The English Middle and Ergative in Appositive Relative Clauses

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Abstract

This study delves into English middle and intransitive ergative constructions within appositive relative clauses. Despite surface similarities, their differences lie in the middle's semantic and pragmatic properties. Their appearance in relative clauses raises questions about pragmatic functions at the sentential level. This study focuses on appositive relative clauses due to their syntactically detached yet semantically attached to the DP head. Data from the COCA Corpus shows both constructions in all argument positions. The study demonstrates that both constructions align with the main clause's information structure, appearing either initially or finally. However, the productivity of the middle construction at the sentence outset contrasts with typical subject - relatives. Moreover, the high frequency of sentence-final definite heads differs from expected information structure patterns. Ultimately, the study concludes that appositivity and the middle's arbitrary agent are key factors governing the occurrence of these relative clauses.

This study investigates the behavior in appositive relative clauses of two similar theme-subject constructions in English: the middle construction and the intransitive ergative. The middle, as in *this book reads like a novel* and the intransitive ergative[1], *this shop closes for the day* are similar in their argument structure being monadic with only the theme subject and the verb, which, in other formats, can also be transitive. Their semantic difference is in the covert arbitrary agent in the middle, which restricts the context in which it appears. The middle is also seen as a pragmatically-oriented construction reflecting the

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[1] Ergative verbs in English refer to verbs that can be either transitive or intransitive, such as *break, melt, bake, grow, develop, increase,* and *improve.* The intransitive ergative has theme as subject as unaccusative verbs, for instance, *occur, happen, arrive*, and *fall*, which do not have transitive pairs.

topic-comment information structure. In spite of differences, the two constructions appear productively in relative clauses (RCs).

This topic is intriguing because the middle, in main clauses, exemplifies the topic-comment information structure in English (Emonds, 1976; Li & Thompson, 1976; Simargool, 2005), with the subject as *topic*, providing given information, and the predicate, *comment*, with new information[2]. The appearance of middle constructions in relative clauses (MRCs) raises questions regarding their pragmatic functions at the sentential level and the features by which they differ from non-middle relative clauses, such as the intransitive ergative construction in relative clauses (ERCs). The hypothesis is that even though both constructions harmonize with the main clause as RCs, the middle's distinctive properties still stand out in its sentential appearance, which distinguishes the MRC from the ERC. The MRC being examined in this study is the appositive RC (ARCs) because of its intriguing structure, being syntactically detached yet semantically attached to the DP head. In addition, a pragmatic analysis will be given of this construction which has yet to be widely performed.

In context, while the ergative is common, the middle is only productive in such contexts as facts referring to quality and performance of products or characteristics of people, as in *this car drives like a dream*. The syntactic and semantic properties of both constructions have been widely studied. Most scholars agree that the middle is different from the intransitive ergative in terms of its semantics. Only the middle is inherently generic, implying an arbitrary agent and modality (Condoravdi, 1989; Fagan, 1988, 1992; Fellbaum, 1985, 1986; Keyser & Roeper, 1984; Roberts, 1987; Lekakou, 2002; Sioupi, 1999; Wee, 2006; Zubizarreta, 1987).[3] The middle's semantic properties affect the context in which it appears. Both the middle and the ergative were found in determinative, appositive, and kind-defining RCs in the sample. Few empirical studies, however, focus specifically on sentential position and pragmatic functions. None of the cited studies, furthermore, were found to mention the appearance of the middle construction in RCs.

Based on the data of 66 instances of MRCs and 116 instances of ERCs, drawn from the COCA Corpus, this study investigates the behavior of appositive MRCs and ERCs with regard to their syntactic positions and pragmatic functions. The questions raised concern 1) the sentential positions of MRCs and

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[2] The term *focus* has been widely used to refer to new information (Cruschina, 2011; Radford, 2009), which can be any constituent in a sentence. In spoken language, focus is correlated with primary stress (Cruschina, 2011; Dorgeloh & Wanner, 2022), while in written language, focus can be signaled via punctuation, capitalization, or sentential position, as in cleft constructions. Cleft constructions are, however, among kind-defining relative clauses, and are thus excluded from this analysis.

[3] Bhatt and Pancheva (2006) and Rapoport (1999 as cited in Bhatt & Pancheva, 2006) disagree that an agent exists in the middle construction.

ERCs as well as their distribution, 2) their pragmatic functions in relation to sentential position, and 3) the distinctive properties of the middle construction in MRCs.

Related studies

This section discusses studies on middles, ergatives, and ARCs, with focus on the middle's arbitrary agent, syntactic analysis of both constructions, and the pragmatics and information structure of the middle, RCs, and ARCs. The discussion will provide background to the analysis of the behavior of the two constructions in RCs and their relationship to context.

1) Theme-subject and Arbitrary Agent

The arbitrary (ARB) agent, also referred to as generic agent, in the English middle construction refers to *anyone* or *people in general*. Roberts (1987) states that ARB agent leads to modality and generic reading of the middle construction, as demonstrated below in (1).

(1) a. Middle: This book reads easily.
   b. *Tough*: This book is easy to read.
   c. Passive: This book <u>can</u> be read (by <u>anyone</u> easily).

(2) Ergative: Glass marbles <u>can</u> break easily.

Examples (1) and (2) compare the superficially monadic theme-subject constructions by highlighting the existence of ARB agent and modality in the middle and *tough* constructions. The middle, *tough*, and passive constructions in (1) derive from dyadic constructions (Li & Thompson, 1976), whereas the intransitive ergative in (2) is lexically monadic subcategorizing for theme argument. Constructions in (1c) and (2) require an overt modal for modality. (1c) also requires the optional overt ARB agent to be equivalent to (1a) and (1b). All theme-subjects are believed to occupy the subject position via A-movement (Radford, 2009, Roberts, 1987). While the intransitive ergative verb lexically lacks agent, Roberts (1987) assumes that syntactically, the middle and the passive agent is "absorbed" by the passivized verb, leading to A-movement of theme. The difference between the two is in the fact that the passive agent is not confined to arbitrariness but can surface in the *by*-phrase.

To capture the difference between the middle and passive constructions, Marelj (2004) suggests that the middle agent is suppressed lexically rather than syntactically like the passive. While the passive goes through the syntactic *arity operation* (Marelj, 2004; Reinhart & Siloni, 2003) saturating the agent that can be visible in the *by*-phrase, the middle goes through the *lexical arity operation*, which affects the θ-grid by-suppressing the expression of ARB agent making it

invisible in the syntax. The same treatment applies to ARB agent in the *tough* construction.

Marelj (2004) and Reinhart and Siloni (2003) expand Chierchia's (1995 as cited in Marelj, 2004) concept of *arbitrarization saturation* for impersonal constructions to the middle by making it lexical. The arbitrarization process is an arity operation that eliminates an argument with ARB interpretation making the argument invisible in the syntax. As the middle ARB agent is similar to impersonals, Marelj applies Chierchia's (1995 as cited in Marelj 2004, p. 227) arbitrarization to the lexical derivation of the middle to suppress ARB agent. In the lexicon, ARB agent transforms to *ARB role* (Marelj, 2004; Reinhart & Siloni, 2003), and is suppressed by the generic operator. Generic interpretation in ARB is "a collection of features" (Rizzi, 1986) which are [+human] and [+ generic] (Rizzi, 1986 as cited in Marelj 2004, p.116). This θ role transformation is lexical because only a lexical operation modifies the θ-grid (Reinhart & Siloni, 2003). Supporting Ackema and Schoorlemmer's (1994) lexical externalization, Marelj (2004) suggests that after ARB role assignment, the construction becomes decausativized, then the next available argument is externalized. The lexical suppression of ARB agent, therefore, distinguishes the middle and the *tough* constructions from the passive construction, of which the agent was suppressed syntactically, and the intransitive ergative, which has no agent.

