Effects of grammatical roles and parallelism on referential form production in Vietnamese spoken and written narratives
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Abstract. This study investigates the use of null and overt pronouns and noun phrases in Vietnamese spoken and written narratives, with a focus on referents’ grammatical roles and grammatical parallelism. Looking at Vietnamese allows us to address questions left open in prior work regarding the effects of pronominal form (null, overt) on reference resolution in different grammatical positions. Furthermore, looking at the use of Vietnamese pronouns adds typological breadth to the literature on reference resolution: Vietnamese overt pronouns differ typologically from pronouns in English-type languages as they also function as kin terms. Results from data we collected involving spoken and written narratives show that referential form choice is influenced not only by the grammatical role of the antecedent but also the grammatical role of the pronominal element. When the subject of the current clause refers to the subject of the preceding clause (subject parallelism), we find a high rate of (null and overt) pronouns. Lack of parallelism triggers mostly NPs. When the object of the current clause refers to the object of the preceding clause (object parallelism), more pronouns were produced than in non-parallel cases. Crucially, we find no clear differences in the distribution of null vs. overt pronouns, suggesting that grammatical roles and parallelism have the same effects on both pronoun types. Our results also show no effects of written vs. spoken modality, which indicates that modality does not play a role in the interaction between grammatical factors and referential form choice.

Keywords. Reference resolution; pronouns; Vietnamese; subjecthood; parallelism; narrative

1. Introduction.

It is widely agreed that entities in a discourse vary in their salience/prominence: At a particular point in time, some entities are more salient or prominent in the discourse participants’ mental models than other entities. Prior work suggests that the salience level of entities influences speakers’ referential form choice as well as comprehenders’ interpretation of referential forms. (Ariel, 1990; Givón, 1983; Gundel et al., 1993). It is frequently suggested that more reduced referential forms tend to be used for highly salient referents while fuller referential forms tend to be used for less salient referents. Thus, if a language has both null and overt pronominal forms, null pronouns are often used to refer to highly salient referents while overt pronouns are used to refer to less salient referents, as shown in (1).

| (1) | Most salient referents | Null pronouns | Overt pronouns | Less salient referents | NPs |

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The claim that there exists a relationship between the salience of the referent and the type of referring expressions leads to the question of what influences how salient referents are. Prior work indicates that referents’ salience can be influenced by a number of factors, including the grammatical role of the antecedent (e.g. subject vs. object) (Chafe, 1976; Crawley and Stevenson, 1990) and whether the pronoun and its antecedent occupy parallel grammatical roles (i.e. both elements are in subject position or in object position) (Smyth, 1994; Chambers and Smyth, 1998). The work we report in this paper builds on this insight that referential form use depends not only the grammatical role of the antecedent but also on the grammatical role of the anaphoric form. As we discuss below, theories of referential form cannot focus solely on a notion of salience derived on the prior realization of the antecedent but also have to take into account the argument structure of the anaphor-containing sentence.

Many of the fundamental studies on grammatical parallelism effect have largely focused on English and English overt pronouns (e.g. Smyth, 1994; Stevenson et al., 1995; Chambers and Smyth, 1998). Consequently, even though it is widely known that null and overt pronouns across languages have different properties (e.g. Spanish: Alonso-Ovalle et al. 2002; Italian: Carminati, 2002; Japanese: Clancy, 1980; Chinese: Li and Thompson, 1979), to the best of our knowledge, little is known about the extent to which grammatical parallelism can affect the comprehension and production of null and over pronouns.

In this paper, we report a narrative study on Vietnamese, a language that allows null and overt pronouns in both subject and object position. We examine how and whether Vietnamese speakers’ choice of referential forms, particularly null and overt pronouns, is influenced by (i) the grammatical role of the antecedent and (ii) the grammatical role of the referring expression – in particular, whether they have the same grammatical role (grammatical parallelism) or not.

Thus, the first aim of our work is to shed light on referential form choice in a context where the alternation between null and overt pronominal forms has not previously been systematically considered. The second aim of our work is to investigate potential modality effects (spoken vs. written language) on reference production. Prior work suggests that spoken and written language differ with regards to kinds of referential forms that are produced (see Chafe and Tannen (1987) for an overview). Generally speaking, it has been said that written language consists of more NPs while spoken language has more pronouns (e.g. Biber et al., 1999; Christensen, 2000). However, these studies mostly discuss overall counts and many of them contain data from different genres with various levels of formality. Thus, it is difficult to know whether the differences are due to modality per se or to other properties that have been correlated with modality in these prior studies.

Thus, in the current study, we carefully consider the effect of modality (written vs. spoken) on the choice of referential form, while keeping the genre and level of formality constant by using explicit instructions. This allows us to test for potential differences between written and spoken language more directly.

