Systemic Functional Linguistic Based on Semantic Web

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Article Info	Abstract
	This research aims to combine a functional and systematic linguistic approach with Semantic Web technology. The main aim of this research is to develop a framework that can facilitate systematized analysis and language modeling in the context of the semantic web. The research method used is a qualitative approach with focused data analysis. The data collected will involve text and web content relevant to the Semantic Web framework. The analysis was carried out using the principles and tools of systematic functional linguistic analysis to identify language structure, communicative function, and meaning in web content. The results of this research are expected to provide new insights into the understanding of how language can be organized and analyzed regularly in the context of the semantic web. Apart from that, this research is also expected to contribute to the development of Semantic Web technology by using a functional linguistic approach. It is hoped that the conclusions of this research will provide a deeper understanding of the role of language in the context of the semantic web and provide a basis for the development of more sophisticated and effective Semantic Web-based applications and systems.

Artikel Info	Abstrak
	Penelitian ini bertujuan untuk menggabungkan pendekatan linguistik fungsional dan sistematis dengan teknologi Semantic Web. Tujuan utama dari penelitian ini adalah untuk mengembangkan kerangka kerja yang dapat memfasilitasi analisis sistematis dan pemodelan bahasa dalam konteks web semantik. Metode penelitian yang digunakan adalah pendekatan kualitatif dengan analisis data terfokus. Data yang dikumpulkan akan melibatkan teks dan konten web yang relevan dengan kerangka Web Semantik. Analisis dilakukan dengan menggunakan prinsip dan alat analisis linguistik fungsional sistematis untuk mengidentifikasi struktur bahasa, fungsi komunikatif, dan makna dalam konten web. Hasil penelitian ini diharapkan dapat memberikan wawasan baru tentang pemahaman bagaimana bahasa dapat diatur dan dianalisis secara berkala dalam konteks semantic web. Selain itu, penelitian ini juga diharapkan dapat berkontribusi pada pengembangan teknologi Semantic Web dengan menggunakan pendekatan linguistik fungsional. Diharapkan kesimpulan dari penelitian ini akan memberikan pemahaman yang lebih mendalam tentang peran bahasa dalam konteks web semantik dan memberikan dasar untuk pengembangan aplikasi dan sistem berbasis Web Semantik yang lebih canggih dan efektif.

I. INTRODUCTION

Systemic functional linguistics (SFL) is a linguistic theory developed by Michael Halliday in 1950. This theory focuses on the relationship between language and its social context. SFL views language as a system that conveys meaning in different social contexts. This theory integrates structural and functional aspects of language to enable a more comprehensive analysis of language use across different communication contexts. Developing language understanding systems requires rich and diverse data, but data limitations are a major challenge. These limitations include insufficient data for training and testing, particularly in less common languages or specific contexts.

In addition to quantity, the complexity of language—such as ambiguities, connotations, and nuances—presents challenges in accurate representation. Data access restrictions, like privacy concerns with medical or personal data, further limit available resources. Moreover, data quality is critical; inaccurate, incomplete, or unstructured data can impair the effectiveness of language understanding systems, highlighting the need for well-structured, reliable data.

To overcome data limitations in language understanding and analysis systems, several solutions can be considered. One of them is the use of sophisticated natural language processing techniques to obtain information from various sources, including text, audio and video.

Additionally, the use of advanced machine learning techniques, such as deep learning, can help in understanding and analyzing language better(Aulia and Nur 2020). Challenges in implementing this solution include the need for adequate resources, such as robust computing infrastructure and sufficient data, as well as addressing privacy and security concerns with sensitive data. Developing effective language understanding systems requires collaboration among researchers, developers, and other stakeholders to address data limitations.

The semantic approach in linguistic analysis, which focuses on the meanings of words, phrases, and sentences, is often complex. It requires a deep understanding of language structure, word meanings, and context, making semantic analysis intricate and demanding. In addition, the semantic approach also involves the use of complex analytical methods and tools. For example, semantic analysis often uses linguistic theories such as compositionality theory, implicature theory, and lexical meaning theory. Application of these theories requires a deep understanding of complex linguistic concepts (Official et al., 2021). In addition to its complexity, a key challenge in using the semantic approach in linguistic analysis is subjectivity. Since semantic analysis involves interpreting meaning, interpretations may vary between individuals, which can affect the validity and reliability of results. Additionally, semantic approaches may struggle with linguistic variations across social and cultural contexts, limiting the scope and generalizability of analyses.