2) Information Structure

The information structure *topic-comment*, with topic (TOPIC) referring to given information and comment (COMMENT), new information, suggests that a well-formed sentence generally starts with given information, TOPIC, to invoke an established idea and ends by providing COMMENT on the TOPIC (Lambrecht, 1996). Although most sentence structures were found to follow the pattern with sentence-initial elements -- mostly subjects -- referring to TOPIC, while predicates function as COMMENT, some do not (Wu & Chitrakara, 2020a, 2020b). The middle construction, together with the passive and *tough* constructions, however, are said to exist to satisfy *topic-comment* information structure in English (Emonds, 1976; Li & Thompson, 1976). Together they are called *subject-creating constructions* (Emonds, 1976; Li & Thompson, 1976; Simargool, 2005; Wu & Chitrakara, 2020a, 2020b). To further satisfy the information structure, the pragmatic constraint on well-formedness which is Grice's Maxim of Quantity is believed to govern the presence of the middle adverbials (Goldberg & Ackerman, 2001; Marelj, 2004; Simargool, 2005).

In the information structure, TOPIC carries the lowest *communicative dynamism* (CD) (Firbas, 1971). Firbas (1971) assumes that a sentential element with low CD precedes one with high CD. The lowest CD information in a sentence is "context-dependent" because it is recoverable from the preceding context (Firbas, 1971, p. 136). TOPIC is, therefore, the "center of attention"

establishing "the theme of the discourse" (Li & Thompson, 1976, p. 464) and is expected to be definite (Li & Thompson, 1976). The CD increases towards the end of the sentence. These concepts apply to the analysis of the middle construction as follows.

(3) [TOP This book] [COM reads like a novel].

In (3), *this book*, with its low CD, is given information, while the predicate, *reads like a novel*, new information, with *like a novel* having high CD. The adjunct *like a novel* is an *obligatory adjunct*, which fulfills Grice's Maxim of Quantity because just *#this book reads,* alone does not provide sufficient information (Goldberg & Ackerman, 2001). In RCs, however, the same pragmatic analysis does not apply to the MRC and ERC in (4).

(4) a. MRC: [TOP This restaurant] [COM has **this fresh spring roll dish,** [which sells out quickly]].
    b. ERC: [TOP **The weed**, [which grows up to 3 inches a day,] [COM was found in Minnesota]].

In (4a), the MRC is in the predicate, while the ERC in (4b) is part of the subject. Komagata (2003) states that the information structure is "a main clause phenomenon", so it does not apply to subordinate clauses. The middle subject in (4a) is, thus, no longer TOPIC, but is part of COMMENT, while the ERC predicate in (4b) is no longer COMMENT, but is part of TOPIC.

3) Relative Clauses

The analysis of MRCs as part of COMMENT agrees with Fox and Thompson (1990, henceforth, F&T) who conducted a rigorous study on the relationship between RCs and their heads. They state that two main functions of RCs are 1) to provide background information and 2) to assert new information. RCs in "subject" position correlate with given information which is likely to be definite, with identifiable, and specific human references. New information on the other hand, is unidentifiable, and tends to be nonhuman. It is thus located sentence-finally in the "object" position (F&T, 1990). The RCs in (5) modify the objects, functioning to assert new information.

F&T's "subject" and "object" is assumed to associate with Li and Thompson's (1976) TOPIC and COMMENT, respectively, as demonstrated in (5).

(5) a. …probably [TOP **the only thing** you'll see] is like the table… (F&T, 1990, p. 302)
    b. …I [COM know **somebody** who has her now]. (F&T, 1990, p. 299)

Examples (5) are typical RCs in subject and predicate positions (F&T, 1990). The subject in (5a) is TOPIC, which is definite and has a human reference. Even though the DP head in COMMENT in (5b) also refers to human agent, it provides new information, following the expected information structure. The RC in (5a) is an *object-relative*, while in (5b), it is a *subject-relative* (F&T, 1990). The object-relative is relativized leaving the overt subject and verb to come after, whereas the subject-relative is relativized leaving the overt predicate to appear after.

Being monadic, the MRC and ERC are subject-relatives, whose subject is relativized via Ā-movement leaving behind the deleted argument and the overt predicate in the RC, as demonstrated in (6) (Radford, 2009).

(6) a. MRC: Our family prefers **tender peppers**, <u>which ~~which~~ bake a little longer</u>. (MAG Saturday Evening Post 2010)
   b. ERC: **Laevis**, <u>which ~~which~~ grows to a big clump</u>, can be reduced by a gardener. (NEWS Minneapolis Star Tribune 2019)

In (6) the relative subjects *which*, referring to the DP heads *tender peppers* and *laevis*, respectively, move via Ā-movement to the Spec CP position leaving behind the *deleted copy* in the subject position (Radford, 2009). The derivation applies to the internal structure of both determinative and appositive RCs.

Singling Out Appositive Relative Clauses

ARC distinguishes itself from similar RCs, such as the determinative RC (DRC) and the kind-defining RC (KRC), primarily in its semantic relationship with the head (Radford, 2019; De Vries, 2018; Cruschina, 2011). While the DRC offers specific information, the ARC supplements information about the head. While the ARC shares similarities with the KRC regarding their relationship with the head, the KRC resembles the DRC in the presence of *that* (Radford, 2019; Benincà & Cinque, 2014), as illustrated in (7).

(7) a. ARC: They destroyed old models, <u>which were defective</u>.
   b. DRC: They destroyed the old models <u>which/that were defective</u>.
   c. KRC: They are old models <u>that were defective</u>.

The KRC is distinctive mainly in its existential and copula main clauses, which signal that all arguments refer to the same entity including the RC and its head. The ARC and DRC, on the other hand, without punctuation, can be difficult to distinguish. Radford (2019) suggests that the two can be delineated when the head is a proper noun, as in (8).

(8) a. ARC: He finally got to meet Chomsky, <u>who he had long admired</u>.
     b. DRC: #He finally got to meet Chomsky <u>that he had long admired</u>.
       (Radford 2019, p. 8)

The DRC in (8b) is infelicitous modifying a proper noun because the proper noun *Chomsky* is equivalent to a DP, such as *the man*. While (8a) shows that the ARC refers to the preceding DP, (8b) is ambiguous because it could somewhat convey that *he* admired someone else.

     The examples (7) and (8) demonstrate that the relative pronouns and the ARCs in (7a) and (8a) share reference with the preceding DPs but the relative pronouns and the DRCs in (7b) and (8b) behave differently. This is because (7b) only partly refers to the preceding DP, which is why the DRC in (8b) is infelicitous. As a result, omission of the DRC, such as in (7c) is not possible, unlike omission of the ARC, as demonstrated below.

(9) a. ARC: Then he knew why Sam had made him ride the mule <u>which would not spook</u>. (FIC Sat Even Post 1997)
     b. ARC omission: Then he knew why Sam had made him ride the mule.
(10) a. DRC: They can't make a prescription bottle <u>that'll open easily</u>? (TV Seinfeld ABC 1994)
     b. DRC omission: #They can't make a prescription bottle?

Examples from COCA in (9) and (10) demonstrate that only the omission of the DRC results in infelicity. The close connection of the DRC to the preceding constituent, therefore, suggests that the DRC modifies the NP, while the ARC modifies the DP (Abney, 1987; De Vries, 2018; Radford, 2019; Wiltschko 2012), as illustrated below.

(11) a. ARC: [[DP [NP] [ARC]]
       [DP the [NP mule] [ARC <u>which would not spook</u>]]
     b. DRC: [DP[NP[DRC]]]
       [DP a [NP prescription bottle [DRC <u>that'll open easily</u>]]]

The bracketed phrases in (11) illustrate that the ARC is not governed within the NP but within the DP, while the DRC is governed within the NP contained in the DP. This close relationship with the NP makes the omission of the DRC infelicitous. Part of the NP, the [NP [DRC]] alone is not yet a constituent until it merges with the head D and becomes a DP (Abney, 1987; De Vries, 2018; Radford, 2019; Wiltschko 2012).

Another notable difference between the DRC and the ARC is that the ARC not only modifies the DP, but its reference also expands to larger phrases such as PP and CP (Radford, 2019), as demonstrated in (12).

(12) a. The appointment was **from 3 to 5 p.m.**, which is exactly when the meeting was held.
   b. It is surprising **that Mary won the competition**, which was unexpected.

The examples above support the analysis on the DRC and ARC's different syntactic relationship with the head, which is, the DRC modifies the head NP (Abney, 1987; De Vries, 2018) while the ARC modifies DP and larger phrases (De Vries 2006; Radford 2019).