The structure of this paper is as follows: In the remainder of section 1, we discuss previous findings on the effects of grammatical role, grammatical parallelism and modality on referential form interpretation and production. We also discuss the nature of the Vietnamese pronominal system and compare it to other topic-drop languages and other pronominal systems. In Section 2, we describe the spoken and written narratives tasks that we used to elicit data as well as how the data was analyzed. Section 3 presents the results from the written and spoken tasks and provides a comparison between the two types of data. Section 4 discusses the implications of our findings, compares them to findings from other languages, and outlines directions for future work.
1.1. Grammatical roles and grammatical parallelism

One well-known factor that influences referents’ salience is grammatical role (e.g. being realized in subject or object position) (Chafe, 1976; Crawley and Stevenson, 1990). To identify salient referents, prior work has often used pronoun interpretation or subsequent mention likelihood as a diagnostic. In one of the earliest works on this topic, Chafe (1976) presented a number of observations and argued that subjects indeed have a special prominent cognitive status - for example, that knowledge about subjects is more readily accessible than knowledge about other parts of sentences. The special status of subjects has been confirmed in a number of studies (e.g. Perfetti and Goldman, 1974; Crawley and Stevenson, 1990; Gordon et al., 1993). For instance, Crawley and Stevenson (1990) conducted a series of experiments to investigate how grammatical role can influence the comprehension and production of referential forms in single sentences and in short paragraphs. In some instances, participants had to continue a fragment ending in a pronoun (e.g. Shaun led Ben along the path and he...), and in other instances, no pronoun prompt was provided in the sentence completion task (e.g. Shaun led Ben along the path and...). The condition with the pronoun prompt requires comprehension of the pronoun before a continuation can be provided, whereas the no-prompt condition allows participants to produce the referential forms of their choice (e.g. ellipsis\(^1\), pronoun, name). Crawley and Stevenson found that in both comprehension and production, participants are more likely to continue by referring back to the subject (rather than the object). They also found that ellipses (i.e. the most reduced referential form) are the most frequently used referential form to refer to subjects, following by pronouns and then names. Names are mostly used for objects. These results confirm that being the grammatical subject has a strong impact on referents’ salience, which in turn increases the likelihood of mention. Moreover, the choice of referential form is in line with the salience-hierarchical approach (Ariel, 1990; Givón, 1983; Gundel et al., 1993) in that speakers tend to use more reduced referential forms (e.g. ellipses) to refer to the highly salient subjects while using fuller forms (e.g. names) to refer to the less salient objects.

The effect of grammatical roles is also reflected in parallelism effects (Smyth, 1994; Stevenson et al., 1995; Chambers and Smyth, 1998). Chambers and Smyth (1998) found that pronouns, at least in English, tend to prefer antecedents in matching grammatical positions: Pronouns in subject position tend to be interpreted as referring back to preceding subjects, and pronouns in object position tend to be interpreted as referring back to preceding objects. However, to the best of our knowledge, work on grammatical parallelism has focused on English (overt) pronouns and has not systematically looked at the null vs. overt pronoun distinction.

Although the null vs. overt distinction has not been investigated systematically in parallelism configurations, a large body of prior work has investigated the referential properties of null and overt pronouns in subject position. Before continuing on to review this prior work, it is important note that broadly speaking, languages with both null and overt pronouns come in two types: pro-drop languages which have rich subject-verb agreement, and ‘topic-drop’ languages which typically lack verb agreement. Prior work on pronoun interpretation in pro-drop

\(^1\) The term ‘ellipsis’ is used by Crawley and Stevenson (1990) to indicate that the subject of the second clause in a pair of conjoined verb phrases is missing and is not used to define a linguistic category. In these conjoined verb phrases, the subject of the first clause is also the subject of the second clause (e.g. Clare led Ben along the path and told him to keep well to the inside). As seen in the example, Clare is not explicitly mentioned in the second clause; thus, there is an ellipsis.
languages such as Italian and Spanish has led researchers to conclude that the antecedent’s grammatical role is crucial for the use and interpretation of null and overt pronouns in subject position: While null pronouns tend to refer back to preceding subjects, overt pronouns tend to refer to preceding objects (e.g. Alonso-Ovalle et al., 2002; Carminati, 2002).

1.2. Topic-drop languages

In this paper, we focus on referential forms in a topic-drop language – Vietnamese – for several reasons. First, topic-drop languages have null and overt pronouns occurring in both subject and object position. This distributional property allows us to expand the investigation beyond overt pronouns and subject pronouns. In addition, the availability of null and overt pronouns in both subject and object position means that we can investigate the full range of parallel and non-parallel configurations (as explained below in Section 1.1) with both null and overt pronouns. This would not be possible if we were to investigate pro-drop languages which have strict/heavy constraints on the use of null pronouns in object position. Thus, topic-drop languages are an ideal tool to explore the interaction between pronominal form, the grammatical role of the antecedent (subject or object), and crucially, also the grammatical role of the referring expression (subject or object).

Previous work suggests that the null vs. overt pronoun distinction in topic-drop languages appears to be less clear than in pro-drop languages. Several studies looking at Chinese pronouns in narratives suggest that the choice between null and overt pronouns appears to be in free variation and reflects speakers’ personal interpretations of the discourse context (Li and Thompson 1979) as well as speakers’ personal preferences (Christensen, 2000). However, while the results in Li and Thompson (1979) suggest that null pronouns seem to be the common, default form, other work (Chen, 1986; Christensen, 2000) found that both null and overt pronouns are used frequently in narratives. These studies indicate that speakers’ choice and discourse structure have the main influence on the use of null and overt pronouns in Chinese.

