La-Net

LIN402

COGNITIVE LINGUISTICS

Download on the App Store

GET IT ON Google Play

Course video is available on our app

lanetonline.com

Course code: LIN 402
Course title: Cognitive Linguistics
Course credit load: 2 Units
Series 1: Transformational Generative Grammar Foundations

Series 2: The DP Hypothesis and Sub-Theories of Grammar

Series 3: X-Bar Theory and Core Modules of Syntax

Series 4: Movement, Constraints, and Empty Categories

Series 5: Advanced Hypotheses in Clause and Verb Phrase Structure

Proposed Outline Series for 1

Part 1.1: Introduction to transformational generative grammar

- Sub-Part 1.1.1: Historical background and development
- Sub-Part 1.1.2: Core concepts and vocabulary

Part 1.2: Principles of transformational grammar

- Sub-Part 1.2.1: Deep structure and surface structure
- Sub-Part 1.2.2: Transformations and rules

Part 1.3: Applications to African language data

- Sub-Part 1.3.1: Illustrative exercises with sentence structures
- Sub-Part 1.3.2: Practical analysis of transformations

Part 1.4: Critical perspectives on transformational grammar

- Sub-Part 1.4.1: Strengths and contributions
- Sub-Part 1.4.2: Limitations and criticisms

Introduction

Transformational generative grammar has been one of the most influential frameworks in modern linguistics. It provides a systematic way of explaining how sentences are formed, how structures are related, and how meaning is conveyed through syntax. For learners of linguistics, especially those working with African language data, this framework offers powerful tools to analyse sentence structures and uncover the principles that govern language use. By beginning with this foundation, you will be well prepared to engage with more advanced syntactic theories later in the course.

The aim of this Series is to introduce you to the fundamental concepts of transformational generative grammar and to equip you with the skills needed to apply these concepts to linguistic data, particularly from African languages.

We shall commence this Series by exploring the background and development of transformational generative grammar, including its core concepts and vocabulary. Next, we will examine the principles of transformational grammar, focusing on deep and surface structures, as well as transformations and rules. Following that, we will move on to practical applications, where you will analyse sentence structures and transformations using African language data. Finally, we will wrap up by considering critical perspectives, discussing both the strengths and limitations of transformational grammar as a framework.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 1.1** define the core concepts and vocabulary of transformational generative grammar,
- **SLO 1.2** explain the historical background and development of transformational generative grammar,
- **SLO 1.3** describe the distinction between deep structure and surface structure,
- **SLO 1.4** demonstrate how transformations and rules operate within sentence structures,
- **SLO 1.5** apply transformational grammar principles to African language data through practical exercises, and
- **SLO 1.6** evaluate the strengths and limitations of transformational generative grammar as a syntactic framework.

1.1 Introduction To Transformational Generative Grammar

1.1.1 Historical background and development

Transformational generative grammar is a theory of syntax developed by Noam Chomsky in the mid-twentieth century. It revolutionised linguistics by proposing that language is not simply a collection of memorised sentences but rather a system governed by rules that generate an infinite number of possible sentences. This framework introduced the idea that grammar is a mental system, reflecting the innate capacity of humans to produce and understand language.

Fill in the blank: Transformational generative grammar proposes that language is governed by _____ that generate an infinite number of sentences.

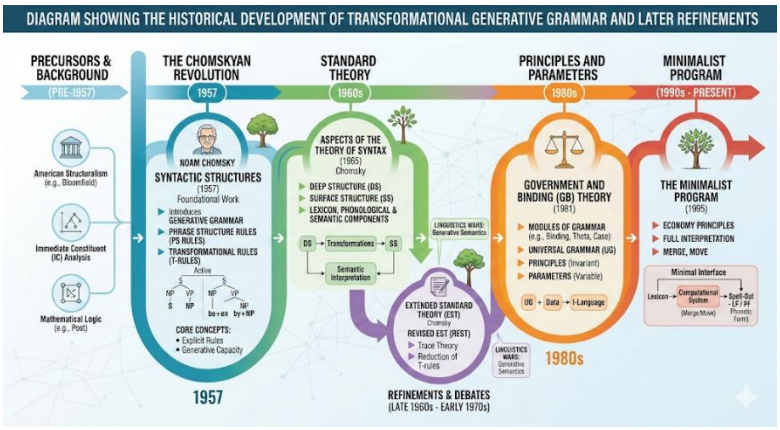
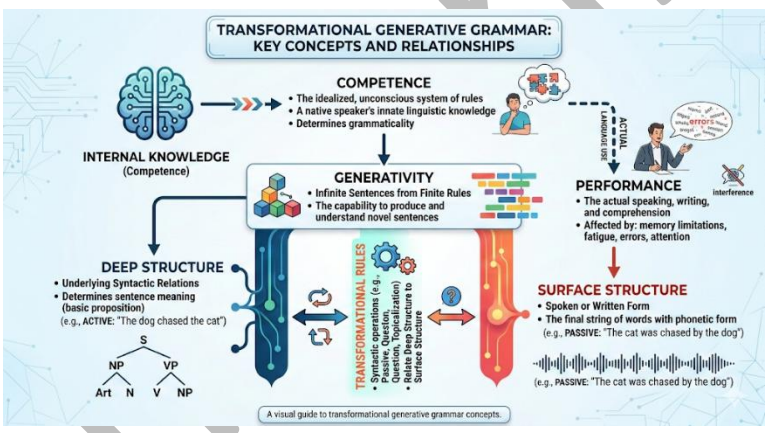


Figure 1.1: Historical development of transformational generative grammar

1.1.2 Core concepts and vocabulary

At the heart of transformational generative grammar are several **core concepts**. One of these is **competence**, defined as the speaker's internal knowledge of language, contrasted with **performance**, which refers to actual language use in communication. Another key concept is **generativity**, the ability of grammar to produce an unlimited number of sentences from a finite set of rules. The framework also distinguishes between **deep structure**, which represents the underlying syntactic relations, and **surface structure**, which reflects the actual spoken or written form.

Fill in the blank: The distinction between competence and performance highlights the difference between internal knowledge and actual _____ use.



Box 1.1: Key concepts in transformational generative grammar

Pilot questions 1.1

1. Who developed transformational generative grammar?
2. What does transformational generative grammar propose about language?
3. Define competence in the context of transformational generative grammar.
4. What is the difference between deep structure and surface structure?

5. What does generativity mean in transformational grammar?

1.2 Principles Of Transformational Grammar

1.2.1 Deep structure and surface structure

One of the most important principles in transformational grammar is the distinction between **deep structure** and **surface structure**. **Deep structure** refers to the underlying syntactic representation of a sentence, which captures the essential grammatical relationships between words. **Surface structure**, on the other hand, is the actual form of the sentence as spoken or written. Transformations are the rules that map deep structures onto surface structures, allowing us to explain how different sentence forms can express the same meaning.

Fill in the blank: Transformations are the rules that map _____ structures onto surface structures.

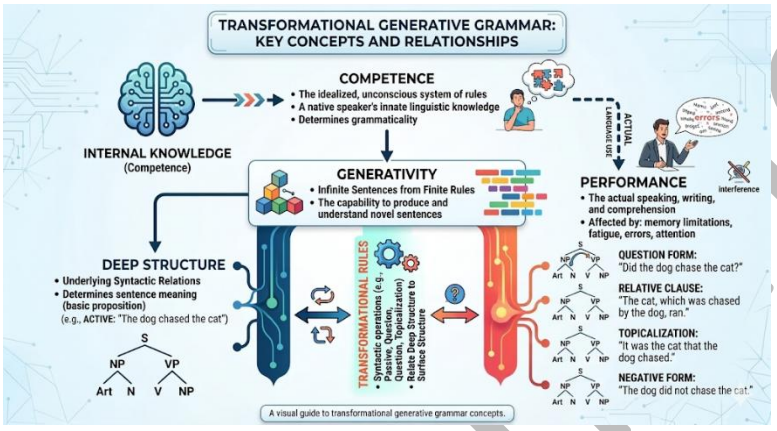


Figure 1.2: Relationship between deep and surface structures

1.2.2 Transformations and rules

Transformations are operations that modify sentence structures, such as moving, deleting, or inserting elements. For example, the transformation from a declarative sentence to a question involves moving the auxiliary verb to the front. These rules explain how sentences with different forms can be derived from the same deep structure. Transformational grammar therefore provides a systematic way of accounting for sentence variation while maintaining grammatical consistency.

Fill in the blank: The transformation from a declarative sentence to a question involves moving the _____ verb to the front.

Transformation Type	Original (Deep/Source)	Transformed (Surface)
Declarative → Interrogative	"She is reading a book."	"Is she reading a book?"

Transformation Type	Original (Deep/Source)	Transformed (Surface)
Active → Passive	"The teacher praised the student."	"The student was praised by the teacher."
Affirmative → Negative	"They will attend."	"They will not attend."

Box 1.2: Examples of transformations in English

Pilot questions 1.2

1. What is the difference between deep structure and surface structure?
2. What do transformations in grammar achieve?
3. Give one example of a transformation from declarative to interrogative.
4. Which verb is moved to the front in forming a question?
5. How does transformational grammar explain sentence variation?

1.3 Applications To African Language Data

1.3.1 Illustrative exercises with sentence structures

Transformational grammar is not only a theoretical framework but also a practical tool for analysing real language data. When applied to African languages, it helps to reveal how sentence structures are organised and how transformations operate across different linguistic systems. For example, many African languages use subject–verb–object (SVO) order, but transformations such as passivisation or question formation may alter this order while maintaining grammaticality. By working through exercises, you will see how transformational rules apply to specific sentence structures and how they highlight the underlying deep structures.

Fill in the blank: Transformational grammar helps reveal how sentence structures are organised and how _____ operate across different linguistic systems.

Language	Declarative (Source)	Interrogative (Question)	Passive (Transformed)
Yoruba	Ó rí ìwé	**Ṣé** ó rí ìwé?	Ìwé **ni a** rí

Language	Declarative (Source)	Interrogative (Question)	Passive (Transformed)
	(He saw the book)	*(Did he see the book?)*	*(The book was seen)*
Swahili	Mtoto anasoma kitabu *(The child is reading a book)*	**Je**, mtoto anasoma kitabu? *(Is the child reading a book?)*	Kitabu kina**somwa** na mtoto *(The book is being read by the child)*

Table 1.1: Sample sentence transformations in African languages

1.3.2 Practical analysis of transformations

In practice, applying transformational grammar to African language data involves identifying the deep structure of a sentence and then showing how transformations produce different surface forms. For instance, in Yoruba, the passive construction highlights the object by moving it to the subject position. Similarly, in Swahili, interrogative forms are created by adding a question marker at the beginning of the sentence. These analyses demonstrate how transformational grammar provides a systematic way of explaining variation while respecting the unique features of each language.

Fill in the blank: In Yoruba, the passive construction highlights the object by moving it to the _____ position.

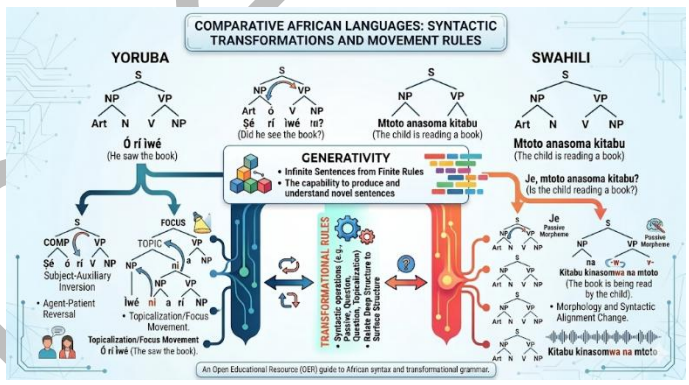


Plate 1.1: Tree diagrams of sentence transformations in African languages

Pilot questions 1.3

1. What is the benefit of applying transformational grammar to African language data?
2. Give one example of a declarative sentence in Yoruba and its interrogative form.
3. How does the passive construction in Yoruba highlight the object?
4. What marker is used in Swahili to form interrogative sentences?
5. Why is transformational grammar considered a systematic way of explaining sentence variation?

1.4 Critical Perspectives On Transformational Grammar

1.4.1 Strengths and contributions

Transformational grammar has made significant contributions to the study of syntax. One of its strengths is the ability to explain how a finite set of rules can generate an infinite number of sentences. This principle of **generativity** provides a powerful framework for understanding language creativity. Another contribution is the distinction between deep and surface structures, which allows linguists to analyse how meaning is preserved across different sentence forms. Transformational grammar also influenced other theories of syntax and inspired research in psychoLinguistics, language acquisition, and computational linguistics.

Fill in the blank: One of the strengths of transformational grammar is its ability to explain how a finite set of rules can generate an _____ number of sentences.

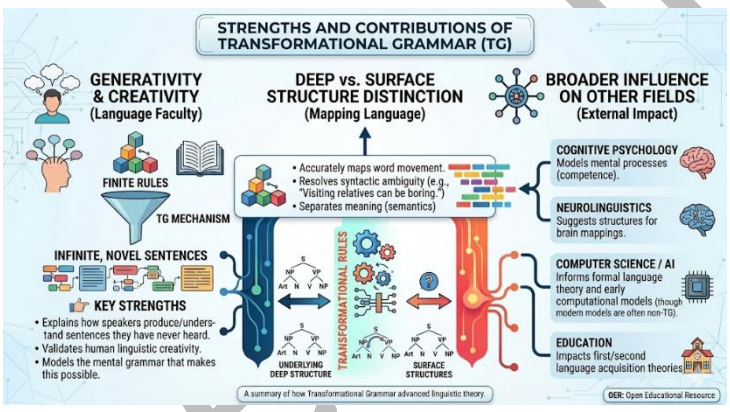


Figure 1.3: Strengths and contributions of transformational grammar

1.4.2 Limitations and criticisms

Despite its influence, transformational grammar has faced several criticisms. One limitation is that it can be highly abstract, making it difficult to apply directly to language teaching or everyday communication. Critics also argue that the theory places too much emphasis on syntax while neglecting semantics and pragmatics. Furthermore, some linguists question whether the distinction between deep and surface structures truly reflects how the human mind processes language. These criticisms have led to the development of alternative frameworks, such as functional grammar and cognitive linguistics, which aim to provide more holistic accounts of language.

Fill in the blank: Critics argue that transformational grammar places too much emphasis on _____ while neglecting semantics and pragmatics.

Feature	Transformational Grammar (Formalism)	Functionalism / Cognitive Linguistics
Primary Focus	Internal rules and mental competence.	Social use, communication, and meaning.
Language Origin	Innate "Universal Grammar" (Nature).	Learned through social interaction (Nurture).
Structure	Abstract trees and movement rules.	Fluid patterns based on usage and context.

Box 1.3: Limitations of transformational grammar

Pilot questions 1.4

1. What is one strength of transformational grammar?
2. How does transformational grammar explain language creativity?
3. Which distinction allows linguists to analyse meaning across sentence forms?
4. What is one criticism of transformational grammar?
5. Name one alternative framework that emerged in response to its limitations.

Series Summary

In this Series, we explored the **foundations of transformational generative grammar**, which serves as a cornerstone for syntactic theory. The focus was on understanding its historical development, core principles, applications to African language data, and critical perspectives.

We began with an **introduction to transformational generative grammar**, where you defined its core concepts and vocabulary, and explained its historical background and development (SLOs 1.1 and 1.2). We then examined the **principles of transformational grammar**, describing the distinction between deep and surface structures and demonstrating how transformations and rules operate within sentence structures (SLOs 1.3 and 1.4). Following that, we applied these principles to **African language data**, where you practised analysing sentence structures and transformations, thereby applying theoretical knowledge to real linguistic contexts (SLO 1.5). Finally, we considered **critical perspectives**, evaluating both the strengths and limitations of transformational grammar as a framework, and recognising the emergence of alternative approaches (SLO 1.6).

By completing this Series, you should now be able to define and explain the foundational concepts of transformational generative grammar, demonstrate how transformations work, apply them to African language data, and critically evaluate the framework's contributions and limitations. These skills provide a strong base for engaging with more advanced syntactic theories in subsequent Series.

Glossary Of Terms [Series 1]

- **Transformational generative grammar**: A theory of syntax developed by Noam Chomsky that explains how a finite set of rules can generate an infinite number of sentences.
- **Competence**: The internal knowledge of language possessed by a speaker.
- **Performance**: The actual use of language in communication, reflecting how competence is realised in practice.
- **Generativity**: The principle that grammar can produce an unlimited number of sentences from a finite set of rules.
- **Deep structure**: The underlying syntactic representation of a sentence, capturing essential grammatical relationships.
- **Surface structure**: The spoken or written form of a sentence, derived from deep structure through transformations.
- **Transformation**: A grammatical operation that modifies sentence structures, such as moving, deleting, or inserting grammar.

Concept Check Questions [Series 1]

Objective Questions

1. Who developed transformational generative grammar? (Linked to SLO 1.2)
2. Transformational grammar explains how a finite set of rules can generate an _____ number of sentences. (Linked to SLO 1.1)
3. Which distinction allows linguists to analyse meaning across different sentence forms? (Linked to SLO 1.3)
4. In forming a question, which verb is moved to the front? (Linked to SLO 1.4)
5. Critics argue that transformational grammar places too much emphasis on _____ while neglecting semantics and pragmatics. (Linked to SLO 1.6)

Short-Answer Questions

6. Define competence in the context of transformational generative grammar. (Linked to SLO 1.1)
7. Explain the difference between deep structure and surface structure. (Linked to SLO 1.3)

8. Demonstrate with an example how a declarative sentence can be transformed into an interrogative sentence. (Linked to SLO 1.4)

9. Apply transformational grammar principles to show how a passive construction highlights the object in Yoruba. (Linked to SLO 1.5)

10. Evaluate one limitation of transformational grammar as a framework. (Linked to SLO 1.6)

Long-Answer Questions

11. Analyse the historical development of transformational generative grammar and its contributions to modern linguistics. (Linked to SLOs 1.1, 1.2)

12. Discuss the principles of transformational grammar, focusing on deep and surface structures, and transformations. (Linked to SLOs 1.3, 1.4)

13. Apply transformational grammar to African language data, illustrating with examples from Yoruba or Swahili. (Linked to SLO 1.5)

14. Critically evaluate the strengths and limitations of transformational grammar, considering its influence and criticisms. (Linked to SLO 1.6)

Answers to Concept Check Questions [Series 1]

Objective Questions

1. Noam Chomsky
2. Infinite
3. Deep and surface structure
4. Auxiliary verb
5. Syntax

Short-Answer Questions

6. Competence is the internal knowledge of language possessed by a speaker.

7. Deep structure represents the underlying syntactic relations, while surface structure is the spoken or written form derived through transformations.

