| RESEARCH ARTICLE

'Verbs' in Thesis and Journal-Article Introductions: A Comparative Functional Approach

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| ABSTRACT

This transitivity study aims to delineate the 'verbs' employed in the introduction sections of students' English-major theses (IST) in reference to those of the introduction sections of research articles (ISRA) published by TESOL journal. To obtain this purpose, ten introduction sections from ISRA were analysed as the parameter, and 10 from its IST counterparts were evaluated. Both data sets were initially scrutinized for their categorization of process types. Then the analysis was followed by the categorization of specific processes in each process type. All data analysis was executed by employing the tables of analysis adapted from the transitivity framework of Halliday and Matthiessen. The transitivity analysis reveals that compared with the data of TESOL journal, the meaning making in the IST is inclined to be represented by less investigative processes of material, verbal, and mental clauses. Some less investigative processes are reflected from the verbs 'use', 'want', 'say', etc., while the knowledge building processes in the ISRA are shown by more investigative processes such as 'investigate', 'find', 'question', etc. Overall, in reference to the clauses in the research articles (RA) of TESOL journal, the ones in the introduction sections of students' undergraduate theses still lack processes for supporting the basis of knowledge building. It is expected that the findings of this study contribute to the field of academic writing, that is, to give insight to student thesis writers into how to make meaning of their introduction functionally.

| KEYWORDS

Process, Introduction, Thesis, Journal Article, SFL

1. Introduction

To the present time, research articles have been commonly recognized as the most reliable genre for constructing and disseminating knowledge. They are still the primary medium of knowledge production, par excellence among others such as books, news articles, etc. As a particular and special genre of knowledge production and dissemination, research articles have their own typical 'grammar' set by their community of discourse, either from the sense of conventional (formal) grammar or from the sense of functional grammar. From the perspective of the former, there have been prescriptive rules that are set based on the theories of language grammar. Based on the functional perspective, however, the 'grammar' comes from the empirical data. Hence, the grammar of the research article based on the functional perspective is driven by evidence-based or corpus-based findings.

One of the salient sections in RAs is the introduction due to its role as the basis of conceptual knowledge production and dissemination. Under Swales' CARS model, the introduction section of RAs serves to establish a territory of a study, create a knowledge niche, as well as occupy the gap (Swales, 1990). In general, it portrays the questions to be answered, the purpose of conducting a study, the contextualization of the state of the art of existing studies, including previous related findings, the significance to be offered, as well as implications for further studies (Wallwork, 2011). From a simplified perspective, Wallwork

(2011) has proposed the four key concepts of RA introduction, namely problem, previous solution, previous work limitation, and the expectation for the current solution.

The section of introduction to the present time has been claimed as the most challenging or difficult part under the genre of a research article (see Swales, 1990). This is due to the demand for taking a decision on the types of background issues to include, their sufficiency, as well as the stance to take. Due to its characteristics as the basic and problematic part of RAs, the introduction section has become one of the foci of genre-based academic studies for the past two decades (Chahal, 2014; Farnia & Barati, 2017; Fitriati & Solihah, 2019; Lakic, 2010; Manar et al., 2020; Martínez, 2001; Mirahayuni, 2013; Nivales, 2011; Safnil, 2013; Samraj, 2002; Zheng et al., 2014). It has been argued that the scrutiny of the structure and linguistics features of introduction sections is necessary for favour of improving researcher's understanding of their characteristics as well as in favour of helping student writers how to frame their introduction sections functionally (Gupta, 1995, cited in Safnil, 2007).

By taking into account the introduction sections written by students and those composed by experienced or professional writers, the difficulties of the first group can be revealed. Thus, comparative studies on the RA introduction sections, especially in English-major fields between student and journal RA authors, are needed. This is as the initial effort to find the language gap between both so that in the further phase, a pedagogical treatment can be formulated and carried out based on evidence-based insight.

So far, to the best of our knowledge, there has been a lack of insight into the specific micro-structure of RA introduction sections. This especially occurs in the case of using processes for making meaning of the introduction sections of theses written by students in reference to that composed by advanced writers. Existing studies scrutinising the system of transitivity in RAs have generally tended to concern with the distribution of process types without the specific scrutiny of the transitivity system pertinent to knowledge building. The scrutiny of students' transitivity system in reference to the target of the discourse community can unravel the challenges student writers encounter; then, it can give insight into the gaps they need to fill to approach the target writing. In line with the issue, this current SFL study attempts to unravel the verbs, especially in the material, mental, and verbal clauses of students' undergraduate thesis introduction sections, in reference to their counterparts in the introduction sections of RAs issued by a TESOL journal.