In contrast, other work shows that null and overt pronouns in Chinese are strongly influenced by syntactic structure. In terms of comprehension, Yang et al. (1999, 2003) conducted a number of self-paced reading studies and found that grammatical role (subject vs. object) has a strong effect on how rapidly pronouns are read in Chinese. For example, in a reading-time study reported in Yang et al. (1999), participants slowed down when repeated names rather than null or overt pronouns were used to refer to prior-mentioned referents – but only when the repeated names occurred in subject position (see also Gordon et al. (1993) on the repeated name penalty in English). In fact, Yang et al.’s (1999) follow-up study found that slow-downs only occurred when a repeated name in subject position was used to refer back to a preceding subject (subject parallelism). In addition, Yang (2003) found that participants read subject pronouns faster when they referred back to the preceding subject than to the preceding object, even in contexts that favored object interpretations. As a whole, these findings show that Chinese null and overt pronouns in subject position have an interpretation preference toward antecedents in subject position.

In related work, Simpson et al. (2016) examine the comprehension of Chinese overt pronouns in subject position through a series of sentence completion experiments. These studies mostly focus on transfer-of-possession verbs (e.g. send, give, kick). Simpson et al. (2016) found that participants tend to interpret overt subject pronouns in the continuations as referring back to the preceding subject. Although this tendency can be modulated by other discourse factors such as the nature of the event (e.g. perfective vs. imperfective) and the type of coherence relation
(e.g. Explanation vs. Occasion), evidence for a subject preference remains strong. Put together, the results in Yang (1999, 2003) and Simpson et al. (2016) emphasize the importance of the antecedent’s grammatical role. However, these studies did not explore the production aspect of null and overt pronouns. Furthermore, they have only focused on subject pronouns and have not yet examined object pronouns. Thus, further work is needed to obtain a more complete picture.

Related work has been conducted in Japanese, another topic-drop language. Hinds (1975, 1983) and Clancy (1980, 1982) investigated Japanese null and overt subject pronouns by means of questionnaires, conversations and narratives and found that the use of overt pronouns in Japanese is very restricted, compared to null pronouns. One potential explanation for this restriction lies in the fact that Japanese overt pronouns are historically derived from nouns and exhibit semantic and syntactic behaviors similar to nouns (Kuroda, 1965), which is different from pronouns in other languages such as Chinese. For example, kare in Japanese can function as a pronoun meaning ‘he’ and a noun meaning ‘boyfriend’. Kare can also take modifiers and determiners similar to nouns do (e.g. areshii kare ‘happy guy’) (Hinds, 1975). It is important to note that although null pronouns are not found in traditional-styled narratives in Japanese (according to Clancy, 1980), they can occur in daily conversations (according to Hinds, 1975, 1983; Amano and Kondo, 2000).

Null and overt pronouns in subject position in Japanese have also been examined by means of experimental work. Ueno and Kehler (2016) conducted a series of sentence completion studies on the interpretation of Japanese null and overt pronouns. Their experiments employed transfer-of-possession verbs as well as implicit causality verbs (e.g. surprise, praise). Similar to Crawley and Stevenson’s (1990) and Kehler and Rohde’s (2013) work in English, they had both pronoun-prompt condition (comprehension) and no-prompt conditions (production): Participants either had to interpret an overt subject pronoun before providing their continuations or they could freely use whatever referential form they would like. Similar to Simpson et al.’s (2016) study on Chinese, perfective and imperfective aspect were also manipulated. Furthermore, since Japanese has topic marking, Ueno and Kehler also manipulated topichood using topic vs. nominative marking on the preceding subject. The results of Ueno and Kehler (2016) show that Japanese overt pronouns in subject position, similar to English overt pronouns, are sensitive to a number of pragmatic factors (e.g. (im)perfective marking, implicit causality bias). In contrast, null subject pronouns have much less sensitivity to pragmatic manipulations, none for (im)perfective manipulation and only limited sensitivity to implicit causality manipulation. Nevertheless, both Japanese null and overt pronouns in subject position exhibit a subject bias similar to what has been found for Chinese subject pronouns.

In sum, crosslinguistically, it is unclear whether null and overt pronouns in subject position behave differently and how the grammatical role of the antecedent can affect the use of null and overt pronouns in topic-drop languages. Furthermore, null and overt pronouns in object position have not been systematically investigated in prior work.

1.3. Vietnamese

We choose Vietnamese – a topic-drop language - as the language of investigation for two reasons. First, Vietnamese allows both null and overt pronouns in both subject and object positions as shown in example (2). In (2b), null pronouns are used to refer back to both the preceding subject and object while in (2b*), an equivalent of (2b), overt pronouns are used. (Null pronouns are denoted with parentheses in the translation.)

(2) a. Văn nhìn thấy Nam trên đường về nhà.
Vân saw Nam on way back home
‘Vân saw Nam on her way home.’

b. Gọi máy lần nhưng anh không nghe.
Call several time but he not hear
‘(She) called (him) several times but he didn’t hear (her).’

b’. Cô gọi anh máy lần nhưng anh không nghe cô.
she call he several time but he not hear she
‘She called him several times but he didn’t hear her.’