8. Declarative: "She is reading a book." → Interrogative: "Is she reading a book?"

9. In Yoruba, the passive construction moves the object into the subject position, e.g., "Ìwé ni a rí" (The book was seen).

10. One limitation is that transformational grammar is highly abstract and difficult to apply directly to practical communication or teaching.

Long-Answer Questions

11. **Basic response**: Transformational grammar was developed by Noam Chomsky in the mid-twentieth century. It introduced concepts such as competence, performance, and generativity, and influenced the study of syntax. **Value-added response**: Beyond syntax, it

shaped fields such as psycholinguistics, language acquisition, and computational linguistics, providing a foundation for later frameworks.

12. **Basic response**: The principles include the distinction between deep and surface structures and the use of transformations to derive different sentence forms. **Value-added response**: These principles explain how meaning is preserved across variations and how rules systematically account for sentence creativity.

13. **Basic response**: Applying transformational grammar to African languages shows how declarative sentences can be transformed into interrogatives or passives, e.g., Yoruba "Ó rí ìwé" → "Ṣé ó rí ìwé?" **Value-added response**: Such applications highlight the universality of transformational rules while respecting language-specific features, demonstrating the adaptability of the framework.

14. **Basic response**: Strengths include generativity and the deep vs. surface structure distinction. Limitations include abstraction and overemphasis on syntax. **Value-added response**: While transformational grammar influenced many fields, criticisms led to alternative frameworks such as functional grammar and cognitive linguistics, which provide more holistic accounts of language.

Answers to Pilot Questions [Series 1]

Part 1.1

1. Noam Chomsky
2. Language is governed by rules that generate an infinite number of sentences
3. Competence is the internal knowledge of language possessed by a speaker
4. Deep structure represents underlying syntactic relations, while surface structure is the spoken or written form
5. Generativity means grammar can produce an unlimited number of sentences from a finite set of rules

Part 1.2

1. Deep structure is the underlying representation, while surface structure is the actual spoken or written form
2. Transformations modify sentence structures to derive different forms
3. Declarative: "She is reading a book" → Interrogative: "Is she reading a book?"
4. The auxiliary verb
5. It explains sentence variation systematically while maintaining grammatical consistency

Part 1.3

1. It reveals how sentence structures are organised and how transformations operate across different linguistic systems
2. Yoruba: Ó rí ìwé (He saw the book) → Ṣé ó rí ìwé? (Did he see the book?)
3. By moving the object into the subject position

4. The question marker “Je”
5. Because it provides a systematic way of explaining variation while respecting language-specific features

Part 1.4

1. Generativity is one strength of transformational grammar
2. It explains how a finite set of rules can generate an infinite number of sentences
3. The distinction between deep and surface structures
4. It is highly abstract and places too much emphasis on syntax
5. Functional grammar or cognitive linguistics

References and Attributions [Series 1]

This section consolidates references and illustration attributions for **Series 1: Foundations of Transformational Generative Grammar**, presented in APA style.

Scholarly References

- Chomsky, N. (1957). *Syntactic structures*. The Hague: Mouton.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Radford, A. (1988). *Transformational grammar: A first course*. Cambridge: Cambridge University Press.
- Haegeman, L. (1994). *Introduction to government and binding theory* (2nd ed.). Oxford: Blackwell.
- Carnie, A. (2013). *Syntax: A generative introduction* (3rd ed.). Oxford: Wiley-Blackwell.

Illustration Attributions

- **Figure 1.1: Historical development of transformational generative grammar** AI-generated suggestion. Prompt: “Create a timeline diagram showing the historical development of transformational generative grammar, including Chomsky’s *Syntactic Structures* and later refinements.” Suggested OER search string: “transformational generative grammar history timeline OER”.
- **Box 1.1: Key concepts in transformational generative grammar** AI-generated suggestion. Prompt: “Create a text box listing key concepts in transformational generative grammar, including competence, performance, generativity, deep structure, and surface structure.” Suggested OER search string: “transformational generative grammar key concepts OER”.
- **Figure 1.2: Relationship between deep and surface structures** AI-generated suggestion. Prompt: “Create a diagram showing the relationship between deep structure and surface structure, with arrows indicating transformations.” Suggested OER search string: “deep structure surface structure transformational grammar diagram OER”.

- **Box 1.2: Examples of transformations in English** AI-generated suggestion. Prompt: "Create a text box listing examples of transformations in English, including declarative to interrogative, active to passive, and affirmative to negative." Suggested OER search string: "transformational grammar examples transformations OER".
- **Table 1.1: Examples of sentence transformations in African languages** AI-generated suggestion. Prompt: "Create a table showing examples of sentence transformations in African languages, including declarative, interrogative, and passive forms." Suggested OER search string: "African languages transformational grammar examples OER".
- **Plate 1.1: Tree diagrams of sentence transformations in African languages** AI-generated suggestion. Prompt: "Create an image showing sentence tree diagrams for African language examples, with arrows indicating transformations." Suggested OER search string: "African languages syntax tree diagrams transformational grammar OER".
- **Figure 1.3: Strengths and contributions of transformational grammar** AI-generated suggestion. Prompt: "Create a diagram showing strengths of transformational grammar, including generativity, deep vs. surface structures, and influence on other fields." Suggested OER search string: "strengths contributions transformational grammar diagram OER".
- **Box 1.3: Limitations of transformational grammar** AI-generated suggestion. Prompt: "Create a text box listing limitations of transformational grammar, including abstraction, overemphasis on syntax, and alternative frameworks." Suggested OER search string: "limitations criticisms transformational grammar OER".

Course code: LIN 402
Course title: Cognitive Linguistics
Course credit load: 2 Units
Series 1: Transformational Generative Grammar Foundations

Series 2: The DP Hypothesis and Sub-Theories of Grammar

Series 3: X-Bar Theory and Core Modules of Syntax

Series 4: Movement, Constraints, and Empty Categories

Series 5: Advanced Hypotheses in Clause and Verb Phrase Structure

Proposed Outline Series for 2

Part 2.1: The DP Hypothesis

- Sub-Part 2.1.1: Arguments for the DP Hypothesis
- Sub-Part 2.1.2: Arguments against the DP Hypothesis

Part 2.2: Case theory

- Sub-Part 2.2.1: Principles of case assignment

- Sub-Part 2.2.2: Exceptional case marking (ECM)

Part 2.3: Theta theory

- Sub-Part 2.3.1: Thematic roles and their assignment
- Sub-Part 2.3.2: Constraints on theta role distribution

Part 2.4: Government and binding theory

- Sub-Part 2.4.1: Government relations in syntax
- Sub-Part 2.4.2: Binding principles (A, B, and C)

Introduction

In the last Series, we examined the foundations of transformational generative grammar, focusing on its historical development, principles, applications to African language data, and critical perspectives. Building on that foundation, we now turn to the **DP Hypothesis** and several important sub-theories of grammar. These frameworks provide more detailed insights into how syntactic structures are organised and how relationships between words are governed. Understanding them is crucial for advancing your ability to analyse sentence structures and evaluate competing theoretical perspectives in syntax.

The aim of this Series is to introduce you to the DP Hypothesis and to equip you with the skills needed to apply and evaluate key sub-theories of grammar, including case theory, theta theory, and government and binding theory.

We shall commence this Series by exploring the DP Hypothesis, considering arguments both for and against it. Next, we will examine case theory, focusing on principles of case assignment and exceptional case marking. Following that, we will move on to theta theory, where we will study thematic roles and constraints on their distribution. Finally, we will wrap up with government and binding theory, analysing government relations in syntax and the binding principles A, B, and C.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 2.1** analyse the arguments for the DP Hypothesis,
- **SLO 2.2** evaluate the arguments against the DP Hypothesis,
- **SLO 2.3** explain the principles of case assignment in syntax,
- **SLO 2.4** demonstrate how exceptional case marking (ECM) operates within sentence structures,
- **SLO 2.5** define thematic roles and describe how they are assigned in theta theory,

- **SLO 2.6** apply constraints on theta role distribution to syntactic analysis,
- **SLO 2.7** describe government relations in syntax, and
- **SLO 2.8** evaluate binding principles A, B, and C within government and binding theory.

2.1 The DP Hypothesis

2.1.1 Arguments for the DP Hypothesis

The **DP Hypothesis** proposes that noun phrases are not headed by nouns but by **determiners**, defined as words such as *the*, *a*, *this*, or *that*, which specify reference. According to this hypothesis, the determiner is the true head of the phrase, and the noun is embedded within it. One argument in favour of this view is that determiners control the distribution of noun phrases, for example, whether a phrase can appear in subject or object position. Another argument is that determiners often carry features such as definiteness or number, which influence the interpretation of the entire phrase.

Fill in the blank: According to the DP Hypothesis, noun phrases are headed by _____ rather than nouns.

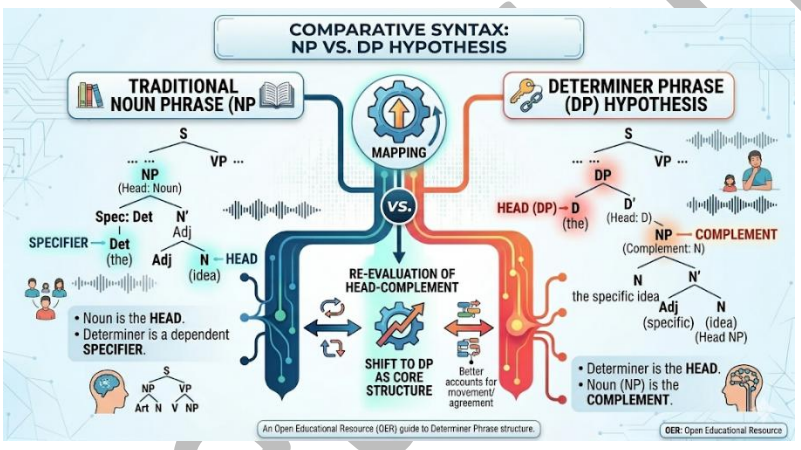


Figure 2.1: Structure of a Determiner Phrase (DP)

2.1.2 Arguments against the DP Hypothesis

Despite its influence, the DP Hypothesis has faced criticisms. Some linguists argue that nouns, not determiners, should be considered the heads of noun phrases because nouns carry the core semantic content. Others point out that many languages, including several African languages, do not use overt determiners, yet their noun phrases function grammatically. This raises questions about whether the DP Hypothesis is universally applicable. Critics also suggest that treating determiners as heads may overcomplicate syntactic analysis without offering clear explanatory advantages.

Fill in the blank: Critics of the DP Hypothesis argue that nouns should be considered the heads of noun phrases because they carry the core _____ content.

Feature	DP Hypothesis (Functional Head)	NP Hypothesis (Lexical Head)
Head of Phrase	Determiner (D)	Noun (N)
Tree Structure	Higher complexity (D selects NP as complement)	Lower complexity (D is a modifier/specifier of N)
Cross-linguistic Fit	Stronger for "Article" languages (English/Spanish)	Stronger for "Article-less" languages (Polish/Thai)

Box 2.1: Criticisms of the DP Hypothesis

Pilot questions 2.1

1. What does the DP Hypothesis propose about the head of noun phrases?
2. Give one argument in favour of the DP Hypothesis.
3. Which features carried by determiners influence the interpretation of the phrase?
4. Why do some linguists argue against the DP Hypothesis?
5. Name one reason why the universality of the DP Hypothesis is questioned.

2.2 Case Theory

2.2.1 Principles of case assignment

Case theory is a sub-theory of grammar that explains how **case**, defined as the grammatical marking that indicates the relationship between a noun phrase and other elements in a sentence, is assigned. In English, for example, case is reflected in pronouns such as *he* (nominative), *him* (accusative), and *his* (genitive). Case assignment ensures that noun phrases appear in grammatically appropriate positions. For instance, subjects typically receive nominative case from finite verbs, while objects receive accusative case from verbs. This principle helps maintain syntactic well-formedness and prevents ungrammatical structures.

Fill in the blank: Subjects typically receive _____ case from finite verbs, while objects receive accusative case.

Feature	DP Hypothesis (Functional Head)	NP Hypothesis (Lexical Head)
Head of Phrase	Determiner (D)	Noun (N)

Feature	DP Hypothesis (Functional Head)	NP Hypothesis (Lexical Head)
Tree Structure	Higher complexity (D selects NP as complement)	Lower complexity (D is a modifier/specifier of N)
Cross-linguistic Fit	Stronger for "Article" languages (English/Spanish)	Stronger for "Article-less" languages (Polish/Thai)

Figure 2.2: Case assignment in sentence structure

2.2.2 Exceptional case marking (ECM)

Exceptional case marking (ECM) occurs when a verb assigns case to a noun phrase outside its own clause. For example, in the sentence *I believe him to be honest*, the verb *believe* assigns accusative case to *him*, even though *him* is part of the embedded clause *him to be honest*. This phenomenon challenges the traditional view that case is always assigned within the same clause. ECM constructions are important because they show how case assignment can cross clause boundaries, revealing the flexibility and complexity of syntactic relations.

Fill in the blank: In the sentence *I believe him to be honest*, the verb *believe* assigns _____ case to *him*.

Main Clause Verb	ECM Subject (Accusative)	Infinitival Complement	Full Sentence
Expect	him	to win	I **expect him** to win.
Consider	them	to be reliable	She **considers them** to be reliable.
Believe	her	to have succeeded	We **believe her** to have succeeded.

Box 2.2: Examples of exceptional case marking (ECM)

Pilot questions 2.2

1. What does case theory explain in syntax?
2. Which case is typically assigned to subjects by finite verbs?
3. Give one example of case assignment in English pronouns.
4. What is exceptional case marking (ECM)?

5. Provide one example of an ECM construction.

2.3 Theta Theory

2.3.1 Thematic roles and their assignment

Theta theory is a sub-theory of grammar concerned with the assignment of **thematic roles**, defined as the semantic roles that noun phrases play in relation to the verb. Common thematic roles include **agent** (the doer of an action), **theme** (the entity affected by an action), **experiencer** (the entity that perceives or feels), and **goal** (the endpoint of an action). Each verb specifies the number and type of thematic roles it requires, known as its **theta grid**. For example, the verb *give* requires three roles: an agent (the giver), a theme (the thing given), and a goal (the recipient).

Fill in the blank: The verb *give* requires three thematic roles: agent, theme, and _____.

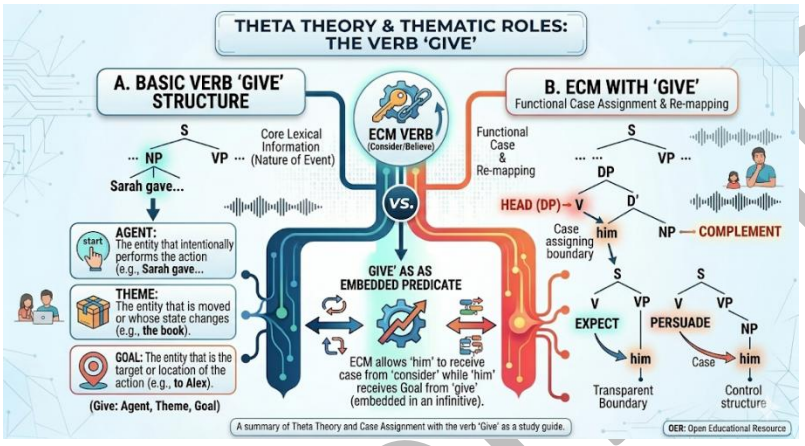


Figure 2.3: Thematic role assignment for the verb "give"

2.3.2 Constraints on theta role distribution

Theta theory also establishes constraints on how thematic roles are distributed. One key principle is the **Theta Criterion**, which states that each argument in a sentence must receive exactly one theta role, and each theta role must be assigned to exactly one argument. This prevents redundancy and ensures clarity in sentence interpretation. For example, in the sentence *Mary gave John a book*, *Mary* is the agent, *John* is the goal, and *a book* is the theme. No argument receives more than one role, and no role is left unassigned.

Fill in the blank: The Theta Criterion states that each argument must receive exactly one _____ role.

Sentence Status	Example	Violation Analysis
Grammatical	*John put the book on the shelf.*	☑ All 3 roles assigned to 3 distinct arguments.

Sentence Status	Example	Violation Analysis
Ungrammatical	*John put the book.*	❌ **Violation:** The "Location" role is unassigned.
Ungrammatical	*John put the book on the shelf the table.*	❌ **Violation:** The extra argument "the table" has no role.

Box 2.3: The Theta Criterion

Pilot questions 2.3

1. What does theta theory study in grammar?
2. Define thematic roles and give two examples.
3. What is a theta grid?
4. State the Theta Criterion.
5. In the sentence *Mary gave John a book*, identify the agent, goal, and theme.

2.4 Government And Binding Theory

2.4.1 Government relations in syntax

Government and Binding Theory (GB) is a framework developed by Noam Chomsky to explain syntactic relations in a more systematic way. One of its central concepts is **government**, defined as the relationship between a governing element (such as a verb, preposition, or finite inflection) and the noun phrase it governs. Government determines how case is assigned and how syntactic dependencies are established. For example, a verb governs its object, ensuring that the object receives accusative case. This principle helps explain why certain noun phrases appear in specific positions within sentences.

Fill in the blank: Government is the relationship between a governing element and the _____ phrase it governs.

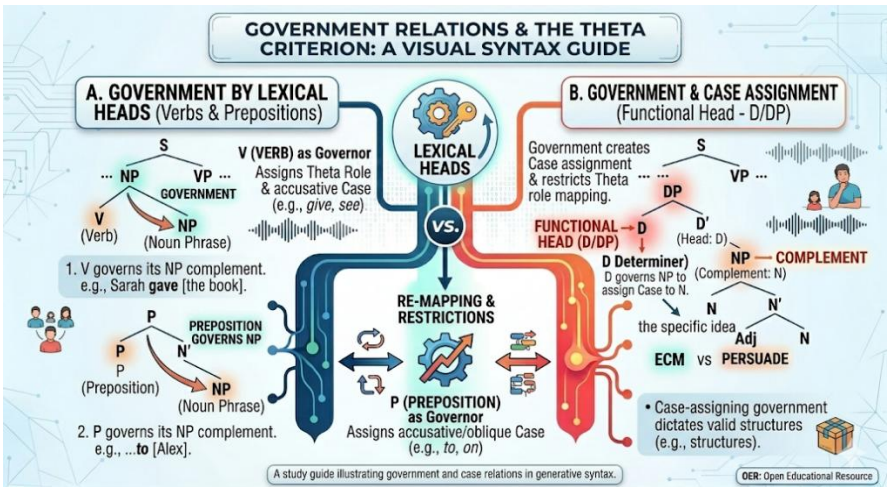


Figure 2.4: Government relations in syntax

2.4.2 Binding principles (A, B, and C)

Another key component of GB is **binding theory**, which explains how pronouns and noun phrases refer to each other. Binding theory is governed by three principles:

- **Principle A**: Anaphors (such as *himself*, *herself*) must be bound within their local domain.
- **Principle B**: Pronouns (such as *he*, *she*) must be free within their local domain.
- **Principle C**: Referential expressions (such as *John*, *Mary*) must be free everywhere.