Semantics of ARCs

Loock (2007), focusing only on ARCs, classifies their semantic functions into 1) *continuative appositive relative clauses* (CARC), 2) *the relevance appositive relative clauses* (RARC), and 3) *subjectivity appositive relative clauses* (SARC). CARC portrays two continuing incidents creating "narrative dynamism," while RARC elaborates the head by following Grice's Maxim of Relevance which states that a communicative act should be relevant to the whole discourse (Loock, 2007, p. 345). RARC provides background knowledge to help the addressee reduce information processing effort in the head. As with RARC, SARC also provides background knowledge about the head, but as opinion of the speaker. SARC contains modality in the form of modals and vocabulary referring to judgement or appreciation. Loock (2007) notes the similarity between RARC and SARC as SARC can also provide relevant information, so it can be included in RARC. Applying Loock's analysis to F&T's findings, Loock's "relevance" in RCs is assumed to be accomplished in two ways. If an argument is TOPIC or the main clause subject, it can be made relevant through background information provided in the RC, and if an argument is in COMMENT or an object of a sentence, its relevance can be accomplished through new information, also provided in the RC.

4) At-Issueness

ARCs are subject to *at-issueness*, which describes the relationship between appositive phrases and their main clauses (Syrett & Koev, 2014). It is generally believed that the content in an appositive phrase is secondary to the content of the main clause. The content in the appositive is, thus, not "at-issue" (Syrett & Koev, 2014) because it does not directly address the main point or the main assertion of the sentence. This generalization stems from the appositive DP, as shown in the examples adapted from Syrett and Koev (2014) in (13) below.

(13) a. My friend Patty, <u>a pianist</u>, performed a piece by Mozart.
b. My friend Patty, <u>who is a pianist</u>, performed a piece by Mozart.

Neither the appositive DP in (9a) nor the ARC in (11b) are not-at-issue because they provide secondary information, which means that they tend not to be subject to rejection, unlike the at-issue content in the main clause, as shown in (14) below.

(14) A: My friend Patty, <u>(who is) a pianist</u>, performed a piece by Mozart.
B: No, I believe the piece was by Chopin. / #No, she is not a pianist.

Example (14) shows that the at-issue content in the main clause is subject to negation. Being not-at-issue, the appositive is typically uncontroversial. Controversial content in appositive phrases lead to infelicity (Syrett & Koev, 2014), as exemplified in (15) below.

(15) A: #My friend Patty, <u>(who is) an ex-convict</u>, performed a piece by Mozart.

The controversial information in the appositive in (15), pointing to the fact that Patty is an ex-convict, makes the sentence infelicitous because it diverts the attention from the at-issue information.

The above is a typical characteristic of the appositive, a secondary not-at-issue subordinate clause, which is believed to be based on the appositive DP in sentence-medial position (Syrett & Koev, 2014). Syrett and Koev (2014) argue that the appositive is not always not-at-issue. At-issueness depends on the position of the appositive phrase. The sentence-final appositive tends to be at-issue compared to the sentence-medial appositive, as demonstrated in the test below in (16) and (17).

(16) A: My friend Patty, <u>who is a pianist</u>, performed a piece by Mozart.
B: #No, she isn't (a pianist).
(17) A: A piece by Mozart was performed by my friend Patty, <u>who is a pianist</u>.
B: No, she isn't a pianist. She is a cellist.

The negation test proves that the appositive in (17) is at-issue, while the one in (16) is not. Anderbois et al. (2010 as cited in Syrett & Koev, 2014) explain that the medial appositives, nestled in the main clause, are subordinate to the clause containing them, while the final appositives, located at the extreme right of the main clause, can be at-issue.

Applying the concept of Communicative Dynamism (CD) (Firbas, 1971), semantic asymmetry between the medial and final appositives is caused by their different degrees of CD. Syrett and Koev's "medial appositive", as in example (16) is part of TOPIC, while the "final appositive" is COMMENT. The medial appositive is low in CD, while the final appositive is in the highest CD position, therefore, the final appositive becomes at-issue.

5) End-Weight Principle

An RC structure can add more weight to the argument containing it. When a structure appears often towards the end of the sentence, the *End-Weight Principle* (EWP) is usually the first candidate for the cause. The EWP determines that a syntactically heavy argument be placed in sentence-final position. The weight of an argument depends on several factors: syntactic, the number of words or syntactic nodes, phonological properties, the number of stressed syllables, and pragmatic considerations such as the newness of information (Dorgeloh & Wanner, 2022).

Complex DPs, such as those with RCs, can be syntactically heavy, which can put them at the end of the sentence, as illustrated in (18) below.

(18) a. MRC: Our family prefers **tender peppers**, <u>which bake a little longer</u>. (MAG Saturday Evening Post 2010)

b. ERC: Look for **Follow Your Heart vegan cheese**, <u>which melts better than other brands</u>. (MAG Vegetarian Times 2007)

In examples (18), the RCs appear at the end of the predicates: modifying the object in (18a) and the prepositional phrase object in (18b). The RCs are part of the syntactically heaviest phrases in the sentences. Both RCs in (18) contain new information being indefinite and located sentence-finally according to information structure. Both have more words than the other arguments in the sentence. The heads and the RCs of both examples comprise more syntactic nodes than the other constituents: (18a), [DP [CP [TP [AdvP]]]] and (18b), [DP [CP [TP [AdvP [PP]]]]]. The MRC in (18a) has fewer words and nodes than the ERC in (18b).

Wasow (1997) posits that traditionally, it has been believed that the weight effect assists listeners in parsing sentences. According to this view, when lighter constituents appear earlier in a sentence, the parser processes the sentence more easily and rapidly (Hawkins, 1992, 1984 as cited in Wasow, 1997). However, Wasow suggests that, rather than benefiting the listener, the EWP phenomenon primarily aids the speaker. The EWP facilitates the speaker's production of utterances by allowing lighter constituents to buy more time for planning and producing the more complex constituents that appear towards the end of the sentence (Wasow, 1997). Both analyses have merit: the traditional

view explains how sentences are processed by the receiver, while Wasow's view explains how sentences are produced.

   While numerous studies have investigated general sentence structures and relative clauses, there is a lack of analysis regarding the linguistic properties of MRCs and ERCs. This study aims to examine the syntactic and pragmatic functions of appositive MRCs and ERCs, and to compare their pragmatic functions at the sentence level based on syntactic positions. The hypothesis posits that MRCs resemble ERCs in terms of argument positions, but the distinctive property of the middle in MRCs plays a role in determining their syntactic and pragmatic appearance, thereby differentiating them from ERCs.

Data collection

   Gathering pertinent data on MRCs and ERCs posed a challenge owing to their similar structures. The data regarding appositive MRCs utilized in this study originates from 180 instances found within the COCA corpus, encompassing 81 DRCs, 33 KRCs, and 66 ARCs. In order to scrutinize their characteristics, these 66 appositive MRCs are compared with 116 appositive ERCs, likewise sourced from COCA.

   1) Extracting RCs

   The data collection of MRCs started with verbs frequently appearing in middle constructions derived from a personal data collection. To extract the MRCs from the corpus, the queries *that/which/who,* appearing with subject-relative clauses, plus verbs (*verb** for any form of a verb) and modifying elements that also frequently appear in the middle construction were employed, as displayed below.

> (19) a. *that adjust**
>   Combine these features with an impressive blade elevation rate, and you have a saw *that adjusts* quickly and easily. (MAG Popular Mechanics 2001)
>   b. *which cut* like*
>   polymer coating, is a far cry from its balata forebear, *which cut like* butter and deteriorated quickly in the drink. (MAG Golfmag 2013)
>   c. *who scare* easily*
>   But he isn't a man who scares easily.
>   (WEB…tymoore. blogspot.com 2012)

The RC in (19a) is a DRC, while (19b) is an ARC, and (19c) a KRC.

   To target the appositive ERCs, queries with a comma (,) were added in front of the relativizer *which*. The search for ERCs was much easier with the query [, *which* (ergative) verb*]. In addition, [, *who* verb*] was not used in order

to minimize the appearance of the unergative, which usually has human subjects.

2) Singling out ARCs

A further challenge was indicating the type of RC in the search. While existentials and predicate nominals rule out the KRCs[4], the DRC overlaps with the ARC with a *wh-* relativizer and no punctuation. Semantically, the DRC and the ARC differs in that the ARC provides supplementary information (usually) to a definite head (Tse & Hyland, 2010), while the DRC specifies the head by referring to its subset (Baker, 1989). Syntactically, the DRC and the ARC can be distinguished mainly through relativizers. *Which* and *that* in the data signal DRCs, while *which* and *who*, often with commas and parentheses or dashes, signal ARCs. Superficial identification of ARCs, however, can be inconclusive (Tse & Hyland, 2010) because some ARCs appear without commas, thus blending with DRCs. Decisions regarding their relationship with heads have to be made carefully as demonstrated in (20).

