Entity, Attribute, and Relation: Metadiscursive Nouns in the Conclusions of Slovene Research Articles

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DOI: https://doi.org/10.18690/scn.19.2.1-22.2026

1.01 Izvirni znanstveni članek – 1.01 Original Scientific Article

Članek raziskuje pogostost semantičnih kategorij metadiskurznih samostalnikov in njihovo porazdelitev po retoričnih korakih v sklepnih poglavjih slovenskih raziskovalnih člankov. Samostalniki so bili razvrščeni v tri skupine – kategorije entitete, atributa in relacije. Ugotovitve kažejo, da se pisci pri povzemanju ugotovitev in sklicevanju na lastno raziskavo opirajo na samostalnike entitete. Ko prehajajo od povzetka k sklepanju, se delež samostalnikov entitete zmanjšuje, povečuje pa se delež samostalnikov atributa, kar odraža spreminjajoče se retorične zahteve posameznega koraka. Samostalniki relacije so redki v vseh treh korakih.

This study investigates the frequency of semantic categories of metadiscursive nouns and their distribution across rhetorical moves in conclusion sections of Slovene-language research articles. The nouns were classified into three groups - Entity, Attribute, and Relation. The findings suggest that writers rely on entity nouns to summarize findings and refer back to their research. As writers move from summary to deduction, the proportion of entity nouns decreases, while that of attribute nouns increases, which reflects the changing rhetorical demands of each move. Relation nouns are rare across all three moves.

Ključne besede: metadiskurzni samostalniki, sklep, slovenski akademski diskurz, retorični koraki

Keywords: metadiscursive nouns, conclusion, Slovene academic discourse, rhetorical move

Introduction

Academic writers use academic texts to present their research findings and to guide readers through their texts, to evaluate evidence, and position themselves within debates in their discipline. In doing this, their key linguistic resource is the employment of abstract nouns labelled as metadiscursive

nouns (Jiang & Hyland 2018). These in turn refer to the elements of the discourse, the cognitive acts, the evaluations, or logical relations, and to creating textual cohesion and encoding the writer's stance.

The conclusion part of the research article (RA), being a crucial site for using metadiscursive nouns, serves several rhetorical purposes, namely summarizing research findings, evaluating the research including stating its significance, acknowledging the limitations, and evaluating its methodology, as well as suggesting avenues for future research (Yang & Allison 2003). Each of these moves imposes specific communicative demands that metadiscursive nouns can fulfill.

Research on metadiscursive nouns has increased considerably over the last decade. Most studies, however, focus on English academic genres (Jiang & Hyland 2017; Mu 2023; Sun 2025; Tu & Chen 2015), while other languages remain unexplored This was earlier pointed out by Pisanki Peterlin (2005: 308) who states that there are "a number of languages, such as Slovene, for which relatively little is known when it comes to their writing conventions." Pisanski Peterlin and Mikolič Južnič (2020: 13) note that studies of Slovene academic writing generally focus on issues such as terminology development, register and genre, linguistic identity, corpus linguistics, discourse phenomena and language for specific purposes. Metadiscursive nouns, however, have remained more or less unexplored. And yet, Slovene offers an interesting case because its grammatical structure, rich in case morphology and flexible word order, may influence how writers deploy these items. Additionally, Mikolič Južnič (2016) argues that scientific Slovene has gradually adopted the nominal style because the latter provides functional advantages in argumentation. This perspective supports the need to investigate how Slovene writers deploy nominal resources on their own terms, rather than viewing them as mere calques from English.

In order to fill the existing gap, this study aims to identify how Slovene academic writers employ metadiscursive nouns in the conclusions of research articles. The study sets three tasks: 1) to examine the overall frequency of metadiscursive nouns in the corpus; 2) to identify the most frequent metadiscursive nouns; and 3) to identify the distribution of semantic categories (Entity, Attribute, Relation) of the nouns across conclusion section moves.

Theoretical framework

The rhetorical power of abstract nouns in academic writing has attracted much scholarly attention over the past two decades. Unlike concrete nouns

that denote tangible entities, abstract nouns (*analysis*, *claim*, *finding*, *reason*, or *study*) possess a dual capacity, organizing textual content and conveying the writer's evaluative stance. These resources termed shell nouns (Schmid 2000), signalling nouns (Flowerdew 2003), or metadiscursive nouns (Jiang & Hyland 2018), help academic writers formulate complex propositions, guide readers through the text, and position themselves within communities of individual disciplines.

Halliday and Hasan (1976) first identified general nouns as cohesive devices that link textual elements without carrying substantial propositional content. Francis (1994) proposed anaphoric nouns, emphasizing their backward-referencing capacity to summarize previously mentioned information. Ivanič (1991) introduced the notion of carrier nouns, highlighting their dual nature as possessing both stable dictionary meanings and context-dependent interpretations that emerge within specific discourses.

The most influential theoretical contribution to the study of this group of nouns was made by Schmid (2000), who proposed the term 'shell nouns', which reflects how they function as containers or shells. He distinguished three primary functions these nouns serve: anaphoric reference (pointing backward), cataphoric reference (pointing forward), and textual characterization. Flowerdew (2003) offered an alternative perspective by proposing the term 'signalling nouns', emphasizing their directive function in guiding readers to how surrounding information should be interpreted.