Despite these challenges, the semantic approach remains valuable, offering deep insights into language structure and meaning. With a solid understanding of semantics, linguistic analysis can enhance our understanding of language and communication. One example of a case that supports the explanation above is the case of intolerance and violations of Freedom of Religion and Belief (KBB) in Yogyakarta, Indonesia. The rise in cases of intolerance and violations of the KBB in recent years in Yogyakarta shows that a semantic approach in linguistic analysis can be important in understanding and overcoming this problem.(Jyh Wee Sew 2011). Cases of intolerance in Yogyakarta, such as the rejection of the sea alms event in Bantul and the modification of cross-shaped tombstones in Sleman, highlight how a semantic approach can help analyze the meanings and contexts behind symbols and words involved. Understanding the meanings in intolerant actions or speech can provide insights into root causes, aiding in developing solutions to foster tolerance.

The semantic approach also aids in understanding how interpretations affect perceptions and actions, which can be useful in addressing intolerance rooted in differing religious beliefs. In combating corruption, semantic analysis of terms like "bribery" and "abuse of power" can support the identification and prevention of corrupt practices. The complexity of integrating multiple languages in semantic systems arises from differences in syntax, semantics, and pragmatics, making it a challenge. Informatics teachers should understand that language skills involve syntax (grammar), semantics (meaning), phonology, and pragmatics (contextual language use).

In the development of semantic web systems, differences in syntax, semantics, and pragmatics between different languages can be a challenge. For example, different grammatical rules and sentence structures between languages can affect the modeling and integration of those languages in web semantic systems. In addition, differences in the meaning of words and sentences between languages can also affect the understanding and interpretation of information in semantic web systems. In addition, the use of language in different social and situational contexts can also influence the development of web semantic systems(Setri 2023).

The development of semantic web systems involves modeling and integrating various languages, addressing differences in syntax, semantics, and pragmatics. Using ontologies and other semantic technologies can aid in this integration. Understanding these language differences is essential for developers to overcome challenges in creating effective semantic web systems. Semantic Web-Based Functional Linguistic Systems can experience errors in recognizing and understanding sentence structures, word meanings, and relationships between linguistic elements. This kind of error can reduce the accuracy and reliability of the system(Studies 2022).

Processing errors in Semantic Web-Based Functional Linguistic systems can occur due to issues in recognizing sentence structure, understanding word meanings, and identifying relationships between linguistic elements. These errors can lead to incorrect sentence interpretation. Solutions include advanced technology development, using complex algorithms, and

utilizing more complete data to enhance accuracy. Comprehensive testing and evaluation with diverse data are essential to identify and correct errors, improving the system's reliability in language processing. Implementation of a Functional Linguistic System Based on the Semantic Web can face several obstacles due to the limitations of currently available technology. The development and maintenance of semantic web systems requires adequate infrastructure and technological resources. Additionally, there are technical challenges such as availability of appropriate platforms and integration with other systems(Chijioke and Nwala 2021).

Implementing a semantic web-based functional linguistic system requires advanced technology, including image classification techniques and a robust knowledge management system. However, image classification may not directly relate to the system's implementation. Other technical challenges include selecting the appropriate platform and ensuring integration with other systems for effective information exchange. Proper platform choice and seamless integration are essential for achieving an efficient and effective semantic web system.

II. METHOD

This research is qualitative research with a descriptive approach with a review of several relevant references. The research methodology "Systematic Functional Linguistics Based on the Semantic Web" is an approach that combines concepts from systemic functional linguistics and the semantic web. This method aims to analyze and understand language systemically and functionally using semantic web technology.

III. RESULT AND DISCUSSION

1. Functional Systemic Analysis

Hasil Functional Systemic Analysis is an approach to understanding and explaining how complex systems interact and function. This approach involves understanding how system components are interrelated and contribute to the overall function of the system(Assyuza and Miftahulkhairah 2021). Functional Systemic Analysis involves understanding the relationships between the parts of a system and how those parts interact with each other to achieve overall system goals. This approach involves modeling the system using concepts such as input, output, process, and feedback.