> (20) a. Ragged and musty quilts sit atop a makeshift wooden platform
>   which sleeps ten[5]. (SPOK NPR_ATC 2006)
>   b. Tunisia for 23 years, initiated the Arab Spring which spread
>   throughout the MENA region. (ACAD Arab Studies Quarterly
>   2019)

The MRC and ERC in (20) are ARCs because they provide supplementary information for the sentence heads. Even though the MRC in (20a) has an indefinite head, it is determined that the RC is an ARC. Fortunately, in the data examined, instances of DRCs with *which-* and *who-* are in the minority, while instances of ARCs without punctuation are also rare. Most ARCs in the data are provided with commas, whereas most DRCs are headed by *that*, as shown in (21).

> (21) a. MRC: We'd like to see Apple and Android manufacturers deliver
>   a wireless charging feature <u>that ships with the phone</u>. (WEB
>   gottabemobile.com 2012)

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[4] Kind-defining RCs also appear with *see, meet, hear of*, and *run into* (Radford, 2019), which were not found in the data.

[5] In addition to the typical middle construction, the majority of previous studies fail to officially recognize the *adjunct middle* (e.g., *this bed sleeps four*) (Ackema & Schoorlemmer, 1994) as a variation of the middle construction in English despite their shared properties. Only minor discussions on the construction were found in Greenspon (1996), Hawkins (1986), Hundt (2007), and Legenhausen (1998). Hundt (2007) considers such versions of the middle marginal reflecting its highly rare occurrence. Both variations of the English middle construction are included in this study.

b. ERC: When apprehended, they release the bag, <u>which sinks along with any evidence</u>. (NEWS New York Times 2013)

The determinative MRC in (21a) distinguishes a particular *wireless charging feature* from other wireless charging features because it is the one that is shipped *with the phone*. The appositive ERC in (21b), on the other hand, provides supplementary information to *the bag,* already known information. Examples in (21) also show the distinction in definiteness of the RC heads, with (21a) being indefinite and (21b) being definite. As main clause middles and appositive heads are generally definite (Simargool, 2005; Tse & Hyland, 2010), definiteness of the heads of RCs, was investigated.

3) Separating Middles from Ergatives

Because of their identical overt argument structure, distinguishing the middle from the intransitive ergative poses a challenge. As the main difference between the two concerns ARB agent which never surfaces, the only way to reveal its existence is through adjoined phrases, which reflect the experience of ARB agent when interacting with theme. Based on previous studies, possible diagnostic tests as seen below may be employed.

(22)   *For*-phrases   (Simargool, 2005, p. 48)
  a. Middle This book reads easily *for Tom.*
  b. Ergative #The ice melted *for Tom.*

(23)   *With/without effort* (Greenspon, 1996, p. 77)
  a. Middle This book reads easily *without effort.*
  b. Ergative #The ice melted *without effort.*

(24)   *When you do it properly* (Greenspon, 1996, p. 77)
  a. Middle The cushion adjusts *when you do it properly.*
  b. Ergative #The grass grows *when you do it properly.*

The test in (22) exposes the agent, whereas those in (23) and (24) suggest the presence of the agent. Only the middles are acceptable with the aforementioned expressions. Conversely, the following tests examine the absence of an agent.

(25)   *When no one is around* (Greenspon, 1996, p. 78)
  a. Middle #The cushion adjusts *when no one is around.*
  b. Ergative The grass grows *when no one is around.*

(26)   *All by itself* (Simargool, 2005, p. 49)
  a. Middle #This book reads easily *all by itself.*
  b. Ergative The ice melted *all by itself.*

The tests in (25) and (26) show that the diagnostic phrases are only acceptable with the ergatives due to their lack of agents. The above tests (22)-(26), however, can only distinguish the middle from the ergative reflecting the existence or non-existence of agent; they do not reveal agency in the middle (Greenspon, 1996, Keyser & Roeper, 1984, Fagan, 1988, 1992; Zubizarreta, 1987). It is important to note that they cannot function as proper tests to prove the existence of agent like the passive *by* phrase because they can also appear with other clauses (Simargool, 2005), as demonstrated in (27).

(27) a. The TV is too loud *for me*.
      b. The robber broke into the house *when no one was around*.

Among middle-lookalikes are not only ergatives, but also unergatives, all of which are compatible with the *for*-phrases as demonstrated in (28).

(28) a. Middle: …any other small pasta product that cooks quickly *(for me)*.
      b. Ergative: … the foods which cook slowly *(for me)* ...
      c. Unergative: … the only one who cooks *(for me)* around here.

Examples (28) also illustrate that the three constructions can occur with the same verb. Given common knowledge, (28c) is with agent subject. All constructions are, however, compatible with the *for*-phrase because (28a) and (28b) resemble middles. Nevertheless, the *for-* test applied to (28c) suggests a beneficiary rather than agent. To differentiate the three constructions, context plays a crucial role, as exemplified below in (29).

(29) a. Middle: Cover and let stand for 10 minutes. Quick Trail Minestrone Soups Use angel hair pasta or **any other small pasta product** that cooks quickly. (MAG Backpacker 1995)
      b. Ergative: I find that people are surprised that the sun alone can actually cook food. And they are further pleasantly surprised at the rich flavors in **the foods** which cook slowly in the sun. (WEB solarcooking.org 2012)
      c. Unergative: Your meatloaf is mushy, your salmon croquettes are oily and your eggplant parmigiana is a disgrace to this house! Well, that's too bad, because I'm **the only one** who cooks around here. (TV Seinfeld 1995)

Without overt agent, (29a) and (29b) can both be middles but only (29a) is, because agent is implied in the imperative in the first sentence. The context of (29b) reveals that it is the sun light that cooks the food. As for (29c), the context confirms that *the only one* is not theme.

4) Data Classification

Superficially, the weight of the subject versus the predicate was taken into consideration in our analysis. Those that end with light arguments will be labeled -EW to indicate light end-weight. Syntactically, classification of RC functions was developed by F&T who classify RC positions based on their argument function as *subject, object, and prepositional phrase object.* To include the topicalized constituent, as in (30) below, the position of *topic* is added in the classification.

> (30)   MRC: According to **the La Llorona** (<u>which translates</u> <u>to weeping woman</u>) legend, a woman named Maria kills her children by drowning them in order to be with the man she loves. (BLOG hollywoodreporter.com 2012)
> ERC: Unlike **adult cancer**, <u>which grows at a slower rate</u>, childhood cancer can proliferate at alarming speeds, in some cases doubling in size every 8 to 12 hours. (ACAD: Journal of Mental Health Counseling 2018)

In (30), the ARCs modify the prepositional phrase objects, part of the topicalized phrases. The position of the RCs in relation to the sentence is, therefore, included as part of the structural topic, preceding the main clause subject.

The functions above are then grouped into initial, medial, and final positions. To recognize all possible arguments, the overlapping positions are numbered 1 and 2, where 1 refers to the left most and right most positions and 2, the second positions to the left or right, as manifested below.

Table 1: MRC/ERC in initial position

Initial Positions	Descriptions	Examples from COCA
TOP	Structural topic	MRC: According to the **La Llorona** (<u>which translates to weeping woman</u>) legend, a woman named Maria kills her children by drowning them in order to be with the man she loves.
		ERC: Unlike **adult cancer**, <u>which grows at a slower rate</u>, childhood cancer can proliferate at alarming speeds, in some cases doubling in size every 8 to 12 hours.
Subj1	Subject as the first constituent	MRC: **Its four bags**, <u>which fold into one</u>, can hold $300 worth of groceries and fit like a jigsaw puzzle into a shopping cart.
		ERC: **The weed**, <u>which grows up to 3 inches a day and can produce a half-million seeds per plant</u>, was first observed in Minnesota in conservation land in 2016.
Subj2	Subject as the second constituent from the left	MRC**:** The fork set height of l2mm and **its rebound**, <u>which adjusts between 0 and l8mm with screws on the top and bottom of the fork tubes</u>, are dictated by McGrath.
		ERC: According to another myth, **a tree**, <u>which grows from his ashes and which conjoins the sky and the earth (representing the continuous)</u>, is cut up to create the various sacred instruments...
PPOS	Prepositional phrase object at the subject position	MRC: Pieces too big for **the carriages** (<u>which open and close like an accordion</u>) are stored around the edges of the cavernous space.
		ERC: The first thing to say about **the New York Film Festival**, <u>which opens tonight (with Ang Lee's adaptation of " Life of Pi") and runs through October 14th</u>, is that its main-slate selections and many sidebars, laid end-to-end in time, would seemingly take a sleepless month to exhaust.