The most comprehensive synthesis was done by Jiang and Hyland's (2018) work on metadiscursive nouns based on Hyland's (2005) metadiscourse theory. Jiang and Hyland introduced the term 'metadiscursive nouns' defining them as lexical items used in the organization of the discourse and helping readers to understand it (Jiang & Hyland 2017). Jiang and Hyland (2017) also proposed a tripartite functional classification that has been adopted in subsequent research (e.g., Jiang 2022; Jiang & Hyland 2018; Sun 2025). The categories, also used in the present study, are presented in Table 1. For readers' convenience, they are illustrated with Slovene examples.

A substantial body of research was used to compare metadiscursive noun use across writer populations, disciplines, and genres. Aktas and Cortes (2008), for example, compared shell noun use in published scientific writing and ESL graduate student writing, revealing that novice writers employ a narrower range of nouns and show less sensitivity to disciplinary conventions of use. Jiang and Hyland (2021) examined diachronic changes in the use of metadiscursive nouns in applied linguistics, sociology, electrical engineering, and biology RAs, demonstrating that disciplines express distinct epistemological assumptions through their nominal choices.

Cross-linguistic comparisons have also provided important insights. Liu and Chen (2022) compared metadiscursive nouns in doctoral dissertations from music by Chinese and American students, finding that while both groups used entity nouns fairly frequently, Chinese students led in employing Relation nouns.

Table 1: Functional Classification of Metadiscursive Nouns (Jiang & Hyland 2017)

Category	Subcategory	Description	Examples
Entity	text, event, discourse, cognition	Writers' judgement of texts, events, discourses, or aspects of cognition	*članek* ('article') *študija* ('study') *ugotovitev* ('finding') *primer* ('case/example') *dokaz* ('evidence')
Attribute	quality, manner, status	Writers' evaluation of the quality, status, and formation of entities	*prednost* ('advantage') *izziv* ('challenge') *omejitev* ('limitation') *metoda* ('method')
Relation	cause-effect, difference	Writer's understanding of relationship to information in a proposition	*razlika* (difference') *vzrok* ('cause') *učinek* ('effect') *rezultat* ('result')

Similarly, Hu, Zhao, and Lu (2024) investigated CEO letters in US and Chinese corporate social responsibility reports, revealing culturally-shaped preferences for certain semantic categories. Liang (2024), who compared Chinese scholars writing in Chinese, Chinese scholars writing in English, and native English scholars writing in English, pointed out the L1 influence on the use of these lexical items. The findings provided evidence for negative transfer in several dimensions. Primarily, as relates to overall frequency, Chinese scholars used significantly fewer shell nouns in their Chinese papers than in their English papers, but still significantly fewer than native English writers did in theirs. This indicates that the lower frequency characteristic of Chinese academic discourse influences Chinese scholars' English writing, even at advanced proficiency levels. Lin and Šebesta (2023) investigated how Czech instrumental case forms function as shell nouns in L2 acquisition. The authors found that inflectional languages such as Slavic ones, can use the morphological case marking as a grammatical signal that an abstract noun is assuming the role of a shell noun. They also suggested that typological similarity between the L1 and the L2 significantly facilitates the acquisition of language-specific shell noun strategies.

Metadiscursive nouns have not yet been investigated as a specific lexical category in linguistics. The present study attempts to fill this gap, building on the existing foundation of Slovene linguistic research.[1]

Methodology

Corpus compilation

The material included in the present study comprises a corpus of 80 conclusion sections of research articles. The articles, published between 2015 and 2025, were retrieved from seven peer-reviewed Slovene linguistics journals: *Slavistična revija*, *Jezik in slovstvo*, *Slovenščina 2.0*, *Acta Linguistica*, *Linguistica*, *Slavia Centralis*, and *Filološki vestnik*. These journals are the core publishing options for linguistic research in the Slovene academic context.

Articles were selected based on two criteria. First, they had to focus on linguistics or applied linguistics to maintain research area consistency. As Jiang and Hyland (2016) demonstrated, metadiscursive noun use varies across disciplines, with soft fields employing these resources more frequently than hard sciences. By restricting the corpus to a single discipline, discipline-related variation can be controlled. Second, only original research articles with clearly marked conclusion sections (*Sklep*, *Zaključek*, *Povzetek* or equivalent headings) were included. The final corpus comprises 41,872 words, which seems to be sufficient to identify recurrent lexical items and allow for manual annotation and contextual analysis.

[1] Slovene linguistics has produced valuable research on academic discourse, terminology, and textual organization (Krajnc Ivič & Žele 2020; Mikolič Južnič 2020; Stramljič Breznik 2021). For example, Stramljič Breznik (2021) has contributed to the study of Slovene terminology and lexical choice, addressing how specialized vocabulary is formed and organized in disciplinary discourse. Žele and Krajnc Ivič (2020) investigated the intersection of syntax and discourse in contemporary Slovene, offering a comprehensive account of how grammatical structures function in textual contexts. Mikolič Južnič (2020) compared the frequency of nominalization in original Italian academic texts and their Slovene translations, alongside original Slovene academic texts. The study showed that nominalization is a prominent syntactic and pragmatic feature of academic discourse in both languages, but its frequency varies considerably: Italian academic prose exhibits a significantly higher reliance on nominalized structures than Slovene, while translated Slovene texts occupy an intermediate position, showing traces of source-language influence. This work provides important empirical evidence that Slovene academic discourse has its own conventions regarding the use of nominal resources.

