Production of Referring Expressions: the Case of Color Overspecification

Jeeranan Arden
Language Institute, Thammasat University

Abstract

Prior investigations (e.g., Davis & Katsos, 2009; Engelhardt et al., 2006; Rubio-Fernández, 2016) suggest that native speakers of English tend to be overspecified in their referring expressions by including unnecessary adjectival modifiers that do not serve to differentiate the intended referent from other objects in the context, and the most redundantly provided modifiers have been found to be color terms. The phenomenon is known as color overspecification, and contradicts the Maxim of Quantity (Grice, 1975), which states that speakers are expected to provide sufficient information but no more than is necessary for their interlocutors. This study was conducted on Thai EFL speakers to examine whether the phenomenon also occurs in EFL settings. The study examined the participants on their referring expressions in which objects in comparison were in monochrome and in polychrome. The experimental items were adapted from the study of Rubio-Fernández in 2016 as they could yield findings concerning the phenomenon. The findings revealed that the majority of participants produced overspecified referring expressions concerning color terms in the two experimental conditions. They, however, did it significantly more often when objects in the context were in polychrome. This suggested that shades of color play a role in reference production as well. The findings also revealed underlying factors that could influence the participants' referring expressions. Overall, what is noteworthy is that the results of the study have proven that color overspecification occurs not only to native speakers but also to EFL speakers.

Keywords: Reference Production, Referring Expressions, Color terms, Color Overspecification, Overspecification

การใช้คำอ้างอิง: กรณีการใช้คำบรรยายสีที่เกินความจำเป็น

บทคัดย่อ

การศึกษาวิจัยก่อนหน้า (Davis & Katsos, 2009; Engelhardt et al., 2006; Rubio-Fernández, 2016) ชี้ให้เห็นว่าเจ้าของภาษาอังกฤษมีแนวโน้มที่จะใช้คำอ้างอิงมากเกินควรโดยใช้คำขยายคุณศัพท์อย่างไม่จำเป็นซึ่งคำขยายเหล่านั้นไม่มีผลต่อการแบ่งแยกวัตถุอ้างอิงที่ต้องการเจาะจงออกจากวัตถุอื่น ๆ ในบริบทการสนทนาได้และยังพบว่าคำขยายที่ใช้อย่างฟุ่มเฟือยดังกล่าวเป็นคำศัพท์ที่เกี่ยวข้องกับสี ปรากฏการณ์ดังกล่าวเป็นที่รู้จักกันในชื่อ การใช้คำบรรยายสีที่เกินความจำเป็น (color overspecification) และขัดแย้งกับคติบทปริมาณ (Maxim of Quantity) (Grice, 1975) ซึ่งกล่าวว่าผู้พูดควรให้ข้อมูลที่เพียงพอต่อคู่สนทนาแต่ข้อมูลดังกล่าวต้องไม่มากเกินความจำเป็น การศึกษาชิ้นนี้จัดทำขึ้นในกลุ่มคนไทยที่พูดภาษาอังกฤษเป็นภาษาต่างประเทศเพื่อศึกษาว่าปรากฏการณ์ดังกล่าวเกิดขึ้นในบริบทการใช้ภาษาอังกฤษเป็นภาษาต่างประเทศหรือไม่ การศึกษาชิ้นนี้สำรวจผู้เข้าร่วมในเรื่องการใช้คำอ้างอิงเพื่อกล่าวถึงวัตถุที่รายล้อมด้วยวัตถุสีเดียวกันและวัตถุที่รายล้อมด้วยวัตถุหลายสี วัตถุที่ใช้ในการทดลองครั้งนี้ดัดแปลงมาจากวัตถุที่ใช้ในงานวิจัยของ Rubio-Fernández ค.ศ. 2016 ผลการศึกษาเผยให้เห็นว่าผู้เข้าร่วมการวิจัยส่วนใหญ่ใช้คำอ้างอิงเพื่อบรรยายสีที่เกินความจำเป็นในสภาพการทดลองสองรูปแบบ อย่างไรก็ตาม ผู้เข้าร่วมการวิจัยบรรยายวัตถุที่รายล้อมด้วยวัตถุหลายสีเกินความจำเป็นมากกว่าวัตถุที่รายล้อมด้วยวัตถุสีเดียวกันอย่างมีนัยสำคัญ แสดงให้เห็นว่าเฉดสีมีบทบาทสำคัญต่อการใช้คำอ้างอิงเช่นกัน ผลการศึกษาครั้งนี้ยังเผยให้เห็นถึงปัจจัยซ่อนเร้นต่าง ๆ ที่ส่งผลต่อการใช้คำอ้างอิงของผู้เข้าร่วมการวิจัย โดยสรุป ประเด็นที่น่าสังเกตคือผลการศึกษาครั้งนี้พิสูจน์ให้เห็นว่าการใช้คำบรรยายสีที่เกินความจำเป็นไม่เพียงแค่เกิดขึ้นกับเจ้าของภาษาอังกฤษเท่านั้นแต่ยังเกิดขึ้นกับผู้ใช้ภาษาอังกฤษเป็นภาษาต่างประเทศอีกด้วย