Table 2: MRC/ERC in medial position

Medial Positions	Descriptions	Examples from COCA
Obj2	Object followed by a constituent	MRC: You can count on a salad or two, a plate of the day's roasted vegetables, **those turnovers** (<u>which sell out quickly</u>), and a daily selection of kati rolls, Kolkata-style wraps served in a flaky paratha flatbread.
		ERC: Voter ID - which is going to allow Gov. Romney to win the state of Pennsylvania - done, "Turzai told **the crowd**, <u>which burst into applause</u>, as he listed legislative accomplishments under GOP control.
PPO2	prepositional phrase object followed by a constituent.	MRC: Solitude reigns at **the four-bedroom stand-alone guest house** (<u>which sleeps eight</u>), or at several high -- country cabins and yurts, most of which are the lone accommodations on a trout-filled lake.
		ERC: It's the home stretch for **Holy Mountain**, <u>which closes at the end of the month</u> but promises a wild run of special shows in its final weeks.

Table 3: MRC/ERC in final position

Final Positions	Descriptions	Examples from COCA
Obj1	Object in the final position	MRC: Our family prefers **tender peppers**, <u>which bake a little longer.</u>
		ERC: I've interrupted **a game of dominos**, <u>which spills over the slats of their wooden crate in a clacking dance of stars</u>.
PPO1	Prepositional phrase object in the final position	MRC: Essential has a unique port around back on **its debut Phone**, which can handle data and power transfer, and <u>which attaches to accessories via magnets</u>.
		ERC: In thicker clouds, rain usually starts as **snow**, <u>which melts on the way down to turn to rain</u>.

The above classification encompasses 66 instances of MRC data and 116 instances of ERC data extracted from the COCA corpus to examine the occurrence and distribution of appositive MRCs/ERCs across various argument positions. While 66 may seem relatively modest for a quantitative study, it is deemed adequate given the rarity of instances of the appositive MRC, which only appears with specific transitive verbs in specific contexts. This limited dataset is anticipated to unveil the dynamics of appositive MRCs' distribution and pragmatic function at the sentential level, and ultimately, their similarities and differences with ERCs. The hypothesis posits that MRCs inherit structural and argument position properties from RCs, yet the distinctive features of

middles exert a notable influence on their syntactic and pragmatic functions, which become more evident through comparison with ERCs.

Findings

Syntactically, the data samples demonstrate that both MRCs and ERCs occur with both definite and indefinite heads, across all argument positions. While final position emerges as the most common in this dataset, initial position is also deemed productive. Conversely, the least frequent position for both constructions is medial. Further analysis reveals that MRCs tend to occur more frequently sentence-initially, whereas ERCs are more prevalent in sentence-final positions. Regarding weight, less than 15% of the instances conclude with light arguments, as documented in Table 4.

Table 4: Positions of MRC and ERC

	N	INI	MD	FN	-EW	%	INI	MD	FN	-EW
MRC	66	23	3	40	8	100.02	34.86	4.55	60.61	12.12
ERC	116	21	7	88	17	100	18.1	6.04	75.86	14.65

Table 4 shows that both MRCs and ERCs are productive sentence-finally, but rarely appear sentence-medially. The MRCs are productive in both initial and final positions, while the ERCs also appear in initial position, but at a lower frequency. Regarding the EWP, less than 15% of sentences with RCs were found to end with light phrases (-EW). The appearance of each ARC is elaborated in Tables 5-8.

Distribution of Appositive MRCs

Table 5: Appositive MRCs in instances (N=66)

	INITIAL (23 instances)				MEDIAL (3 instances)		FINAL (40 instances)		Total
	TOP	Subj1	Subj2	PPOS	Obj2	PPO2	Obj1	PPO1/*by*	
Definite	1	12	4	4	0	2	8	19	50
Indefinite	0	1	0	1	0	1	7	6	16
Total	1	13	4	5	0	3	15	25	66

Table 6: Appositive MRCs in percentages

	INITIAL (34.86%)				MEDIAL (4.55%)		FINAL (60.61%)		Total
	TOP	Subj1	Subj2	PPOS	Obj2	PPO2	Obj1	PPO1/*by*	
Definite	1.52	18.18	6.06	6.06	0	3.03	12.12	28.78	75.76
Indefinite	0	1.52	0	1.52	0	1.52	10.61	9.09	24.26
Total	1.52	19.7	6.06	7.58	0	4.55	22.73	37.88	100.02

Tables 5 and 6 show that MRCs are productive in both initial and final positions. Like typical ARCs, MRCs are more likely to be definite, with only 16 instances of this sample (24.26%) being indefinite. The definite heads were distributed equally in initial and final positions, while more indefinite heads appear in final positions. The ERCs are distributed differently, as seen in Tables 7 and 8.

Distribution of Appositive ERCs

Table 7: Appositive ERCs in instances (N=116)

	INITIAL (21 instances)				MEDIAL (7 instances)		FINAL (88 instances)		Total
	TOP	Subj1	Subj2	PPOS	Obj2	PPO2	Obj1	PPO1/*by*	
Definite	2	12	0	1	3	2	16	44	**80**
Indefinite	1	4	1	0	0	2	9	19	**36**
Total	**3**	**16**	**1**	**1**	**3**	**4**	**25**	**63**	**116**

Table 8: Appositive ERCs in percentages

	INITIAL (18.1%)				MEDIAL (6.04%)		FINAL (75.86%)		Total (%)
	TOP	Subj1	Subj2	PPOS	Obj2	PPO2	Obj1	PPO1/*by*	
Definite	1.72	10.34	0	0.86	2.59	1.72	13.79	37.93	68.95
Indefinite	0.86	3.45	0.86	0	0	1.72	7.76	16.38	31.03
Total	**2.59**	13.79	**0.86**	0.86	2.59	**3.45**	**21.55**	**54.31**	**100**

The ERCs display more definite heads than indefinite heads much like MRCs. They also occur more often in initial and final to the medial positions. Both indefinite MRCs and ERCs are used in final position. The difference is the number of ERCs in final position is much larger than those in initial position, while MRCs can be considered frequent in the initial position. The most preferred syntactic positions for both MRCs and ERCs are PPO1, with the largest majority of ERCs in this position. Both MRCs and ERCs also occur in final position including the passive *by* phrases: 2 MRCs and 4 ERCs, as in (31):

> (31) a. MRC: The extra-wide skate-inspired deck -- available in black with red grip tape -- is made of a webbed design carbon reinforced composite that is supported by **a long, lightweight handlebar**, <u>which folds to provide for easy travel and storage</u>. (MAG USA Today 2010)
>
> b. ERC: To the north, the Arctic Ocean has been dominated by **sea ice**, <u>which spreads into the Barents during the winter</u>. (MAG Ars Technica 2018)

The findings presented above provide evidence supporting the hypothesis that, being monadic, MRCs, as ERCs, conform to general structures at both clausal and sentential levels. The only factor that sets them apart are the distinctive properties of the middle construction.

Discussion

The similarities observed in the distribution of MRCs and ERCs are believed to be governed by general principles of sentence structure, namely the EWP and information structure, as well as properties inherent to RCs, such as their subject-relative clause structure and appositivity. Conversely, the differences between MRCs and ERCs stem from the distinct properties of the middle construction, as posited in the stated hypothesis.

The EWP, in conjunction with subject-relative clause structure, influences the frequency of RCs appearing at the ends of sentences. The productivity of MRCs and ERCs in sentence-initial positions is determined by information structure and appositivity. The demands of information structure often place definite heads at the beginning of sentences, a pattern reinforced by the non-at-issue quality of appositive phrases.