These principles ensure that sentences are interpreted correctly and avoid ambiguity in reference. For example, in *John saw himself in the mirror*, *himself* is correctly bound to *John* under Principle A.

Fill in the blank: Principle A states that anaphors must be _____ within their local domain.

Principle	Category	Core Rule	Example
Principle A	**Anaphors** (e.g., *himself*, *each other*)	Must be **bound** within their local domain (usually the same clause).	*John$_i$ shaved **himself**$_i$.*
Principle B	**Pronominals** (e.g., *him*, *her*, *them*)	Must be **free** within their local domain.	*John$_i$ shaved **him**$_j$.* (cannot be John)
Principle C	**R-Expressions** (e.g., *John*, *the cat*)	Must be **free everywhere** (cannot be bound by anything).	*He$_i$ said that **John**$_j$ is tall.* (cannot be same person)

Box 2.4: Binding principles in Government and Binding Theory

Pilot questions 2.4

1. What does government explain in syntax?
2. Give one example of a governing element.
3. State Principle A of binding theory.
4. What does Principle B require of pronouns?
5. How does Principle C apply to referential expressions?

Series Summary

In this Series, we examined the **DP Hypothesis and Core Sub-Theories of Grammar**, building on the foundations established in Series 1. The focus was on understanding how noun phrases are structured, how case and thematic roles are assigned, and how government and binding relations shape syntactic interpretation.

We began with the **DP Hypothesis**, where you analysed arguments supporting the view that determiners head noun phrases and evaluated criticisms questioning its universality (SLOs 2.1 and 2.2). We then moved on to **case theory**, explaining the principles of case assignment and demonstrating how exceptional case marking (ECM) operates across clause boundaries (SLOs 2.3 and 2.4). Following that, we explored **theta theory**, defining thematic roles, describing their assignment, and applying constraints on their distribution through the Theta Criterion (SLOs 2.5 and 2.6). Finally, we studied **government and binding theory**, describing government relations in syntax and evaluating binding principles A, B, and C to understand how pronouns and referential expressions interact (SLOs 2.7 and 2.8).

By completing this Series, you should now be able to critically analyse the DP Hypothesis, apply case and theta theory to syntactic structures, and evaluate government and binding principles. These skills strengthen your ability to engage with advanced syntactic frameworks and prepare you for deeper exploration of grammar in subsequent Series.

Glossary Of Terms [Series 2]

- **DP Hypothesis**: A syntactic theory proposing that noun phrases are headed by determiners rather than nouns.
- **Determiner**: A word such as *the*, *a*, *this*, or *that* which specifies reference and heads a determiner phrase (DP).
- **Noun phrase (NP)**: A syntactic unit centred around a noun, traditionally considered the head before the DP Hypothesis.
- **Case theory**: A sub-theory of grammar explaining how case is assigned to noun phrases to mark their syntactic roles.

- **Case**: The grammatical marking that indicates the relationship between a noun phrase and other elements in a sentence (e.g., nominative, accusative, genitive).
- **Exceptional case marking (ECM)**: A phenomenon where a verb assigns case to a noun phrase outside its own clause, as in *I believe him to be honest*.
- **Theta theory**: A sub-theory of grammar concerned with the assignment of thematic roles to noun phrases.
- **Thematic roles**: Semantic roles such as agent (doer), theme (affected entity), experiencer (perceiver), and goal (endpoint).
- **Theta grid**: The specification of the number and type of thematic roles required by a verb.
- **Theta Criterion**: A principle stating that each argument must receive exactly one theta role, and each theta role must be assigned to exactly one argument.
- **Government**: The syntactic relationship between a governing element (verb, preposition, or inflection) and the noun phrase it governs.
- **Binding theory**: A component of Government and Binding Theory explaining how pronouns and noun phrases refer to each other.
- **Principle A**: States that anaphors (e.g., *himself*, *herself*) must be bound within their local domain.
- **Principle B**: States that pronouns (e.g., *he*, *she*) must be free within their local domain.
- **Principle C**: States that referential expressions (e.g., *John*, *Mary*) must be free everywhere.

Concept Check Questions [Series 2]

Objective Questions

1. The DP Hypothesis proposes that noun phrases are headed by _____ rather than nouns. (Linked to SLO 2.1)
2. Which features carried by determiners influence the interpretation of the entire phrase? (Linked to SLO 2.1)
3. Subjects typically receive _____ case from finite verbs. (Linked to SLO 2.3)
4. In the sentence *I believe him to be honest*, the verb *believe* assigns _____ case to *him*. (Linked to SLO 2.4)
5. The Theta Criterion states that each argument must receive exactly one _____ role. (Linked to SLO 2.6)
6. Principle A of binding theory requires that anaphors must be _____ within their local domain. (Linked to SLO 2.8)

Short-Answer Questions

7. Give one argument in favour of the DP Hypothesis. (Linked to SLO 2.1)
8. State one criticism of the DP Hypothesis. (Linked to SLO 2.2)
9. Provide an example of case assignment in English pronouns. (Linked to SLO 2.3)
10. Define exceptional case marking (ECM) and give one example. (Linked to SLO 2.4)
11. Define thematic roles and list two examples. (Linked to SLO 2.5)
12. What is a theta grid? (Linked to SLO 2.5)
13. State the Theta Criterion in your own words. (Linked to SLO 2.6)
14. Give one example of government relations in syntax. (Linked to SLO 2.7)
15. State Principle B of binding theory. (Linked to SLO 2.8)

Long-Answer Questions

16. Analyse the arguments for and against the DP Hypothesis, highlighting its strengths and limitations. (Linked to SLOs 2.1, 2.2)
17. Explain the principles of case assignment and demonstrate how exceptional case marking (ECM) operates. (Linked to SLOs 2.3, 2.4)
18. Discuss thematic roles in theta theory, illustrating with examples from verbs such as *give* or *see*. (Linked to SLOs 2.5, 2.6)
19. Evaluate government relations and binding principles A, B, and C, using examples to show how they regulate reference in syntax. (Linked to SLOs 2.7, 2.8)

Answers to Concept Check Questions [Series 2]

Objective Questions

1. Determiners
2. Definiteness and number
3. Nominative
4. Accusative
5. Theta
6. Bound

Short-Answer Questions

7. Determiners control the distribution of noun phrases.
8. Many languages lack overt determiners, questioning universality.
9. *He* (nominative), *him* (accusative), *his* (genitive).
10. ECM occurs when a verb assigns case outside its clause, e.g., *I expect him to win*.
11. Thematic roles are semantic roles; examples: agent, theme.

12. A theta grid specifies the number and type of thematic roles required by a verb.

13. Each argument must receive one role, and each role must be assigned to one argument.

14. A verb governs its object, assigning accusative case.

15. Pronouns must be free within their local domain.

Long-Answer Questions

16. **Basic response**: The DP Hypothesis argues that determiners head noun phrases, supported by their role in distribution and features. Critics argue nouns carry semantic content and many languages lack determiners. **Value-added response**: While the hypothesis explains certain syntactic behaviours, its universality is questioned, leading to debates about whether it overcomplicates analysis.

17. **Basic response**: Case theory explains nominative case for subjects and accusative for objects. ECM shows verbs can assign case across clauses. **Value-added response**: ECM constructions such as *She considers them to be reliable* demonstrate flexibility in case assignment, challenging traditional clause-bound views.

18. **Basic response**: Thematic roles include agent, theme, and goal. Verbs specify these roles in their theta grids. **Value-added response**: For example, *give* requires three roles, while *see* requires two. The Theta Criterion ensures clarity by preventing multiple roles for one argument.

19. **Basic response**: Government explains how verbs and prepositions govern noun phrases. Binding principles regulate reference: Principle A for anaphors, Principle B for pronouns, Principle C for referential expressions. **Value-added response**: These principles prevent ambiguity, e.g., *John saw himself* (Principle A) versus *John saw him* (Principle B), ensuring correct interpretation of syntactic relations.

Answers to Pilot Questions [Series 2]

Part 2.1

1. Noun phrases are headed by determiners.
2. Determiners control the distribution of noun phrases.
3. Features such as definiteness and number.
4. Nouns carry the core semantic content.
5. Because many languages lack overt determiners, questioning universality.

Part 2.2

1. Case theory explains how case is assigned to noun phrases.
2. Nominative case.
3. *He* (nominative), *him* (accusative), *his* (genitive).
4. Exceptional case marking (ECM) occurs when a verb assigns case outside its clause.
5. *I expect him to win.*

Part 2.3

1. Theta theory studies the assignment of thematic roles.
2. Thematic roles are semantic roles; examples: agent and theme.
3. A theta grid specifies the number and type of roles required by a verb.
4. Each argument must receive exactly one theta role, and each theta role must be assigned to one argument.
5. Agent = Mary, Goal = John, Theme = a book.

Part 2.4

1. Government explains the relationship between a governing element and the noun phrase it governs.
2. A verb or preposition.
3. Anaphors must be bound within their local domain.
4. Pronouns must be free within their local domain.
5. Referential expressions must be free everywhere.

References and Attributions [Series 2]

This section consolidates references and illustration attributions for **Series 2: The DP Hypothesis and Core Sub-Theories of Grammar**, presented in APA style.

Scholarly References

- Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht: Foris.
- Radford, A. (1997). *Syntax: A minimalist introduction*. Cambridge: Cambridge University Press.
- Haegeman, L. (1994). *Introduction to government and binding theory* (2nd ed.). Oxford: Blackwell.
- Carnie, A. (2013). *Syntax: A generative introduction* (3rd ed.). Oxford: Wiley-Blackwell.
- Adger, D. (2003). *Core syntax: A minimalist approach*. Oxford: Oxford University Press.

Illustration Attributions

- **Figure 2.1: Structure of a Determiner Phrase (DP)** AI-generated suggestion. Prompt: "Create a diagram showing the structure of a Determiner Phrase, with the determiner as the head and the noun as the complement." Suggested OER search string: "DP Hypothesis determiner phrase syntax diagram OER".
- **Box 2.1: Criticisms of the DP Hypothesis** AI-generated suggestion. Prompt: "Create a text box listing criticisms of the DP Hypothesis, including semantic content of nouns, absence of determiners in some languages, and questions of universality." Suggested OER search string: "DP Hypothesis criticisms noun phrase syntax OER".

- **Figure 2.2: Case assignment in sentence structure** AI-generated suggestion. Prompt: “Create a diagram showing case assignment in a sentence, with arrows from the verb to the subject (nominative case) and to the object (accusative case).” Suggested OER search string: “case theory syntax nominative accusative diagram OER”.
- **Box 2.2: Examples of exceptional case marking (ECM)** AI-generated suggestion. Prompt: “Create a text box listing examples of exceptional case marking (ECM) sentences, such as ‘I expect him to win’ and ‘She considers them to be reliable.’” Suggested OER search string: “exceptional case marking ECM examples syntax OER”.
- **Figure 2.3: Thematic role assignment for the verb ‘give’** AI-generated suggestion. Prompt: “Create a diagram showing the verb ‘give’ with arrows pointing to its thematic roles: agent, theme, and goal.” Suggested OER search string: “theta theory thematic roles verb give diagram OER”.
- **Box 2.3: The Theta Criterion** AI-generated suggestion. Prompt: “Create a text box summarising the Theta Criterion, including its rules and purpose.” Suggested OER search string: “theta theory theta criterion syntax OER”.
- **Figure 2.4: Government relations in syntax** AI-generated suggestion. Prompt: “Create a diagram showing government relations in syntax, with arrows from verbs and prepositions to the noun phrases they govern.” Suggested OER search string: “government relations syntax diagram OER”.
- **Box 2.4: Binding principles in Government and Binding Theory** AI-generated suggestion. Prompt: “Create a text box summarising binding principles A, B, and C in Government and Binding Theory.” Suggested OER search string: “binding theory principles A B C syntax OER”.

Course code: LIN 402
Course title: Cognitive Linguistics
Course credit load: 2 Units
Series 1: Transformational Generative Grammar Foundations

Series 2: The DP Hypothesis and Sub-Theories of Grammar

Series 3: X-Bar Theory and Core Modules of Syntax

Series 4: Movement, Constraints, and Empty Categories

Series 5: Advanced Hypotheses in Clause and Verb Phrase Structure

Proposed Outline Series for 3

Part 3.1: Foundations of X-Bar Theory

- Sub-Part 3.1.1: Principles of phrase structure
- Sub-Part 3.1.2: The X-Bar schema

Part 3.2: Phrase structure rules

- Sub-Part 3.2.1: Head, complement, and specifier
- Sub-Part 3.2.2: Applications to noun phrases and verb phrases

Part 3.3: Core modules of syntax

- Sub-Part 3.3.1: Bounding theory
- Sub-Part 3.3.2: Control theory
- Sub-Part 3.3.3: Binding theory revisited

Part 3.4: Applications and critiques

- Sub-Part 3.4.1: Cross-linguistic applications
- Sub-Part 3.4.2: Limitations of X-Bar Theory

Introduction

In the last Series, we explored the DP Hypothesis and examined how case theory, theta theory, and government and binding theory contribute to our understanding of syntactic structures. Building on that foundation, we now turn to **X-Bar Theory**, a framework that revolutionised phrase structure analysis by introducing a more uniform and hierarchical model. This Series is important because it provides you with the tools to analyse phrases systematically and to appreciate how core modules of syntax interact within this framework.

The aim of this Series is to introduce you to the principles of X-Bar Theory and to equip you with the skills needed to apply phrase structure rules, engage with core syntactic modules, and critically evaluate the strengths and limitations of this theoretical approach.

We shall commence this Series by examining the foundations of X-Bar Theory, focusing on phrase structure principles and the X-Bar schema. Next, we will explore applications of X-Bar Theory, looking at noun phrases, verb phrases, and cross-linguistic examples. Following that, we will move on to the core modules of syntax, including bounding theory, control theory, and a revisited discussion of binding theory within the X-Bar framework. Finally, we will conclude by evaluating X-Bar Theory, considering its strengths, contributions, and criticisms, as well as alternative approaches.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 3.1** define the principles of phrase structure within X-Bar Theory,
- **SLO 3.2** explain the X-Bar schema, including the roles of head, complement, and specifier,
- **SLO 3.3** apply X-Bar Theory to the analysis of noun phrase structures,
- **SLO 3.4** demonstrate how X-Bar Theory accounts for verb phrase structures,
- **SLO 3.5** analyse cross-linguistic applications of X-Bar Theory,
- **SLO 3.6** describe the principles of bounding theory within the X-Bar framework,
- **SLO 3.7** explain the mechanisms of control theory in syntax,
- **SLO 3.8** evaluate binding theory as revisited in the X-Bar framework,
- **SLO 3.9** assess the strengths and contributions of X-Bar Theory, and
- **SLO 3.10** critique the limitations of X-Bar Theory and consider alternative approaches.

3.1 Foundations Of X-Bar Theory

3.1.1 Principles of phrase structure

Phrase structure refers to the way words are organised into larger units called phrases, which then combine to form sentences. Traditional phrase structure rules often varied across categories, but **X-Bar Theory** introduced a uniform model that applies to all phrase types. The central idea is that every phrase has a **head**, defined as the core word that determines the type of phrase (e.g., a noun for a noun phrase, a verb for a verb phrase). The head may take a **complement**, which provides additional information, and a **specifier**, which modifies or limits the phrase. This structure ensures consistency across different categories of phrases.

Fill in the blank: In X-Bar Theory, the _____ is the core word that determines the type of phrase.

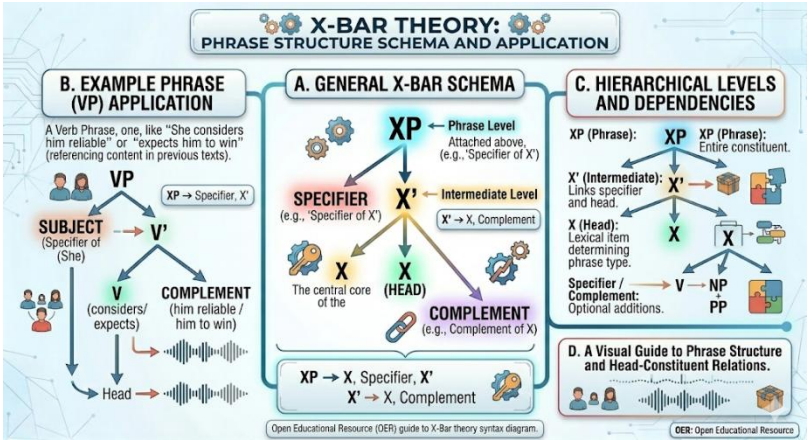


Figure 3.1: General X-Bar schema

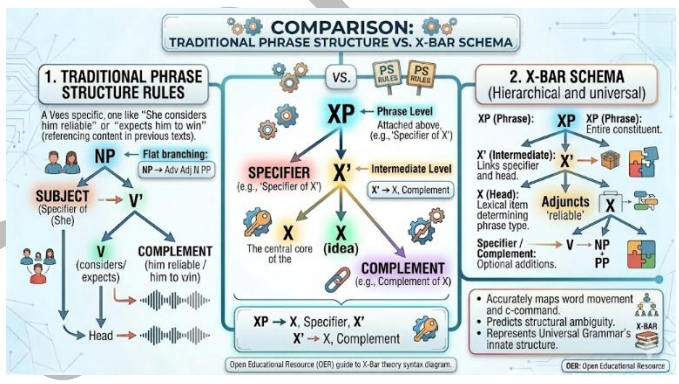
3.1.2 The X-Bar schema

The **X-Bar schema** is a template that represents the hierarchical organisation of phrases. It is expressed as:

- **XP** (the full phrase)
- **Specifier** (optional, modifies the phrase)
- **X′ (X-Bar)** (intermediate projection of the head)
- **Head (X)** (the core word of the phrase)
- **Complement** (optional, provides additional information)

This schema shows that phrases are not flat structures but hierarchical, with multiple levels of projection. For example, in the noun phrase *the big house*, *house* is the head, *big* is the specifier, and *the* is the determiner functioning within the phrase.