คำสำคัญ: การอ้างอิง การใช้คำอ้างอิง คำศัพท์ด้านสี การใช้คำบรรยายสีที่เกินความจำเป็น การใช้คำบรรยายที่เกินความจำเป็น

Introduction

Referring expressions are an essential part of communication in both writing and speaking. In order to have successful communication writers and speakers should provide readers and listeners with sufficient information for the purpose of identifying an intended referent. According to Grice (1975), when engaging in a verbal conversation speakers should make their

contributions as informative as required i.e. speakers should provide enough information that allows listeners to encode the entities that are being talked about. For example, in a context where there is only one doll, a speaker can utter *the doll* and it allows a listener to identify the intended referent. If there is more than one doll, then enough detail should be provided for a listener such as *the big doll*, *the brown* doll, or *the doll on the table* etc. Speakers should not make their distributions more informative than is required i.e. speakers should not include extra detail that is unnecessary. For instance, in a context where there is only one chair, a speaker is not supposed to include any modifiers in his or her utterance referring to *the chair* due to the fact that unnecessary information could affect listeners' ability to identify the intended referent, which in turn could hinder listeners' comprehension (e.g., Engelhardt, 2008; Engelhardt et al., 2006; Grodner & Sedivy, 2011; Sedivy, 2003; Sedivy, 2006; Sedivy, 2007, as cited in Engelhardt et al., 2011, p. 305).

Speakers have been found to not observe the Maxim of Quantity by Grice (1975) by making their utterances more informative than is required. Various research studies concerning language production have been conducted in which the results reveal that native speakers often overspecify their referring expressions by producing utterances that contain unnecessary modifiers for unique identification (e.g., Engelhardt et al., 2006; Davis & Katsos, 2009; Nadig & Sedivy, 2002), and of all the overspecified referring expressions, what has been found to be included in speakers' utterances the most are *color* adjectival modifiers (e.g., Arts et al., 2011; Davies & Katsos, 2013; Nadig & Sedivy, 2002; Rubio-Fernández, 2016; Tarenskeen et al., 2015). To illustrate, in a context where there are *one red cup* and *one yellow plate*, speakers tend to choose either *the red cup* or *the yellow plate* as their utterance for unique identification when in fact they can say either *the cup* or *the plate* and listeners will still be able to identify the intended referent without the need to include any color adjectival modifier. According to Arts et al. (2011), Gatt et al. (2013) and Koolen et al. (2013), "color is preferred because it is intrinsically salient" (as cited in Tarenskeen et al., 2015, p. 3). Also, color is an absolute attribute which means that speakers do not need to compare

surrounding objects in order to determine the color of the intended referent. In other words, color is believed to provide strong cues in visual contexts; hence, the high tendency of color overspecification in referring expressions produced by speakers.

The findings of the aforementioned research studies have led the researcher to focus on the phenomenon of color overspecification in EFL settings in this study, which is the case of Thai EFL learners, particularly because the attention on the phenomenon has only been given to native speakers of English. Color overspecification was heavily tested with native speakers of English, whereas no research, to the author's knowledge, did so with Thai EFL learners who use the language as a part of their daily life. There cannot be a unanimous conclusion that the phenomenon of overspecification often occurs and that color is redundantly preferred in the production of referring expressions when the research data has been collected and analyzed solely from one group of language users – native speakers. This study, therefore, aims to examine Thai EFL learners on their production of referring expressions concerning color adjectival modifiers in order to gain additional knowledge. With new findings from EFL settings, the area of language production will move towards a conclusion whether it is really the case that the phenomenon of color overspecification often occurs when it comes to the reference production. They will also lead to more profound investigations on human language production, which in turn could draw a conclusion as to why people choose to produce referring expressions the way they do. Additionally, the results will provide further information for people who are currently working in the field of language production so that they can use the information as a primary data for future research studies in order to find out whether the fact that speakers tend to overspecify their utterances for unique referent identification is on the grounds that it facilitates better comprehension or it is based on something else.