Second, unlike many other languages discussed in the pronoun resolution literature, Vietnamese overt pronouns are most commonly derived from kinship terms\footnote{2}. Example (3) shows how ông ‘grandfather’ is used as kinship term in (3a), as the head of the NP in (3b), and as an overt pronoun in (3c). Thus, although we will use the term ‘overt pronoun’ when talking about these forms in Vietnamese, it is important to keep in mind that these are perhaps not typical pronouns.

(3) a. Ông của Lan vừa đến.
grandfather of Lan just arrive
‘Lan’s grandfather just arrived.’

b. Ông nông dân đang hái trái cây.
old.male.farmer PROG pick fruit
‘The farmer is/was picking fruit.’

c. Ông hái từng trái một.
old.male.he pick each fruit at once
‘He picked the fruit one by one.’

This kin term pronoun system distinguishes Vietnamese from other topic-drop languages such as Chinese and Japanese which have previously been studied. Chinese overt pronouns are similar to English-type pronouns in that they only denote number (and gender in third person pronouns in written Chinese) (Li and Thompson, 1981). Meanwhile, as shown in Section 1.2, Japanese overt pronouns have noun-like behaviors (Kuroda, 1965; Hinds, 1975, 1983). More importantly, the difference in Chinese vs. Japanese overt pronoun systems is also correlated with different patterns of use: Previous work on Chinese narratives shows that both null and overt pronouns are frequently used (Christensen, 2000). However, in Japanese narratives, null pronouns are the most frequent form while overt pronouns occur only rarely (Clancy, 1980, 1982). Null pronouns in Japanese are considered as the equivalent of English pronouns. In contrast, Japanese overt pronouns have very restrictive use with specific connotations (see Hinds, 1975 for a full discussion) and their occurrences are often considered to be due to influence of Western languages such as English. Thus, among topic-drop languages, null and overt pronouns vary greatly in their properties and usage. A closer look at the typologically different kinship pronoun system in Vietnamese can contribute valuable information regarding pronoun behavior crosslinguistically.

In this paper, we present our work on narratives as an initial investigation of null and overt pronouns in Vietnamese. We also aim to draw a direct comparison between pronouns in Vietnamese and in other topic-drop languages. Since previous studies on pronouns in Chinese and Japanese which also discuss spoken and written modality have used narratives (Christensen,
we also use a narrative task to keep our study maximally parallel to prior work.

Most importantly, we are interested in the effects that grammatical roles of the antecedent and of the referring expression itself have on referential form choice in both subject and object positions. A sentence completion task is typically used to investigate referents’ subsequent mentions in subject position but not in object position. Therefore, a narrative task which allows us to examine referents’ occurrences in both subject and object positions is better suited for our purposes.

Furthermore, in order to test for potential effects of spoken vs. written modality, we keep the number of referents and the genre constant in both written and spoken modalities. Prior work on narratives and modality only reports overall counts of referential forms without details about the grammatical positions of their occurrences (Clancy, 1980; Christensen, 2000). Additionally, many of these studies also look at written and spoken data in different genres (news vs. conversational) (Biber et al., 1999). Thus, the differences found may be due to the discourse type and not modality. Taking these factors into consideration, our study maintains maximal parallelism between our spoken and written narratives in genre and formality. We also include grammatical roles and grammatical parallelism in our analysis. Our goal is to shed light on the mechanisms licensing referential forms and to examine whether modality (i.e. the use of spoken vs. written language) indeed has a direct influence on these mechanisms.

2. Data collection

We used a narrative task based on the Pear film, similar to the narratives used in work on Chinese (Christensen, 2000) and Japanese (Clancy, 1980). The experiment consisted of two parts, spoken and written. Prior work on Chinese and Japanese either only discussed the overall counts of referential forms (Christensen, 2000) or how referential forms are used with regards to discourse structure (e.g. number of intervening clauses, number of intervening referents) (Clancy, 1980). In contrast, our study focuses on the mechanisms licensing referential form choice (null vs overt). Thus, we incorporate factors such as (i) grammatical roles of the antecedent and of the pronominal element and (ii) grammatical parallelism into our analysis and examine their influence on referential form use in both spoken and written modalities.

2.1. Method

Twenty native speakers of Vietnamese (living in Vietnam) participated in the experiment. First, each participant was shown the Pear film (Chafe, 1980) about a boy stealing pears. There are sound effects in the film but no spoken words. After watching the film, participants were first instructed to recount the story as if they were speaking to a friend who had not seen it. The narratives were recorded. This made up the spoken task of the experiment. After verbally narrating the story, participants were instructed to recount the story as if they were writing to a friend who had not seen the film. This made up the written task of the experiment.

2.2. Data Analysis

To prepare the data for further analysis, we transcribed the spoken narratives orthographically. We also included features of spoken language such as hesitations, pauses, false starts, repetitions and self-corrections in the transcription. When repetitions and self-corrections occurred, we only considered the final occurrence in the analysis, under the assumption that this is the version with
which participants were most satisfied. In the next step, we divided the spoken narratives into utterances. Following (Hurewitz, 1998) we define an utterance as a finite clause (i.e. containing a finite verb). Relative clauses are not considered as separate utterances and referents occurring in these clauses were excluded (Bel et al., 2010). Similarly, we used these criteria to divide the written narratives into finite clauses. For ease of exposition, we will use the term clauses to refer to both utterances in spoken narratives and finite clauses in written narratives. It is important to note that in this analysis, we only report cases in which referents occur in adjacent clauses. We did not encounter ambiguous pronouns in this dataset.

