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A SYNTACTIC ANALYSIS OF IMPERATIVES IN RECIPE INSTRUCTIONS

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Abstract
This research aims to analyze imperative sentences in cooking recipe texts (appetizer, main course, and dessert) and to analyze the most common types of imperative sentences from each category using X-bar theory. This research applies a Qualitative Content Analysis. Data were collected from 30 recipe texts (10 for appetizer, 10 for main course, and 10 for dessert). The results show that there are 318 imperative sentences found in the total data. These sentences were classified using codes IMP1-IMP13 based on form and function. From the classification results, three types of imperative sentences were found to be most frequently used: IMP5 in appetizers, IMP8 in main courses, and IMP5 in desserts. Analysis using X-bar theory shows that imperative sentences in recipe texts are classified as Verb Phrase (VP), with the main verb as the head and the complement as a modifier. The results also show that the structure of IMP5 is simple, while the structure of IMP8 is more complex. Overall, this research states that the X-bar theory is effective in describing the structural relationships of each element in imperative sentences and provides a deeper understanding of the syntactic construction of recipe texts.

Keywords: imperative, recipe, syntactic, X-bar

Introduction

Language plays a big role in human life because language is one of the tools people use to communicate and interact from fellow (Fabbro, Fabbro, & Crescentini, 2022; Meylani, 2024). According to Kristianingsih et al. (2023), stated if no language is essential to human life. Therefore, language is the medium of communication, being the source of nothing else to communicate ideas, emotions, and thoughts in daily life.

In an academic context, language is also an object of study for linguistics, which makes it possible to examine language scientifically (Amori, 2021; Fedorenko, Piantadosi, & Gibson, 2024). According to Denham and Lobeck (2018)

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stated if linguistics is a science of language that focuses on the pronunciation of words, creating words, and grammar rules. In addition, language is not simply something to communicate with; it is also a subject of scientific study that contains systematic rules.

Syntax, which examines in depth the structure of language, is a branch of linguistics (Matchin & Hickok, 2020). Syntax is part of linguistics that concerns the structure of sentences (Beguš, Dąbkowski, & Rhodes, 2023; Bennett & Elfner, 2019). According to Chomsky (as cited in Sirait & Lingga, 2021) mentions that syntax is the principle and process by which sentences are formed in different languages. On the other hand, according to Matchin et al. (2019), syntax as a science when it is studying something related content of the arrangement and makeup of words into sentences. Therefore, syntax may be defined as a branch of linguistics that studies the principles, processes, and rules determining the structure of sentences, from word order to superficial forms of meaning configurations.

In procedural texts, and particularly in food recipes, imperative sentences are used to give instructions (Abdusalomov, 2025; Diamanti, 2025). Imperative sentences in simple requests for another person to carry out tasks or others (Fransisca et al., 2022). The optimal food recipe is a series of steps for readers to follow. The imperative sentence is a very important one for people to give orders or make the command clear in the message (Kaufmann, 2019). For example, “Heat the oil!” or “Add salt to taste!”

Imperatives were studied in various respects in a number of preliminary works (Starr, 2020). Research that considered imperative sentences and removed them in the sense of pragmatics was found in studies-based media, such as analysis of the cooking program Nadiya Bakes First Season conducted by Adik Emil Fransisca, Chusni Hadiati, and Usep Muttaqin (Fransisca et al., 2022). However, unlike these researches which have pragmatic applications, this study is aimed at syntactic studies by examining the sentence structure in recipes and the most commonly used sentence patterns.

Accordingly, there is still a place for investigation to discuss and elaborate on how imperative sentences can be studied structurally or syntactically as well as pragmatically (pragmatic meaning or function). The complicated nature of the structure of imperatives is difficult to investigate, but this study can offer a valuable document in syntax (Al-Samki et al., 2023). This research adopts this method, as sentence organization in recipe text is critical to the seamless comprehension and interpretation of instructions by readers.

Therefore, in this research, the types of imperative sentences in recipe texts are examined from a syntactic viewpoint, and their usage frequencies are investigated. Based on this perspective, the research aims to contribute to enriching the linguistics of syntactic variation in instructional discourse by addressing this domain. However, additional research could extend this analysis to additional genres of instructional texts or incorporate pragmatic and semantic analyses in order to achieve a broader profile of the use of imperatives across contexts.