Literature Review

Reference Production

Referring expressions are an essential property of language when it comes to verbal communication. People converse with each other using utterances that usually consist of references that are meant to refer to things in the world. When people refer to things, they constantly make choices about how exactly they will use words to identify entities or properties that are parts of the intended referential target. Each of the choices they make could be semantically acceptable; however, they could differ in terms of pragmatic appropriateness. People's choices of referring expressions fall along a continuum of explicitness (Chafe, 1976, 1994; Givón, 1983; Ariel, 1990, 2001; Gundel et al., 1993, as cited in Cummins & Katsos, 2019, p. 474). For example, to refer to *a doll* that is a part of the context and is known to the addressee before, using the utterance *it* instead of *a doll* is pragmatically appropriate because *a doll* has already been put in the addressee's background knowledge. On the other hand, it would not be pragmatically appropriate if a speaker refers to *Mike* for the first time using the pronoun *he*, for the addressee would not be able to identify who *he* is due to the fact that the name *Mike* has never been mentioned before in the context. To give another example of people's choices of referring expressions, in a situation where a speaker talks about his or her favorite *blue plate*, a speaker would not be likely to tell a story using repeated explicit information (I bought *the blue plate* from England. *The blue plate* cost me over a thousand pounds. I would not trade *the blue plate* with anything else.) since the entity *blue plate* has been introduced to the addressee in the first sentence. Using repeated explicit words would sound strange and unnatural, which in turn could affect the addressee's ease of understanding. According to Cummins and Katsos (2019), speakers' referring expressions are based on various dimensions regarding explicitness (see **Table 1**).

Table 1: Choices between referential expressions by Cummins and Katsos (from Cummins & Katsos, 2019, p. 475).

Referential dimension	**Examples**
Modified vs. unmodified	*the red cup* or *the cup I saw* vs. *the cup*
Explicit name or description vs. pronoun	*Jane/the president* vs. *she*
Definite vs. indefinite	*the cup* vs. *a cup*
Name vs. description	*Jane* vs. *the president*

The present study will focus on one referential dimension which is *modification* since it is the referential choice in which speakers have to decide whether they would include anything more than a noun to talk about the intended referent, and for this study the main focus will be on referring expressions that contain a color adjectival modifier and a noun. It is a crucial referential choice for the reason that appropriate referring expressions are indispensable for successful communication in as much as giving insufficient or less explicit information might cause both speakers and addressees to miscommunicate. On top of that, information that is too explicit might also impede listeners' comprehension.

Gricean Maxims

Grice's theory of Conversational Implicature (1975) includes four maxims of conversation i.e. Quality, Quantity, Relation, and Manner. The theory plays a pivotal part in the area of reference production. Out of the four maxims, the Maxim of Quantity is mostly involved with the production of referring expressions because it relates to the quantity of information to be provided at the time of communication. The category of quantity includes two maxims which are (1) Make your contribution as informative as is required for the current purposes of the exchange, and (2) Do not make your contribution more informative than is required (Grice, 1975). In other words, speakers are expected to provide sufficient information and no more than is necessary to the addressees for the purpose of communication. To give an instance, when referring to a car in a showroom full of cars, a speaker is considered to conform to the first submaxim when he or she produces an expression, for example, *the red sedan* or *the sedan closest to the elevator*,

that distinguishes the car in question from the other cars. This way, the speaker makes his or her contribution as informative as is required. In connection with the second submaxim, a speaker is not expected to provide additional information other than an expression *the car* if there is only one car present at the time of communication. This way, the speaker complies with the second submaxim by not making his or her contribution more informative than is required. The Maxim of Quantity is crucial for the production of referring expressions in a way that it helps guide speakers to be aware of how much information they should give in order for the addressees to be able to understand what is literally stated without the need for extra pragmatic judgment from the addressees (Cummins & Katsos, 2019).

