier works (Langacker 1987, 1991, etc.) makes it possible to envisage a unified account of structure, processing and discourse: that is, Langacker's later works clearly demonstrate the Cognitive Grammar perspective, less visible in his earlier studies, that grammar is shaped by discourse (cf. Langacker 2012: 100).

As diagrammed in Figure 8.1, the production of a usage event (i.e. an actual instance of language use) involves the speaker (S) and hearer (H) apprehending the semantic and

phonological content that appears in a window of attention¹ and focusing their attention on a particular facet of it (i.e. what an expression profiles) (Langacker 2012: 96).

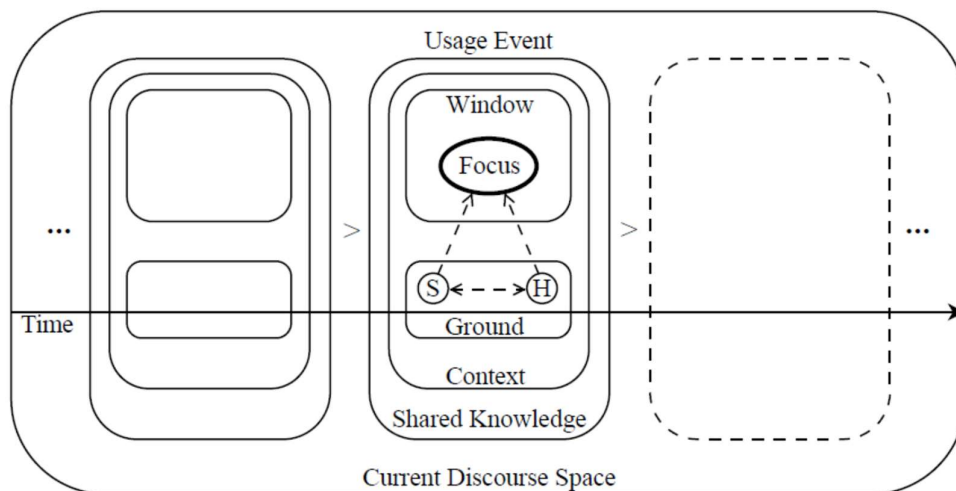


Figure 8.1: The Various Facets of a Usage Event (Langacker 2012: 96)

Figure 8.1 also indicates that the interaction between the speaker and hearer takes place in some context and the context includes the ongoing discourse.

Langacker (2012: 97) states that any facets of the scheme in Figure 8.1 can recur and be learned as part of the conventional value of linguistic elements because linguistic units are abstracted from usage events through reinforcement of recurring commonalities (cf. Langacker 2000: 4–5, 2008: 458). Therefore, he claims that not only language use but also language structure itself can be dynamic (residing in processing activity, e.g. the focusing of attention), interactive and embedded—i.e. it draws upon a multifaceted

¹ Langacker (2001: 144–145) describes directing and focusing attention on an entity metaphorically as looking at the world through a window, or viewing frame. He notes that we can conceive of only so much at any one time. For example, “[w]e have a limited visual field, taking in only so much of the world at any given instant” (Langacker 2001: 144). He also states that “we have a limited ‘conceptual field’, delimiting how much we can conceptualize or hold in mind at any given instant” (Langacker 2001: 144).

conceptual substrate consisting of background knowledge, mental constructions, the interaction between the speaker and hearer and their apprehension of the context (see Langacker 2008: 463).² Thus, linguistic structures are indissociable from the factors (e.g. the facets of the scheme in Figure 8.1) involved in usage events that occur in the context of ongoing discourse.

The present study agrees with Langacker's standpoint that grammar is shaped by discourse. This study has therefore collected (from COCA) and examined actual instances of language occurring in discourse. However, the idea that grammar is shaped by discourse is not manifest in this dissertation because the present study does not consider the usage events that occur before or after the instances examined. In future research, I will provide a more detailed analysis of instances of *to*-infinitive constructions by examining the usage events that precede or follow them. My analysis will show that the category of *to*-infinitive constructions grows in discourse.

The present study has also analyzed the *to*-infinitive as a post-predicate complement or modifier (see Chapters 3 and 4), the *to*-infinitive as a subject (see Chapter 5) and the infinitive with or without *to* in causative and perception constructions (see Chapters 6 and 7). However, this study does not examine the *to*-infinitive as a noun modifier as in (1a–c).³

- (1) a. the first person to arrive
b. a woman to admire
c. something to stir the soup with (Langacker 2008: 321 [fn. 11])

Several previous studies suggest that the notion of directionality (e.g. futurity or

² For a discussion of a conceptual substrate, see also Langacker (2021: 7).

³ Langacker (2008: 321 [fn. 11]) notes that the head nouns in (1a–c) correspond to the trajector of the infinitive, the landmark of the infinitive, and the landmark of the preposition, respectively.

potentiality) is involved in the use of the *to*-infinitive as a noun modifier (or the relative infinitive). For example, Huddleston and Pullum (2002: 1068) note that the relative infinitive as in (2a, b) has a modal meaning comparable to that expressed in finite clauses by *can* and *should*, which evoke the notion of futurity or potentiality.

(2) a. He found a video for the kids to watch.

b. She's obviously the person to finish the job.

(Huddleston and Pullum 2002: 1067–1068)

Duffley (1992: 137–138) also argues that substantives followed by the *to*-infinitive as a modifier (e.g. *willingness*, *desire*, *hesitation*, *right*, *chance*, etc.) evoke a situation existing before the infinitive event and being situated in time prior to the event.⁴

In future research, I will provide a detailed analysis of the *to*-infinitive as a noun modifier from a Cognitive Grammar perspective.

8.3. Conclusion

This dissertation has presented a consistent analysis of *to*-infinitive constructions by examining various uses of the *to*-infinitive in terms of the control cycle. It has been shown that the category of *to*-infinitive constructions does not grow haphazardly but within the range of the control cycle and that instances of the construction can be classified depending on which phase of the control cycle their matrix predicate represents. In future research, I will solve the problems remaining to be discussed in this thesis within the theoretical framework of Cognitive Grammar.

⁴ For a discussion of the *to*-infinitive as a modifier (or the relative infinitive), see also Quirk et al. (1985), Geisler (1995).

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