Method

Research design

The research uses a qualitative research design, especially by employing qualitative content analysis to study the syntax of imperative clauses in recipe

instructions. Qualitative content analysis is suitable for examining text data in which meaning is situated in linguistic form and use (Serafini & Reid, 2023). Based on the methodology of John W. Creswell, in education, genre qualitative research provides open opportunities to explore language function. Cresswell and Baez (2021) point out that qualitative approaches reflect emergent methods, open-ended data collection, and thematic interpretations.

According to Creswell (2010), five defining features for this research are typical in qualitative research:

1. Using approaches under development in the course of a study;
2. Having open-ended questions for rich textual description;
3. Collecting multiple data sorts such as text and images;
4. Analysing textual or visual accounts, therefore interpreting the meaning of data from several sources;
5. Discovering themes or patterns.

These principles guide the research, from selecting and extracting data to its syntactic construction and thematic interpretation.

Data sources

The research data included recipe directions extracted from two well-known cooking websites, *AllRecipes* and *Tasty,* because they present a wide range of different types of recipes. The 30 purposively selected recipes make up the data set. The recipes were deliberately chosen to cover a variety of food categories, including appetizers, main courses, and desserts. These recipes are analysed, and focused on imperative sentences that describe procedures.

Data collection

In syntactic analysis, imperative verbs were chosen for deeper analysis. For example, verbs such as “mix,” “bake,” “cook,” “add,” and “serve” were consistently chosen in all recipes. Each imperative sentence chosen was classified based on its type. The most common imperative types were then chosen to analyse the syntactic tree. Frequency-based data selection shows that this study focuses on the most frequently used directive forms to obtain a generalized understanding of recipe language.

The syntactic approach that used in this research is based on X-bar theory, which is the X-bar theory is a generative description that was first introduced by Noam Chomsky to explain how sentence structure is formed through hierarchical and recursive relationships. This theory explained that every phrase has internal structure, which consists of three main components: head, complement, and specifier. In analysing imperative sentences, this approach is considered relevant because the syntactic structure generally places more emphasis on the Verb Phrase (VP) as the core of the construction and does not display the subject explicitly. For example, in the imperative sentence “Add the eggs,” the verb “add” acts as the verb phrase head, while “eggs” acts as the complement. The subject in this sentence is not stated explicitly, but semantically it is considered to exist as a null subject, according to the commonly used convention in syntactic analysis of imperatives (Chomsky, 1970, as cited in Jackendoff, 2022).

Data analysis

Each imperative sentence was analysed manually using X-bar notation to identify the internal structure. The analysis process focused on searching for syntactic patterns, such as object position, transitivity of the verb, and the existence of adverbs in sentence construction. All of these features are coded, then classified based its thematic categories to reveal structure pattern that appear throughout the data. Through syntax tree representation, modeling of the form of the directive language can be done more accurately, to ensure that enabling this research to examine how grammatical elements are arranged to strengthen procedural coherence and increase the efficiency of instruction delivery in recipe texts (Bai et al., 2021).

In line with the thematic interpretation approach proposed by Creswell (2010), the final step of analysis was carried out by integrating various syntactic patterns into broader linguistic themes. These themes cover aspects such as efficiency in delivering directives, clarity in the preparation of procedures, and structural consistency in recipe writing. It combines qualitative content analysis and formal syntactic analysis to create a detailed picture of how imperatives work in the genre of cooking directions.

Findings and Discussion

This part provides the results of the analysis of imperative sentences in procedural texts based on X-bar theory. These findings were explained through two main parts, namely the classification of imperative sentences and the syntactic structure.

Classification of imperative sentence

An imperative sentence is a kind of sentence that conveys a command or suggestion to someone in the form of a direction, order, or request (Youn, 2017). According to Kaharuddin et al. (2025), imperative sentences are used to express commands, invitations, warnings, prohibitions, requests, or prayers. Therefore, imperative sentences can be defined as sentences that a person uses to ask, give orders, or make requests.

Comparing 30 cooking recipes from *Allrecipes* and *Tasty*, it turns out that imperative sentences are overwhelmingly present in all three dish categories, namely appetizers (10 recipes), main courses (10 recipes), and desserts (10 recipes). The imperative sentences are employed to give very clear and direct instructions that will enable the reader or listener to follow every step of the cooking process.

Out of the chosen 30 recipes, a total of 318 imperative sentences were captured, and every sentence has been coded with "IMP+ number". IMP is short for imperative. IMP is partitioned into 13 categories, as shown in Table 1 below.