2. Literature Review

Process in the linguistic field was initially introduced by Halliday within his framework of Systemic Functional Linguistics (SFL) in the 1960s. It is derived from the system of transitivity that focuses on how choices of language use in representing experiences are suited to a particular context or goal. As it is proposed by Halliday & Matthiessen (2004, p. 170), "the system of transitivity construes the world of experience into a manageable set of process types".

The processes in SFL represent six experiences, that is: doing or happening (material); mental activities (mental); being or having (relational), saying activities (verbal), state of existing (existential), and mental activities resulting in noticeable reaction (behavioural) (Halliday & Matthiessen, 2004). Hallidayan SFL theory frames that meaning-making processes are realised in the forms of clauses along with embedded participants (animate and inanimate), various attributes, and optional circumstances attached to the process (Martin et al., 1997). Further, the embedded participants of the transitivity system are reiterated by Martin et al. (1997, p. 103) in the following table.

Table 1. Process Types and Nuclear Participants

Process Type	Nuclear Participants	Example (participants in bold
Material	Actor, Goal	***She*** made **the coffee.**
Mental	Senser, Phenomenon	***She*** saw **the car.**
Relational: Attributive Identifying	Carrier, Attribute	***Maggie*** was **strong.**
	Token, Value	***Maggie*** was **our leader.**
Behavioural	Behaver	***She*** laughed.
Verbal	Sayer	***She*** replied.
Existential	Existent	*There was **a beautiful princess.***

Due to its function for meaning making, to the present time, the transitivity system has been much investigated, especially in research articles (RAs) (Babaii and Ansary, 2005; Choura, 2013; Emilia, 2010; Huang, 2009; Love, 1993; Martínez, 2001; Manar et al., 2020; Shahab and Asl, 2015; Xuan, 2018; Zheng et al., 2014). This is related to the fact that RAs so far have been the medium of building and disseminating knowledge par excellence (Hyland, 2009; Salager-Meyer, 2001, cited in Zheng et al., 2014; Swales, 1990) in terms of their validity and reliability.

Existing transitivity studies have indicated that students encountered challenges in composing RAs with functional linguistic features and strategies. To illustrate, the comparative corpus-based transitivity study of Manar et al. (2020) has revealed that students' data sets were inclined to represent student researchers instead of previous researchers as the frequent actors of

knowledge building. For comparison, the journal data set tended to employ previous researchers. Previously, a comparative study carried out by Emilia (2010) has shown students' lack of verbal clauses in discussing their research findings. Besides, their relational process tended to describe the findings without enough explanation. Further, the study of Hancioglu et al. (2008) has proved that students' abstracts, in comparison with the target writings, still lacked finding-like verbs collocating with the word of *study.* Another SFL study on adolescent essays' has also found that the transitivity in students' writings in comparison with the target writings still lacked sophisticated verbs and tended to be homogeneous in terms of process deployment (Xuan, 2018).

In line with the previous findings, it has been argued that one of the problems in the process of composing RAs lies between novice and advanced writers familiar with the principles of academic discourse in certain disciplines (Swales, 2004, cited in Hyland, 2009). It is also asserted that developing writers have shown problems with functional moves in the academic genre, such as stating assumptions, making comparisons, stating causal relationships, and other similar tasks (Schleppegrell, 2008). Responding to students' challenges in functional writing, Coffin et al. (2010) claim that the Hallidayan transitivity system can be used to reveal the problems that students encounter in the writing of certain discipline areas.

The genre-based functional perspective on examining students' academic writing in relation to the analysed target writings can contribute to bringing pedagogical benefits for developing writers (Devira & Westin 2021; Farnia & Barati 2017; Fitriati & Solihah 2019). This, to mention one, has been proved by a recent SFL-based analysis of Devira and Westin (2021). Their genre-based and appraisal scrutiny has found that though, in general, the macro-structure of students' and target writings are similar, the specific insight into the moves of each phase was found. Students' moves tended to be less complicated and less varied compared to those of the target data set. A similar phenomenon was also traced in the introduction sections of developing writers' RAs (Farnia & Barati, 2017; Fitriati & Solihah, 2019).