We coded all singular third-person human referents in adjacent clauses for (i) grammatical roles and (ii) referential forms. Regarding (i) grammatical roles, we coded referents’ grammatical roles in both the preceding and the current clauses (e.g. subject, object, possessive, etc.). In other words, we coded the grammatical roles of the antecedent and of the anaphoric element. For the purposes of the current work, we only discuss Subject and Object roles in our analysis. Four grammatical configurations were established based on referents’ preceding and current grammatical roles as shown in Table 1.

<table>
<thead>
<tr>
<th>Preceding clause (antecedent)</th>
<th>Current clause (anaphoric element)</th>
<th>Grammatical configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>Subject</td>
<td>Subject-Subject (Subject parallelism)</td>
</tr>
<tr>
<td>Subject</td>
<td>Object</td>
<td>Subject-Object</td>
</tr>
<tr>
<td>Object</td>
<td>Subject</td>
<td>Object-Subject</td>
</tr>
<tr>
<td>Object</td>
<td>Object</td>
<td>Object-Object (Object parallelism)</td>
</tr>
</tbody>
</table>

Table 1. Four configurations based on grammatical roles in preceding and current clause.

Regarding (ii) referential forms, since our goal is to observe how grammatical roles can influence the current choice of referential form (i.e. null pronoun, overt pronoun, and NP), we only coded referents’ referential forms in the current clause. Examples (4-7) illustrate how data is coded with regards to the four grammatical configurations. The referents of interest are in bold. Null pronouns are indicated in the English translations by pronouns in parentheses.

(4) a. khi câu bé này đi ngang qua một con đường
    when boy this go past a road
    ‘when this boy went past a road’
b. thì (Ø) gặp một cô bé cũng đi một chiếc xe đạp
    then (Ø) see a girl who also rode a bike
    ‘then (he) saw a girl who also rode a bike’

  ➔ Configuration: Subject-Subject  Referential form: null pronoun

(5) a. câu thấy ba câu bé đang đứng trước mặt mình
    he see three boy PROG stand front face self
    ‘he saw three boys standing in front of him’
b. một câu bé đỏ câu đây
    a boy pull he up
    ‘a boy pulled him up’

  ➔ Configuration: Subject-Object  Referential form: overt pronoun

(6) a. thì (Ø) đã dỗ cái câu bé này đẩy
    then (Ø) PAST pull CL boy this up

8
‘then (they) pulled this boy up’

b. **cậu bé này lúc này đau chân**
   **boy this time this hurt leg**
   ‘at this time, this boy hurt his leg’

   ⇒ Configuration: **Object-Subject**  Referential form: **NP**

(7) a. **thì nó gặp một bé gái đi ngược chiều**
   **then he see a girl go opposite direction**
   ‘then he saw a girl going on the opposite direction’

b. **và do (Ø) mãi nhìn bé gái**
   **and because (Ø) busy look girl**
   ‘and because (he) was busy looking at the girl’

   ⇒ Configuration: **Object-Object**  Referential form: **NP**

When counting null pronouns, we excluded those that occur in coordinate constructions with “and”, “but” and so on. We did this to avoid inadvertently inflating the number of null pronouns. Even in languages like English, standardly analyzed as not allowing pro-drop, coordination structures like “Lisa went home and made a sandwich” and “Lisa went to the library but could not find her friend” allow what superficially looks like a missing pronoun/NP (i.e. ‘ellipsis’ in Crawley and Stevenson (1990) discussed in section 1.1). As a result, excluding these types of structures in our analyses ensures that all null pronouns reported in our results are ‘proper’ null pronouns and not analyzable in terms of coordination.

3. Results

In this section, we first present some general information about the narratives. We then discuss how referential forms are used with regards to the four grammatical configurations in Table 1. In the present paper, we focus on the details of the written task. We also provide a summary of the spoken task which is presented in more detail in Ngo and Kaiser (2018). Finally, we will draw a comparison between written and spoken results.

Let us first look at the length of the narratives. We removed hesitations, pauses, repetitions and self-corrections from the spoken narratives prior to performing the word count to keep them parallel with the written narratives. Table 2 shows that on average, the spoken narratives are longer than the written narratives considering both the average number of words and the average number of clauses. We also calculated the average number of words per clause for each participant and averaged them across all participants. The result shows that spoken clauses are longer than written ones. In sum, the written narratives are shorter than the spoken narratives.

This is in line with prior work on written vs. spoken differences, specifically that spoken language tend to be more elaborate while written language is more concise (e.g. Drieman, 1962; Horowitz & Newman, 1964; Tannen, 1982).