Fill in the blank: The X-Bar schema shows that phrases are _____ rather than flat structures.



Box 3.1: Key components of the X-Bar schema

Pilot Questions 3.1

1. What does phrase structure refer to in syntax?
2. In X-Bar Theory, what is the head of a phrase?
3. Name two optional elements in the X-Bar schema.
4. What does the X-Bar schema reveal about the organisation of phrases?
5. In the noun phrase *the big house*, identify the head and the specifier.

3.2 Applications Of X-Bar Theory

3.2.1 Noun phrase structures

X-Bar Theory provides a systematic way of analysing **noun phrases (NPs)**, defined as phrases headed by a noun. In this framework, the noun is the **head**, while determiners and adjectives function as **specifiers**, and complements may include prepositional phrases or clauses. For example, in *the tall boy with a book*, *boy* is the head, *the tall* acts as the specifier, and *with a book* is the complement. This hierarchical organisation shows how each element contributes to the overall structure of the phrase.

Fill in the blank: In the noun phrase *the tall boy with a book*, the head is _____.

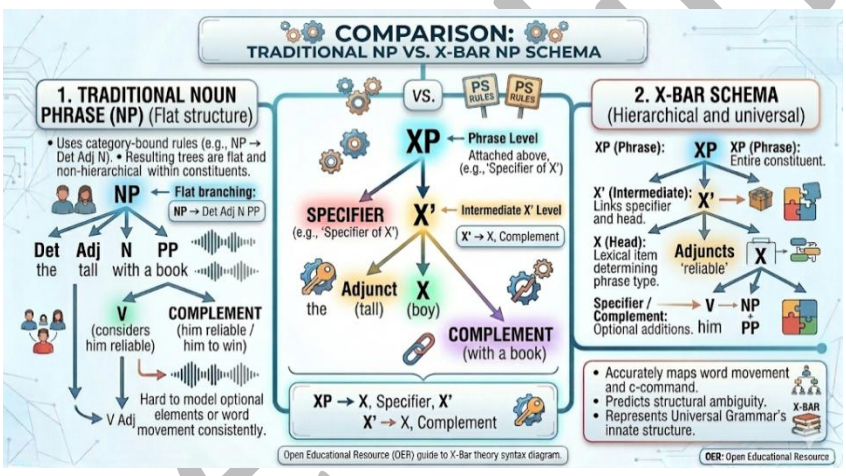


Figure 3.2: X-Bar structure of a noun phrase

3.2.2 Verb phrase structures

Verb phrases (VPs) are also analysed using the X-Bar schema. The **verb** is the head, while noun phrases or clauses can function as complements, and adverbs may serve as specifiers. For instance, in *quickly eat the cake*, *eat* is the head, *the cake* is the complement, and *quickly* is the specifier. This analysis highlights how verbs project their structure and how complements and specifiers attach to them.

Fill in the blank: In the verb phrase *quickly eat the cake*, the complement is _____.

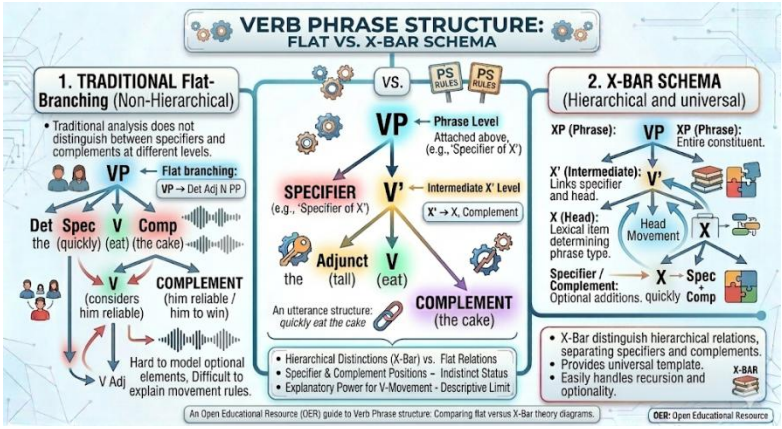


Figure 3.3: X-Bar structure of a verb phrase

3.2.3 Cross-linguistic applications

One of the strengths of X-Bar Theory is its applicability across languages. While languages differ in word order, the hierarchical organisation of phrases remains consistent. For example, in English, the specifier usually precedes the head, whereas in Japanese, the complement often precedes the head. Despite these differences, the schema still applies, showing that phrase structure is universally hierarchical. This cross-linguistic perspective demonstrates the flexibility and explanatory power of X-Bar Theory.

Fill in the blank: In Japanese, complements often _____ the head, unlike in English.

Feature	English (Head-Initial)	Japanese (Head-Final)
Verb Phrase (VP)	Verb + Object (*eat the cake*)	Object + Verb (*cake-o taberu*)
Pre/Post-positions	Prepositions (*in the house*)	Postpositions (*ie-no naka-ni*)
Complementizer (CP)	Head precedes clause (*that he left*)	Clause precedes head (*kare-ga satta koto*)

Box 3.2: Cross-linguistic applications of X-Bar Theory

Pilot questions 3.2

1. In the noun phrase *the tall boy with a book*, identify the head, specifier, and complement.
2. What is the head of a verb phrase in X-Bar Theory?
3. In the verb phrase *quickly eat the cake*, what is the complement?
4. How does phrase structure differ between English and Japanese according to X-Bar Theory?
5. What does the universality of X-Bar Theory reveal about phrase organisation?

3.3 Core Modules Of Syntax

3.3.1 Bounding theory

Bounding theory is a module within syntax that explains restrictions on movement. Movement refers to the displacement of elements, such as wh-words in questions. Bounding theory defines **bounding nodes**, which are structural limits that movement cannot cross. For example, in English, the clause boundary often acts as a bounding node, preventing elements from moving beyond it. This ensures that sentences remain interpretable and grammatically acceptable.

Fill in the blank: Bounding theory explains restrictions on _____ in syntax.

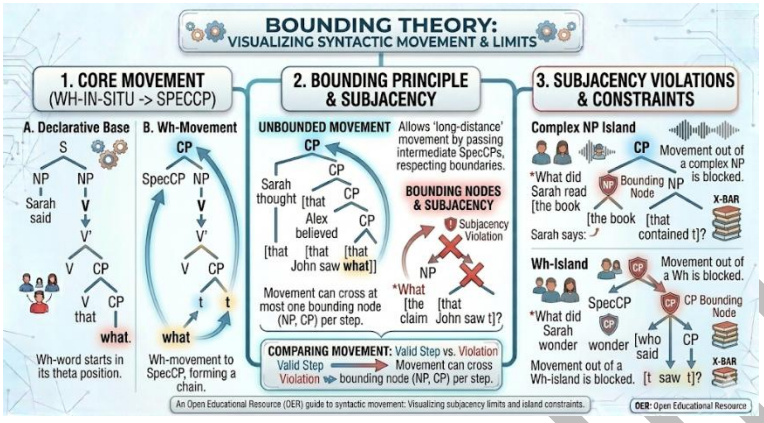


Figure 3.4: Bounding nodes restricting movement

3.3.2 Control theory

Control theory addresses how subjects are interpreted in non-finite clauses. A **non-finite clause** is one that contains a verb without tense, such as *to eat* or *eating*. Control theory explains how the subject of such clauses is understood even when it is not overtly expressed. For example, in *John promised to leave*, the subject of *to leave* is controlled by *John*. This shows how meaning is preserved across clauses without explicit repetition of subjects.

Fill in the blank: In the sentence *John promised to leave*, the subject of *to leave* is controlled by _____.

Sentence	Controller	Target Action	Interpretation
John promised [PRO to leave].	**Subject Control:** *John*	*to leave*	John is the one leaving.
Mary persuaded **John** [PRO to leave].	**Object Control:** *John*	*to leave*	John is the one leaving.

Sentence	Controller	Target Action	Interpretation
They tried [PRO to win].	**Subject Control:** *They*	*to win*	They are the ones winning.

Box 3.3: Examples of control theory

3.3.3 Binding theory revisited in X-Bar framework

Binding theory, previously introduced in Series 2, is revisited here within the X-Bar framework. It explains how pronouns, anaphors, and referential expressions interact with their antecedents. Within X-Bar Theory, binding relations are mapped onto hierarchical phrase structures, making it clearer how locality conditions apply. For example, *John saw himself* is grammatical because *himself* is bound within the same clause, while *John said that Mary saw himself* is ungrammatical because the binding condition is violated.

Fill in the blank: Binding theory explains how pronouns, anaphors, and _____ expressions interact with their antecedents.

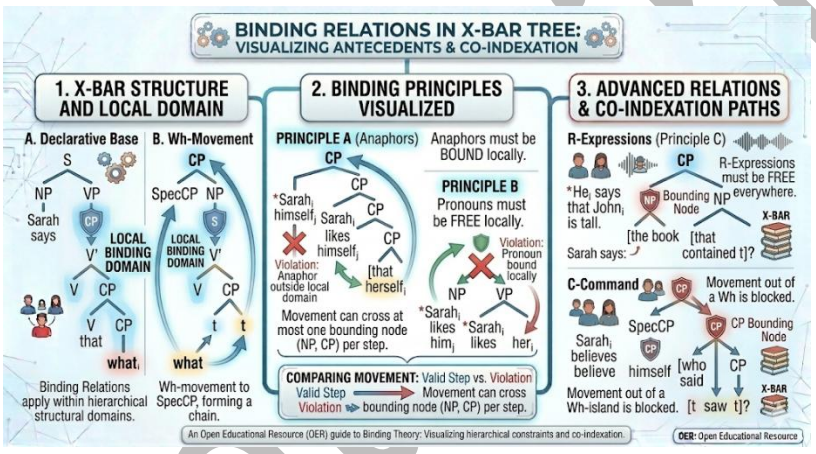


Figure 3.5: Binding relations in X-Bar framework

Pilot questions 3.3

1. What does bounding theory explain in syntax?
2. Define bounding nodes and give one example.
3. In the sentence *John promised to leave*, who controls the subject of *to leave*?
4. What does control theory explain about non-finite clauses?
5. How does binding theory apply within the X-Bar framework?

3.4 Evaluation Of X-Bar Theory

3.4.1 Strengths and contributions

X-Bar Theory has made significant contributions to syntactic analysis. One major strength is its **uniformity**, defined as the application of a single schema across all phrase types. This allows linguists to analyse noun phrases, verb phrases, and other categories using the same structural principles. Another contribution is its emphasis on **hierarchical organisation**, which shows that phrases are not flat but layered, with heads, complements, and specifiers arranged systematically. This insight has influenced later frameworks such as the Minimalist Programme.

Fill in the blank: One major strength of X-Bar Theory is its _____ across all phrase types.

Previous "Phrase Structure" Era	X-Bar Theory Era
Dozens of unique rules per language.	One universal schema (X-schema).
Hard to explain structural ambiguity.	Clear mapping of levels (Specifier vs. Complement).
Language-specific (e.g., "English rules").	Cross-linguistic (Universal blueprint).

Box 3.4: Contributions of X-Bar Theory

3.4.2 Criticisms and alternatives

Despite its strengths, X-Bar Theory has faced criticisms. Some argue that the schema is too rigid and does not account for all language variations, especially in languages with free word order. Others suggest that the distinction between specifier and complement is not always clear, leading to analytical challenges. Additionally, later frameworks such as the **Minimalist Programme** aim to simplify syntactic theory by reducing reliance on intermediate projections like X′. These alternatives highlight the ongoing evolution of syntactic theory and the search for more economical models.

Fill in the blank: Later frameworks such as the Minimalist Programme aim to reduce reliance on intermediate projections like _____.

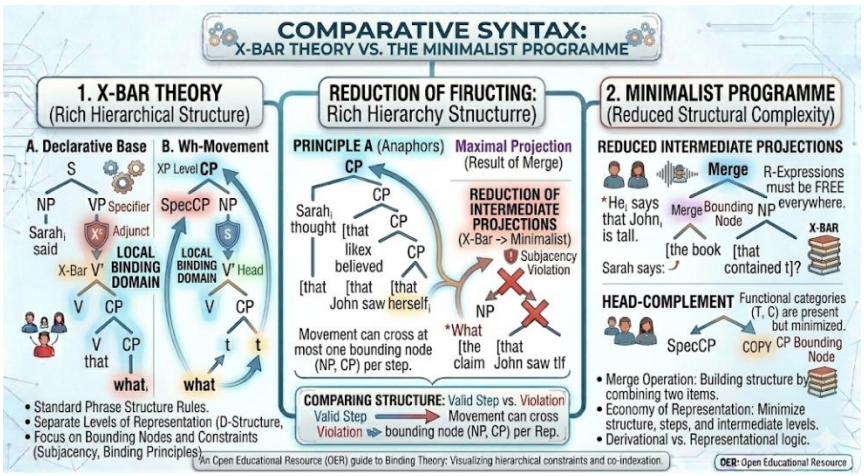


Figure 3.6: Comparison of X-Bar Theory and Minimalist Programme

Pilot questions 3.4

1. What is one major strength of X-Bar Theory?
2. How does X-Bar Theory emphasise hierarchical organisation?
3. Name one criticism of X-Bar Theory.
4. What challenge arises from distinguishing between specifier and complement?

Series Summary

In this Series, we explored **X-Bar Theory and Core Modules of Syntax**, building on the foundations of phrase structure and syntactic modules introduced in earlier Series. The focus was on understanding how X-Bar Theory provides a uniform framework for analysing phrases and how it interacts with bounding, control, and binding theories.

We began with the **foundations of X-Bar Theory**, where you defined phrase structure principles and explained the X-Bar schema, including the roles of head, complement, and specifier (SLOs 3.1 and 3.2). We then moved on to the **applications of X-Bar Theory**, applying the schema to noun phrases and verb phrases, and analysing cross-linguistic variations such as English and Japanese word order (SLOs 3.3, 3.4, and 3.5). Following that, we examined the **core modules of syntax**, describing bounding theory, explaining control theory, and evaluating binding theory within the X-Bar framework (SLOs 3.6, 3.7, and 3.8). Finally, we concluded with the **evaluation of X-Bar Theory**, assessing its strengths and contributions while critiquing its limitations and considering alternatives such as the Minimalist Programme (SLOs 3.9 and 3.10).

By completing this Series, you should now be able to define and explain the X-Bar schema, apply it to different phrase structures, analyse its cross-linguistic applications, and evaluate its role within the broader field of syntactic theory. These skills prepare you to engage critically with advanced frameworks and to appreciate the ongoing evolution of syntactic analysis.

Glossary Of Terms [Series 3]

- **Phrase structure**: The organisation of words into larger units called phrases, which combine to form sentences.
- **X-Bar Theory**: A syntactic framework that provides a uniform schema for analysing all phrase types, emphasising hierarchical organisation.
- **Head**: The core word of a phrase that determines its type (e.g., noun in a noun phrase, verb in a verb phrase).
- **Specifier**: An element that modifies or limits the phrase, often appearing before the head.
- **Complement**: An element that provides additional information about the head, often appearing after it.
- **X-Bar schema**: A hierarchical template for phrase structure, consisting of XP (full phrase), specifier, X′ (intermediate projection), head, and complement.
- **Noun phrase (NP)**: A phrase headed by a noun, which may include determiners, adjectives, and complements.
- **Verb phrase (VP)**: A phrase headed by a verb, which may include complements such as noun phrases or clauses, and specifiers such as adverbs.
- **Cross-linguistic applications**: The use of X-Bar Theory to analyse phrase structures across different languages, showing universal hierarchical organisation despite word order differences.
- **Bounding theory**: A syntactic module that explains restrictions on movement, defining bounding nodes as structural limits.
- **Bounding nodes**: Structural boundaries that restrict movement of elements within syntax, such as clause boundaries.
- **Control theory**: A module that explains how subjects are interpreted in non-finite clauses, even when not overtly expressed.
- **Non-finite clause**: A clause containing a verb without tense, such as *to eat* or *eating*.
- **Binding theory**: A module explaining how pronouns, anaphors, and referential expressions interact with their antecedents, revisited within the X-Bar framework.
- **Anaphor**: A word such as *himself* or *herself* that must be bound to an antecedent within its local domain.
- **Minimalist Programme**: A later syntactic framework that simplifies analysis by reducing reliance on intermediate projections like X′.

Concept Check Questions [Series 3]

Objective Questions

1. X-Bar Theory provides a uniform schema for analysing all _____ types. (Linked to SLO 3.1)
2. In the X-Bar schema, the _____ is the core word that determines the type of phrase. (Linked to SLO 3.2)
3. In the noun phrase *the tall boy with a book*, the complement is _____. (Linked to SLO 3.3)
4. In the verb phrase *quickly eat the cake*, the head is _____. (Linked to SLO 3.4)
5. In Japanese, complements often _____ the head, unlike in English. (Linked to SLO 3.5)
6. Bounding theory explains restrictions on _____ in syntax. (Linked to SLO 3.6)
7. In the sentence *John promised to leave*, the subject of *to leave* is controlled by _____. (Linked to SLO 3.7)
8. Binding theory explains how pronouns, anaphors, and _____ expressions interact with their antecedents. (Linked to SLO 3.8)

Short-Answer Questions

9. Define phrase structure in syntax. (Linked to SLO 3.1)
10. Explain the role of the specifier in the X-Bar schema. (Linked to SLO 3.2)
11. Identify the head, specifier, and complement in the noun phrase *the big house by the river*. (Linked to SLO 3.3)
12. Provide an example of a verb phrase analysed using the X-Bar schema. (Linked to SLO 3.4)
13. Describe one cross-linguistic difference in phrase structure between English and Japanese. (Linked to SLO 3.5)
14. What are bounding nodes, and why are they important? (Linked to SLO 3.6)
15. Give one example of control theory in a sentence. (Linked to SLO 3.7)
16. State Principle A of binding theory. (Linked to SLO 3.8)
17. Mention one strength of X-Bar Theory. (Linked to SLO 3.9)
18. Mention one criticism of X-Bar Theory. (Linked to SLO 3.10)

Long-Answer Questions

19. Analyse the principles of phrase structure and explain how the X-Bar schema provides a uniform framework for all phrases. (Linked to SLOs 3.1, 3.2)
20. Apply X-Bar Theory to the analysis of noun and verb phrases, providing examples and diagrams where appropriate. (Linked to SLOs 3.3, 3.4)

21. Discuss cross-linguistic applications of X-Bar Theory, comparing English and Japanese phrase structures. (Linked to SLO 3.5)

22. Explain bounding theory, control theory, and binding theory within the X-Bar framework, illustrating with examples. (Linked to SLOs 3.6, 3.7, 3.8)

23. Evaluate the strengths and contributions of X-Bar Theory, and critique its limitations in light of later frameworks such as the Minimalist Programme. (Linked to SLOs 3.9, 3.10)

Answers to Concept Check Questions [Series 3]

Objective Questions

1. Phrase
2. Head
3. *with a book*
4. Eat
5. Precede
6. Movement
7. John
8. Referential

Short-Answer Questions

9. Phrase structure refers to the organisation of words into larger units called phrases, which combine to form sentences.