Table 1. Classifying appetizer, main course and dessert imperative sentences from cooking recipes

Code	Category	Function/Meaning	Frequency	Example Sentence	Recipe Source
IMP1	Preparation (Preheat/ Appliance)	Directs the reader to prepare the appliance before cooking.	14	*"Preheat the oven to 180°C"*	The Best Fudgy Brownies

Code	Category	Function/Meaning	Frequency	Example Sentence	Recipe Source
IMP2	Preparation (Clean/Wash)	Instructs to clean ingredients before using.	10	*"Wash potatoes"*	Potato wedges
IMP3	Cutting/Shaping	Describes the shaping or cutting process.	13	*"Slice the jelly"*	Coffee Jelly
IMP4	Addition	Instructs to add ingredients during the process.	50	*"Pour mixture"*	Ultimate Chocolate Dessert
IMP5	Mixing/ Combining	Combines ingredients.	67	*"Mix the cream cheese"*	Shrimp Appetizer
IMP6	Assembling/ Positioning	Arranges items in a particular way.	36	*"Arrange corn ribs"*	Corn Ribs
IMP7	Coating	Instructs to coat or cover ingredients.	4	*"Coat each prepared ring"*	Mozzarella Stick Onion Rings
IMP8	Cooking Methods	Refers to cooking actions like fry, bake, cook, etc.	58	*"Cook until the onions are transparent"*	Paprika Chicken & Rice Bake
IMP9	Removing/ Draining	Directs to remove or discard something.	28	*"Remove from the pan"*	Chicken Teriyaki
IMP10	Cooling/Freezing	Instructs to cool or freeze ingredients.	9	*"Refrigerate salsa"*	Adobo Chicken Tacos
IMP11	Repeating actions	Commands to repeat specific actions.	8	*"Flip chicken pieces"*	Chicken Teriyaki
IMP12	Finishing/Coating	Gives final touches before/after cooking.	20	*"Top with fresh parsley"*	Cajun Shrimp Bake
IMP13	Technical Cooking Techniques	Indicates specialized cooking actions.	1	*"Rock the knife"*	Corn Ribs

The classification results revealed that imperative sentences in recipe texts generally have a simple structure, with a verb followed by an object. However, some sentences also exhibit structural variations through the use of adverbs or prepositional phrases. This finding demonstrates the diversity in the delivery of instructions in recipe texts, while still maintaining the distinctive characteristics of imperative sentences such as direct and command forms.

Based on the frequency analysis of three food categories (appetizer, main course, and dessert), IMP5 was found to be the most frequently used sentence form, with a total frequency of 67 times across 30 recipes. This sentence indicates the process of mixing all the ingredients, making it a common step that almost always appears in every food category. Furthermore, IMP8, with a frequency of 58 times, ranks second. This sentence refers to cooking actions such as "frying, baking, boiling, etc," indicating the main stages in the food preparation process.

However, IMP13 was recorded as the least frequently used imperative form, with a frequency of only one instance across all data. This sentence indicates more specific or technical cooking actions; therefore, it only appears in certain recipes.

Overall, the classification results show that recipe texts predominantly use imperative sentence forms that are general and easy for readers to understand, especially those related to the mixing and cooking processes. This indicates a tendency for recipe writers to convey clarity and efficiency in conveying instructions to readers.

Syntactic structure analysis for imperative sentences from each type of recipe

The following subsection describes the syntactic structure of the imperative sentences within a sentence in the recipe texts. The X-Bar theory by Chomsky (1970) was adopted for analysis. According to this hypothesis, the elements of a sentence are arranged according to their function in a hierarchical fashion. In imperative sentence structures, the subject "you" is generally not expressed, and VP acts as a kernel conveying the main sense of command or demand.

From a total of 318 imperative sentences analysed, the most dominant categories were IMP5 (Mixing/Combining) and IMP8 (Cooking Methods). Based on the analysis, 68 imperative sentences were found in appetizer recipes, with 12 sentences classified under the IMP5 code, commonly represented by the verb "mix." Furthermore, 175 imperative sentences were identified in the main course recipes. Among them, the most frequently used type was the IMP8 category, which appeared 40 times, typically marked by the verb "cook." In the dessert recipe category, 75 imperative sentences were identified. Within this category, sentences coded as IMP5 appeared 28 times, with the verb "whisk" being the most frequently used.