<table>
<thead>
<tr>
<th></th>
<th>Avg. word</th>
<th>Avg. utterance</th>
<th>Avg. word per utterance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>317.2</td>
<td>35.45</td>
<td>9.15</td>
</tr>
<tr>
<td>Spoken</td>
<td>381.45</td>
<td>39.85</td>
<td>9.91</td>
</tr>
</tbody>
</table>

Table 2. Average length of the narratives by word count, utterance count, and average number of words per utterance among participants.
Table 3 shows the overall use of null pronouns, overt pronouns and NPs in the narratives based on the four configurations discussed in Table 1 above. As seen in Table 3, among the three types of referential forms, null pronouns and NPs occur slightly more frequently than overt pronouns. Additionally, we found no difference between written and spoken narratives with regards to referential form use. These patterns might seem to suggest that, at least at this broad level, referential form choice occurs randomly/at chance since there is no clear preference for any of the forms. However, as we show later in this paper, this is not the case. When grammatical roles and grammatical parallelism are taken into account, clear patterns of preference start to emerge. Thus, it is important to not only look at the overall frequency of referential form use but also to consider the environment in which the forms occur.

<table>
<thead>
<tr>
<th></th>
<th>Null pronouns</th>
<th>Overt pronouns</th>
<th>NPs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>35%</td>
<td>30%</td>
<td>35%</td>
<td>100%</td>
</tr>
<tr>
<td>Spoken</td>
<td>34%</td>
<td>30%</td>
<td>36%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3. Overall percentages of null pronouns, overt pronouns and NPs used in written and spoken narratives.

3.1. Referential Forms in Written and Spoken Narratives

Let us first look at the written results. We first examined how frequently participants used each type of grammatical configuration in Table 1 in their narratives. When participants produced an NP or a (null or overt) pronoun in subject position or object position, we noted what position the antecedent was in. In Table 4 and Figure 1, as in Table 1, the first part of each label refers to the grammatical role of the antecedent and the second part refers to the grammatical role of the pronoun or NP (e.g. Subject_antecedent-Subject_anaphoric_element). We found that re-mentioning of the same referent is mostly likely to occur in the Subject-Subject configuration (Subject parallelism). As seen in Table 4, the Subject-Subject configuration occurs at a rate of 76%, far more frequently than any of the other three configurations.

<table>
<thead>
<tr>
<th></th>
<th>Subject-Subject</th>
<th>Subject-Object</th>
<th>Object-Subject</th>
<th>Object-Object</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>76</td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4. Percentage of each configuration.

We also investigated referential form choice (i.e. null pronouns, overt pronouns, NPs) in the current clause in each grammatical configuration. Figure 1 shows that the Subject-Subject configuration (Subject parallelism) mostly occurs with pronouns (null pronouns + overt pronouns = 74.71%), whereas the other three configurations consist of mostly NPs (> 55% NPs in each configuration). To examine the pattern of pronoun vs. NP across the four configurations, we conducted a series of chi-square tests. The results suggest that the distribution of pronouns

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3 We used chi-squared test for the statistical analyses, although we realize that aspects of our data are not ideal for this statistical test. Our elicited-narration technique yielded a corpus of multiple narratives and thus involves multiple observations from each participant. However, our open-ended task differs from the standard, more narrowly-controlled within-subjects design often used in psycholinguistics, and although we have multiple observations from each person, the nature of these observations is highly variable across participants. This, as well as the fact that our analysis of pronominal forms involves analyzing responses dependent on the syntactic
vs. NPs in the Subject-Subject configuration differs significantly from the other three – as expected from the patterns in Figure 1. Specifically, participants produced significantly more pronouns (null + overt pronouns) relative to NPs in the Subject-Subject configuration than in the Subject-Object (p < .001), the Object-Subject (p < .001), and the Object-Object configurations (p < .01). We also compared the use of null vs. overt pronouns in the Subject-Subject configuration and found no significant difference between the two forms (p = .06) – as the patterns visible in Figure 1 lead us to expect.

Figure 1. Percentages of referential forms in four grammatical configurations in written task. (The first part of each label refers to the grammatical role of the antecedent and the second part refers to the grammatical role of the pronoun or NP (e.g. Subject\_antecedent-Subject\_anaphoric\_element).

A closer look at the other three configurations, Subject-Object, Object-Subject and Object-Object (Object parallelism) shows that the proportion of pronouns vs. NPs used in these configurations are not significantly different from each other (p = .39). However, the proportion of pronouns in the parallel Object-Object configuration is numerically slightly higher than those in the non-parallel Subject-Object and Object-Subject configurations, 44% compared to 33% and 24% respectively.