Data analysis

Following the analytical framework of Yang and Allison (2003) and Deng, He, and Gao (2025), the conclusion sections were annotated for rhetorical moves. Three moves were identified (Table 2).

Table 2: Moves of the conclusion section

Move	Description
Move 1: Research summary	Summarizing key findings and contributions
Move 2: Research evaluation	Evaluating the research significance, acknowledging limitations, evaluating methodology
Move 3: Research deduction	Projecting future research directions, stating pedagogical implications

Due to Slovene being an inflectional language with case marking, the search was made from nominal forms in all cases. The concordance software AntConc (Anthony 2022) was used for search purposes. All concordance lines retrieved through automated searches were manually reviewed to exclude non-metadiscursive uses (nouns that did not function metadiscursively, e.g. technical terms with fixed disciplinary meanings, and concrete nouns used literally).

Following Jiang and Hyland's framework (2017, 2018), the metadiscursive nouns were classified into three categories: Entity, Attribute, Relation. This framework is explicitly grounded in metadiscourse theory (Hyland 2005), which distinguishes interactive and interactional functions, which aligns with the present study's focus on rhetorical functions across conclusion moves. In addition, the tripartite classification reduces the risk of ambiguous categorization, which is important when analyzing a less-studied language like Slovene.

The classification was conducted manually, with each noun examined in its context. The same noun may belong to different categories depending on its use. For example, *dejstvo* ('fact') was classified as an evidential noun when it referred to empirical evidence but as a status noun when used contrastively to express epistemic certainty.

Coding procedure and reliability

The coding process was conducted in several stages. Initially, all 80 conclusion sections were coded by the author for both rhetorical moves and

the semantic categories of metadiscursive nouns. To assess coding reliability, a second researcher with expertise in academic discourse and the Slovene language was invited to independently double-code 20% of the corpus. The second coder was provided with the same coding framework, definitions, and examples as the primary researcher. Inter-coder reliability was calculated using Cohen's Kappa, which yielded a score of 0.87 for rhetorical move annotation and 0.83 for semantic category classification. These scores indicate a high level of agreement between the coders.

In cases where the coders disagreed on the classification of a noun, a consensus was reached through discussion. For particularly ambiguous or borderline cases, the coders referred back to the theoretical framework and the specific context of the noun's usage.

To account for the varying lengths of the conclusion sections, raw frequencies were normalized to frequencies per 1,000 words.

Results

Overall distribution of metadiscursive nouns

A total of 512 metadiscursive nouns were identified, yielding a normalized frequency of 11.37 instances per 1,000 words. Table 3 presents the distribution of the three categories across the entire corpus.

Table 3: Overall distribution of semantic categories

Category	Raw frequency	Normalized frequency	%
Entity	340	7.58	66.4%
Attribute	149	3.32	29.1%
Relation	23	0.47	4.5%
Total	512	11.37	100%

Table 3 shows that entity nouns are the most frequent category, accounting for 66.4% of all metadiscursive nouns. This high proportion may reflect the primary function of conclusion sections, namely to summarize and to refer to research entities (studies, findings, observations, conclusions) that have been presented in the article. Attribute nouns account for 29.1% of the total, which means that Slovene writers lend about one-third of their metadiscursive nouns to evaluating the quality, manner, or status of research entities. Relation nouns are the least frequent at 4.5%.

Distribution of metadiscursive nouns across rhetorical moves

Following Deng, He, and Gao's (2025) conclusion section analysis, the conclusion sections were annotated for three rhetorical moves: Research Summary (Move 1), Research Evaluation (Move 2), and Research Deduction (Move 3). Table 4 presents the distribution of metadiscursive nouns across these moves.

The Research Evaluation move has the highest proportion of metadiscursive nouns (41.2%), followed by the Research Summary move (38.3%), while the Research Deduction move has the fewest (20.5%). This distribution may reflect the communicative priorities of academic writing. Therefore, evaluating research significance and acknowledging limitations may require more explicit stance marking through metadiscursive nouns, while summarizing findings and projecting future research are accomplished also through other linguistic means.

Table 4: Distribution of metadiscursive nouns across rhetorical moves

Move	Raw frequency	Normalized frequency	%
Move 1: Research Summary	196	4.68	38.3%
Move 2: Research Evaluation	211	5.04	41.2%
Move 3: Research Deduction	105	2.51	20.5%
Total	512	11.41	100%

Distribution of semantic categories across moves

Table 5 shows the distribution of the three categories across each rhetorical move.

Table 5: Distribution of semantic categories across moves

Category	Move 1: Summary	Move 2: Evaluation	Move 3: Deduction	Total
Entity	140 (71.4%)	139 (65.9%)	61 (58.1%)	340
Attribute	44 (22.4%)	65 (30.8%)	40 (38.1%)	149
Relation	12 (6.1%)	7 (3.3%)	4 (3.8%)	23
Total	196	211	105	512

Note: Percentages represent the proportion of each move's total metadiscursive nouns.