Referential Overspecification

When speakers produce a referring expression, they decide how much information should be included in order for an addressee to understand as well as to identify the intended referent. Consistent with Grice's theory, informativeness is one theoretical approach which sheds light on how people refer to things in the world. Speakers aim towards communicative success when they make any referential expression, therefore, they think about the right amount of information to be put into their utterances. According to Tarenskeen (2016), the degree of informativeness is dependent on the context at the time of conversation. To illustrate, imagine that someone enters a walk-in closet full of handbags in distinctive colors, two of which are in the color orange and only one of them is made of leather. If this person produces an expression *look at the orange leather handbag*, the referring expression is informative enough for the listener to identify the referent. On the other hand, the same referring expression would not be sufficiently informative if this person entered a walk-in closet full of small and big orange handbags made of leather. Besides, the same referring expression would be considered over informative if there was only one handbag in the walk-in closet since the color (*orange*) and material (*leather*) modifiers are redundant which, regarding Cummins and Katsos (2019), could risk the listener drawing a

false contrastive inference. The referring expression in the last context is an example of referential overspecification.

Referential overspecification is an expression that has at least one attribute which is not necessary for unique referent identification in a given context. To put it another way, an overspecified referring expression consists of a noun and one or more unnecessary modifiers which can be adjectives (a *big* towel), prepositional phrases (a towel *in the bathroom*), and/or relative clauses (a towel *which she just bought*). Taking Grice's Conversational Implicature and the informativeness approach into account, a speaker is supposed to avoid referential overspecification for easy understanding. Many research studies, however, have revealed that overspecification is in fact common (e.g., Davis & Katsos, 2009; Engelhardt et al., 2006; Nadig & Sedivy, 2002). In Engelhardt et al. (2006, experiment 1), participants were asked to instruct their addressee to move the target object (an apple) to a different location (from a towel to another towel and from a towel to a box). The participants were found to produce referring expressions that contained redundant modifiers approximately one third of the time. Moreover, most overspecified referring expressions have been found to contain unnecessary color adjectival modifiers (e.g., Arts et al., 2011; Davies & Katsos, 2013; Nadig & Sedivy, 2002; Rubio-Fernández, 2016; Tarenskeen et al., 2015). In Davies and Katsos (2013, experiment 3), participants were asked to instruct a listener to pass on the target object to them. Their referring expressions were analyzed and found to be overspecified. Overall, fifty-four percent of the referring expressions were included with color modifiers. To conclude, regarding the aforementioned studies, speakers tend to produce overspecified referring expressions, and the overspecification is often color overspecification.

Color Preference

According to Eikmeyer's (2000) perceptual classification, people classify objects based on their distinctive features. Color, which is a context-independent feature, is classified before other context-dependent features of the objects (as cited in Belke, 2006, p. 265). In other words, color is an absolute attribute. This could be why people select color modifiers to be a

part of their utterances even before considering other modifiers (see for example, Brown-Schmidt & Konopka, 2011). In Brown-Schmidt and Konopka (2011), their eye-tracking results revealed that speakers often start producing color adjectival modifiers before fixating their eyes on color-contrastive items on the computer screen, whereas they rarely perform the same action when items were size-contrastive ones. In other words, speakers spend less time when producing expressions to refer to items of the same type but in a different color, while they take more time before they produce expressions to refer to items of the same type but in a different size. This could be interpreted as implying that since color is context-independent, speakers do not feel the need to compare surrounding objects before they start producing their utterances, which in turn causes them to provide more information than is actually needed for the unique referent identification.

Moreover, regarding Tarenskeen et al. (2015), the fact that color adjectival modifiers are chosen to be included in speakers' referring expressions, even though they are not always necessary, is based on the grounds that they are noticed immediately before other attributes are i.e. color is a salient attribute. For example, one blue pencil surrounded by yellow ones is more likely to be noticed than a small pencil surrounded by big ones. It can be said that speakers provide color adjectival modifiers because color attracts their eyes which results in the production of reference containing color. To summarize, color adjectival modifiers are preferred in speakers' reference production in the context in which they are not necessary for unique referent identification could be owing to their salience and absoluteness.

Related Studies

On the report of Davies and Katsos (2013), in the third experiment on production of referring expressions, twenty-four university students whose mother tongue was English were asked to instruct an unreal listener who would appear on the computer screen to pass one of the objects which would later be shown on the screen in a way that the listener would easily understand. The target object was indicated in a separate booklet which was

given to the participants beforehand. Their instructions were to be recorded and later analyzed by the researchers. In one of the example visual stimulus arrays, there were four pictures including a strawberry, a closed bag, an open bag and a zebra. The participants would be considered to give optimally informative referring expressions if they said, for instance, *pass me the closed bag*. If the participants produced an utterance, for example, *pass me the leather closed bag.*, their referring expressions would be considered over-informative or overspecified. Also, an utterance *pass me the bag* in this context would be considered under-informative or underspecified. Tokens of overspecified referring expressions were elicited from all of the 960 referring expressions produced by the participants. The researchers found that of all the overspecified referring expressions, color was the attribute that was most frequently provided redundantly by the participants, and the percentage of color overspecification was 54. The second most redundantly provided attribute was size, which was 20 percent. Following was the third most redundantly provided attribute, which was material, and the percentage of this overspecification was 8. This experiment serves as evidence for color overspecification in the production of referring expressions.