To further illustrate the analysis, X-bar theory by Chomsky (1970) was employed to identify the syntactic structure of top number mainstream imperative sentences in each recipe category. This theory is employed to demonstrate sentence construction and the relation between head, complement, and specifier. Having introduced X-bar theory as a framework for the analysis, researchers then reported on the results of the analysis of the three most frequent imperative sentences from each recipe category, such as appetizers, main courses, and desserts. Every sentence is processed by a syntactic tree with interconnected structure visualisation. The first sentence is the appetizer (IMP5), the second one is the main course (IMP8), and the third choice refers to dessert (IMP5). The following are the results of parsing for each sentence, as shown below.

Appetizer
Example: “Mix the cream cheese”

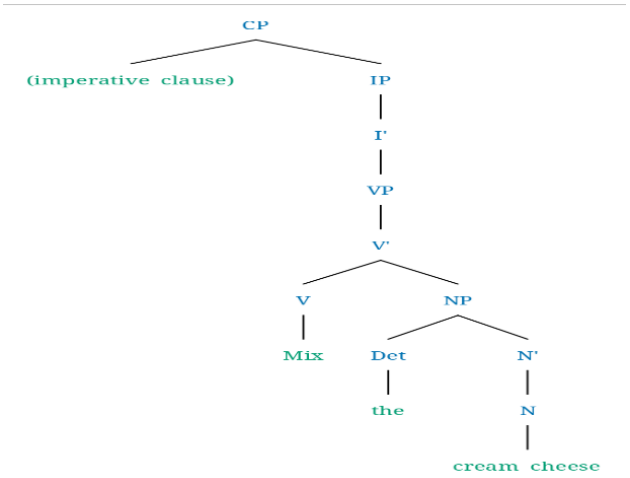


Figure 1. Syntax tree of “Mix the cream cheese”

The imperative sentence in the appetizer category is “Mix cream cheese.” In this sentence, the head (V) of the VP is “mix,” and its complement is the NP “the cream cheese.” In the framework of X-bar theory by Chomsky (1970), the head is considered to be the nucleus of a phrase, and its presence determines both syntactic category and constituency in its complement. This structure entails that the “mix” is a core (V) projecting to V’, which in turn projects to VP. On the other hand, “the cream cheese” is an NP adjunct. This connection illustrates that the imperative sentence is a simple form yet goes directly to the reader or listener.

Main course
Example: “Cook until the onions are transparent”

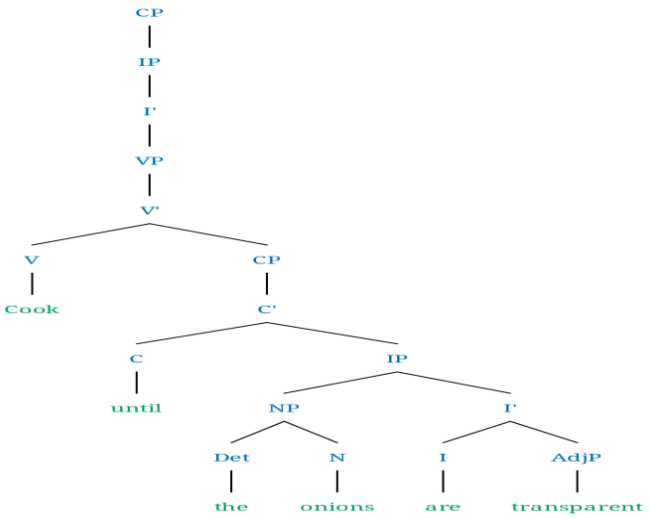


Figure 2. Syntax tree of “Cook until the onions are transparent”

The command sentence in the main course is “Cook until the onions are transparent.” In this construction, “cook” is the head of the verb phrase (VP), and

the clause "until the onions are transparent" serves as a complement that describes the boundaries or circumstances under which the cooking act occurs. According to the X-bar theory by Chomsky (1970), "cook" is the head of the verb nucleus, which extends to the V' layer, then to the VP. The connecting phrase "until the onions are transparent" houses an expected result in a subordinate construction. This organization reveals that the imperative sentences in the main clause are usually followed by connecting clauses describing time or results.