10. The specifier modifies or limits the phrase, often appearing before the head.

11. Head = house, Specifier = the big, Complement = by the river.

12. Example: *quickly read the book* (head = read, specifier = quickly, complement = the book).

13. In English, complements follow the head, while in Japanese, complements often precede the head.

14. Bounding nodes are structural boundaries that restrict movement, ensuring sentences remain interpretable.

15. *Mary tried to sing* (Mary controls the subject of *to sing*).

16. Anaphors must be bound within their local domain.

17. It provides a uniform schema for all phrase types.

18. It is criticised for being too rigid and not accounting for free word order languages.

Long-Answer Questions

19. **Basic response**: Phrase structure organises words into phrases. The X-Bar schema provides a uniform framework by including head, specifier, and complement across all phrases.

Value-added response: This uniformity reduces complexity in syntactic analysis and highlights hierarchical organisation, influencing later frameworks such as the Minimalist Programme.

20. **Basic response**: Noun phrases and verb phrases can be analysed using the X-Bar schema. For example, *the tall boy with a book* (NP) and *quickly eat the cake* (VP). **Value-added response**: Diagrams of these structures show how heads project their phrases, with specifiers and complements attached systematically, reinforcing the hierarchical nature of syntax.

21. **Basic response**: X-Bar Theory applies across languages, showing universal hierarchical organisation. English places complements after heads, while Japanese places them before. **Value-added response**: This demonstrates the flexibility of X-Bar Theory, as it accommodates typological differences while maintaining structural consistency.

22. **Basic response**: Bounding theory restricts movement, control theory explains subjects in non-finite clauses, and binding theory regulates reference relations. **Value-added response**: Within the X-Bar framework, these modules are mapped onto hierarchical structures, clarifying locality conditions and ensuring grammatical interpretation across languages.

23. **Basic response**: X-Bar Theory is strong because it provides a uniform schema and emphasises hierarchical organisation. **Value-added response**: However, it is criticised for rigidity and unclear distinctions between specifier and complement. Later frameworks like the Minimalist Programme aim to simplify analysis by reducing reliance on intermediate projections.

Answers to Pilot Questions [Series 3]

Part 3.1

1. Phrase structure refers to the organisation of words into larger units called phrases.
2. The head of a phrase is the core word that determines its type.
3. Specifier and complement.
4. Phrases are hierarchical rather than flat structures.
5. Head = house, Specifier = big, Complement = the.

Part 3.2

1. Head = boy, Specifier = the tall, Complement = with a book.
2. The head of a verb phrase is the verb.
3. *the cake*.
4. In English, complements follow the head, while in Japanese, complements precede the head.
5. It reveals that phrase organisation is universally hierarchical.

Part 3.3

1. Bounding theory explains restrictions on movement in syntax.
2. Bounding nodes are structural boundaries, such as clause boundaries.
3. John.

4. Control theory explains how subjects are interpreted in non-finite clauses.
5. Binding theory applies by mapping reference relations onto hierarchical phrase structures.

Part 3.4

1. One major strength is its uniform schema across all phrase types.
2. It shows that phrases are layered, with heads, complements, and specifiers arranged systematically.
3. It is criticised for being too rigid and not accounting for free word order languages.
4. The distinction between specifier and complement can be unclear.
5. The Minimalist Programme.

References and Attributions [Series 3]

This section consolidates references and illustration attributions for **Series 3: X-Bar Theory and Core Modules of Syntax**, presented in APA style.

Scholarly References

- Chomsky, N. (1986). *Barriers*. Cambridge, MA: MIT Press.
- Radford, A. (1997). *Syntax: A minimalist introduction*. Cambridge: Cambridge University Press.
- Haegeman, L. (1994). *Introduction to government and binding theory* (2nd ed.). Oxford: Blackwell.
- Carnie, A. (2013). *Syntax: A generative introduction* (3rd ed.). Oxford: Wiley-Blackwell.
- Adger, D. (2003). *Core syntax: A minimalist approach*. Oxford: Oxford University Press.

Illustration Attributions

- **Figure 3.1: General X-Bar schema** AI-generated suggestion. Prompt: "Create a diagram showing the X-Bar schema, with head at the centre, complement attached below, and specifier attached above." Suggested OER search string: "X-Bar theory phrase structure schema diagram OER".
- **Box 3.1: Key components of the X-Bar schema** AI-generated suggestion. Prompt: "Create a text box listing the key components of the X-Bar schema, including XP, specifier, X-Bar, head, and complement." Suggested OER search string: "X-Bar theory schema components syntax OER".
- **Figure 3.2: X-Bar structure of a noun phrase** AI-generated suggestion. Prompt: "Create a diagram showing the X-Bar structure of a noun phrase, with head 'boy', specifier 'the tall', and complement 'with a book'." Suggested OER search string: "X-Bar theory noun phrase structure diagram OER".

- **Figure 3.3: X-Bar structure of a verb phrase** AI-generated suggestion. Prompt: "Create a diagram showing the X-Bar structure of a verb phrase, with head 'eat', specifier 'quickly', and complement 'the cake'." Suggested OER search string: "X-Bar theory verb phrase structure diagram OER".
- **Box 3.2: Cross-linguistic applications of X-Bar Theory** AI-generated suggestion. Prompt: "Create a text box summarising cross-linguistic applications of X-Bar Theory, comparing English and Japanese phrase structures." Suggested OER search string: "X-Bar theory cross-linguistic applications syntax OER".
- **Figure 3.4: Bounding nodes restricting movement** AI-generated suggestion. Prompt: "Create a diagram showing movement of a wh-word in syntax, with bounding nodes marked to indicate limits." Suggested OER search string: "bounding theory syntax movement diagram OER".
- **Box 3.3: Examples of control theory** AI-generated suggestion. Prompt: "Create a text box listing examples of control theory in syntax, showing how subjects are interpreted in non-finite clauses." Suggested OER search string: "control theory syntax examples OER".
- **Figure 3.5: Binding relations in X-Bar framework** AI-generated suggestion. Prompt: "Create a diagram showing binding relations in an X-Bar tree, with arrows linking antecedents to pronouns and anaphors." Suggested OER search string: "binding theory X-Bar framework syntax diagram OER".
- **Box 3.4: Contributions of X-Bar Theory** AI-generated suggestion. Prompt: "Create a text box listing the contributions of X-Bar Theory, including uniform schema, hierarchical organisation, and influence on later frameworks." Suggested OER search string: "X-Bar theory contributions strengths syntax OER".
- **Figure 3.6: Comparison of X-Bar Theory and Minimalist Programme** AI-generated suggestion. Prompt: "Create a diagram comparing X-Bar Theory with the Minimalist Programme, showing how intermediate projections are reduced." Suggested OER search string: "X-Bar theory vs Minimalist Programme syntax diagram OER".

Course code: LIN 402
Course title: Cognitive Linguistics
Course credit load: 2 Units
Series 1: Transformational Generative Grammar Foundations

Series 2: The DP Hypothesis and Sub-Theories of Grammar

Series 3: X-Bar Theory and Core Modules of Syntax

Series 4: Movement, Constraints, and Empty Categories

Series 5: Advanced Hypotheses in Clause and Verb Phrase Structure

Proposed Outline Series for 4

Part 4.1: Movement in syntax

- Sub-Part 4.1.1: Types of movement (wh-movement, NP-movement, head movement)
- Sub-Part 4.1.2: Motivations for movement (case, agreement, scope)

Part 4.2: Constraints on movement

- Sub-Part 4.2.1: Bounding theory and locality conditions
- Sub-Part 4.2.2: Subjacency and island constraints
- Sub-Part 4.2.3: Minimality and economy principles

Part 4.3: Empty categories

- Sub-Part 4.3.1: Traces and their role in movement
- Sub-Part 4.3.2: PRO and control structures
- Sub-Part 4.3.3: Null subjects and pro-drop languages

Part 4.4: Evaluation and applications

- Sub-Part 4.4.1: Strengths of movement-based analysis
- Sub-Part 4.4.2: Criticisms and alternative approaches

Introduction

In the last Series, we examined X-Bar Theory and saw how phrase structures are organised hierarchically with heads, complements, and specifiers. Building on that foundation, we now turn to the study of **movement in syntax**, which explores how elements shift positions within sentences. Movement is central to understanding questions, passives, and other constructions, but it is also subject to constraints that ensure sentences remain grammatical. This Series is particularly important because it introduces the concept of **empty categories**, which are invisible elements that play a crucial role in syntactic interpretation.

The aim of this Series is to equip you with the knowledge and skills to analyse movement operations, explain the constraints that regulate them, and evaluate the role of empty categories in syntactic theory.

We shall commence this Series by exploring movement in syntax, focusing on types such as wh-movement, NP-movement, and head movement, as well as the motivations behind them. Next, we will consider constraints on movement, including bounding theory, subjacency, island constraints, and economy principles. Following that, we will move on to empty categories, examining traces, PRO in control structures, and null subjects in pro-drop languages. Finally, we will conclude by evaluating movement-based analysis, highlighting its strengths, criticisms, and alternative approaches.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 4.1** define the main types of movement in syntax, including wh-movement, NP-movement, and head movement,
- **SLO 4.2** explain the motivations for syntactic movement such as case, agreement, and scope,
- **SLO 4.3** describe the constraints on movement imposed by bounding theory and locality conditions,
- **SLO 4.4** analyse subjacency and island constraints in syntactic structures,
- **SLO 4.5** explain minimality and economy principles as they relate to movement,
- **SLO 4.6** identify traces and explain their role in movement,
- **SLO 4.7** describe the function of PRO in control structures,
- **SLO 4.8** demonstrate how null subjects operate in pro-drop languages,
- **SLO 4.9** evaluate the strengths of movement-based analysis in syntax, and
- **SLO 4.10** critique the limitations of movement-based approaches and consider alternative frameworks.

4.1 Movement In Syntax

4.1.1 Types of movement

Movement in syntax refers to the displacement of elements from one position in a sentence to another, usually to satisfy grammatical requirements. The three main types are:

- **Wh-movement**: The movement of wh-words (such as *who*, *what*, *where*) to the front of a clause, as in *What did John eat?*.

- **NP-movement**: The movement of noun phrases, often seen in passive constructions, e.g., *The cake was eaten by John*.
- **Head movement**: The movement of a head (such as a verb) to a higher position, often seen in verb raising in languages like French.

Fill in the blank: In the sentence *What did John eat?*, the movement of *what* to the front of the clause is called _____.

Type of Movement	Core Concept	Base Structure (Simplified)	Resulting Sentence	Violation / Constraint Example
Wh-Movement	A Wh-phrase (like *what*, *who*) moves to the highest position ($SpecCP$).	*John ate **what**.*	***What** did John eat t?*	[*Wh-Island*: *What did John wonder who ate t?]
NP-Movement	A Noun Phrase moves, typically to the Subject position, to satisfy a Case or position requirement.	*t was eaten **the cake**.*	***The cake** was eaten t by John.*	[*Subjacency*: *The cake was eaten by the man that John built t.]
Head Movement	A single lexical item (a Head, like a Verb) moves from its position to a higher Functional Head.	*John will **go**.*	***Go** John will t.*	[*Constraint*: Verb can raise to T, but rarely higher to C.]

Figure 4.1: Types of movement in syntax

4.1.2 Motivations for movement

Movement does not occur randomly; it is motivated by grammatical needs. Three key motivations are:

- **Case assignment**: Movement ensures that noun phrases receive appropriate case, such as nominative or accusative.
- **Agreement**: Movement can bring elements into positions where they agree in number, gender, or person with other elements.
- **Scope**: Movement can affect interpretation, especially in questions and quantifier scope. For example, *Everyone loves someone* can have different meanings depending on scope.

Fill in the blank: Movement ensures that noun phrases receive appropriate _____, such as nominative or accusative.

Motivation	Primary Goal	Common Example
Case	Ensuring the NP has a "license" to exist.	Passive and Raising structures.
Agreement	Matching features between Head and Specifier.	Subject-Verb agreement.
Scope	Defining the logical domain of an operator.	Wh-questions and Quantifiers.

Box 4.1: Motivations for movement

Pilot questions 4.1

1. What does movement refer to in syntax?
2. Name the three main types of movement.
3. Give an example of wh-movement in English.
4. What motivates movement in syntax?
5. How does scope influence the interpretation of sentences?

4.2 Constraints On Movement

4.2.1 Bounding theory and locality conditions

Bounding theory is a syntactic principle that restricts how far elements can move within a sentence. It introduces **locality conditions**, which state that movement must occur within certain structural boundaries, known as **bounding nodes**. For example, in English, the clause boundary often acts as a bounding node, preventing wh-words from moving beyond it. This ensures that sentences remain interpretable and grammatically acceptable.

Fill in the blank: Bounding theory restricts how far elements can move by defining _____ nodes.

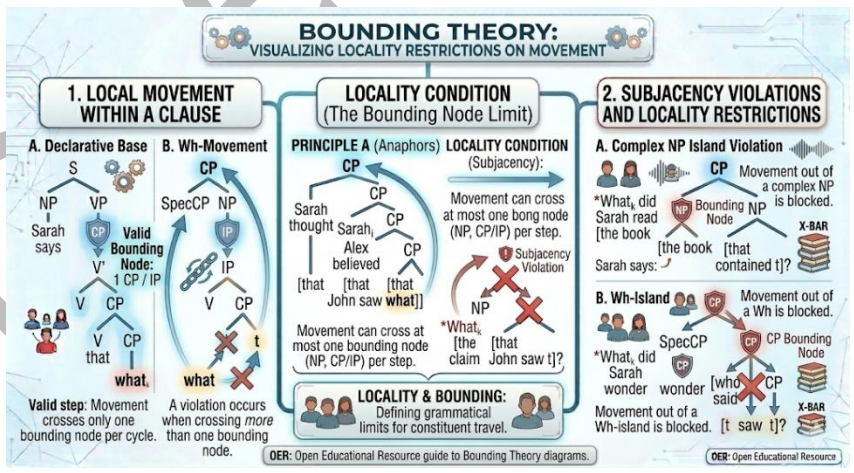


Figure 4.2: Bounding nodes and locality conditions

4.2.2 Subjacency and island constraints

Subjacency is a principle that prevents movement across more than one bounding node at a time. For instance, moving a wh-word across two clause boundaries in a single step violates subjacency. Closely related are **island constraints**, which identify certain structures as "islands" from which movement is blocked. Examples include complex noun phrases (*the claim that John left*), coordinate structures (*John and Mary left*), and wh-islands (*I wonder who bought what*). These constraints explain why some sentences sound ungrammatical when movement is attempted.

Fill in the blank: Subjacency prevents movement across more than one _____ node at a time.

Island Type	Grammatical Base	*Ungrammatical Movement	Explanation
Complex NP Island	The claim [that John left] surprised me.	**Who** did the claim [that t left] surprise you?	Movement out of a noun phrase with a clause inside it is blocked.
Coordinate Structure	John and Mary left early.	**Who** did John and [t] leave early?	You cannot move one part of a "coordinated" pair (joined by *and/or*) without the other.
Wh-Island	I wonder [who bought what].	**What** do you wonder [who bought t]?	A clause that already contains a Wh-word (like *who*) acts as an island for other Wh-words.

Box 4.2: Examples of island constraints

4.2.3 Minimality and economy principles

Minimality requires that movement must target the closest possible position, avoiding unnecessary steps. For example, if two potential landing sites exist, the nearer one must be chosen. **Economy principles** further refine this by stating that movement should occur only when necessary to satisfy grammatical requirements, such as case or agreement. These principles highlight the efficiency of syntactic operations and explain why certain movements are disallowed even if they seem possible.

Fill in the blank: Minimality requires that movement must target the _____ possible position.

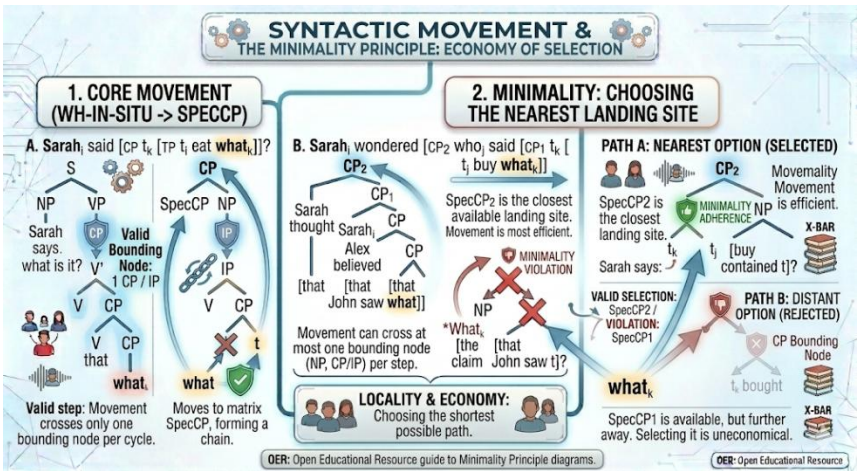


Figure 4.3: Minimality principle in movement

Pilot questions 4.2

1. What does bounding theory restrict in syntax?
2. Define locality conditions in relation to bounding theory.
3. What does subjacency prevent in movement?
4. Name two types of island constraints.
5. What does minimality require in syntactic movement?
6. Why are economy principles important in syntax?

4.3 Empty Categories

4.3.1 Traces and their role in movement

Traces are invisible elements left behind when movement occurs in syntax. They mark the original position of a moved constituent and ensure that the sentence remains interpretable. For example, in *What did John eat?*, the wh-word *what* moves to the front, but a trace remains in the object position of *eat*. This trace connects the moved element to its original role in the sentence, preserving meaning and grammatical relations.

Fill in the blank: In the sentence *What did John eat?*, the wh-word *what* leaves behind a _____ in the object position.