In Functional Systemic Analysis, systems are considered as complex entities and consist of various interrelated components. Each component has a specific role and function in the system and contributes to the overall system goals. This analysis allows us to understand how changes to one system component can affect other components and ultimately affect the functioning of the entire system. One important aspect of Functional Systemic Analysis is understanding how systems adapt and evolve over time. Complex systems often experience change and adapt to their environment. This analysis helps us understand how systems change and adapt, and how these changes can affect system function(Pesquita et al. 2018).

Functional systemic analysis is based on the concept that language has certain functions in the context of its use. These functions include ideational, interpersonal, and textual functions

First, the ideational function. The ideational function in language is a function related to conveying information and expressing thoughts. Through this function, language is used to describe the real world, express facts, and convey knowledge. Examples of using language in an ideational function are through descriptive, narrative or explanatory sentences. In descriptive sentences, language is used to describe or describe an object, person, or place(Kuswoyo et al. 2020). For example, "The rose is red and has green leaves." In narrative sentences, language is used to convey stories or events. For example, "One day, a man named John went to the park and met a group of children flying kites." Meanwhile, in explanatory sentences, language is used to explain a concept or process. For example, "The process of photosynthesis is the process by which plants use solar energy to convert carbon dioxide into oxygen and glucose." The ideational function is very important in everyday language use, because through this function we can convey information, share knowledge, and express our thoughts to others. By using language effectively in an ideational function, we can expand our understanding of the world and communicate better.

Second, interpersonal function. The interpersonal function is related to social interactions and the relationship between speakers is very important in everyday life. This function involves the use of language to convey attitudes, emotions, and build

relationships between individuals. Through language, we can communicate with other people, share ideas, and understand their feelings and thoughts(Hasan and Muhayyang 2018).

One example of the use of language in an interpersonal function is through request sentences. In everyday situations, we often need to ask for help or ask for something from others. For example, when we are busy and need help, we can use language to ask for help politely and clearly. Good requests can build a harmonious relationship between the speaker and the listener.

Apart from requests, the interpersonal function also involves the use of language in request sentences. This request can be in the form of an apology, a request for forgiveness, or a request for permission. When we make a mistake or want to apologize to someone, using kind and polite language can help repair damaged relationships. Likewise with permission requests, using polite language can increase our chances of getting the permission we need.

Apart from that, interpersonal function also includes the use of language in expressing emotions. Language can be used to express feelings such as happiness, sadness, anger, or disappointment. When we share our emotions with others through language, we can strengthen the bond between speaker and listener. For example, when someone is sad, we can use language to express empathy and support for them. In interpersonal functions, it is important to use language appropriately and politely. Good language can help build a strong relationship and mutual respect between the speaker and listener. Apart from that, using appropriate language also helps us convey thoughts and feelings clearly and effectively(Rattanasawad et al. 2018).

In our daily lives, interpersonal function is very important to build healthy and harmonious relationships with other people. Through the use of good and effective language, we can convey attitudes, emotions, and build strong interpersonal relationships. Therefore, it is important for us to continue developing our interpersonal skills and use language wisely in every social interaction.

Table 1. Example sentences from interpersonal functions

No	Sentence	Information
1	"Please help me lift this box, thank you."	This sentence is a polite request for help. In this situation, the speaker asks someone else to help lift the box. The use of the word "please" shows politeness and respect for the person being asked for help. The addition of the word "thank you" shows gratitude and appreciation for the help provided.
2	"Sorry, I can't come to the meeting today because I'm sick."	This sentence is an apology and explanation for the speaker's inability to attend the meeting. The use of the word "sorry" shows regret and apologies for the inability to attend. The explanation that the speaker is ill provides a clear reason for his absence.
3	"Can I borrow your book for a few days?"	This sentence is a request for permission to borrow a book. The speaker asks permission from the owner of the book to take it and borrow it for a few days. The use of the word "may" shows politeness and respect for the rights of the book owner. In these interactions, it is important for the speaker to get permission before taking or borrowing someone else's items.
4	"I'm so happy that you achieved your goal!"	This sentence is an expression of positive emotions. The speaker expresses happiness because the listener has succeeded in achieving his goal. Emotional expressions like this can strengthen the bond between speaker and listener, as well as provide support and appreciation for the other person's achievements.