Dessert

Example: "Whisk together the hot water and instant espresso"

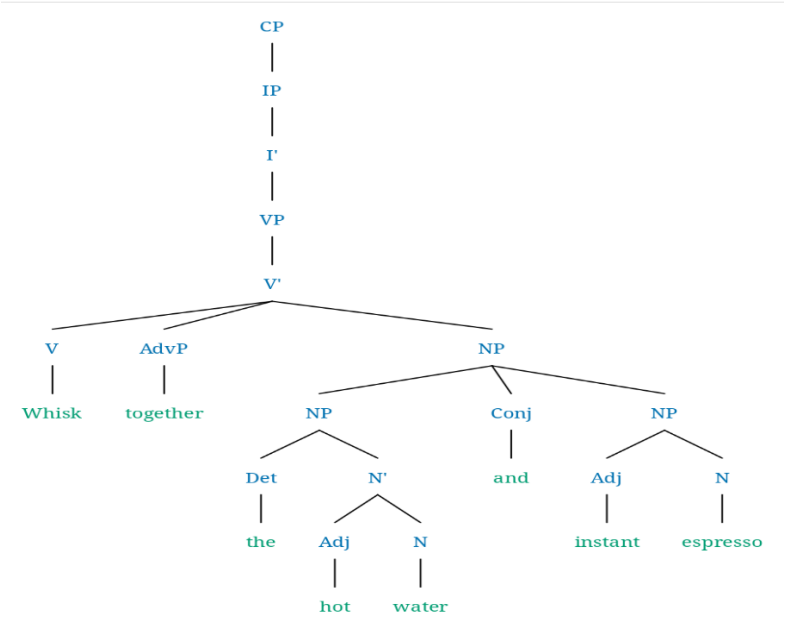


Figure 3. Syntax tree of "Whisk together the hot water and instant espresso"

In the dessert category, the command sentence is "Whisk together the hot water and instant espresso." In this sentence, the verb "whisk" takes the head of the VP position, while the PP "together the hot water and instant espresso" serves as a complement (PP/NP), explaining what something is stirred with. X-bar theory by Chomsky (1970) demonstrates that "the whisk," as head, is in direct relation with NP, which serves as an object, and the adverb "together" operates in a specifier position, providing a way adjective. This is evidence indicating that in the dessert category, the imperative sentence not only encodes an action command but also provides information about how it should be carried out.

According to the results of X-bar analysis on the three imperative sentences that represent appetizer, main course, and dessert categories, it can be summarized that the three recipes are nearly identical in terms of syntactic structure pattern as a Verb Phrase (VP) with a head as the main verb.

However, the complement is used in its complexity. Both sentences shown for the appetizer ("Mix the cream cheese") and dessert category ("Whisk together the hot water and instant espresso") exchange information involving ingredients to mix or combine in IMP5. This equation states that both the beginning and end of the cooking instructions are simple, brief sentences with a clear syntax. In the X-

bar theory, this corresponds to a construction consisting of V and NP with no subordinating clauses.

On the other hand, the main course category ("Cook until the onions are transparent") appears in IMP8 for cooking instructions. This sentence is more complicated than it looks at first sight, because not only does the predicator have a head (V) and dependents, but it also has an entire clause as a complement (until the onions are transparent). This intricacy helps demonstrate that the guidelines in the primary stage of cooking typically designate an application that needs something to take place for so long or under such conditions before a required result can occur. That is to say, the distinction between IMP5 and IMP8 does not only involve a different type of verb, but also it is based on how deeply the syntactic structure captures the semantic role of each cooking stage.

The research findings are in line with the research of Noviana (2023), who stated that imperative sentences in procedural paragraphs tend to have verb phrases (VP) and simple patterns where the main verb serves as a head (the center of action) and is directly followed by an object as its complement. This research shows that imperative sentence structure in recipe texts has a consistent pattern and is easy to identify based on its grammatical function. Therefore, analysis using the X-bar theory can help describe the hierarchical relationships between syntactic elements more systematically and deeply.

Conclusion

In conclusion, this research concludes that imperative sentences in procedural texts have various structures that are adapted to their instructional functions and purposes. Through the application of X-bar theory, researchers can gain a deeper understanding of how elements such as the head, complement, and specifier work together to form the meaning of a sentence. The analysis results indicate that simple commands such as "Mix the cream cheese" and "Whisk together the hot water and instant espresso" still have a complete syntactic structure. However, there is a difference in other sentences such as "Cook until the onions are transparent," which indicates variations in verb phrases. These findings support Noviana's research on the dominance of verb phrases in procedural texts, but this research goes further by providing a more detailed analysis through X-bar theory. Overall, the application of X-bar theory helps clarify how sentence structures are formed and how the elements of language relate to each other to create procedural meaning that is orderly and easy to understand.

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