The analyses presented below delve into the factors driving the occurrence of MRCs and ERCs, highlighting the intricate interplay between syntax, semantics, and pragmatics.

1) Weight of RCs

The data provide partial support for the role of EWP as, while the majority follow the EWP, heavy arguments with MRCs and ERCs also appear at the beginning of sentences, as shown in (32).

> (32) a. MRC: And **three interchangeable tip sections**, <u>which store conveniently inside the hollow butt</u>, cover [any condition]. (MAG Outdoor Life 1994)
>   b. ERC: **The weed**, <u>which grows up to 3 inches a day and can produce a half-million seeds per plant</u>, was first observed in [Minnesota in conservation land in 2016]. (NEWS Minneapolis Star Tribune 2019)

Examples (32) have heavy subjects with RCs at the beginning and end with lighter arguments, as shown in brackets. Although the sentences that end with light arguments are in the minority, they have been found to be fairly common in the sample. Wu and Chitrakara's (2020a, 2020b) and Khaphaeng and Chitrakara's (2023) studies on sentences in expository prose and fiction found that their examples tend not to follow the EWP because sentential positions can also be determined by information structure. Nevertheless, with more than 80%

of RCs conforming to EWP, the EWP can be considered one factor governing the sentence structure.

2) RCs as TOPIC and COMMENT

The concepts of TOPIC and COMMENT were applied to classify the pragmatic functions of constituents in the data. Based on the previously classified data, RCs in initial, medial, and final positions are reanalyzed into TOPIC, COMMENT2, and COMMENT1, respectively. In initial position, structural topics and subjects are TOPIC, where the structural topic is *scene-setting* TOPIC (Lambrecht, 1996, p. 147) while the structural subject is *subject* TOPIC (Lambrecht, 1996, p. 147; Wu & Chitrakara, 2020a, 2020b)*,* as demonstrated in (33).

(33) a. MRC: [ssTOP According to **the La Llorona** (which translates to weeping woman) legend], a woman named Maria kills her children by drowning them in order to be with the man she loves. (BLOG hollywoodreporter.com 2012)

b. ERC: [sTOP **The glacier**, which spreads 1,327 square kilometers (512 square miles) across the mountain,] has been moving up to 50 centimeters (nearly 20 inches) a day. (NEWS Columbus Dispatch 2019)

While the MRC in (33b) modifies the subject TOPIC (sTOP), that in (33a) is part of the scene-setting TOPIC (ssTOP), a topicalized DP.

To include all possible positions of predicate RCs, constituents in COMMENT are divided into COMMENT1 (COM1), sentence-final RC, and COMMENT2 (COM2), an RC in the penultimate constituent. Following Firbas's (1971) concept of Communicative Dynamism (CD), COM1 in final position displays the greatest degree of CD, followed by COM2 with less CD, as demonstrated below in (34).

(34) a. MRC: The bug [COM1 affects **all Titan Bluetooth keys**, which sell for $50 in a package that also includes a standard USB/NFC key, that have a "T1" or "T2" on the back.] (MAG TechCrunch 2019)

b. ERC: The storm is getting ornery, [COM2 switching over to **sleet**, which freezes on top of the snowy streets,] making it that much more difficult for the plows and ordinary drivers. (SPOK ABC_Nightline 2007)

(34a) has an MRC at COM1, the main clause object position, while (34b) has the ERC at COM2, a prepositional phrase object (PPO) followed by a clause.

RCs in COMMENT

Both MRCs and ERCs appear more frequently in COMMENT than TOPIC, especially COMMENT2 (See Tables 4-8). Both definite and indefinite RCs were found in the data, with more definite than indefinite heads, as in examples (35).

(35) Definite Heads
   a. MRC: Solitude [COM2 reigns at **the four-bedroom stand-alone guest house** <u>(which sleeps eight)</u>,] or at several high -- country cabins and yurts, most of which are the lone accommodations on a trout-filled lake. (MAG Sunset 2003)
   b. ERC: Many nations have a stake in the Alpine slopes because the snow and ice feed Europe's four major rivers, the Rhine, the Rhone, [COM1 **the Po and the Danube**, <u>which spill into three different seas</u>]. (NEWS Houston Chronicle 1992)

The appositive MRCs in (35) modify definite heads in COMMENT. In (35a), the MRC is at COMMENT2 modifying the PPO, the given information referring to lake-side accommodation - part of a topic discussed in the magazine. The MRC is in COM2 because it precedes another constituent. In (35b), the ERC is in COM1 modifying the definite head, *the Po and the Danube*, which modifies the object of the subordinate clause. Both ARCs fulfill information structure by providing new information to the given heads.

In the realm of information structure, definite heads typically align with the concept of TOPIC. Despite their frequent occurrence in COMMENT, it is suggested that this phenomenon mirrors the inherent characteristics of middles (Simargool, 2005) and ARCs (Tse & Hyland, 2010). In contrast to definite RCs, which modify definite heads, the RCs depicted in (36), modifying indefinite heads, are perceived as providing supplementary new information to render the heads relevant, as illustrated below.

(36) Indefinite Heads
   a. MRC: The extra-wide skate-inspired deck -- available in black with red grip tape -- is made of a webbed design carbon reinforced composite [COM1 that is supported by **a long, lightweight handlebar**, <u>which folds to provide for easy travel and storage</u>.] (MAG USA Today 2010)
   b. ERC: Winds then whip up the waters, allowing the dissolved metal to combine efficiently with oxygen [COM1 to form **solid manganese oxide**, <u>which sinks to the lake bed</u>.] (MAG Popular Science 2015)

Within examples (36) are ARCs modifying indefinite heads. In (36a), the MRC is in the *by* phrase, while in (36b), the ERC modifies the object of the subordinate clause. In spite of the fact that the indefinite heads fulfill information structure by presenting new information, the indefinite RCs are less frequent in COMMENT.

The higher frequency of definite ARCs in COMMENT highlights the characteristics of the middle construction and ARCs. The appearance of more indefinite ERC heads in COMMENT, however, suggests that ERCs are more likely to conform to the information structure than MRCs.

RCs in TOPIC

ARCs in TOPIC are also mostly definite for both MRCs and ERCs, with the MRCs being the productive majority. The large number of definite DP heads in TOPIC is typical for information structure (F&T, 1990; Li & Thompson, 1976), as shown in (37).

(37)   Definite Heads
  a. MRC: [ssTOP According to **the La Llorona** (which translates to weeping woman) legend,] a woman named Maria kills her children by drowning them in order to be with the man she loves. (BLOG hollywoodreporter.com 2012)
  b. ERC: [sTOP1 **This small stubble lichen**, which grows on a common bracket fungus (Trichaptum abietinum) on conifers,] has only recently been described (Allen and McMullin 2015). (ACAD: Northeastern Naturalist 2017)
  c. MRC: Tight turns [sTOP2 **The helm seat**, which adjusts fore and aft electronically,] is the center section of the three-person bench. (MAG Motor Boating 1999)
  d. ERC: The first thing to say about [PPOS **the New York Film Festival**, which opens tonight (with Ang Lee's adaptation of "Life of Pi") and runs through October 14th, is that its main-slate selections and many sidebars, laid end-to-end in time, would seemingly take a sleepless month to exhaust. (WEB newyorker.com 2012)

The above examples in (37) represent RC definite heads in all possible TOPIC positions: ssTOP, sTOP1, sTOP2, and PPOS respectively. In TOPIC, the RCs provide background to the given heads (F&T, 1990) to make them relevant to the context (Loock, 2007).

Only two instances of indefinite MRCs and 6 instances of indefinite ERCs were found, as shown in (38).

(38) Indefinite MRC
    a. And **three interchangeable tip sections**, <u>which store
        conveniently inside the hollow butt]</u>, cover any condition.
        (MAG Outdoor Life 1994)
    b. Fees for **tent cabins**, <u>which sleep 25 to 30 people]</u>, include
        meals and transportation to the ranch and range from $55 a
        night per adult to $15 a night for young children. (MAG
        National Parks 1995)

Examples (38), are the only MRCs with indefinite heads in the data.
Even though they provide new information, they are TOPICs because they are
related to the preceding context. In (38a), *three interchangeable tip sections* is
part of *the quivertip's limber tip* in the preceding context*,* while in (38b), *tent
cabins* are available in national parks is the topic discussed in the magazine.
More indefinite heads were found with ERCs, two of which are shown below.