Third, textual function. Textual function is related to the structure and organization of text. This function involves the use of language to organize sentences into paragraphs, paragraphs into text, and text into a coherent and cohesive whole. Textual function is very important in determining how a text can be understood and enjoyed by readers. An example of the use of language in a text function is the use of conjunctions. Conjunctions are used to connect sentences or expressions that have a logical relationship to each other. By using appropriate conjunctions, writers can compose sentences and paragraphs in a more structured and clear manner.

For example, use the conjunction "and" to connect two similar ideas, or use the conjunction "but" to express contrast or contradiction between two ideas. In addition, references are also an important aspect of text functionality. References are used to refer to information or ideas introduced earlier in the text. By using appropriate references, writers can increase the cohesion and coherence of the text. For example, use pronouns such as "he" or "they" to refer to previously mentioned objects or subjects. Text coherence is also an inseparable part of text function. Text coherence refers to the relationship between sentences, paragraphs, and other parts of the text.

To achieve coherence, the writer must ensure that each part of the text is connected logically and continuously. This can be done by using connecting words, developing ideas sequentially, and constructing well-organized

paragraphs. In developing textual functions in depth, it is important to understand that appropriate and effective use of language can help achieve the author's communication goals. By understanding the structure and organization of text, writers can create text that is easy to understand, informative, and flows well for readers(Zaiets et al. 2021).

In good writing, attention to textual function is very important. Without a good understanding of how to structure sentences, paragraphs, and text as a whole, the message the writer wants to convey can become unclear or unstructured. Therefore, it is important for writers to master textual functions in order to produce written works that are effective and interesting for readers.

2. Functional Systemic Analysis Theory

Functional systemic analysis is based on functional systemic theory developed by Michael Halliday. This theory considers language as a complex system consisting of three main components: structure, function, and context.

First, language structure. Language structure is an important component in forming meaning and conveying messages. The three main aspects of language structure are sound system, word structure, and sentence structure.

a) Sound system is how the sounds in language are arranged and organized. Each language has a different sound system, including vowels, consonants, and intonation. This sound system influences how words are pronounced and understood in the language.

b) Word order refers to the way words in a language are arranged and combined. Each language has special rules regarding word formation, such as the use of affixes (prefixes and endings), combining words, and changing word forms. This word order helps form grammatical structures in language.

c) Sentence structure involves the way words are arranged to form sentences that have clear meaning. Every language has syntactic rules that regulate the order of words in sentences, such as subject, predicate, and object. This sentence structure is important in ensuring that the message conveyed can be understood correctly. Based on this explanation, examples will be given for the three aspects

of language structure below(Troyan, Sembiante, and King 2019).

Table 2. Examples of word use based on language structure

Aspects in Language Structure	Example	Information
Sound Management	The /a/ sound in the word "child"	The sound /a/ is a vowel sound in Indonesian. In the word "child", the sound /a/ represents the open middle vowel sound. This sound follows the rules of Indonesian sound system.
	The /k/ sound in the word "cat"	The sound /k/ is a consonant sound in Indonesian. In the word "cat", the sound /k/ represents the voiceless popping consonant sound at the initial position of the word. This sound also follows the rules of Indonesian sound system.
Word Order	Compound word "notebook" Explanation	The compound word "notebook", which is formed from the words "book" and "write". In grammar, these words are combined together to form a new meaning.
Sentence Structure	Declarative sentence "I like this food."	Sentences in Indonesian involve forming sentences with appropriate patterns. This example is a declarative sentence that uses a subject-predicate-object pattern. This sentence conveys information that the writer likes certain foods.

Second, language context. Language context involves the communication situation in which language is used. This context includes factors such as place, time, social relationships, and communicative goals. In functional systemic analysis, language is seen as a tool used to interact and convey meaning.

In a language context, the communication situation plays an important role in the understanding and interpretation of the message. Factors such as place and time can influence the way language is used and the meaning conveyed. For example, in a formal setting such as the workplace, the language used may be more formal and stiff, whereas in a more relaxed setting such as between friends, the language used may be more relaxed and less formal. Social relationships also influence language context. For example, in a conversation between a superior and a subordinate, the language used may be more formal and authoritative, whereas in a conversation between peers, the language used may be more relaxed and informal.(Asad, Noor, and Jaes 2019).