Nevertheless, until now, most studies on the introduction sections of RA have tended to emphasise the macro structure, especially the move structure. The existing genre-based macro approach studies on RA introduction need to be extended by focusing on the micro structure approach. One of the most important aspects of functional-based micro analysis refers to the Hallidayan experiential meta-function transitivity system. So far, there have been rare studies on the linguistic features of English-field RA introduction by employing the transitivity system framework. If there have been a few, however, the analysis has tended to be general, that is, limited to process distribution. In terms of process distribution, the pedagogical SFL study of Maniati et al. (2015) has revealed that material, verbal, and mental clauses are the three most dominant processes in students' RA introduction sections either prior to the given pedagogical treatment or even after the provision of teaching treatment. Material, verbal, and mental clauses have even been shown to be students' dominant nominalised things transformed from processes, especially under the genre of exposition (Pineh, 2022).

Due to the lack of specific insight into the material, verbal, and mental clauses in students' introduction sections, the present study specifically analyses the sub-type processes under each of the process types by addressing the questions below.

> 1) What is the gap of specific material processes between students' thesis and journal article introduction sections?

> 2) What is the gap of specific mental processes between students' thesis and journal article introduction sections?

> 3) What is the gap of specific verbal processes between students' thesis and journal article introduction sections?

3. Methodology
The method adopted in the current study refers to content analysis defined as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (Krippendorff, 2004, p. 18). It is claimed as a research analysis tool to scientifically examine the message of texts of various contexts of social fields (Neuendorf, 2002). The use of content analysis for corpus written by students in reference to that composed by professional writers can give insight into the challenges encountered by the former (Milton & Tsang 1991). In the context of this current study, the corpus is studied with a bottom-up style (see Charles et al., 2011), where the natural occurrences of linguistic patterns from a large amount of data are examined through categorization and interpretation. In this study, the classification and interpretation were carried out on the specific processes of the knowledge building foundation, namely the research article introduction sections.

3.1 Data Source
Data sources in the current study are 10 randomly selected RA introduction sections in English-major undergraduate theses composed by students and 10 from a TESOL journal. They were initially identified by scrutinizing the generic structures between both to achieve the parallelism of structure. The introduction sections with explicit research questions from both data sources were selected as the data sources since it was assumed that they had similar communicative functions. Both data sources were only selected until the research questions. Besides, direct quotes, as well as clauses with grammatical errors in the data sources, were excluded from the scrutiny. Further, only non-embedded or ranking clauses were analysed as the main process. An embedded clause refers to the constituents of the main clause, such as qualifiers and modifiers (Gerrot & Wignell, 1994).

3.2 Data Analysis

The process types framed in the clauses were categorized into one of six types of process (either material, mental, verbal, relational, existential, or behavioural) along with the types of participant and circumstance. Then the process types in material, mental, and verbal clauses were further specifically classified in terms of knowledge building processes. Identified processes were signified with bold fonts, while participants were made in underlined forms (for Participant 1) and in italic forms (for Participant 2). For circumstance identification, single brackets were employed. The analysis of process types, along with their types of participants and circumstances, was executed by adapting the transitivity table of material, mental, and verbal clauses in Halliday & Matthiessen (2004).

4. Results and Discussion

Table 2. The Process Specification of Material Clauses in ISRA & IST

No.	Specification of Material Processes	ISRA	IST
1	finding-like processes	45	31
2	process of creating	11	13
3	process of increasing	6	4
4	process of performing	13	28
5	process of using	20	41
	Total of occurrences	95	117

Based on the table above, the processes of finding in ISRA are found to be far more dominant among other types of specific material processes. The occurrences of investigative processes in ISRA reach 45, and the ones in IST are only 31. While the frequency of performing processes in the former reaches 28, those in the latter are only 13. Further, the processes of using in the IST occur only half of the ones in ISRA. Other types of material processes in ISRA and IST refer to the processes of creating and increasing, but the gap of occurrences between both data sets is not significant; that is only 2.