Let now turn to the spoken results. A detailed discussion of the spoken data can be found in Ngo and Kaiser (2018). Overall, patterns of the spoken narratives resemble those of the written narratives as seen in Figures 2 and 3. Participants mostly use the Subject-Subject configuration to refer to referents in adjacent clauses (78.85%). With regards to referential form choice in the current utterance, results of a series of chi-square tests confirm that the distribution of pronouns vs. NP use in the Subject-Subject configuration (Subject parallelism) differs significantly from the other three configurations. Specifically, pronouns (null pronouns + overt pronouns = 73.18%) are the dominant choices in the Subject-Subject configuration. In contrast, the other three configurations Subject-Object, Object-Subject and Object-Object consist of mostly NPs (> 60% NPs in each configuration). With regards to the null vs. overt pronoun choice in the Subject-Subject configuration, participants show no preference for either null or overt pronouns (p = .13).
We also examined the pronoun vs. NP choice in the other three configurations, Subject-Object, Object-Subject and Object-Object (Object parallelism). No significant difference was found in the distribution of pronouns and NPs ($p = .08$) among these configurations. Nevertheless, the parallel Object-Object configuration has slightly more pronouns (39.13%) than the other non-parallel Subject-Object and Object-Subject configurations (35.29% and 13.33% respectively). More interestingly, while the non-parallel Subject-Object and Object-Subject configurations have no null pronouns at all, the parallel Object-Object configuration elicits 26.1% null pronouns.

3.2. Comparing Written and Spoken Results.

In this section, we examine the effects of modality (i.e. written, spoken) on (i) the use of grammatical configurations as well as (ii) the choice of referential forms in each configuration. For this purpose, we provide a side-by-side comparison of the written and spoken results in Figures 2 and 3.

Figure 2 shows the proportions of grammatical configurations used in the written and spoken narratives. We observe the same patterns in both types of narratives. In particular, the Subject-Subject (Subject parallelism) configuration has the highest frequency of use (more than 75% of all occurrences). The other three configurations occur at a similar rate as seen in Figure 2. In short, there is no effect of modality on the occurrences of grammatical configurations.

![Figure 2](image.png)

Figure 2. Proportions of the four grammatical configurations in written and spoken narratives.

In terms of referential form use, we conducted a series of chi-square tests to compare the numbers of null pronouns, overt pronouns and NPs in each grammatical configuration between written and spoken narratives. The results show that Vietnamese participants do not differ in their referential form use in writing and in speaking ($p’s = n.s.$). In both types of narratives, the Subject-Subject configuration differs significantly from the other three configurations. Figure 3 shows that in the Subject-Subject configuration, pronouns (null + overt pronouns) are the preferred forms. However, in the other three configurations, participants exhibit a preference for NPs over pronouns. This preference for NP use is very clear in the non-parallel Subject-Object and Object-Subject configurations. Interestingly, the parallel Object-Object configuration, although still yielding a high number of NPs, has slightly more pronouns than the non-parallel configurations. Most prominently, in the spoken narratives, null pronouns are found in the parallel Object-Object configuration, but they did not occur at all in the non-parallel configurations. In sum, modality does not affect Vietnamese participants’ choice of referential
form across all four grammatical configurations. Nevertheless, in both modalities, we find that the four configurations elicit different kinds of referential forms (as can be seen in Figure 3, and as we previously discussed in Section 3.1).

Taken together, our results show no effects of modality on how Vietnamese participants use either grammatical configurations or referential forms with respect to these configurations. The lack of modality effect on referential form choice in the current study contrasts with previous claims that pronouns and NPs occur at different rates in written and in spoken language (Biber et al., 1999; Christensen, 2000).

![Figure 3. Percentages of referential forms in four grammatical configurations in written-spoken.](image)

**4. General discussion**

In this paper, we have reported a narrative experiment investigating the effects of (i) grammatical roles, (ii) grammatical parallelism and (iii) modality on speakers’ referential form choices in Vietnamese. We are particularly interested in how Vietnamese null and overt pronouns are used. This interest stems from the fact that Vietnamese not only allows null and overt pronouns in both subject and object positions but also has a complex kinship pronoun system that differs from other topic-drop languages such as Chinese and Japanese. Thus, this paper aims to add to our understanding of pronoun behavior in typologically different languages.

The narrative experiment has two parts, spoken and written. We instructed participants to recount the Pear film first by speaking, and then by writing. We analyzed the narratives taking into account (i) referents’ grammatical roles in the preceding and current clauses and (ii) their referential forms in the current clause. This method allowed us to investigate the extent to which grammatical roles and grammatical parallelism affect referential form choice. The results of both spoken and written narratives show that grammatical role and grammatical parallelism play a key role in Vietnamese speakers’ choice of referential form. Specifically, Vietnamese speakers use significantly more pronouns (null and overt pronouns combined) when the grammatical subject role is maintained across clauses (i.e. Subject parallelism). In contrast, the non-parallel configurations (i.e. Subject-Object, Object-Subject) result in mostly NPs. Interestingly, we also detect hints of a parallelism effect in the Object-Object configuration (i.e. Object parallelism). Although NPs are the most frequent choice, Vietnamese speakers produced more pronouns (null
and overt pronouns) in the Object parallelism configuration than in the non-parallel ones. We also observed parallelism effects in the patterning of null pronouns in the spoken narratives: null pronouns only occurred in Subject and Object parallelism configurations. Nevertheless, the Subject and Object parallelism configurations differed in their overall patterns with Subject parallelism favoring pronouns and Object parallelism favoring NPs. These patterns indicate that grammatical role still has a strong impact on referential form choice.