Communicative goals are also an important part of the language context. Each communication situation has a different purpose, such as providing information, influencing other people's opinions, or just sharing stories. Language is used as a tool to achieve these goals, and the choice of words, sentences and speaking styles can differ depending on the communicative goals to be achieved. In functional systemic analysis, language is seen as a tool used to interact and convey meaning. This approach emphasizes

the importance of context in understanding and analyzing language. Language is not only viewed as a grammatical structure, but also as a system related to situations and communicative purposes.

3. Semantic Web Development

Functional Semantic Web development is an interesting field in the world of information technology. The concepts and technology used in developing the Semantic Web include the use of ontology, RDF (Resource Description Framework), and SPARQL (SPARQL Protocol and RDF Query Language). Ontologies are formal structures used to represent knowledge in a particular domain. In the context of the Semantic Web, ontology is used to describe the relationships between concepts in the data. Ontologies can function as a collection of rules and conventions that govern the way information is provided and communicated on the Semantic Web (AbuSa'aleek, 2015).

RDF (Resource Description Framework) is a data format used to represent information in the Semantic Web. RDF uses triples, consisting of subject, predicate, and object, to express relationships between entities in a particular domain. By using RDF, information can be linked and integrated semantically. SPARQL (SPARQL Protocol and RDF Query Language) is a query language used to search and manipulate data in the Semantic Web. SPARQL allows users to perform complex and expressive searches using a syntax similar to SQL (Structured Query Language). With SPARQL, users can extract specific information from RDF graphs and perform more complex semantic operations.

The use of ontologies, RDF, and SPARQL in Semantic Web development allows users to structure and manage information in a more consistent and meaningful way. By using an ontology, users can describe knowledge in a particular domain clearly and consistently. RDF allows users to represent and relate information semantically, while SPARQL provides tools to search and manipulate that information(Ghose et al. 2022). In the development of the Semantic Web, ontologies, RDF, and SPARQL work together to achieve the same goal, namely providing better ways to represent, connect, and search for information. By using these concepts and technologies, the Semantic Web can help users manage and utilize information in a more efficient and effective way.

Table 3. Work stages in using Semantic WEB

No	Semantic Web Based SFL	Stages of Use
1	Use of ontology	1. Needs Identification: The first stage is to identify the information needs that you want to represent in the ontology. This involves a deep understanding of the domain to be represented and the goals of developing the Semantic Web. 2. Ontology Modeling: Once the requirements are identified, the next step is to model the ontology. Ontology modeling involves using relevant concepts, properties, and relationships to represent knowledge in a particular domain. Modeling can be done using an ontology language such as OWL (Web Ontology Language). 3. Ontology Validation: Once modeling is complete, the next stage is to validate the ontology. Validation involves checking the correctness of the ontology that has been created, including its consistency and suitability to previously identified information needs. 4. Ontology Publication: Once the ontology is validated, the next stage is to publish the ontology. Ontologies can be published in the form of RDF files that can be accessed and used by other users in Semantic Web development.
2	Use of RDF	1. Mapping Data to RDF: The first stage is to map existing data to RDF format. Data to be represented in the Semantic Web must be converted to RDF format which uses triples (subject, predicate, object) to express relationships between entities in a particular domain. 2. Compilation of the RDF Graph: After data mapping is complete, the next step is to compile the RDF graph. RDF graph is a data structure consisting of triples that represent relationships between entities in data that has been converted to RDF format. 3. Data Integration and Consolidation: After the RDF graph is formed, the next stage is to integrate and consolidate the data. RDF allows users to connect and integrate data from disparate sources in the Semantic Web. 4. Data Publication and Exchange: Once the integration and consolidation process is complete, the final stage is to publish and exchange the data that has been represented in RDF format. RDF data can be published and accessed by other users in the development of the Semantic Web.
3	Use of SPARQL	1. Query Building: Building SPARQL queries to search and manipulate data in the Semantic Web. 2. Query Execution: Executes SPARQL queries on RDF data to obtain results that match search criteria. 3. Results Analysis and Processing: Analyze and process SPARQL query results to obtain the desired information.

4. Functional Systemic Integration with the Semantic Web

The concept of functional systemic analysis is an approach used in linguistics and linguistics to analyze language structure and its relationship to context. In functional systemic analysis, language is seen as a complex system consisting of elements that are interconnected and function to convey meaning (Rodríguez et al. 2007). In developing this content, we will discuss how the concept of functional systemic analysis can be integrated with Semantic Web technology by involving the use of semantic ontology to represent language structure and its relationship to context.