The most noticeable gap between the data sets of ISRA and IST refers to the tendency to employ the processes of finding vs using. In the data sources of ISRA, there is a tendency to employ the former instead of the latter. In the IST counterparts, among five major categories of material clauses, the processes of using outnumber other specific processes. They encompass the predicators 'use' with 41 occurrences compared to 20 frequency in their ISRA counterpart. The distinct tendency to employ finding-like vs using processes in both data sets is exemplified below.

Investigating-type material process
and <u>researchers</u> **have** further **investigated** *these factors* (in relation to only one testing context and one group of test-takers at a time). ISRA-10-34

Using-type material process
if <u>teachers</u> **use** *formative assessment* **(**in the right way). IST-8- 16

Table 3. The Process Specification of Mental Clauses in ISRA & IST

No.	Specification of Mental Processes	ISRA	IST
1	finding-like process	34	16
2	process of predicting	8	0
3	process of considering	8	1
4	process of assuming	5	5
5	process of knowing/understanding	4	20
6	process of sensing	2	9
7	process of feeling	5	10
	Total	66	61

As illustrated in the table above, based on ISRA set as the target writings of the current study, the mental clauses in the IST still lack the processes of *finding, predicting*, and *considering*. The processes of *finding, predicting* and *considering* in ISRA sequentially appear 34, 8, and 8 in occurrences, while in the IST data set, their frequencies are 16, 0, and 1. The *finding-like* mental processes in

ISRA refer to *identify, find, look in/overlook, investigate, observe, explore, compare, and study,* while the processes of *predicting* are epitomised by *expect, hypothesize and predict*. The processes of considering encompass *take into account, think, consider,* etc. From the data set of IST, among the seven categories of mental process types, the processes of *knowing/understanding, sensing,* and *feeling* seem to be dominant compared with their ISRA counterparts. The processes of *knowing/understanding* in IST appear 20, while in its ISRA counterpart, only 4 are found. For the processes of *sensing*, 9 are tabulated in the IST, and only 2 are found in the ISRA data set. Besides, the processes of *feeling* appear 10 in the IST and 5 in the ISRA. The processes of *knowing/understanding* encompass *know, understand, see (know), notice,* and *realize,* whereas the processes of *sensing* are represented by *hear, look at,* and *see*. The processes of *feeling* encompass *want, need, etc*. The distinct tendency to employ the frequent finding vs knowing mental processes between the ISRA and IST is illustrated below.

Finding-type mental process
and <u>Cathcart and Olsen</u> **found** *that students wanted teachers to correct them more frequently than the teachers actually did* ISRa-8-39

Knowing-type mental process
<u>Learners </u>**do not know** *what actually a word means for the context, how to use a proper word for the context,....* IST-6-46

Table 4. The Process Specification of Verbal Clauses in ISRA & IST

No.	Specification of Verbal Processes	ISRA	IST
1	process of questioning	16	5
2	process of reporting	17	5
3	process of arguing	16	1
4	process of saying	21	30
	Total	70	41

As shown by the table above**,** in reference to the data set of ISRA, the verbal clauses of IST still lack the *questioning* or *investigating-like* verbal processes, *reporting* verbal processes, as well as the processes of *arguing.* The *questioning/investigating-like, reporting* and *arguing* verbal processes in ISRA respectively appear 16, 17, and 16, while in the IST counterpart, they emerge only 5, 5, and 1. The *questioning* or *investigating-like* verbal processes of ISRA are represented by *call into/for, question, raise, pose, challenge, broach, propose, address, answer,* while the *reporting* or *showing-like* processes are epitomized by *demonstrate, show, reveal, suggest, report, indicate,* etc. The processes of *arguing* cover *maintain, argue,* and *claim.*

In comparison to the dynamic verbal processes of the ISRA, the dominant verbal clauses in the data set of student writers refer to the static processes of *saying*. The frequent static verbal processes of saying in the IST emerge 30 in occurrences compared with 21 in its ISRA counterpart. The frequent static saying processes in students' thesis introduction sections encompass *say, state, express, describe, comment, communicate, talk, tell,* etc. The distinct tendency to employ dynamic vs static types of verbal process between the ISRA and IST are shown below.