Move 1: Research Summary

Within the Entity category, evidential nouns (e.g., *ugotovitev* 'finding', *rezultat* 'result') and text nouns (e.g., *študija* 'study', *raziskava* 'research') are the most frequent, which may reflect the primary function of the Summary move: to summarize and refer back to the research findings and the research itself. Example (1) illustrates a typical text noun in the Summary move:

(1) *Ta* ***študija*** *je pokazala, da so* ***rezultati*** *skladni s prejšnjimi* ***raziskavami****.*

'This **study** has shown that the **results** are consistent with previous **research**.'

The sentence has three entity nouns functioning interactively. The cohesive link with the preceding discourse is realized through a combination of the demonstrative determiner *ta* ('this') and the noun *študija* ('study'). The former may function as a cohesive element that shows that the identity of the referent is recoverable from the preceding context (Halliday & Hasan 1976). By using it, the writer signals that the study has already been introduced or is otherwise identifiable within the discourse. The noun *študija* ('study') refers to the entire research enterprise – its design, procedures, and findings. Together, *ta študija* ('this study') establishes an anaphoric reference to the research described, creating a cohesive link that guides the reader back to the previously presented content. The evidential noun *rezultati* ('results') summarizes the complex findings into a single nominal concept, while *raziskavami* ('research') refers to prior work, creating a cohesive link between the current study and literature of the discipline.

Sentence (2) is an example with a text noun and a relation noun:

(2) *Naša* **raziskava** *se je poglobila v* ***posledice*** *tega prehoda, zlasti v transliteracijo kazahstanskih lastnih imen v angleščino.*

'Our **research** delves into the **consequences** of this transition, particularly the transliteration of Kazakh proper names into English.'

The text noun *raziskava* ('research') is modified by the possessive *naša* ('our'). This combination signals authorial presence while summarizing the research findings. The relation noun *posledice* ('consequences') functions cataphorically, pointing forward to the specific content of the consequences (*transliteracijo* 'transliteration') and signaling that causal relationships were discussed.

Attribute nouns, primarily manner nouns (e.g., *način* 'manner', *metoda* 'method') are used to describe how the research was conducted.

(3) *…težave, ki jih GPT-ju povzročajo spremembe v registru, lahko morda pripišemo* **metodi***, na podlagi katere modeli ugotavljajo pomen in povezljivost jezikovnih struktur.*

'…the difficulties that GPT encounters with register changes can perhaps be attributed to the **method** by which models determine the meaning and connectivity of linguistic structures.'

The manner noun *metoda* ('method') describes the procedural mechanism underlying GPT's text processing. The writer specifies the circumstances of how the model operates. The hedge *morda* ('perhaps') and the modal *lahko* ('can') soften the claim, making this a cautious attribution rather than a definitive statement.

Below is an example of relation noun use for signalling causal relationships.

(4) *V članku smo sprva ugotovili, da nam dvojna narava književnega prevoda, ki se nahaja nekje med ustvarjalno in reproduktivno umetnostjo, omogoča* ***primerjavo*** *človeškega in strojnega umetniškega dejanja.*

'In the article, we first established that the dual nature of literary translation, which lies somewhere between creative and reproductive art, enables a **comparison** of human and machine artistic acts.'

The relation noun *primerjavo* ('comparison') signals a relationship of similarity and difference between human and machine translation, establishing the core analytical framework of the study.

(5) *Ta* ***razkorak*** *med pravnimi besedili in njihovo uporabo razkriva ne le notranjo* ***kompleksnost*** *pravnega jezika, temveč tudi njegovo* ***vlogo*** *v razdeljevanju pravne moči.*

'This **gap** between legal texts and their application reveals not only the internal **complexity** of legal language but also its **role** in distributing legal power.'

This example features three nouns – one relation noun *razkorak* ('gap') and two attribute nouns - *kompleksnost* ('complexity') and *vlogo* ('role'). Using *razkorak* ('gap') the writer frames the relationship between text and application not as one of simple correspondence but as one of inherent tension. This noun sets up the entire argument that follows, and legal language is not merely a neutral tool but a site of interpretive struggle. The determiner *ta* ('this') preceding the noun serves an anaphoric function, referring back to the previously described tension between monosemic and polysemic interpretive paradigms. The quality noun *kompleksnost* ('complexity') is embedded in the construction *ne le… temveč tudi* ('not only… but also'), which presents the complexity as one of the two significant discoveries arising from *razkorak* ('gap'). By placing *kompleksnost* ('complexity') first, the writer acknowledges the technical difficulty of legal language before moving to the more critical observation about power distribution. The manner noun *vlogo* ('role') contributes to this interpretation, and the

shift from a descriptive to a critical perspective seems to emerge from the meaning of the noun phrase *vloga v razdeljevanju pravne moči* ('role in the distribution of legal power') in its discourse context, rather than from the noun itself.