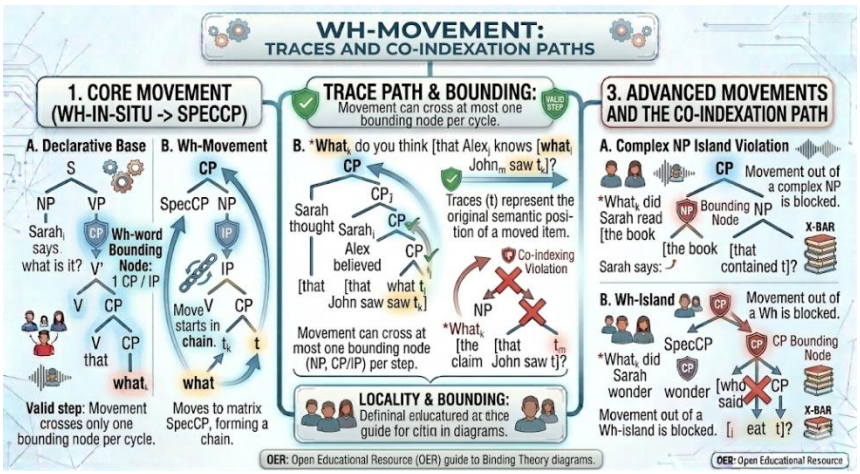


Figure 4.4: Traces in syntactic movement

4.3.2 PRO and control structures

PRO is an empty category that appears in non-finite clauses, particularly in control structures. It refers to an implicit subject that is understood but not overtly expressed. For example, in *John promised [PRO to leave]*, the subject of *to leave* is controlled by *John*. PRO is crucial because it allows non-finite clauses to have subjects without violating grammatical rules.

Fill in the blank: In the sentence *John promised to leave*, the subject of *to leave* is represented by the empty category _____.

Sentence Structure	Controller	Function of PRO
John promised [**PRO** to leave].	**John** (Subject)	**Subject Control:** PRO refers back to the main subject. John is the one intended to leave.
Mary persuaded **John** [**PRO** to leave].	**John** (Object)	**Object Control:** PRO refers to the direct object. John is the one being influenced to leave.
They tried [**PRO** to win].	**They** (Subject)	**Subject Control:** PRO is co-indexed with the plural subject. "They" are the ones attempting the victory.

Box 4.3: Examples of PRO in control structures

4.3.3 Null subjects and pro-drop languages

Null subjects are subjects that are not overtly expressed but are still understood in the sentence. This phenomenon is common in **pro-drop languages**, such as Italian or Spanish, where subject pronouns can be omitted because verb inflections provide enough information. For example, in Spanish, *hablo* means “I speak” without needing the pronoun *yo*. Null subjects highlight how syntax interacts with morphology and how languages vary in their use of empty categories.

Fill in the blank: In Spanish, the verb *hablo* means “I speak” without needing the pronoun _____.

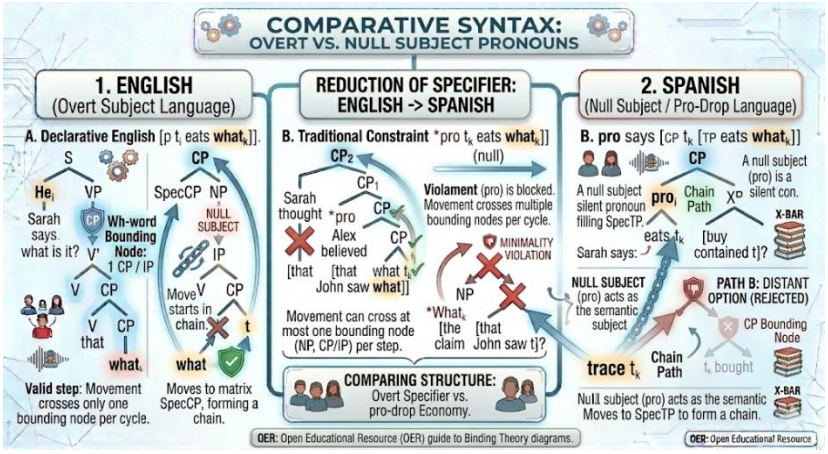


Figure 4.5: Null subjects in pro-drop languages

Pilot questions 4.3

1. What are traces in syntax, and why are they important?
2. In the sentence *What did John eat?*, what remains in the object position after movement?
3. What is PRO, and where does it appear?
4. Give one example of PRO in a control structure.
5. What are null subjects, and in which type of languages are they common?
6. Provide an example of a null subject in Spanish.

4.4 Evaluation And Applications

4.4.1 Strengths of movement-based analysis

Movement-based analysis has contributed significantly to syntactic theory. One of its strengths is **explanatory power**, defined as the ability to account for a wide range of sentence structures, including questions, passives, and topicalisation. Another strength is **cross-linguistic applicability**, since movement principles can be applied to languages with different word orders and grammatical systems. Additionally, movement-based analysis clarifies the role of **empty categories**, showing how traces and PRO maintain grammatical relations even when elements are displaced.

Fill in the blank: One major strength of movement-based analysis is its _____ power, which allows it to account for diverse sentence structures.

Benefit	Impact on Linguistic Study
Economy	Reduces the number of rules needed to describe a language.
Predictability	Explains why certain movements are blocked (Island Constraints).
Uniformity	Suggests a "Universal Grammar" shared by all humans.

Box 4.4: Strengths of movement-based analysis

4.4.2 Criticisms and alternative approaches

Despite its strengths, movement-based analysis has faced criticisms. Some linguists argue that it is **too abstract**, relying on invisible elements like traces and PRO that cannot be directly observed. Others suggest that movement rules can be **too complex**, making analysis less economical. Alternative frameworks, such as the **Minimalist Programme**, aim to simplify syntax by reducing reliance on movement and empty categories, focusing instead on feature checking and economy principles. These alternatives highlight the ongoing debate about how best to model syntactic structures.

Fill in the blank: The Minimalist Programme aims to simplify syntax by reducing reliance on _____ and empty categories.

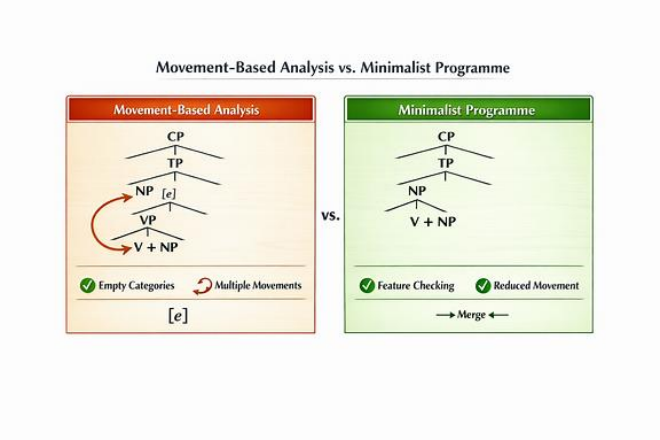


Figure 4.6: Movement-based analysis vs Minimalist Programme

Pilot questions 4.4

1. What is one major strength of movement-based analysis?
2. Why is cross-linguistic applicability considered a strength?
3. What criticism is often made about traces and PRO?
4. Why do some linguists argue that movement rules are too complex?

5. Which alternative framework reduces reliance on movement and empty categories?

Series Summary

In this Series, we examined **Movement, Constraints, and Empty Categories**, building on the foundations of phrase structure and X-Bar Theory from the previous Series. The focus was on how elements shift positions in syntax, the rules that regulate such shifts, and the invisible categories that maintain grammatical relations.

We began with **movement in syntax**, where you defined the main types of movement, including wh-movement, NP-movement, and head movement, and explained the motivations behind them such as case assignment, agreement, and scope (SLOs 4.1 and 4.2). We then moved on to **constraints on movement**, describing bounding theory and locality conditions, analysing subjacency and island constraints, and explaining minimality and economy principles (SLOs 4.3, 4.4, and 4.5). Following that, we explored **empty categories**, identifying traces, describing the role of PRO in control structures, and demonstrating how null subjects operate in pro-drop languages (SLOs 4.6, 4.7, and 4.8). Finally, we concluded with an **evaluation of movement-based analysis**, assessing its strengths, such as explanatory power and cross-linguistic applicability, while critiquing its limitations and considering alternatives like the Minimalist Programme (SLOs 4.9 and 4.10).

By completing this Series, you should now be able to analyse different types of syntactic movement, explain the constraints that regulate them, and evaluate the role of empty categories in maintaining grammatical relations. You are also equipped to critically assess movement-based analysis and engage with alternative frameworks, preparing you for deeper exploration of advanced syntactic theory.

Glossary Of Terms [Series 4]

- **Movement**: The displacement of elements from one position in a sentence to another, often to satisfy grammatical requirements.
- **Wh-movement**: The movement of wh-words (e.g., *who*, *what*, *where*) to the front of a clause.
- **NP-movement**: The movement of noun phrases, commonly seen in passive constructions.
- **Head movement**: The movement of a head (such as a verb) to a higher syntactic position.
- **Case assignment**: The process by which noun phrases receive grammatical case (e.g., nominative, accusative).
- **Agreement**: The matching of grammatical features such as number, gender, or person between elements.

- **Scope**: The range of interpretation of operators such as quantifiers or wh-words in a sentence.
- **Bounding theory**: A principle that restricts movement by defining locality conditions within bounding nodes.
- **Bounding nodes**: Structural boundaries that limit movement, such as clause boundaries.
- **Locality conditions**: Rules that require movement to occur within specific structural domains.
- **Subjacency**: A principle that prevents movement across more than one bounding node at a time.
- **Island constraints**: Structures from which movement is blocked, such as complex noun phrases, coordinate structures, and wh-islands.
- **Minimality**: A principle requiring movement to target the closest possible position.
- **Economy principles**: Rules stating that movement should occur only when necessary to satisfy grammatical requirements.
- **Empty categories**: Invisible syntactic elements that maintain grammatical relations, including traces, PRO, and null subjects.
- **Traces**: Empty categories left behind when movement occurs, marking the original position of a moved element.
- **PRO**: An empty category representing the subject of non-finite clauses in control structures.
- **Control structures**: Constructions where the subject of a non-finite clause is controlled by an element in the main clause.
- **Null subjects**: Subjects that are not overtly expressed but are understood in the sentence.
- **Pro-drop languages**: Languages (e.g., Spanish, Italian) where subject pronouns can be omitted because verb inflections provide sufficient information.
- **Minimalist Programme**: A syntactic framework that reduces reliance on movement and empty categories, focusing on feature checking and economy.

Concept Check Questions [Series 4]

Objective Questions

1. Movement in syntax refers to the _____ of elements from one position to another. (Linked to SLO 4.1)
2. The movement of wh-words to the front of a clause is called _____. (Linked to SLO 4.1)
3. NP-movement is commonly seen in _____ constructions. (Linked to SLO 4.1)

4. Movement ensures noun phrases receive appropriate _____, such as nominative or accusative. (Linked to SLO 4.2)
5. Bounding theory restricts movement by defining _____ nodes. (Linked to SLO 4.3)
6. Subjacency prevents movement across more than one _____ node at a time. (Linked to SLO 4.4)
7. Minimality requires movement to target the _____ possible position. (Linked to SLO 4.5)
8. The empty category left behind after movement is called a _____. (Linked to SLO 4.6)
9. In control structures, the subject of a non-finite clause is represented by _____. (Linked to SLO 4.7)
10. Languages such as Spanish and Italian are known as _____ languages because they allow null subjects. (Linked to SLO 4.8)

Short-Answer Questions

11. Define wh-movement and give an example. (Linked to SLO 4.1)
12. Explain why case assignment motivates movement. (Linked to SLO 4.2)
13. What are locality conditions in bounding theory? (Linked to SLO 4.3)
14. Provide one example of an island constraint. (Linked to SLO 4.4)
15. Why are economy principles important in syntactic movement? (Linked to SLO 4.5)
16. What role do traces play in syntactic interpretation? (Linked to SLO 4.6)
17. Give one example of PRO in a control structure. (Linked to SLO 4.7)
18. Provide an example of a null subject in Spanish. (Linked to SLO 4.8)
19. Mention one strength of movement-based analysis. (Linked to SLO 4.9)
20. Mention one criticism of movement-based analysis. (Linked to SLO 4.10)

Long-Answer Questions

21. Analyse the three main types of movement in syntax, providing examples for each. (Linked to SLO 4.1)
22. Explain the motivations for movement, focusing on case assignment, agreement, and scope. (Linked to SLO 4.2)
23. Discuss bounding theory, subjacency, and island constraints, illustrating with examples. (Linked to SLOs 4.3, 4.4)
24. Describe minimality and economy principles, and explain how they regulate movement. (Linked to SLO 4.5)
25. Evaluate the role of empty categories in syntactic theory, including traces, PRO, and null subjects. (Linked to SLOs 4.6, 4.7, 4.8)

26. Critique movement-based analysis, highlighting its strengths and limitations, and compare it with the Minimalist Programme. (Linked to SLOs 4.9, 4.10)

Answers to Concept Check Questions [Series 4]

Objective Questions

1. Displacement
2. Wh-movement
3. Passive
4. Case
5. Bounding
6. Bounding
7. Closest
8. Trace
9. PRO
10. Pro-drop

Short-Answer Questions

11. Wh-movement is the displacement of wh-words to the front of a clause, e.g., *What did John eat?*.

12. Case assignment motivates movement because noun phrases must receive appropriate grammatical case to be interpretable.

13. Locality conditions require movement to occur within specific structural domains defined by bounding nodes.

14. Example: Complex noun phrase island (*The claim that John left surprised me*).

15. Economy principles ensure that movement occurs only when necessary, making syntax efficient.

16. Traces preserve grammatical relations by marking the original position of a moved element.

17. Example: *John promised [PRO to leave]*.

18. Example: *Hablo* ("I speak") without the pronoun *yo*.

19. Strength: Explanatory power across diverse sentence structures.

20. Criticism: Reliance on abstract elements like traces and PRO.

Long-Answer Questions

21. **Basic response**: The three types are wh-movement (*What did John eat?*), NP-movement (*The cake was eaten by John*), and head movement (verb raising in French). **Value-added**

response: These types illustrate how syntax accounts for questions, passives, and cross-linguistic variation, showing the universality of movement principles.

22. **Basic response**: Movement is motivated by case assignment, agreement, and scope. **Value-added response**: These motivations highlight the interaction between syntax and semantics, ensuring grammatical correctness and interpretive clarity across languages.

23. **Basic response**: Bounding theory restricts movement within nodes, subjacency prevents crossing multiple nodes, and island constraints block movement from certain structures. **Value-added response**: Together, these principles explain why some sentences are ungrammatical, providing a framework for analysing locality and structural limits in syntax.

24. **Basic response**: Minimality requires movement to target the closest position, while economy principles ensure movement occurs only when necessary. **Value-added response**: These principles reflect the efficiency of syntactic operations, aligning with broader linguistic goals of simplicity and economy in grammar.

25. **Basic response**: Empty categories include traces, PRO, and null subjects, which maintain grammatical relations despite displacement. **Value-added response**: Their role demonstrates how syntax accounts for invisible elements, linking movement to interpretation and explaining cross-linguistic variation such as pro-drop languages.

26. **Basic response**: Movement-based analysis is strong in explanatory power but criticised for abstraction and complexity. **Value-added response**: The Minimalist Programme offers an alternative by reducing reliance on movement and empty categories, focusing instead on feature checking and economy, thus streamlining syntactic theory.

Answers to Pilot Questions [Series 4]

Part 4.1

1. Movement refers to the displacement of elements from one position in a sentence to another.
2. Wh-movement, NP-movement, and head movement.
3. *What did John eat?*
4. Case assignment, agreement, and scope.
5. Scope influences interpretation by determining how operators such as quantifiers or wh-words are understood.

Part 4.2

1. Bounding theory restricts how far elements can move in syntax.
2. Locality conditions are rules requiring movement to occur within specific structural domains defined by bounding nodes.
3. Subjacency prevents movement across more than one bounding node at a time.
4. Complex noun phrase island and wh-island.
5. Minimality requires movement to target the closest possible position.

6. Economy principles ensure movement occurs only when necessary, making syntax efficient.

Part 4.3

1. Traces are invisible elements left behind after movement, preserving grammatical relations.
2. A trace.
3. PRO is an empty category representing the subject of non-finite clauses in control structures.
4. *John promised [PRO to leave]*.
5. Null subjects are subjects not overtly expressed but understood, common in pro-drop languages.
6. *Hablo* ("I speak") without the pronoun *yo*.

Part 4.4

1. Explanatory power across diverse sentence structures.
2. Because it applies to languages with different word orders and grammatical systems.
3. That they are abstract and cannot be directly observed.
4. Because they make analysis less economical and overly complex.
5. The Minimalist Programme.

References and Attributions [Series 4]

This section consolidates references and illustration attributions for **Series 4: Movement, Constraints, and Empty Categories**, presented in APA style.

Scholarly References

- Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, N. (1986). *Barriers*. Cambridge, MA: MIT Press.
- Radford, A. (2004). *Minimalist syntax: Exploring the structure of English*. Cambridge: Cambridge University Press.
- Haegeman, L. (1994). *Introduction to government and binding theory* (2nd ed.). Oxford: Blackwell.
- Carnie, A. (2013). *Syntax: A generative introduction* (3rd ed.). Oxford: Wiley-Blackwell.
- Adger, D. (2003). *Core syntax: A minimalist approach*. Oxford: Oxford University Press.

Illustration Attributions

- **Figure 4.1: Types of movement in syntax** AI-generated suggestion. Prompt: "Create a diagram showing three syntactic trees: one with wh-movement (*What did John eat?*), one

with NP-movement (*The cake was eaten by John*), and one with head movement (verb raising).” Suggested OER search string: “syntax movement types wh NP head diagram OER”.