Questioning-type verbal process
The pedagogical value of EAP approaches **has been** further **questioned** by <u>researchers who argue that language is embedded in discipline-specific academic and professional.</u> ISRA-1-22

Arguing-type of verbal process
<u>Some researchers</u> **have argued** *that the ultimate goal of language instruction should be the creation of WTC in the language learning process.* ISRA-3-28

Reporting-type of verbal process
<u>Peng</u> **reports** *that Chinese KFL learners' WTC in the classroom encompassed their linguistic, cognitive, affective, and cultural readiness.* ISRA-3-47

Static process of verbal process
<u>Halliday in Wachidah</u> **states** *that SFL is useful for research and learning in a foreign language, second language, mother tongues, texts, literary and poetic texts, translation, sign language, referencing, etc.* IST-9-65

Based on the findings of this study, there are gaps in knowledge building processes between students' thesis introduction sections and their journal RA counterparts. This gap is found especially in material, mental, and verbal clauses. The first noticeably distinct lexico-grammatical feature is in material clauses. In reference to the ISRA set as the ideal representation of knowledge building processes in this study, the material clauses in the IST tend to employ the processes of using and performing, but they still lack the processes of investigating. The processes of using refer more to the activities of student writers in making use of the knowledge, while the processes of performing focus more on their activities in conducting their research. The phenomenon of employing dominant using-type processes in students' introduction sections has also been reported by the scrutiny of Maniati et al. (2015). Their study further found that after pedagogical treatment, there is a shift from general to specific lexico-grammatical features.

The tendency of material clauses in the IST to incorporate fewer investigative processes hints that the clauses were still less functional for the role of RA introduction sections that Swales (1990) addresses as the basis for knowledge building. Under the sub-genre of RAs as the medium of knowledge production (Hyland, 2009; Swales, 1990), the processes of investigating underpin the process of knowledge building. It is majorly associated with the process of generating knowledge conducted by previous researchers as well as with the processes of developing knowledge carried out by the following researchers.

Students' challenges to using investigative verbs in writing have also been traced from a corpus-based study comparing students' most frequent words collocating with study in the abstract sections with the ones in the target writings (Hancioglu et al. (2008). The comparative scrutiny has revealed that compared with the diverse adoption of investigating-like processes in the target RAs, students' processes were found to be less varied. Their most frequent words collocating with 'study' only consisted of explore and investigate (Hancioglu et al., 2008). However, different from the present analysis, their comparative study was not examined based on the SFL perspective. Besides, their data sets were abstract sections.

Another gap in specific processes between students' writings and the TESOL journal was also found in mental clauses. The findings of this scrutiny have revealed that mental clauses in students' writings tend to employ knowing and feeling processes instead of the finding-like processes as found dominant in the TESOL data set. Under the sub-genre of RA introduction sections where knowledge is generated and developed, the dominant process of cognition especially finding serves to support the production of conceptual knowledge. Briefly speaking, investigative mental processes, compared with knowing and feeling types of processes, are more compatible with the goal of the RA introduction sections. The phenomenon of dominant adoption of finding-like mental processes has also been found in a previous study examining the process types framed in Swales' move analysis (background and purpose) of International and Chinese TESOL abstracts (Huang, 2009). Nonetheless, the study concerns more on the move analysis of Swale's framework rather than the specific processes of knowledge building.

The tendency of mental clauses in the IST to employ the processes of knowing, sensing, and feeling and their lack of finding, predicting, and considering processes confirms that the mental clauses in student writers' data set were still less functional for the role of RA introductions that Hyland (2009) and Swales (1990) address as the basic medium of knowledge building. Besides, while the processes of knowing and sensing represent the lower-order level of thinking, the frequent processes of finding, predicting, and considering reflect the higher-order thinking level. The processes of cognition, especially higher-order thinking, underpin the nature of scientific writing instead of the process of feeling, tends to be subjective and is not easy to measure. A previous study on students' undergraduate theses has also reiterated that students still lacked critical thinking in the process of meaning making under the genre of knowledge building, as shown by their use of the transitivity system (Emilia, 2010).

The last noticeable gap of knowledge building processes found in the IST and ISRA lies in the verbal clauses. Findings from both data sets indicate that the verbal clauses of student writers still lack investigating or questioning processes in comparison with those in TESOL Journal. Instead of employing more investigating-like verbal processes, student writers incorporated more static verbal processes, especially 'say', in their thesis introduction sections. The phenomenon of investigating-like verbal processes has also been traced from a corpus-based study comparing the verbs of students' abstracts with the ones in the target writings, where 'address' was one of the most frequent words in the target corpus but absent from the student corpus (Hancioglu et al., 2008).