Move 2: Research Evaluation

In the Research Evaluation move, entity nouns remain the most frequent category (65.9%), but their proportion is lower than in the Summary move. Here, evidential and cognition nouns seem to increase in frequency, as writers reflect on the theoretical foundations and limitations of their research.

(6) *Pri takem **dojemanju** so družinski odnosi oddaljeni, celo slabi.*

In such a **perception**, family relationships are distant, even bad.'

The cognition noun allows the writer to discuss how the same phenomenon can be perceived differently depending on one's cultural position.

Move 2 features the highest share of attribute nouns, among which quality nouns (e.g., *prednost* 'advantage', *omejitev* 'limitation', *pomen* 'importance') are particularly frequent, as writers evaluate the strengths, weaknesses, and significance of their research:

(7) *Pomembna **omejitev** študije je majhen vzorec udeležencev.*

'An important **limitation** of the study is the small sample of participants.'

This sentence exemplifies the Evaluation move's function of acknowledging limitations. The quality noun *omejitev* ('limitations') is modified by the evaluative adjective *pomembna* ('important'), which intensifies the negative assessment.

(8) *Kvantitativni **podatki** so izpostavili prevladujoče oblike, vendar so razkrili tudi opazna* **odstopanja***, ki prispevajo k **dvoumnosti** in potencialnim **nesporazumom.***

'Quantitative **data** highlighted the prevailing forms but also revealed notable **deviations**, which contribute to **ambiguity** and potential **misunderstandings**.'

Example (8) contains several nouns, reflecting the evaluative density of the Evaluation move. The evidential noun *podatki* ('data') may ground the evaluation in empirical evidence, lending authority to the criticism. The conjunction *vendar* ('however') could signal a contrast between the positive finding (identification of prevailing forms) and the negative finding (notable deviations). The quality nouns *odstopanja* ('deviations'), *dvoumnosti* ('ambiguity'), and *nesporazumom* ('misunderstandings') are all attribute

nouns that collectively build an evaluative argument about the research findings. However, it is important to note that the causal link between these elements is not established solely through the nouns themselves. Rather, the causal relationship is explicitly signaled by the verbal construction *prispevajo k* ('contribute to'), which connects *odstopanja* ('deviations') to the subsequent consequences.

Status nouns (e.g., *možnost* 'possibility', *potreba* 'need', *nujnost* 'necessity') also appear in the Evaluation move, where writers express epistemic judgments about the certainty or probability of their claims.

(9) *Najti moramo srednjo pot, pot radovednega, a kritičnega raziskovanja novih* ***možnosti****, ki nam jih ponuja tehnološki napredek.*

'We must find a middle path, the path of curious but critical exploration of new **possibilities** that technological progress offers us.'

In sentence (9), the status noun *možnosti* ('possibilities') refers to potential future developments or opportunities that may arise from technological progress. Rather than expressing an epistemic judgment about the certainty or probability of a specific proposition, *možnosti* ('possibilities') here functions as a lexical expression of future research opportunities. The noun thus projects forward to research trajectories. However, the most explicit modal meaning in the sentence is expressed by the verb *moramo* ('must'), which encodes deontic modality (obligation) and conveys the writer's sense of necessity regarding the recommended research approach (Boginskaya 2021). The noun *možnosti* ('possibilities') complements this by naming the objects of that obligation, i.e. the opportunities that should be explored. Together, the deontic verb *moramo* ('must') and the status noun *možnosti* ('possibilities') combine to construct a deductive argument, namely that the writer moves from evaluating the challenges of technological progress (implied in the broader discourse context) to projecting a necessary future research path. This demonstrates how modal meanings in academic discourse can be distributed across both verbal and nominal resources, with status nouns contributing to the encapsulation of future-oriented possibilities while modal verbs carry the primary deontic force.

Relation nouns account for only 3.8% of metadiscursive nouns that occur in this move.

(10) *Tu je do posebej močnega izraza prišla* ***razlika*** *v velikosti podatkovnih baz, saj je angleški prevod neprimerno boljši od slovenskega, kar smo potrdili s tremi zahtevnejšimi primeri.*

'Here, the **difference** in the size of databases was expressed in a particularly strong manner, as the English translation is indisputably better than the Slovenian one, which has been confirmed with three more demanding examples.'

The relation noun *razlika* ('difference') helps the writer to interpret findings about translation quality. It encodes a contrastive relationship, being part of the clause that provides the causal explanation for the difference.

Move 3: Research Deduction

The Research Deduction move shows a different distribution from the other two moves. Within the Attribute category, status nouns (e.g., *možnost* 'possibility', *potreba* 'need') are the most frequent subcategory, as writers project future research directions:

(11) *Obstaja **potreba** po nadaljnjih raziskavah, ki bi preučile dolgoročne učinke.*

There is a **need** for further research that would examine the long-term effects.

Here the status noun is used in the Deduction move. It expresses deontic modality, conveying the writer's sense of necessity or obligation regarding future research. By nominalizing the need as *potreba* ('need') rather than using the verbal construction *potrebujemo* ('we need'), the writer presents the necessity as an established state or condition that exists independently of the writer's personal stance. The existential construction *obstaja potreba* ('there is a need') reinforces this impersonal framing, giving the claim an objective, authoritative quality. The noun is followed by the prepositional phrase *po nadaljnjih raziskavah* ('for further research'), which specifies the object of the need, and the relative clause, which elaborates on the specific purpose of the proposed research. The conditional verb form *bi preučile* ('would examine') introduces a hypothetical element, indicating that the future research is not yet realized but is being projected as a desirable course of action. Through this combination, the writer projects future research directions and maintains an impersonal, authoritative stance typical of academic discourse.