First of all, let's understand what Semantic Web technology is. The Semantic Web is a concept that aims to organize information in a more structured way, so that machines can understand and utilize it more effectively. In the Semantic Web, information is presented in a form that can be understood by machines, using a semantic ontology to describe the relationships between existing concepts.

In the context of functional systemic analysis, semantic ontology can be used to represent complex language structures. Semantic ontology is a formal representation of concepts and the relationships between those concepts. By using semantic ontology, we can interpret and analyze language structure in more detail(Yokossi 2018).

For example, in functional systemic analysis, we can use semantic ontology to represent the relationships between words, phrases, and clauses in a sentence. This semantic ontology will allow us to understand how these components relate to each other and function in conveying meaning.

In addition, by integrating the concept of functional systemic analysis with Semantic Web technology, we can also improve the ability of machines to understand and interpret text more accurately. By using semantic ontology, machines can perform more complex language analysis and can connect information from various sources.

For example, suppose we have a text that contains an introduction to rare animals. By using the concept of functional systemic analysis that has been integrated with Semantic Web technology, machines can analyze the language structure in the text, identify words related to rare animals, and connect them with existing knowledge in the semantic ontology. This will allow machines to provide more detailed and accurate information about these rare animals. The Semantic Web is a concept developed by Tim Berners-Lee, creator of the World Wide Web, which aims to provide deeper meaning to information on the web. In this context, the main goal of the Semantic Web is to enable computers and humans to work together in understanding and using information on the web.

The real implementation of the Semantic Web concept in a system or application involves the use of algorithms and methods for analyzing and processing language data. One example of a real implementation of this concept is a semantic search application which can produce more relevant and accurate search results. To achieve this, the system or application must be able to understand the meaning and context of the words used in the search. It involves the use of algorithms and natural language processing methods to analyze text and identify related entities, relationships and meaning.

Apart from that, the system or application must also be able to integrate data on the web and understand the structure and relationships between this data. To achieve this, the concept of Linked Data can be used. Linked Data is a concept that allows data on the web to be connected and dependent on each other through the use of RDF (Resource Description Framework) and URI (Uniform Resource Identifier). In the real implementation of a functional systemic concept based on the Semantic Web, the system or application must be able to integrate data from various different sources, including structured data and unstructured data. This requires the use of algorithms and methods to recognize and understand different data structures and relate them to other relevant data (Ngongo et al. 2023). In addition, the system or application must be able to produce output that is meaningful and useful for users. It involves the use of algorithms and methods to perform data analysis and processing involving knowledge modeling and inference to produce deeper and more meaningful information.

To run this system or application, a strong and scalable infrastructure is needed. This involves using technologies and platforms such as Apache Jena, Apache Spark, and Apache Hadoop to process data efficiently and quickly. In conclusion, the real implementation of the Semantic Web-based functional systemic concept in a system or application involves the use of algorithms and methods to analyze and process language data. This involves understanding the meaning and context of words, integrating data from multiple sources, and using Linked Data to connect data. Apart from that, the system or application must also be able to produce output that is meaningful and useful for users. All of this requires a strong and scalable infrastructure. With proper implementation, this concept can provide significant benefits in understanding and using information on the web.

A functional systemic implementation based on the Semantic Web can provide various benefits to the field of linguistics. Some of these benefits include:

First, organizing Linguistic Data. A functional systemic implementation based on the Semantic Web allows organizing linguistic data more effectively. By using metadata and ontology, linguistic data can be linked with other data, making it easier to group and search for relevant data.

Second, a more comprehensive analysis. By using Semantic Web technology, analysis of linguistic data can be carried out more comprehensively. Linguistic data can be linked to other data, such as social, cultural, or geographic data, allowing a deeper analysis of

the relationship between language and its context.

Third, a deeper understanding of language. A functional systemic implementation based on the Semantic Web can help in understanding the language more deeply. By connecting linguistic data with other data, we can see patterns and relationships that may not have been visible before. This can help in identifying language rules, language variations, and language changes.

Fourth, development of Linguistic Applications. Semantic Web-based functional systemic implementations can also help in the development of more sophisticated linguistic applications. By using linguistic data connected with other data, linguistic applications can provide more accurate and relevant results (Herpel et al. 2023).