We are also interested in the potential role of modality (i.e. spoken vs. written) on the production of Vietnamese referential forms. Our results show that modality has no significant effect on Vietnamese speakers’ referential form choice when the level of formality and subject matter being described are kept parallel in spoken and written descriptions. The patterns of pronoun and NP use are similar in parallel spoken and written narratives. Moreover, Vietnamese speakers also use null and overt pronouns similarly in both modalities. At first glance, this finding seems to contradict prior claims that written language utilizes more NPs than spoken language (Biber et al., 1999) and that null pronouns are used increasingly more in written than in spoken narratives (Li and Thompson, 1979; Christensen, 2000). However, there is a major difference between these studies and our work. Whereas previous studies report the number of tokens without specifying the environment of occurrence (Christensen, 2000; Clancy, 1982), our study report these numbers with respect to grammatical roles and grammatical parallelism. Crucially, including grammatical factors in the analyses allows us to obtain a clearer view of the underlying mechanism licensing use of different referential forms, particularly null and overt pronouns. Thus, the lack of modality effects in our results suggests that the same underlying mechanism guides production of referential forms in both spoken and written Vietnamese, which we regard as a desirable conclusion.

Another focus of attention in the current study is the choice of null vs. overt pronouns in Vietnamese. The equal use of null and overt pronouns in our results is in line with the findings in Chinese in that speakers tend to use both null and overt pronouns equally (Christensen, 2000). Our results also distinguish Vietnamese pronouns from Japanese pronouns (Clancy, 1980, 1982). It has previously been claimed that the restrictive use of Japanese overt pronouns is due to the fact that they are historically derived from nouns and are rich in semantics. Consequently, they cannot occur freely as null pronouns do (Hinds, 1975, 1983). However, there does not seem to be any similar restriction for the semantically rich Vietnamese kinship overt pronouns.

The equal rates of Vietnamese null and overt pronouns in our study, specifically in the Subject parallelism case, pose a challenge to the salience-hierarchical approach (Givón, 1983; Ariel, 1990; Gundel et al., 1993). According to the salience hierarchy, null pronouns -- being the more reduced referential form -- should be chosen more frequently than overt pronouns to refer to highly salient subject referents. Since we did not observe a clear preference for null pronouns, one might assume that Vietnamese null and overt pronouns have similar sensitivities to referents’ salience. There are two factors that may influence pronoun use which have not been explored in the current study. First, although the grammatical subject is often the topic of discourse (Givón, 1983) and it is highly salient (Crawley and Stevenson, 1990), being the grammatical subject does not always entail being a topic (Lambrecht, 1994). As a result, the second subject in our Subject parallelism configuration is likely to be a topic but does not have to be one. Indeed, another experiment reported by Ngo and Kaiser (2018) shows that when the subject is explicitly marked as the topic by passivization, Vietnamese speakers strongly prefer null pronouns to overt pronouns. Consequently, one may question the degree to which the grammatical subjects function as topics in the narratives.
Second, another factor which our analysis has not accounted for is coherence relation. Previous work shows that production and comprehension of pronouns is influenced by the type of coherence relation between clauses (Kehler, 2002; Kehler & Rohde, 2013). With regards to topic-drop languages, Simpson et al. (2016) confirm the effects of coherence relations on the likelihood of mention and referential form use in Chinese. They found that the Explanation relation results in more continuations referring back to the preceding subjects than the Occasion relation does. This indicates that the subjects in Explanation relations are more likely to be topics. Although we have not computed the details regarding coherence relation in our data, an initial preliminary examination suggests that there was a high amount of Occasion relations in our narrative data. According to Kehler (2008), Occasion is the typical relation used in narratives. In this light, the subjects in our narratives are not “strong topics”, which might be why null pronouns were not the dominant referential form choice. We aim to disentangle these factors in future work.

In sum, our results have indicated that grammatical role and grammatical parallelism play an important role in how Vietnamese speakers choose referential forms. We found that not only subjecthood but also grammatical role parallelism increase pronoun use. In contrast, if the referring expressions and its antecedent are not in parallel grammatical roles, and in particular if they are not both subjects – we observe a significant increase in the production of NPs. Unlike prior work, our study found no effects of written vs. spoken modality, indicating that the effects of grammatical roles and parallelism on referential form use are not affected by modality. These results highlight the importance of considering referents’ grammatical roles in adjacent clauses when investigating speakers’ choice of referential form. Regarding the distinction between Vietnamese null and overt pronouns, no differences were found in the current study (but see Ngo & Kaiser 2018 regarding topicality). We conclude that grammatical roles and parallelism have similar effects on both Vietnamese null and overt pronouns. Interestingly, despite the fact that Chinese, Japanese and Vietnamese are all topic-drop languages, overt pronoun use varies crosslinguistically. Although Vietnamese overt pronouns are semantically rich kinship terms, they are very frequently used similar to Chinese overt pronouns (Christensen, 2000). This contrasts with Japanese overt pronouns which are historically derived from nouns, and as claimed in Hinds (1975, 1983), are used restrictively due to their semantics. Finally, to our knowledge, this is the first experimental investigation of a kin-term-based pronoun system.

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4 An Explanation relation occurs when a follow-on sentence is used to provide an explanation of the content of a preceding sentence.
5 An Occasion relation occurs with a temporal sequencing of events, the content of one sentence preceding that of a second sentence in time.
References