Entity nouns are the most frequent in the move, but the least frequent category compared to other moves.

(12) *Le s tovrstnim interdisciplinarnim **pristopom** bomo lahko oblikovali pravo, ki je hkrati dostopno, legitimno in natančno.*

'Only with this kind of interdisciplinary **approach** will we be able to shape law that is simultaneously accessible, legitimate, and precise.'

In example (12), the evidential manner noun *pristopom* ('approach') functions as a means for achieving a future goal. The noun *pristopom* ('approach') is embedded in the prepositional phrase, where it is modified by the demonstrative and the attribute adjective, which serve an anaphoric

function, signaling that the approach has been previously introduced or established in the discourse. The noun *pristopom* (‘approach’) denotes a complex set of methodological or theoretical commitments in a single nominal concept, allowing the writer to project a future course of action. The writer argues that only through such an approach will it be possible to achieve the desired outcome. The modal meaning is distributed across several resources. The future tense marker *bomo* (‘will’) and the modal verb *lahko* (‘can/be able to’) express dynamic modality, indicating the ability or possibility of achieving the goal under the specified condition. The noun *pristopom* (‘approach’) thus functions as a means for realizing a future state, consistent with the Deduction move’s function of projecting future directions and stating necessary conditions for progress. Unlike status nouns, which would nominalize the necessity as a static entity, the prepositional phrase with *pristopom* (‘approach’) places emphasis on the methodological means rather than on the need itself, shifting the focus from what the writer requires to what specific approach enables the desired outcome.

A further example from the Deduction move illustrates the use of a manner noun to project future research directions:

(13) *Uporabljen mednarodni **standard** označevanja omogoča **primerjave** z drugimi jeziki.*

‘The employed international annotation **standard** enables **comparisons** with other languages.’

The manner noun *standard* (‘standard’) has a similar function as *pristopom* (‘approach’) in the previous example, representing a methodological resource that enables a future research activity. The noun *primerjave* (‘comparisons’) signals a relationship of similarity and difference between the current study’s findings and those of other languages, suggesting future avenues for cross-linguistic investigation.

Relation nouns are nearly absent in this move, reflecting that deduction statements tend not to focus on establishing logical relationships.

The analysis revealed a clear pattern in how Slovene linguistics writers deploy metadiscursive nouns across the three moves of the conclusion section of RAs (Table 6).

As writers progress from summarizing their research to evaluating it and finally to projecting future directions, the proportion of attribute nouns increases substantially, while the proportion of entity nouns decreases. This shift reflects the changing rhetorical demands of each move. The Summary move thus requires writers to refer to completed research entities, while the Deduction move – to express modality, possibility, and necessity.

Table 6: Summary of distribution patterns

Move	Dominant category	Secondary category	Function
Summary	Entity (71.1%)	Attribute (21.6%)	Summarizing and referring back to research entities
Evaluation	Entity (65.9%)	Attribute (30.8%)	Evaluating quality and acknowledging limitations
Deduction	Entity (58.1%)	Attribute (38.1%)	Projecting future research

The low frequency of relation nouns across all three moves may suggest that Slovene academic writers in linguistics prefer to signal logical relationships through other linguistic means, though this interpretation would require investigation of non-nominal resources.

A total of 185 distinct metadiscursive noun types were identified across the corpus. Table 7 presents the fifteen most frequent nouns, which account for 48.6% of all metadiscursive noun occurrences.

Table 7: Fifteen most frequent metadiscursive nouns

Slovene noun	English equivalent	Category	Subcategory	Raw Frequency
ugotovitev	finding	Entity	evidential	28
študija	study	Entity	text	24
rezultat	result	Entity	evidential	22
raziskava	research	Entity	text	18
dejstvo	fact	Entity	evidential	16
način	way/manner	Attribute	manner	16
primer	case/example	Entity	evidential	14
omejitev	limitation	Attribute	quality	14
možnost	possibility	Attribute	status	13
prednost	advantage	Attribute	quality	12
predpostavka	assumption	Entity	cognition	12
razlika	difference	Relation	—	12
pomen	importance	Attribute	quality	10
članek	article	Entity	text	10
potreba	need	Attribute	status	9

Table 7 shows that entity nouns occupy eight of the top fifteen positions, with evidential nouns and text nouns being particularly frequent. Attribute nouns occupy six positions, with manner nouns, quality nouns, and status nouns all represented. Only one relation noun (*razlika* 'difference') appears in the top fifteen, confirming the scarcity of this category.

Discussion

This study investigated how Slovene academic writers employ metadiscursive nouns in RA conclusions. It focused on the overall frequency of these nouns and the distribution of their semantic categories across three conclusion section moves. The findings revealed several trends.