To provide a more concrete picture of the Semantic Web-based functional systemic implementation of linguistics, we will look at several relevant case studies. This case study will provide a concrete example of how Semantic Web technologies can be used in analyzing and managing linguistic data.

Case Study 1: Analysis of Language Dialect Variation. In this case study, researchers used Semantic Web technology to analyze language dialect variations. Linguistic data linked to geographic and social data is used to identify patterns of language dialect variation. The results of this analysis can help in understanding differences in language dialects and the factors that influence them.

Case Study 2: Language Structure Mapping. In this case study, researchers used Semantic Web technology to map language structure. Linguistic data connected to ontology data is used to identify language rules and relationships between language elements. The results of this mapping can help in understanding language structure in more depth. Case Study 3: Language Change Analysis In this case study, researchers use Semantic Web technology to analyze language change. Linguistic data linked to historical and cultural data is used to identify changes in language use over time. The results of this analysis can help in understanding the factors that influence language change.

IV. CONCLUSION AND SUGGESTION
A. Conclusions

Simpulan The systematic functional linguistic approach applied in the develop-ment of the Semantic Web makes a significant contribution to understanding language and context more effectively. The results of this research indicate that integration between functional language theory and Semantic Web technology can improve understanding of language structure and facilitate better information processing. In this research, systematic and structured analysis methods are used to analyze linguistic data and semantic context. In this case, the functional linguistics approach aims to understand how language is used to communicate, while Semantic Web technologies provide a framework for organizing and linking information efficiently. The results of this research indicate that the use of a functional linguistic approach in developing the Semantic Web can improve the quality and efficiency of information processing. By understanding language structure and context better, Semantic Web-based systems can provide more adaptive and relevant services to users. Overall, this research makes a valuable contribution in combining functional linguistic approaches with Semantic Web technologies. It is hoped that this research can encourage the development of more sophis-ticated and effective systems in understanding and processing language better.

B. Suggestion

Systems Functional Linguistics (SLF) is an approach in linguistics that emphasizes the relationship between language and its social context. In SLF, language is seen as a communication tool used by humans to convey meaning and build social relationships. One important aspect in SLF is the analysis of conflicts of interest in language. Conflicts of interest in SLF refer to situations where there is a difference between what speakers say and what they actually mean. This conflict of interest can arise in various contexts, such as in everyday conversations, mass media, or even in academic texts. In SLF, these conflicts of interest are analyzed to understand how language is used to influence listeners or readers. In the context of Semantic Web-based SLF, conflicts of interest can be analyzed using semantic web technology. The Semantic Web is a concept developed by Tim Berners-Lee, creator of the World Wide Web, which aims to make the web more structured and understandable by machines. In Semantic Web-based SLF, conflicts of interest can be

identified and analyzed using ontology, RDF (Resource Description Framework), and SPARQL (SPARQL Protocol and RDF Query Language). Ontology is a formal representation of knowledge that describes concepts, relationships, and properties in a particular domain. In the context of a conflict of interest, ontology can be used to describe concepts related to a conflict of interest, such as speaker, listener, and the message conveyed. RDF is a data format used to describe information in subject-predicate-object form. In the context of a conflict of interest, RDF can be used to describe the relationship between the speaker, the message conveyed, and the listener. SPARQL is a query language used to retrieve information from RDF. In the context of a conflict of interest, SPARQL can be used to perform analysis of the collected data. By using semantic web technology, conflict of interest analysis in SLF can become more systematic and structured. In Semantic Web-based SLF, conflicts of interest can be identified more accurately and can be analyzed in more depth. This can help researchers and practitioners understand how language is used to influence listeners or readers. However, it is important to remember that the use of semantic web technologies in conflict of interest analysis in SLF is still in the development stage. Further research and development of more sophisticated technology is still needed to optimize the use of semantic web technology in conflict of interest analysis in SLF. In conclusion, conflicts of interest in Functional Linguistic Systems (SLF) can be analyzed using semantic web technology. In Semantic Web-based SLF, conflicts of interest can be identified and analyzed using ontology, RDF, and SPARQL. The use of semantic web technology in the analysis of conflicts of interest in SLF can assist researchers and practitioners in understanding how language is used to influence listeners or readers. However, the use of semantic web technology in conflict of interest analysis in SLF is still in the development stage and requires further research and the development of more sophisticated technology.

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