(39) Indefinite ERC
    a. **Aluminum**, for example, <u>which melts at 933.5 K</u>, would have a
        homologous temperature of 0.31 at 20C, or 293.16 K. We
        should (and do) see creep in aluminum at room
        temperature. (ACAD Mechanical Engineering 2003)
    b. **Watercolors**, <u>which dry rapidly in the savanna air</u>, proved
        much more satisfactory. (ACAD Natural History 1996)

The same explanation for (38b) applies to (39), whose indefinite subjects
are related to the topics discussed in the publications. The indefinite subjects,
however, can also be stylistic. Smolka (2011) believes that they are due to
avoidance of the expletive *there*. The expletive usually appears to introduce
COMMENT when TOPIC is not available. *There* could seem "monotonous and
clumsy" in descriptive passages; therefore, indefinite subjects are used as
alternatives (Smolka, 2011).
    With the exception of 8 instances of indefinite RCs, most ARCs in
TOPIC are definite, conforming to information structure (Li & Thompson,
1976), as well as the general characteristics of ARCs (Tse & Hyland, 2010), and
middle verbs (Simargool, 2005).
    With the majority of definite heads both in TOPIC and COMMENT
positions, it can be concluded that the property of modifying definite heads in
middle and appositive constructions is influential in information structure. They
are likely to maintain their definite identities regardless of the position. While
the definite heads in TOPIC provide given information, those in COMMENT
conform to information structure as new information in their modifying
appositive RCs.

3) MRCs and ERCs as Subject-relative Clauses

The smaller number of ARCs in TOPIC could be due to their structure as subject-relatives depriving them of the chance to appear in sentence-initial position. F&T (1990) found that the syntactic property of subject-relatives, whose subject is relativized resulting in the lack of overt subject in the RC, lessens the chances for the subject-relative to appear with non-human subjects. F&T state that "non-human subject heads tend to occur with object-relatives" (p. 303). As the heads of most RCs in the data are non-human and the RCs are subject-relatives, the likelihood of appearing in TOPIC is already slim.

The lack of connection between non-human subjects and the subject-relative is explained via the concept of *grounding*. F&T state that an argument is cognitively grounded when "its referent" is relevant in conversational space. At the subject position, a non-human argument may not yet be grounded because it is early in the clause; as a result, it needs to be *anchored* to make it relevant. Anchoring is a way to ground an argument by providing a referent, as exemplified in F&T in (40) below.

(40)   … **the problem** <u>I have</u> is my skin is oily … (F&T, 1990, p. 303)

The DP subject head in (37) becomes relevant through the pronoun *I*. That is, the pronoun *I* anchors the subject making it known to the hearer. Pronouns are usually used to anchor subjects as they are suited to anchor non-human subjects because it is best to introduce non-human arguments through people with some connection to them (F&T, 1990, p. 303)[6]. Therefore, an object-relative clause with overt subject is often used to ground a non-human subject, which is why subject-relatives, such as (41) are in the minority in TOPIC.

(41)   a.   MRC: **Its four bags**, <u>which fold into one</u>, can hold $300 worth of groceries and fit like a jigsaw puzzle into a shopping cart. (NEWS USA Today 2010)
       b.   ERC: **The path**, <u>which bends away to the left and becomes narrower</u>, suggests the ancient topos of the Way or path of life, and, in its invitation into the depth of the image, builds on the optical patterns discussed above. (ACAD October 2000)

In examples (41), it is possible for subject-relatives, such as the underlined MRC and ERC, to appear in TOPIC because the heads could also be grounded through *proposition-linking* (F&T, 1990, pp. 300-301). That is, the referent of the head can be found in the earlier discourse (F&T, 1990, pp. 300-301), as demonstrated in (42), with the italicized preceding context.

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[6] The claim likely arises from F&T's spoken data as it is generally known that in other contexts, such as academic texts, human references are infrequently mentioned.

(42) a. ***My Eco** with busy moms like herself in mind*. **Its four bags**, <u>which fold into one</u>, can hold $300 worth of groceries and fit like a jigsaw puzzle into a shopping cart. (NEWS USA Today 2010)

   b. *The photograph captures **a path through a vineyard**, with rugged hills in the background, a stone wall or terracing on the right*. **The path**, <u>which bends away to the left and becomes narrower</u>, suggests the ancient topos of the Way or path of life, and, in its invitation into the depth of the image, builds on the optical patterns discussed above. (ACAD October 2000)

In (42), the DP head of the MRC in subject position is grounded through its link with the preceding context.

The discussion above presents a few possible reasons for the low frequency of MRCs in TOPIC, specifically, their syntactic property as subject-relatives and typical non-human DP subjects. In such cases, the subject-relative does not provide proper pragmatic grounding for a non-human element in TOPIC. Although TOPIC grounding is possible by proposition-linking, the number of ARCs in TOPIC does not fully reflect the claim by F&T that "non-human subject heads", like subjects of the middles, "tend to occur with object-relatives" (F&T, 1990, p. 303) since the occurrence of "non-human subject heads" in RCs with subject-relatives is not uncommon in the data. As F&T only discuss the general property of RCs, the specific properties of ARCs are explored.

4) At-Issueness of RCs

The subject-relative clausal structure of the RC partly explains their low frequency in TOPIC. In spite of their small number, the appearance of RCs in TOPIC is not infrequent, in fact, it can be considered productive even though F&T claim that subject-relatives tend to appear in COMMENT. The frequency of ARCs in TOPIC may be due to the fact that they are not-at-issue subject relatives. Nestled in the main clause, their content is seen as secondary and not subject to rejection, as demonstrated below in (43).

(43) a. MRC: **The new 7-inch Kindle**, <u>which ships on Friday</u>, is much improved from the original Fire and has new features. (WEB allthings.com 2012)
Response: No, it is like the original one. / #No, it ships on Saturday.

   b. ERC: **The weed**, <u>which grows up to 3 inches a day and can produce a half-million seeds per plant</u>, was first observed in Minnesota in conservation land in 2016. (NEWS: Minneapolis Star Tribune 2019)
Response: No, I believe it was 2006. /#No, I believe it only grows an inch a day.

Examples in (43) show that the information in the RCs, modifying the subject, is not at-issue, so their rejection is infelicitous. This may be due in part, to the low CD value in subject position. Sentence-finally, however, content in RCs is of a higher CD value, so become at-issue, as shown in (44).

> (44)   a. MRC: Then, you've got literally every option for **Podrick Payne**, <u>which read like the best fan fiction ever</u>. (MAG Gizmodo 2017)
>   Response: No, I don't think it's that good.
>   b. ERC: Choose shiny or satiny finishes instead of **mattes**, <u>which sink into lines</u>. (MAG Good Housekeeping 2009)
>   Response: No, my matte works fine.

In (44), the final ARCs, in the predicate, in sentence-final position, are subject to direct rejection as they are at-issue in this position having the highest CD, asserting new information. An at-issue analysis of the ARCs shows that they have a degree of freedom in their at-issueness, depending on position, which is why many can appear in TOPIC. Being not-at-issue in non-sentence-final position, they are not responsible for subject grounding.

Non-final MRCs, which include those in initial and medial positions, occur in almost half the data in the present sample. The number suggests that ARCs are productive in both at-issue and not-at-issue positions, with MRCs being more productive than ERCs in non-final position.

5) ARB agent in MRCs

The main difference between the MRC and the ERC is the existence of ARB agent in the MRC, which is believed to function like a pronoun in anchoring non-human subjects, enabling the MRCs to appear in TOPIC more often than the ERCs, as demonstrated in (42) below.

> (45)   a. MRC: **The wearable**, <u>which attaches around your waist</u>, picks up on your breathing and transmits your respiration patterns to your smartphone -- which is next to your bed, right? (MAG Engadget 2017)
>   b. ERC: **This small stubble lichen**, <u>which grows on a common bracket fungus (Trichaptum abietinum) on conifers</u>, has only recently been described (Allen and McMullin 2015). (ACAD Northeastern Naturalist 2017)

Examples in (45) are MRCs and ERCs in TOPIC. The ERC in (45b), being an intransitive ergative, has no human referent in the clause. Its non-human subject head, thus, lacks an in-clause human referent to anchor it, which may explain the low frequency of ERCs in TOPIC. The alternative source of referent is the context in the preceding sentence, which can ground the non-human subject via

propositional-linking (F&T, 1990). Unlike the ERC in (45b), in (45a), the non-human subject-head *the wearable,* of the MRC, *which attaches around your waist* – a subject relative - is anchored by ARB agent, who attaches the wearable. ARB agent in the MRC, which refers to a person, covertly exists in the clause. The MRC's subject-head is thus assumed to be well-anchored by ARB agent leading to its productivity in TOPIC.