Another phenomenon found in the verbal clauses of IST and ISRA was students' limited use of reporting process compared with the data of ISRA. The adoption of reporting verbal processes in ISRA or TESOL journals is underpinned by another previous study exploring the process types in the International and Chinese TESOL abstracts where reporting verbal processes outnumber other types of verbal processes (Huang, 2009). The reporting-like verbal processes found in this previous study are majorly epitomized by suggest and present (Huang, 2009). The last phenomenon found in the verbal clauses of ISRA and IST was the limited use of arguing verbal processes in the latter. This fact is in line with a previous study conducted by Emilia (2010), where students' theses still lack the verbal processes to argue. The difference between the study conducted by Emilia (2010) with this current study is that this study also makes use of or analyses TESOL Journal RAs as the target writing.

Different from the static verbal processes, the processes of questioning, reporting and arguing functionally support the process of knowledge building, that is, starting from questioning, revealing the fact, and then maintaining the fact. The lack of investigating-like, reporting, as well as arguing processes reiterate that they were still less functional in supporting the role of RAs that Hyland (2009) and Swales (1990) maintain as the medium of knowledge production. Under the sub-genre of RA introduction sections, those types of investigative verbal processes underpin the process of conceptual knowledge creation.

Overall, the lack of investigative or fact-finding processes pertinent to knowledge building processes in students' material, mental, and verbal clauses is possibly related to their unfamiliarity with the nature of RA introduction as the basis of conceptual knowledge production and dissemination. Besides, it can also be the result of their lack of review of previous related studies. This phenomenon can be linked to a study conducted by Farnia and Barati (2017), who found that non-native writers, in comparison with their native counterpart,s focused more on Swales' move 1: step 2 (making generalizations of increasing specificity) and move 3: step 2 (presenting research question/hypothesis) in their introduction sections of research papers but are still left behind in terms of other moves. The study of Farnia and Barati (2017) implies that non-native writers, in constructing the introduction sections as the basis of RA knowledge building, put their priority on themselves as current researchers rather than on previous researchers or related studies that have generated the state of the art of knowledge building. This phenomenon is also confirmed by the analysis of Manar et al. (2020), finding that student writers tended to represent themselves instead of previous researchers as the actors in the material process of building research basis.

Student writers' lack of investigative or fact-finding processes in knowledge building processes of material, mental, and verbal clauses in the current study can also be associated with their limited vocabulary mastery in writing. Overall, in reference to the material, mental, and verbal clauses in the research articles (RA) of the TESOL journal, the ones in the introduction sections of students' undergraduate theses are still less functional for supporting the basis of knowledge building.

5. Conclusion

The scrutiny of the specific processes of introduction sections of theses (IST) composed by undergraduate English-major students in reference to those in the introduction sections of research articles (ISRA) issued by a TESOL journal in the current study has revealed the insight into the gap between both data sets. Evaluated based on the latter, students' writings still need material, mental, and verbal clauses that comply with knowledge building processes especially finding-like/ or investigative processes for supporting the function of introduction sections as the foundation of research articles. Students' less functional processes in the material, mental, and verbal clauses can be the result of their lack of insight into the nature and function of the research article introduction, their lack of vocabulary mastery related to the genre of knowledge building, or their challenges in reviewing previous related studies. It is expected that the insight into this comparative study can be employed as one of the inputs for the design and practice of English academic writing courses in higher education. Specifically, it is expected that the findings of this study can be used as feedback for assisting students how in writing RA introductions more functionally.

Despite its findings, this current study, however, limits its focus on the specific processes of the transitivity system, especially material, mental, and verbal clauses in the introduction sections of students' theses in relation to those in RAs published by a TESOL journal. For further studies, there still lies more scrutiny for understanding other sections of theses and RAs. Further comparative studies can also extend their focus on texts in other fields or disciplines apart from an English major. Last but not least, since this current study has investigated the phenomena of linguistic features from the qualitative approach, further studies can also make use of mixed methods combining both qualitative and quantitative perspectives.

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