The high frequency of entity nouns can be explained by the primary rhetorical function of conclusion sections. As Yang and Allison (2003) already pointed out, writers use conclusions to summarize research findings and to refer to the research itself. Evidential and text nouns as subcategories of entity nouns are well suited for performing this task because they can summarize complex propositions, create textual cohesion and allow writers to avoid repetitive paraphrasing of their findings (Schmid 2000). Indeed, Halliday's (1994) account of nominalization as grammatical metaphor offers a useful complementary perspective here. Many entity nouns are considered metaphorical representations of clausal forms. Where writers might express a finding in the form of a clause, they instead nominalize it as a noun, allowing it to function as a participant in subsequent reasoning. This shift enables them to treat findings as stable objects that can be summarized, evaluated and linked to other propositions (Halliday & Matthiesen 2004). In this way, nominalization provides the lexico-grammatical mechanism underlying the cohesive and argumentative functions of entity nouns discussed in the study.

The preference for entity nouns Slovene may also reflect a broader characteristic of Slavic languages. This possibility finds some support from Lin and Šebesta's (2023) study of Czech, which, while differing in focus, offers relevant observations about nominal strategies in this and therefore possibly in any chosen Slavic language. Specifically, Lin and Šebesta (2023) investigated how Czech instrumental case forms function as shell nouns in second language acquisition contexts. Their study demonstrates that in inflectional languages, which is what Slavic languages are, morphological case marking can serve as a grammatical signal that an abstract noun is being used as a shell noun. Although their research does not directly examine the distribution or predominance of Entity nouns in Czech academic discourse, it does highlight the importance of

nominalisation strategies in Czech and the typological features that facilitate such structures in Slavic languages. The authors also suggest that typological similarities between the L1 and the L2 significantly facilitate the acquisition of language-specific shell noun strategies. This observation points to broader structural affinities across Slavic languages, such as rich case morphology and flexible word order, that may influence how writers deploy nominal resources, including metadiscursive nouns, in academic discourse. However, it must be emphasized that Lin and Šebesta's study is not directly comparable to the present investigation, as their focus is on grammatical forms rather than on discourse-level frequency patterns. The proposed Slavic pattern therefore remains a hypothesis requiring further comparative research across Slavic languages to confirm whether the predominance of Entity nouns observed in Slovene is indeed a shared characteristic of Slavic academic discourse.

Another trend worthy of mention is the decrease of entity nouns from the Summary move (71.4%) to the Evaluation move (65.9%) and then to the Deduction move (58.1%), combined with an increase in attribute nouns from 22.5% to 30.8% to 38.1%. This trend shows that Slovene writers adjust their metadiscursive noun use according to the rhetorical demands of each move. In the Summary move, writers prefer entity nouns because their primary task is to refer back to completed research. The high proportion of evidential and text nouns reflects the interactive function of metadiscursive nouns, namely guiding readers through the text by linking back to previously presented information. While entity nouns remain dominant (65.9%), in the Evaluation move, the frequency of attribute nouns increases (30.8%), primarily due to quality nouns, which help evaluate the significance of the designated research and acknowledge its weaknesses. This finding aligns with Deng, He, and Gao's (2025) observation that stance markers occur in the evaluation sections, where writers must position themselves in relation to their findings.

The Deduction move demonstrates the most distinctive pattern in this study. Although entity nouns remain the largest category (58.1%), attribute nouns nevertheless reach their highest share (38.1%). Within this latter category, frequently used status nouns allow writers to express epistemic, deontic, and dynamic types of modality (Jiang & Hyland 2015). The Deduction move also allows these nouns to help writers to qualify their suggestions for future research, softening claims where certainty is low, or emphasizing urgency where action is required. The near-zero presence of relation nouns in the Deduction move may suggest that when Slovene writers project future research directions, they rely on other linguistic resources. However, it is important to emphasize that these alternative resources are not dealt with in the present study. Since relation nouns are largely absent

here, possible resources for expressing logical relationships in this move might include conjunctions, adverbial connectors, or conditional clauses. These could lend themselves to investigation in further research.

The evaluative functions of attribute nouns are illuminated by Martin and White's (2005) Appraisal framework, within which the quality nouns observed in the Evaluation move, such as *prednost* ('advantage'), *omejitev* ('limitation'), and *pomen* ('importance'), can be understood as realisations of Appreciation, i.e. evaluations of things, processes, and states of affairs. These nouns encode positive or negative assessments of research entities, allowing writers to position themselves in relation to the significance and limitations of their work. Manner nouns, such as *način* ('way') and *metoda* ('method'), similarly involve Appreciation, but focus on the procedural or methodological aspects of the research. Status nouns, such as *možnost* ('possibility') and *potreba* ('need'), which become more frequent in the Deduction move, relate more directly to Engagement, as they position the writer relative to modality, expressing degrees of likelihood, necessity, or desirability of future research directions. The Appraisal framework thus helps to differentiate more precisely between different types of evaluative meaning. Quality nouns thus encode assessments of value or worth, manner nouns encode assessments of procedure, and status nouns encode assessments of modality. This differentiation is useful for understanding why Attribute nouns increase as writers move from Summary to Deduction. As the rhetorical demands shift from summarising to evaluating and finally to projecting, writers draw on different subtypes of Attribute nouns to perform increasingly complex evaluative work Also the finding that relation nouns are rare across all moves (4.5% overall) aligns with Jiang and Hyland (2016), who found that they comprised only 1.6% of metadiscursive nouns across six disciplines. This consistency allows us to assume that academic writers may prefer to signal logical relationships through non-nominal resources. However, this hypothesis requires confirmation through further comparative research that examines the full range of linguistic resources used to express logical relations across languages.