6) Context of RCs

While ARB agent makes the MRC versatile in a sentence, the same cannot apply to its context. The existence of the middle ARB agent limits the context of the MRC. As ARB agent causes modality and genericity (Roberts, 1987), with the theme-subject, the middle, as well as the MRC, become suitable in a generic context about human experience interacting with objects or other people, for example, in instructions, conveyance of product information, and personal descriptions, as in (46) below.

(46)   a. Rental costs for **a 33-foot RV like mine**, <u>which sleeps nine</u>, are about $1,500 a week. (NEWS USA Today 2013)
       b. **The Big Falcon Ship (BFS)**, <u>which rides at the tip of the 118-meter long BFR like a giant hood ornament</u>, is designed to hold up to 100 people and 1100 cubic meters of cargo. (MAG Engadget 2018)

The instances in (46) are specific facts about product quality and operation. They constitute a majority of instances in the data found mainly in specific contexts. Contextual limitations in application of the middle construction are likely due to its complex semantics and simple structure overlapping with active sentences. The productivity of the middles, however, is supported by the Economy Condition, which suggests that syntactic representations involve as small a number of constituents and operations as possible (Radford, 2009, p. 383). With its simple structure, the middle is not only suitable for product descriptions, but also for spoken language describing experiences of ARB agent when interacting with a theme. An MRC is, thus, considered more economical when compared to similar constructions, such as RCs with the passive or the *tough* construction as seen in (47b) and (47c), respectively.

(47)   a. MRC: Or you could use **enamel coated camping dishes** <u>which clean up nicely</u>... (WEB grandpappy.info 2012)
       b. Passive: Or you could use **enamel coated camping dishes** <u>which can be cleaned up nicely</u> …
       c. *Tough*: Or you could use **enamel coated camping dishes** <u>which are nice to clean up</u> …

The RCs in (47b) and (47c) are formed with the passive and the *tough* constructions, respectively, which, like the middle, comprise ARB agent, genericity, and modality (Roberts 1987; Krifka et al., 1995), but with more words. The MRC is, therefore, the more suitable construction for the given context where time and space are limited.

Unlike with MRCs, there are no limitations on possible contexts for use of ERCs. As most of the data sampled is in present tense, the context is mostly generic; however, it encompasses various genres, such as news, fiction, documentaries, and academic journals, especially those concerning nature, where there is no agent, as in (48).

(48) a. I've interrupted **a game of dominos**, <u>which spills over the slats of their wooden crate in a clacking dance of stars</u>. (FIC Literal Latte 2002)

b. **A layer of active permafrost**, <u>which freezes and thaws annually</u>, begins 0.1 m below the surface layer and extends to approximately 0.5 m in depth. The true permafrost layer then begins at 0.5 m beneath the surface. (ACAD Bioscience 1999)

c. When applied to the body, the ointment releases microscopic amounts of **nitric oxide gas**, <u>which sinks through the skin</u>. (MAG Science News 2011)

d. Oh, and don't miss **the pork dumplings in the Asian food section**, <u>which burst hot and flavorful soup in your mouth upon biting</u>. (NEWS Orange County Register 2013)

Examples in (48) show the various contexts in which the ERC appears, which can be either narrative or expository, and either formal or informal, reflecting different semantic relationships between heads and their RCs, and providing relevance, but also "narrative dynamism" (Loock, 2007).

7) Semantics of ARCs

Based on Loock's (2007) analysis on the semantic relations between appositives and their heads, there are continuative appositive relative clauses (CARC), relevance appositive relative clauses (RARC), or subjectivity appositive relative clauses (SARC). (48a) above is an example of CARC, which creates narrative dynamism in fiction, while (48b) is RARC making the head relevant to the context. Although Loock states that RARC can include SARC, this is not the case for the ERCs above because no modality is implied. The inclusion of SARC in RARC enhances the difference between ERCs and MRCs as the latter are RARC which inherently include SARC because of inherent modality, as demonstrated in (49a).

(49) a. MRC: **the carriages**, <u>which open and close like an accordion</u>
(MAG American Craft 2004)

b. ERC: **the Venus flytrap**, <u>which closes to snare insects</u> (MAG
Natural History 2015)

Examples in (49) both describe facts and are RARC, but only (49a) is subjective
with the implication of ARB agent and modality, which can be SARC. For the
ERC to be SARC, an overt modal has to be added. SARC and RARC exist
together in all the MRCs, none of which can be CARC because MRCs, being
generic, do not create narrative dynamism. They are RARC because they make
their heads relevant in the context, while they are also SARC because of the
implied modality of the middle reflecting subjectivity.

The above discussion presents the arguments regarding the appearance of
appositive MRCs and ERCs in different sentential positions. It suggests that the
distribution of both could be partly due to EWP because the majority of RCs in
sentence final position are heavy; however, to account for all the data,
information structure should also be taken into consideration. Careful analysis
of the definiteness of RCs reveals that their definiteness alone does not
determine position, as definite RCs can appear frequently as both TOPIC and
COMMENT and can be more productive than indefinite RCs in COMMENT.
Givenness and newness can also be determined through context. An indefinite
DP in TOPIC can be related to the preceding context, while the definite DP in
COMMENT, in this study, can present new information via an RC.

Another influential factor that affects position is the RC's subject-
relative structure, which tends to limit position to COMMENT. The relative
frequency of subject-relatives in TOPIC can be due to ARCs not being at-issue
in non-final sentential positions, thus enabling them to appear in TOPIC without
having to ground the subject. The factor that supports the sentence-initial
appearance of MRCs is their ARB agent. ARB agent not only anchors the
sentence-initial subject-relative, but also determines the context in which they
appear, i.e., facts about quality or performance of products or people, which are
likely to follow the Economy Condition. Such specific contexts finally specify
the relationship between appositive MRCs and their heads as RARC and SARC,
which differs from the ERCs in the data, which tend to occur as RARC or
CARC.

Conclusion

This study emerges from interest in the pragmatic function and syntactic
positions of appositive MRCs compared to ERCs. It is based on the hypothesis
that even though the middle construction - a pragmatically-oriented construction
- harmonizes with the main clause through an RC, the distinctive properties of
the middle construction still play an important role in its occurrence. To capture

the behavior of MRCs, their monadic theme-subject counterpart, the ERCs, were examined to compare their behavior. The results show that both appear in all argument positions, with both definite and indefinite heads. Both also abide by EWP and the requirements of information structure with a minority appearing in TOPIC. The ERCs, however, appear far less in TOPIC compared to MRCs. Despite appearing in TOPIC and COMMENT, both tend to appear with definite heads, confirming the influence of the general property of ARCs and the middles.

The small but significant minority of RCs occurring in TOPIC, is believed to be due to at-issueness. The non-sentence-final appositive is seen as providing secondary information, which is not at-issue. The sentence-initial appearance of MRCs is also supported by ARB agent, which helps anchor the non-human DP head in TOPIC. ARB agent also allows the middle to appear in generic contexts. Because of its context, the MRC is considered RARC, providing relevance to the head. It is also SARC because of its modality, unlike the ERC, which, without an overt modal, can be either RARC or CARC.

Even though the sample of 66 instances of MRCs is small, together with the 116 instances of ERCs, they provide a complete picture of how appositive theme-subject RCs appear and function in sentences. It can be concluded that the ARCs mainly express their identity as appositive phrases through the qualities of definiteness and the option of at-issueness. MRCs harmonize well with ERCs and the main clause without losing their identity, which can be seen in ARB agent, which affects the context and facilitates their appearance in TOPIC.

This study is believed to be the first to focus on the RC with monadic constructions. It not only sheds light on the appearance of theme-subject RCs, but also the behavior of definite and indefinite DP heads of ARCs in different argument positions. Further studies on similar monadic constructions such as the *tough*, the unergative, and passive constructions could provide further insight into the current findings.

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