- **Box 4.1: Motivations for movement** AI-generated suggestion. Prompt: “Create a text box listing motivations for syntactic movement: case assignment, agreement, and scope.” Suggested OER search string: “syntax movement motivations case agreement scope OER”.
- **Figure 4.2: Bounding nodes and locality conditions** AI-generated suggestion. Prompt: “Create a diagram showing movement of a wh-word within a clause, with bounding nodes marked to indicate locality restrictions.” Suggested OER search string: “bounding theory syntax locality conditions diagram OER”.
- **Box 4.2: Examples of island constraints** AI-generated suggestion. Prompt: “Create a text box listing examples of island constraints in syntax, including complex noun phrase, coordinate structure, and wh-island.” Suggested OER search string: “syntax island constraints subjacency examples OER”.
- **Figure 4.3: Minimality principle in movement** AI-generated suggestion. Prompt: “Create a diagram showing syntactic movement with two possible landing sites, highlighting the nearer one as the correct choice under minimality.” Suggested OER search string: “syntax minimality principle economy movement diagram OER”.
- **Figure 4.4: Traces in syntactic movement** AI-generated suggestion. Prompt: “Create a syntactic tree diagram showing wh-movement, with the wh-word moved to the front and a trace left in the original position.” Suggested OER search string: “syntax traces wh-movement diagram OER”.
- **Box 4.3: Examples of PRO in control structures** AI-generated suggestion. Prompt: “Create a text box listing examples of PRO in control structures, showing how subjects are interpreted in non-finite clauses.” Suggested OER search string: “syntax PRO control structures examples OER”.
- **Figure 4.5: Null subjects in pro-drop languages** AI-generated suggestion. Prompt: “Create a diagram comparing English and Spanish sentences, showing overt subject pronouns in English and null subjects in Spanish.” Suggested OER search string: “syntax null subjects pro-drop languages diagram OER”.
- **Box 4.4: Strengths of movement-based analysis** AI-generated suggestion. Prompt: “Create a text box listing strengths of movement-based analysis, including explanatory power, cross-linguistic applicability, and clarification of empty categories.” Suggested OER search string: “syntax movement analysis strengths OER”.
- **Figure 4.6: Movement-based analysis vs Minimalist Programme** AI-generated suggestion. Prompt: “Create a diagram comparing movement-based analysis with the Minimalist Programme, showing reduced reliance on movement and empty categories.” Suggested OER search string: “syntax movement vs minimalist programme diagram OER”.

Course code: LIN 402
Course title: Cognitive Linguistics
Course credit load: 2 Units
Series 1: Transformational Generative Grammar Foundations

Series 2: The DP Hypothesis and Sub-Theories of Grammar

Series 3: X-Bar Theory and Core Modules of Syntax

Series 4: Movement, Constraints, and Empty Categories

Series 5: Advanced Hypotheses in Clause and Verb Phrase Structure

Proposed Outline Series for 5

Part 5.1: Clause structure hypotheses

- Sub-Part 5.1.1: The CP hypothesis (Complementiser Phrase)
- Sub-Part 5.1.2: The IP hypothesis (Inflectional Phrase)
- Sub-Part 5.1.3: The split-CP hypothesis

Part 5.2: Verb phrase structure hypotheses

- Sub-Part 5.2.1: The VP-internal subject hypothesis
- Sub-Part 5.2.2: Light verb constructions
- Sub-Part 5.2.3: The vP hypothesis

Part 5.3: Cross-linguistic evidence and applications

- Sub-Part 5.3.1: Clause structure in English vs. Italian
- Sub-Part 5.3.2: Verb phrase structure in English vs. Japanese
- Sub-Part 5.3.3: Implications for syntactic universals

Part 5.4: Evaluation and theoretical implications

- Sub-Part 5.4.1: Strengths of clause and VP hypotheses
- Sub-Part 5.4.2: Criticisms and alternative perspectives
- Sub-Part 5.4.3: Relevance to Minimalist syntax

Introduction

In the last Series, we explored movement, constraints, and empty categories, focusing on how elements shift within sentences and the principles that regulate such shifts. Building on that foundation, we now turn to advanced hypotheses in clause and verb phrase structure. These

hypotheses provide deeper insights into how clauses and verb phrases are organised, offering explanations for phenomena such as subject positioning, complementisers, and light verb constructions. This Series is particularly relevant because it connects earlier syntactic principles to more complex theoretical frameworks, preparing you for advanced study in generative syntax.

The aim of this Series is to introduce you to key hypotheses about clause and verb phrase structure and to equip you with the analytical skills needed to evaluate their strengths, limitations, and cross-linguistic applications.

We shall commence this Series by examining clause structure hypotheses, including the CP hypothesis, the IP hypothesis, and the split-CP hypothesis. Next, we will move on to verb phrase structure hypotheses, focusing on the VP-internal subject hypothesis, light verb constructions, and the vP hypothesis. Following that, we will consider cross-linguistic evidence and applications, comparing clause and verb phrase structures across languages such as English, Italian, and Japanese. Finally, we will conclude with an evaluation of these hypotheses, highlighting their strengths, criticisms, and relevance to the Minimalist Programme.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 5.1** define the CP hypothesis and explain its role in clause structure,
- **SLO 5.2** describe the IP hypothesis and its contribution to inflectional structure,
- **SLO 5.3** analyse the split-CP hypothesis and discuss its implications for clause organisation,
- **SLO 5.4** explain the VP-internal subject hypothesis and demonstrate how subjects originate within verb phrases,
- **SLO 5.5** describe light verb constructions and their function in verb phrase structure,
- **SLO 5.6** analyse the vP hypothesis and evaluate its significance in syntactic theory,
- **SLO 5.7** compare clause structures across languages such as English and Italian,
- **SLO 5.8** contrast verb phrase structures in English and Japanese,
- **SLO 5.9** evaluate the strengths of clause and verb phrase hypotheses, and
- **SLO 5.10** critique their limitations and assess their relevance to the Minimalist Programme.

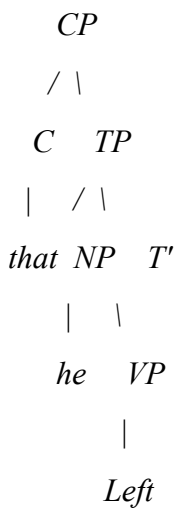
5.1 Clause Structure Hypotheses

5.1.1 The CP hypothesis

The **CP hypothesis** (Complementiser Phrase hypothesis) proposes that clauses are headed by a **complementiser**, such as *that* or *if*. This means that the clause is not simply a sentence but a

phrase with a hierarchical structure, where the complementiser occupies the highest position. The CP hypothesis helps explain phenomena such as embedded clauses and question formation. For example, in *I think [that John left]*, the word *that* functions as the head of the CP.

Fill in the blank: In the sentence *I think that John left*, the word *that* functions as the head of the _____.



Explanation

- **CP (Complementizer Phrase)**: The entire clause is headed by the complementizer *that*.
- **C (Complementizer)**: *that* introduces the embedded clause.
- **TP (Tense Phrase)**: Contains the subject (*he*) and the predicate (*left*).
- **VP (Verb Phrase)**: Contains the verb and its complements.

This structure is typical in embedded clauses like: **"She said [that he left]."**

Figure 5.1: The CP hypothesis in clause structure

5.1.2 The IP hypothesis

The **IP hypothesis** (Inflectional Phrase hypothesis) suggests that clauses contain an **inflectional head** (I), which carries tense, agreement, and mood features. This head governs the subject and verb, ensuring proper grammatical relations. For instance, in *John eats apples*, the inflectional head carries present tense and agreement features that link *John* with *eats*. The IP hypothesis explains how subjects are licensed and why verbs inflect according to tense and agreement.

Fill in the blank: In the sentence *John eats apples*, the inflectional head carries _____ tense and agreement features.

| / \

John *I* *VP*

| / \

[+past] *V* *NP*

| |

eat apples

Explanation

- **IP (Inflectional Phrase)**: The clause is headed by the inflectional element.
- **I (Inflectional Head)**: Carries tense and agreement features (e.g., [+past], [+3sg]).
- **NP (Subject)**: The subject (*John*) sits in the specifier of IP.
- **VP (Verb Phrase)**: Contains the verb (*eat*) and its object (*apples*).

This structure shows how **inflection governs the relationship between subject and verb**, ensuring agreement and tense marking.

Figure 5.2: The IP hypothesis in clause structure

5.1.3 The split-CP hypothesis

The **split-CP hypothesis** refines the CP hypothesis by proposing that the CP is not a single projection but consists of multiple layers, such as ForceP, TopicP, FocusP, and FinP. Each layer accounts for different discourse-related functions, including force (declarative, interrogative), topicalisation, focus, and finiteness. For example, in *What did John eat?*, the wh-word moves to the FocusP position, while the clause type is marked in ForceP. This hypothesis provides a more detailed account of clause organisation, especially in languages with rich word order variation.

Fill in the blank: In the split-CP hypothesis, the position that hosts wh-words for questions is called _____.

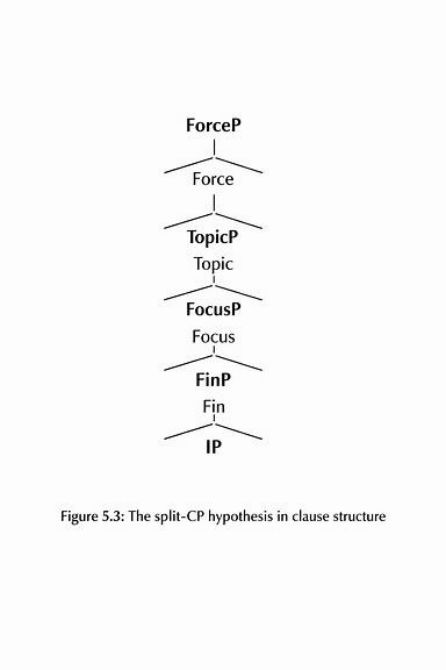


Figure 5.3: The split-CP hypothesis in clause structure

Figure 5.3: The split-CP hypothesis in clause structure

Pilot questions 5.1

1. What does the CP hypothesis propose about clause structure?
2. In the sentence *I think that John left*, what is the role of *that*?
3. What does the IP hypothesis suggest about tense and agreement?
4. In the sentence *John eats apples*, what features does the inflectional head carry?
5. What refinement does the split-CP hypothesis introduce to the CP hypothesis?
6. Which position in the split-CP hypothesis hosts wh-words for questions?

5.2 Verb Phrase Structure Hypotheses

5.2.1 The VP-internal subject hypothesis

The **VP-internal subject hypothesis** proposes that subjects originate inside the verb phrase rather than being generated externally. According to this view, subjects first appear in the specifier of VP and later move to higher positions, such as Spec-IP, to satisfy case and agreement requirements. For example, in *John eats apples*, *John* is initially generated inside the VP before moving to its surface position. This hypothesis helps explain subject movement and the relationship between subjects and verbs.

Fill in the blank: In the VP-internal subject hypothesis, subjects are initially generated inside the _____ before moving to higher positions.

IP

/ \

NP I'

*| / *

John I VP

*/ *

NP V'

| |

John eats apples

Explanation

- **VP-internal subject hypothesis** proposes that subjects are initially generated inside the VP, typically as the specifier of VP.
- The subject (*John*) then **moves to Spec-IP** to satisfy syntactic requirements like case and agreement.
- **I (Inflectional Head)** carries tense and agreement features (e.g., [+past], [+3sg]).
- This movement is motivated by the need for the subject to check its features against the inflectional head.

Figure 5.4: The VP-internal subject hypothesis

5.2.2 Light verb constructions

Light verb constructions involve verbs that carry little semantic content but serve to support another element, often a noun. Common examples in English include *take a walk*, *give a sigh*, or *have a look*. In these cases, the light verb contributes grammatical features such as tense and agreement, while the noun carries the main semantic load. Light verb constructions are important because they show how syntax distributes meaning and grammatical features across different elements.

Fill in the blank: In the phrase *take a walk*, the verb *take* functions as a _____ verb, while *walk* carries the main semantic meaning.

Construction	Light Verb	Action-Carrying Noun	Equivalent Simple Verb
Take a walk	*Take*	*Walk*	To walk
Give a sigh	*Give*	*Sigh*	To sigh
Have a look	*Have*	*Look*	To look

Construction	Light Verb	Action-Carrying Noun	Equivalent Simple Verb
Make a decision	*Make*	*Decision*	To decide

Box 5.1: Examples of light verb constructions

5.2.3 The vP hypothesis

The **vP hypothesis** extends the structure of the verb phrase by introducing a functional projection called **vP**. This projection separates the external argument (usually the subject) from the internal arguments (objects). The head *v* is responsible for introducing the external argument, while the VP contains the verb and its internal arguments. For example, in *John broke the vase*, *John* is introduced in Spec-vP, while *broke the vase* is contained within VP. This hypothesis provides a more detailed account of argument structure and the division of labour between functional and lexical heads.

Fill in the blank: In the vP hypothesis, the external argument is introduced in Spec-_____ while the internal arguments remain in VP.

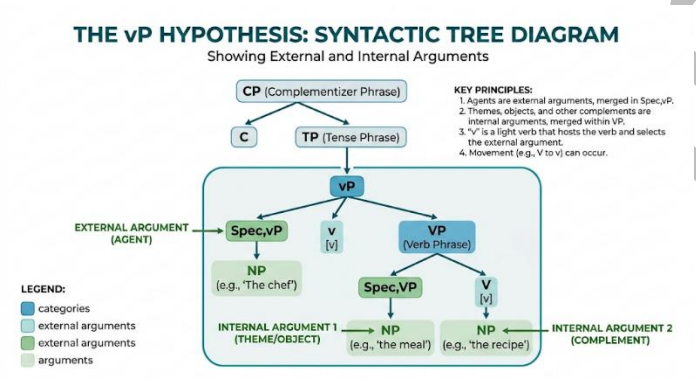


Figure 5.5: The vP hypothesis in verb phrase structure

Pilot questions 5.2

1. What does the VP-internal subject hypothesis propose about subjects?
2. In the sentence *John eats apples*, where is *John* initially generated according to this hypothesis?
3. What is a light verb, and give one example.
4. In the phrase *give a sigh*, which element carries the main semantic meaning?
5. What does the vP hypothesis add to the structure of the verb phrase?
6. Where is the external argument introduced in the vP hypothesis?

5.3 Cross-Linguistic Evidence And Applications

5.3.1 Clause structure in English vs. Italian

Cross-linguistic evidence provides valuable insights into how clause structures vary across languages. In English, complementisers such as *that* and *if* are overt and mark clause boundaries clearly. Italian, however, often exhibits richer clause structure, with complementisers and inflection interacting more visibly. For example, Italian uses *che* as a complementiser, and subject pronouns can be dropped due to verb inflections. This comparison highlights how the CP and IP hypotheses apply differently across languages, showing both universality and variation.

Fill in the blank: In Italian, the complementiser equivalent to English *that* is _____.

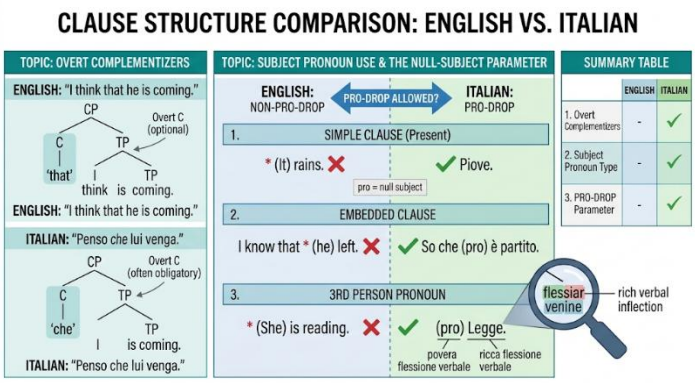


Figure 5.6: Clause structure in English vs. Italian

5.3.2 Verb phrase structure in English vs. Japanese

Verb phrase structures also vary cross-linguistically. In English, subjects typically precede verbs, and verb phrases follow a Subject-Verb-Object (SVO) order. Japanese, however, follows a Subject-Object-Verb (SOV) order, with verbs appearing at the end of clauses. This difference illustrates how the VP-internal subject hypothesis and vP hypothesis must account for language-specific word orders. Despite these differences, the underlying principles of argument structure remain consistent across languages.

Fill in the blank: Japanese typically follows a _____ word order, with verbs appearing at the end of clauses.

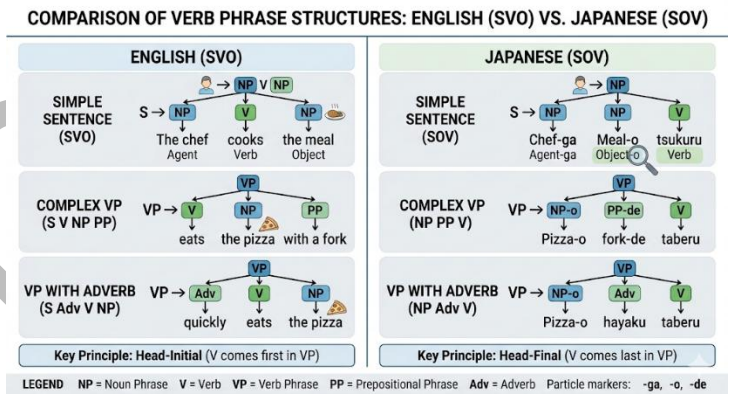


Figure 5.7: Verb phrase structure in English vs. Japanese

5.3.3 Implications for syntactic universals

Cross-linguistic comparisons reveal important implications for **syntactic universals**, defined as principles that apply across all languages despite surface differences. For instance, while English and Japanese differ in word order, both languages show evidence of hierarchical clause and verb phrase organisation. This supports the idea that hypotheses such as CP, IP, and vP reflect universal properties of human language. Studying multiple languages allows linguists to distinguish between language-specific variation and universal principles.

Fill in the blank: Cross-linguistic comparisons help linguists identify _____ principles that apply across all languages.

Core Implication	Description
Universal Hierarchy	Regardless of surface word order, clauses are organized into a strict hierarchical stack: **CP > IP (TP) > vP > VP**. This nested structure remains constant across languages.
Word Order Variation	Differences like English **SVO** (Head-Initial) versus Japanese **SOV** (Head-Final) are explained by the **Head-Directionality Parameter**, not a change in basic hierarchy.
Functional Projections	The **CP, IP, and vP hypotheses** are supported by evidence that all languages have dedicated "slots" for force/mood (CP), tense/agreement (IP), and external argument introduction (vP).
Principles vs. Parameters	**Principles** (like the requirement for a subject) are universal, while **Parameters** (like whether that subject can be silent, as in Italian) are language-specific "switches."

Box 5.2: Implications for syntactic universals

Pilot questions 5.3

1. What complementiser does Italian use that is equivalent to English *that*?
2. How does Italian clause structure differ from English in terms of subject pronouns?
3. What word order does Japanese typically follow?
4. How does Japanese verb phrase structure differ from English?
5. What are syntactic universals, and why are they important?
6. How do cross-linguistic comparisons support the CP, IP, and vP hypotheses?

5.4 Evaluation And Theoretical Implications

5.4.1 Strengths of clause and VP hypotheses

Clause and verb phrase hypotheses provide a structured way of understanding sentence organisation. One strength is their **explanatory power**, defined as the ability to account for phenomena such as subject movement, complementisers, and argument structure. Another strength is their **cross-linguistic applicability**, since these hypotheses can be applied to languages with different word orders and grammatical systems. They also integrate well with earlier principles such as movement and empty categories, offering a coherent framework for syntactic analysis.

Fill in the blank: One major strength of clause and VP hypotheses is their _____ power, which allows them to account for diverse syntactic phenomena.