One possible explanation for only two occurrences of relation nouns in the Deduction move is the communicative purpose of this move, namely projecting forward rather than establishing relationships between existing entities. When writers suggest avenues for future research, they are making recommendations, expressing possibilities, and stating needs. Status nouns are the appropriate language resources for serving these communicative functions. Another explanation concerns the genre of conclusion sections itself. Unlike discussion sections, where authors can dig into how one thing leads to another or compare their results to earlier research, conclusions are focused on what comes next. The main goal of the Deduction move in

the conclusion section is to propose future directions. This is the reason why relation nouns, which express logical links between ideas, might seem less useful and frequent here.

Conclusion

The present study provides the first investigation of metadiscursive nouns in the conclusion parts of Slovene research articles (RA). The findings revealed a preference for entity nouns, specifically evidential and text ones, which function to condense research findings into nominal structures and sustain anaphoric reference to the study itself. As writers move from summary to deduction, the proportion of these nouns decreases while the portion of attribute nouns increases, reflecting the changing rhetorical demands of each move. Relation nouns are rare across all three moves and nearly absent in the Deduction move, suggesting that writers prefer non-nominal resources for signaling logical relationships.

Alongside providing the first description of metadiscursive nouns in Slovene academic discourse and establishing baseline frequencies for three categories across conclusion moves, the study revealed patterns that show parallels with findings reported in previous studies on English academic writing. Specifically, the predominance of entity nouns observed in Slovene conclusions (66.4%) is comparable to the 68.6% reported for American master's theses by Sun (2025), and aligns with the general preference for entity nouns across English academic genres identified by Jiang and Hyland (2016). These parallels suggest that Slovene academic writing and that in English may share a preference for nominalization strategies, but it is important to emphasize that this interpretation is based on a comparison with previously published findings rather than on direct cross-linguistic evidence from a comparable English-language corpus. The observed parallels therefore point to tendencies that merit further comparative investigation. By identifying the most frequent metadiscursive nouns in Slovene linguistics conclusions, the article serves as a source of frequently used vocabulary which can prove useful for novice writers.

Limitations of this study should also be acknowledged. First, the corpus is limited to 80 articles from linguistics journals. The findings thus may not necessarily apply to other disciplines within Slovene academic writing. Second, the study did not include a comparable English-language corpus, which limits the ability to make direct cross-linguistic claims about Slovene-specific patterns. Finally, the manual identification of metadiscursive nouns can potentially be subject to researcher bias. However, computational approaches developed for English, despite facilitating the identification

of metadiscursive nouns, do not guarantee greater accuracy or reliability, particularly where identification is context-dependent. Adapting such tools to Slovene would also require careful consideration of language-specific morphological and syntactic features, as well as the development of appropriately annotated training data.

Data Availability Statement

The article is based on research data that are available from the author upon a reasoned request.

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ENTITETA, ATRIBUT IN RELACIJA: METADISKURZNI SAMOSTALNIKI V SKLEPNIH POGLAVJIH SLOVENSKIH RAZISKOVALNIH ČLANKOV

Metadiskurzni samostalniki so abstraktne leksikalne prvine, ki organizirajo besedilo in izražajo avtorjevo držo. Medtem ko so bili ti samostalniki v angleškem znanstvenem pisanju obsežno raziskani, ostaja njihovo vedenje v manj znanih jezikih premalo poznano. Namen prispevka je raziskati pogostost semantičnih kategorij metadiskurznih samostalnikov in njihovo porazdelitev po retoričnih korakih v sklepnih poglavjih slovenskih znanstvenih člankov. Zbrali smo korpus 80 sklepnih poglavij iz jezikoslovnih revij, objavljenih med letoma 2015 in 2025. Sklepna poglavja so bila označena glede na tri retorične korake: povzetek raziskave, vrednotenje raziskave in sklepanje o prihodnjih raziskovalnih smereh. Samostalniki so bili razvrščeni v tri kategorije: entiteto, atribut in relacijo. Rezultati kažejo, da slovenski avtorji za povzemanje ugotovitev prevladujoče uporabljajo samostalnike entitete (66,4 %), zlasti evidencialne in besedilne. Samostalniki atributa predstavljajo 29,1 %, samostalniki relacije pa le 4,5 %. Ko raziskovalci prehajajo od povzetka k vrednotenju in nato k sklepanju, se delež samostalnikov entitete znižuje (s 71,4 % na 65,9 %), medtem ko se delež atributnih samostalnikov povečuje (z 22,5 % na 38,1 %). V sklepnem koraku izstopajo zlasti samostalniki statusa (npr. *možnost*, *potreba*). Študija prispeva k medjezikovnemu poznavanju akademskega diskurza in ponuja pedagoški vpogled za manj izkušene pisce.