Similarly to the study of Davies and Katsos (2013), one of Tarenskeen et al.'s (2015) experiments concerning overspecified referring expressions was conducted in order to investigate the rates of color, pattern and size overspecification. Their hypothesis for this experiment was that the rates of color and pattern overspecification would be higher than that of size overspecification based on how much more salient and absolute color and pattern attributes are when compared with size attributes. The participants were eighteen native speakers of Dutch at Radboud University. Stimulus materials were six drawings of clothes. For instance, the first array consisted of six different garments; three of them were green and the others were blue. The second array consisted of six different clothes, different in pattern, in which three of them were spotted and the others were striped. The third array consisted of three small and three big articles of clothing. The task the participants had to perform was to instruct an unreal interlocutor to click on one of the pictures on the computer screen. The participants were asked to

give an instruction in a way that the interlocutor could click on the correct target picture. They were also told that the pictures were placed differently on the interlocutor's screen so that the participants could not refer to the target picture using the location on the screen. The results manifested that color overspecification was produced the most often with the mean score of 0.55, followed by pattern and size overspecification with the mean scores of 0.42 and 0.01, respectively. The results proved to be consistent with what the researchers had predicted. The tendency of color and pattern overspecification in referring expressions was rather high due to the fact that both attributes are salient and absolute. The fact that color overspecification was found to be produced most often in this experiment is another piece of information on how people produce their referring expressions when they communicate with others.

Additionally, Rubio-Fernández (2016) conducted an experiment on thirty-nine undergraduate students from University College London and the University of Kent. They were all native speakers of English. The purpose of the experiment was to investigate whether the participants would produce more color overspecified referring expressions in polychrome displays in which each object including the target referent had its own unique color than in monochrome displays where all objects were in the exact same color. During the experiment, the participants were shown displays of paper clothes. For example, one display consisted of four garments e.g. a pair of shoes, a dress, a bag and a t-shirt in the same color (monochrome) i.e. brown, and another display consisted of four garments e.g. a pair of shoes, a pair of shorts, a blouse and a bag in different colors (polychrome) i.e. pink, blue, yellow and red. They were also shown the model paper doll which was used as the target referent. The participants would have to instruct the researcher to click on the garment picture in each display that matched with what the model paper doll was wearing. Their utterances were recorded and then were analyzed afterwards. Only overspecified referring expressions containing both an adjective and a noun such as *the blue dress*, *the brown shoes*, *the pink hat* were selected for analysis. The results revealed that more overspecified referring expressions were produced in polychrome displays

than in monochrome displays. This suggests that it is the case that speakers produce color overspecification in their referring expressions, however, they do it more often when objects in comparison are in distinct colors.

By studying the work of Davies and Katsos (2013), Tarenskeen et al. (2015), and Rubio-Fernández (2016), the author could see how speakers go about their reference production i.e. they tend to be overspecified, and color is the most redundantly produced attribute. However, the study of Rubio-Fernández (2016) introduced the researcher to another aspect of color preference in reference production, that is shades of color also play a role in speakers' referring expressions. Moreover, considering the fact that the authors of the aforementioned studies placed their attention on only native speakers, it has inspired the researcher to examine EFL speakers' reference production concerning the phenomenon of color overspecification for the purpose of finding out whether the phenomenon occurs in EFL settings or not, which could lead to a move towards a conclusion on why speakers produce referring expressions the way they do. What's more, the experimental items will be adapted from the study of Rubio-Fernández (2016) since they could yield results regarding the main objective of the present study.