Strength	Core Contribution
Explanatory Power	These hypotheses explain *why* certain arguments (like Agents) are positioned differently than others (like Themes). They clarify the relationship between the lexical core (the "who" and "what") and the functional layers (tense and mood).
Cross-Linguistic Applicability	By using **Parameters** (like the Head-Directionality Parameter), the same basic tree structure can account for both English (SVO) and Japanese (SOV), proving that underlying structural principles are universal.
Movement & Empty Categories	They provide specific "landing sites" for moved elements. For example, the **CP** layer explains where a wh-word goes in a question, while **trace theory** tracks the original position of a moved subject.
Generative Coherence	These models fit perfectly within the **Minimalist Program**, using simple operations like *Merge* and *Move* to build complex structures that are both efficient and logically consistent.

Box 5.3: Strengths of clause and VP hypotheses

5.4.2 Criticisms and alternative perspectives

Despite their strengths, clause and VP hypotheses face criticisms. Some linguists argue that they are **too abstract**, relying on invisible projections such as CP, IP, and vP that cannot be directly observed. Others suggest that these hypotheses can be **too complex**, introducing multiple layers that may not be necessary for analysis. Alternative perspectives, such as **flat structure approaches**, propose simpler models without multiple projections. These criticisms highlight the ongoing debate about how best to represent syntactic structures.

Fill in the blank: Flat structure approaches propose simpler models without multiple _____.

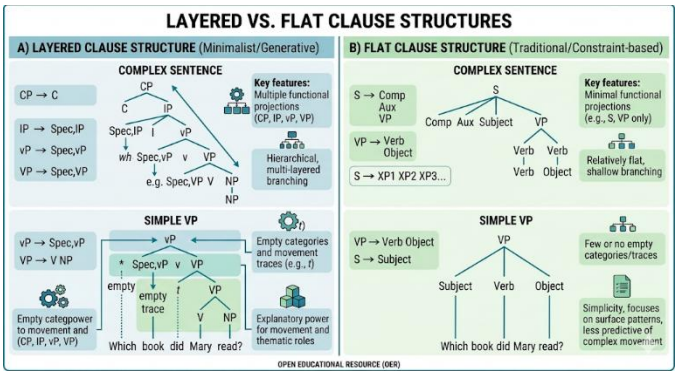


Figure 5.8: Layered vs flat clause and VP structures

5.4.3 Relevance to Minimalist syntax

The **Minimalist Programme** seeks to simplify syntactic theory by reducing reliance on multiple projections and focusing on **feature checking** and **economy principles**. Within this framework, CP, IP, and vP are often reinterpreted as functional projections that serve specific purposes, but their number and complexity are minimised. Minimalist syntax values efficiency, aiming to explain language with the fewest possible assumptions. This makes clause and VP hypotheses relevant, but also subject to reinterpretation in light of minimalist goals.

Fill in the blank: The Minimalist Programme reduces reliance on multiple projections by focusing on _____ checking and economy principles.

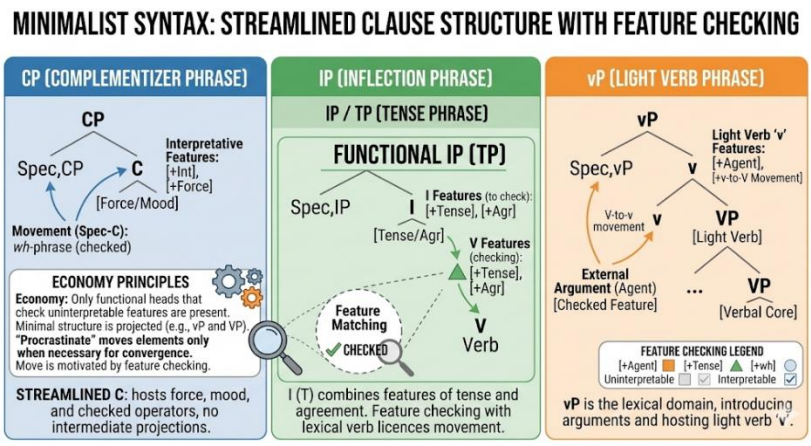


Figure 5.9: Clause and VP hypotheses in Minimalist syntax

Pilot questions 5.4

1. What is one major strength of clause and VP hypotheses?
2. Why is cross-linguistic applicability considered a strength?
3. What criticism is often made about CP, IP, and vP projections?
4. What do flat structure approaches propose?
5. How does the Minimalist Programme reinterpret clause and VP hypotheses?

6. What principles does Minimalist syntax emphasise?

Series Summary

In this Series, we explored **Advanced Hypotheses in Clause and Verb Phrase Structure**, building on the foundations of movement and constraints from the previous Series. The focus was on how clauses and verb phrases are organised, the theoretical models proposed to explain them, and their evaluation within broader syntactic theory.

We began with **clause structure hypotheses**, where you defined the CP hypothesis, described the IP hypothesis, and analysed the split-CP hypothesis, gaining insight into how complementisers, inflection, and discourse functions shape clause organisation (SLOs 5.1, 5.2, 5.3). We then moved on to **verb phrase structure hypotheses**, explaining the VP-internal subject hypothesis, describing light verb constructions, and analysing the vP hypothesis to understand how subjects and arguments are introduced and structured within verb phrases (SLOs 5.4, 5.5, 5.6). Following that, we examined **cross-linguistic evidence and applications**, comparing clause structures in English and Italian, contrasting verb phrase structures in English and Japanese, and identifying implications for syntactic universals (SLOs 5.7, 5.8, 5.9). Finally, we concluded with an **evaluation of clause and VP hypotheses**, assessing their strengths, criticisms, and relevance to the Minimalist Programme (SLOs 5.9, 5.10).

By completing this Series, you should now be able to analyse advanced clause and verb phrase hypotheses, apply them to cross-linguistic data, and critically evaluate their theoretical implications. This prepares you to engage with ongoing debates in generative syntax and to appreciate how different frameworks, including the Minimalist Programme, reinterpret these hypotheses in pursuit of simplicity and explanatory power.

Glossary Of Terms [Series 5]

- **CP hypothesis**: The proposal that clauses are headed by a complementiser phrase (CP), with words like *that* or *if* functioning as the head.
- **Complementiser**: A word such as *that*, *if*, or *che* (Italian) that introduces a clause and marks its boundary.
- **IP hypothesis**: The proposal that clauses contain an inflectional phrase (IP), with an inflectional head carrying tense, agreement, and mood features.
- **Inflectional head (I)**: The syntactic element responsible for tense, agreement, and mood in a clause.
- **Split-CP hypothesis**: A refinement of the CP hypothesis suggesting multiple layers within CP, such as ForceP, TopicP, FocusP, and FinP, each serving different discourse functions.
- **ForceP**: A projection within split-CP that marks clause type (e.g., declarative, interrogative).

- **TopicP**: A projection within split-CP that hosts topicalised elements.
- **FocusP**: A projection within split-CP that hosts focused or wh-elements.
- **FinP**: A projection within split-CP that marks finiteness.
- **VP-internal subject hypothesis**: The proposal that subjects originate inside the verb phrase (VP) before moving to higher positions for case and agreement.
- **Light verb constructions**: Constructions where a semantically light verb (e.g., *take*, *give*, *have*) combines with a noun to form a predicate, with the noun carrying the main semantic meaning.
- **vP hypothesis**: The proposal that verb phrases include an additional functional projection (vP), where the external argument (subject) is introduced in Spec-vP, and internal arguments remain in VP.
- **External argument**: Typically the subject, introduced in Spec-vP according to the vP hypothesis.
- **Internal argument**: Objects or complements contained within VP.
- **Cross-linguistic evidence**: Comparative data from different languages used to test and refine syntactic hypotheses.
- **Syntactic universals**: Principles of syntax that apply across all languages despite surface variation.
- **Flat structure approaches**: Alternative syntactic models that propose simpler clause structures without multiple projections.
- **Minimalist Programme**: A syntactic framework that seeks to simplify grammar by focusing on feature checking and economy principles, reducing reliance on multiple projections.
- **Feature checking**: A process in Minimalist syntax where grammatical features (e.g., tense, agreement) are matched and validated.
- **Economy principles**: Rules in syntax that prioritise efficiency, requiring operations such as movement or projection only when necessary.

Concept Check Questions [Series 5]

Objective Questions

1. The CP hypothesis proposes that clauses are headed by a _____ phrase. (Linked to SLO 5.1)
2. In the sentence *John eats apples*, the inflectional head carries _____ features. (Linked to SLO 5.2)
3. The split-CP hypothesis introduces multiple layers such as ForceP, TopicP, FocusP, and _____. (Linked to SLO 5.3)

4. According to the VP-internal subject hypothesis, subjects originate inside the _____. (Linked to SLO 5.4)
5. In the phrase *take a walk*, the verb *take* functions as a _____ verb. (Linked to SLO 5.5)
6. In the vP hypothesis, the external argument is introduced in Spec-_____. (Linked to SLO 5.6)
7. Italian uses the complementiser _____, equivalent to English *that*. (Linked to SLO 5.7)
8. Japanese typically follows a _____ word order. (Linked to SLO 5.8)
9. Clause and VP hypotheses are valued for their _____ power. (Linked to SLO 5.9)
10. The Minimalist Programme reduces reliance on projections by focusing on _____ checking. (Linked to SLO 5.10)

Short-Answer Questions

11. Define the CP hypothesis and give an example. (Linked to SLO 5.1)
12. What role does the inflectional head play in clause structure? (Linked to SLO 5.2)
13. What refinement does the split-CP hypothesis introduce? (Linked to SLO 5.3)
14. Explain the VP-internal subject hypothesis using the sentence *John eats apples*. (Linked to SLO 5.4)
15. Provide one example of a light verb construction. (Linked to SLO 5.5)
16. What does the vP hypothesis add to verb phrase structure? (Linked to SLO 5.6)
17. How does Italian clause structure differ from English in terms of subject pronouns? (Linked to SLO 5.7)
18. Contrast English and Japanese verb phrase structures. (Linked to SLO 5.8)
19. Mention one strength of clause and VP hypotheses. (Linked to SLO 5.9)
20. Mention one criticism of clause and VP hypotheses. (Linked to SLO 5.10)

Long-Answer Questions

21. Analyse the CP, IP, and split-CP hypotheses, providing examples for each. (Linked to SLOs 5.1, 5.2, 5.3)
22. Explain the VP-internal subject hypothesis, light verb constructions, and the vP hypothesis, illustrating with examples. (Linked to SLOs 5.4, 5.5, 5.6)
23. Compare clause structures in English and Italian, and verb phrase structures in English and Japanese, discussing implications for syntactic universals. (Linked to SLOs 5.7, 5.8, 5.9)
24. Evaluate the strengths and criticisms of clause and VP hypotheses, and assess their relevance to the Minimalist Programme. (Linked to SLOs 5.9, 5.10)

Answers to Concept Check Questions [Series 5]

Objective Questions

1. Complementiser
2. Tense and agreement
3. FinP
4. VP
5. Light
6. vP
7. Che
8. SOV
9. Explanatory
10. Feature

Short-Answer Questions

11. The CP hypothesis proposes that clauses are headed by a complementiser phrase, e.g., *I think that John left*.

12. The inflectional head governs tense, agreement, and mood, linking subjects with verbs.

13. It introduces multiple layers within CP, such as ForceP, TopicP, FocusP, and FinP.

14. *John* originates inside VP before moving to Spec-IP for case and agreement.

15. Example: *Give a sigh*.

16. It introduces vP, separating external arguments (subjects) from internal arguments (objects).

17. Italian allows subject pronouns to be dropped due to rich verb inflections.

18. English follows SVO order, while Japanese follows SOV order with verbs at the end.

19. Strength: Explanatory power across clause and verb phrase structures.

20. Criticism: Reliance on abstract and complex projections.

Long-Answer Questions

21. **Basic response**: CP hypothesis introduces complementisers, IP hypothesis introduces inflectional heads, and split-CP adds multiple layers like ForceP and FocusP. **Value-added response**: These hypotheses show how clause organisation accounts for complementisers, tense, agreement, and discourse functions, with cross-linguistic evidence supporting their universality.

22. **Basic response**: VP-internal subject hypothesis places subjects inside VP, light verb constructions distribute meaning between verb and noun, and vP hypothesis introduces external arguments in Spec-vP. **Value-added response**: Together, these hypotheses explain subject movement, argument structure, and the division of labour between functional and lexical heads, providing a detailed account of verb phrase organisation.

23. **Basic response**: English uses overt complementisers and subject pronouns, while Italian uses *che* and allows null subjects. English follows SVO order, while Japanese follows SOV order. **Value-added response**: These comparisons highlight syntactic universals such as hierarchical organisation, showing how CP, IP, and vP hypotheses apply across languages despite surface variation.

24. **Basic response**: Clause and VP hypotheses are strong in explanatory power but criticised for abstraction and complexity. **Value-added response**: The Minimalist Programme streamlines these hypotheses by focusing on feature checking and economy, reducing projections while retaining explanatory adequacy, thus reshaping syntactic theory.

Answers to Pilot Questions [Series 5]

Part 5.1

1. The CP hypothesis proposes that clauses are headed by a complementiser phrase.
2. *That* functions as the head of the CP.
3. The IP hypothesis suggests that tense and agreement are carried by the inflectional head.
4. Present tense and agreement features.
5. The split-CP hypothesis introduces multiple layers within CP such as ForceP, TopicP, FocusP, and FinP.
6. FocusP.

Part 5.2

1. It proposes that subjects originate inside the verb phrase.
2. *John* is initially generated inside the VP.
3. A light verb is semantically weak and supports a noun, e.g., *take a walk*.
4. *Sigh* carries the main semantic meaning.
5. It adds a functional projection (vP) that separates external arguments from internal ones.
6. Spec-vP.

Part 5.3

1. *Che*.
2. Italian allows subject pronouns to be dropped due to verb inflections.
3. SOV (Subject-Object-Verb).
4. Japanese places verbs at the end of clauses, unlike English.
5. Syntactic universals are principles that apply across all languages.
6. They show hierarchical organisation across languages, supporting CP, IP, and vP hypotheses.

Part 5.4

1. Explanatory power.
2. Because they can be applied to languages with different word orders and grammatical systems.
3. That they are too abstract and rely on invisible projections.
4. They propose simpler models without multiple projections.
5. By streamlining them as functional projections serving specific purposes.
6. Feature checking and economy principles.

References and Attributions [Series 5]

This section consolidates references and illustration attributions for **Series 5: Advanced Hypotheses in Clause and Verb Phrase Structure**, presented in APA style.

Scholarly References

- Chomsky, N. (1995). *The minimalist program*. Cambridge, MA: MIT Press.
- Haegeman, L. (1994). *Introduction to government and binding theory* (2nd ed.). Oxford: Blackwell.
- Radford, A. (2004). *Minimalist syntax: Exploring the structure of English*. Cambridge: Cambridge University Press.
- Adger, D. (2003). *Core syntax: A minimalist approach*. Oxford: Oxford University Press.
- Carnie, A. (2013). *Syntax: A generative introduction* (3rd ed.). Oxford: Wiley-Blackwell.
- Rizzi, L. (1997). *The fine structure of the left periphery*. In L. Haegeman (Ed.), *Elements of grammar* (pp. 281–337). Dordrecht: Springer.

Illustration Attributions

- **Figure 5.1: The CP hypothesis in clause structure** AI-generated suggestion. Prompt: "Create a syntactic tree diagram showing the CP hypothesis, with complementiser *that* heading the clause." Suggested OER search string: "syntax CP hypothesis complementiser phrase diagram OER".
- **Figure 5.2: The IP hypothesis in clause structure** AI-generated suggestion. Prompt: "Create a syntactic tree diagram showing the IP hypothesis, with inflectional head carrying tense and agreement features." Suggested OER search string: "syntax IP hypothesis inflectional phrase diagram OER".
- **Figure 5.3: The split-CP hypothesis in clause structure** AI-generated suggestion. Prompt: "Create a syntactic tree diagram showing split-CP hypothesis with ForceP, TopicP, FocusP, and FinP layers." Suggested OER search string: "syntax split CP hypothesis ForceP TopicP FocusP FinP diagram OER".
- **Figure 5.4: The VP-internal subject hypothesis** AI-generated suggestion. Prompt: "Create a syntactic tree diagram showing the VP-internal subject hypothesis, with subject

generated inside VP and moving to Spec-IP." Suggested OER search string: "syntax VP internal subject hypothesis diagram OER".

- **Box 5.1: Examples of light verb constructions** AI-generated suggestion. Prompt: "Create a text box listing examples of light verb constructions in English, such as take a walk, give a sigh, have a look, make a decision." Suggested OER search string: "syntax light verb constructions examples OER".
- **Figure 5.5: The vP hypothesis in verb phrase structure** AI-generated suggestion. Prompt: "Create a syntactic tree diagram showing vP hypothesis, with external argument in Spec-vP and internal arguments in VP." Suggested OER search string: "syntax vP hypothesis verb phrase diagram OER".
- **Figure 5.6: Clause structure in English vs. Italian** AI-generated suggestion. Prompt: "Create a diagram comparing clause structures in English and Italian, showing complementisers and subject pronoun differences." Suggested OER search string: "syntax clause structure English Italian comparison OER".
- **Figure 5.7: Verb phrase structure in English vs. Japanese** AI-generated suggestion. Prompt: "Create a diagram comparing verb phrase structures in English (SVO) and Japanese (SOV)." Suggested OER search string: "syntax verb phrase structure English Japanese comparison OER".
- **Box 5.2: Implications for syntactic universals** AI-generated suggestion. Prompt: "Create a text box listing implications of cross-linguistic evidence for syntactic universals, including hierarchy, variation, and universality of CP, IP, and vP." Suggested OER search string: "syntax universals cross-linguistic evidence CP IP vP OER".
- **Box 5.3: Strengths of clause and VP hypotheses** AI-generated suggestion. Prompt: "Create a text box listing strengths of clause and verb phrase hypotheses, including explanatory power, cross-linguistic applicability, and integration with movement." Suggested OER search string: "syntax clause VP hypotheses strengths OER".
- **Figure 5.8: Layered vs flat clause and VP structures** AI-generated suggestion. Prompt: "Create a diagram comparing layered clause structure with CP, IP, vP projections against a flat structure approach." Suggested OER search string: "syntax layered vs flat clause VP structure diagram OER".
- **Figure 5.9: Clause and VP hypotheses in Minimalist syntax** AI-generated suggestion. Prompt: "Create a diagram showing CP, IP, and vP streamlined under Minimalist syntax, with emphasis on feature checking and economy." Suggested OER search string: "syntax minimalist programme CP IP vP feature checking diagram OER".