Methodology

Participants

Twenty-five graduate students who were currently members of the English Language Teaching (ELT) program at Thammasat University where English is a medium of teaching took part in the experiment. They were all native speakers of Thai, and they were purposively selected as they share the characteristic – being Thai EFL speakers – which fits the main objective of the present study. Each of them had scored more than 550 (out of 1000 points) on Thammasat University General English Test (TU-GET) scores, which is equivalent to TOEFL (PBT) score of 550+. Regarding the admission requirements of the Master of Arts in the ELT program, each student is required to take the test in order to confirm his or her competence in the English language. The test was used to determine the participants in this

study on the grounds that it is a standard tool of measuring English proficiency at Thammasat University. Besides, the reason that the participants were selected is because the focus of the present study is to highlight the way Thai EFL speakers produce their referring expressions. The Thai EFL speakers who possess competence in the English language are able to provide pragmatically acceptable referring expressions for the researcher to analyze since they have sufficient knowledge to generate English utterances. In other words, the English language competence in these Thai EFL speakers is able to ensure data collection procedures without interference of the language proficiency.

Materials

The experimental items were adapted from the study of Rubio-Fernández (2016). They were selected to use in the present study because the items had been tested and had manifested to be suitable for finding the data needed – referring expressions including color terms. Rubio-Fernández (2016, p. 5) stated that color terms coordinate with clothing which means that color tends to feature in reference production when clothing is involved. To put it another way, color is an important property of clothing which makes the association between color and clothing reasonably strong. Therefore, the experimental items of her study concerning the use of redundant color adjectives included clothing instead of other categories of artifacts (e.g., kitchenware or office supplies). The experimental items would yield the findings that could be analyzed in order to answer the research question of the present study which concerns the use of color terms in reference production.

The experimental items included an image of a paper doll which was designed in a way that it wore three garments in different colors – a green hat, a yellow dress, and a pair of blue shoes (see **Figure 1**). Six displays of four articles of clothing were designed for the paper doll in which only one of clothing corresponds with what the paper doll is wearing (see **Figure 2**). Three displays were **Figure 2**: Displays of articles of clothing from the monochrome condition (left: three displays of four different articles of

Figure 1: The paper doll used in both monochrome and polychrome conditions article

clothing of the same color) and the polychrome condition (right: three displays of four different articles of clothing of four different colors)
designed for the monochrome condition, and the other three were designed for the polychrome condition.The monochrome displays consisted of twelve different articles of clothing (a dress, a bag, a backpack, a long-sleeved polo

shirt, a skirt, a hat, a cap, a long skirt, a pair of flip-flops, a pair of shorts, a t-shirt, and a pair of shoes). Each of the displays included four different articles of clothing that were in the same color. The polychrome displays also consisted of the twelve different articles of clothing mentioned above. Each of the displays, however, included four different articles of clothing that were in different colors – red, green, yellow, and blue. The colors were randomly distributed over the experimental items in every display with one item corresponding with what the doll was wearing.

Data Collection

The participants were tested one at a time in a quiet room at Thammasat University's Language Institute. All of the participants were asked to give their permission to be part of the research study. Before the experiment started, the participants were told that the experiment was to observe how second language learners of English create utterances. This particular statement was given in order to hide the actual purpose of the experiment, so that the participants would not alter their referring expressions merely to satisfy the objective of the present study. In each trial, the participants were shown the paper doll drawn on A4 paper in color. The paper doll was always present in front of the participants during the process of every trial. The participants were given the instructions in English, prompting them to ask the researcher to hand them the articles of clothing which would later be shown that matched with what the paper doll was wearing. Six displays of four garments with one article of clothing being the target referent drawn on A4 paper in color were shown to the participants one at a time. The order of presentation of displays was the same for each participant. The first to be presented were the three monochrome displays, followed by the three polychrome displays. The participants' utterances were recorded on the researcher's mobile phone and were later statistically analyzed by the researcher. As the final part of the experiment, five participants were purposively interviewed to elaborate on why they produced their referring expressions concerning color terms the way they did during the experiment, which could be a beneficial piece of information for further

research. Each participant took approximately three minutes to complete the experiment. The interview sessions each lasted approximately five minutes.

Data Analysis

All of the participants' referring expressions from the experiment were reported. The referring expressions that included both a color adjectival modifier and a noun (e.g., blue shoes, yellow dress, green hat) were labeled as overspecified referring expressions, and the ones that included only a noun (e.g. hat, dress, shoes) were coded as optimal referring expressions. However, the referring expressions that were included with other categories of modifiers such as size, pattern, location etc. were not analyzed. The referring expressions that did not refer to the target items in the experiment were also excluded from the analysis.

In order to find answers to the research questions of the present study, SPSS Statistics was used to measure frequencies of all the referring expressions produced in the monochrome condition and the polychrome condition. Furthermore, since the focus of the present study is on the phenomenon of color overspecification, the paired *t*-test was used in order to find the differences of the production of overspecified referring expressions between the two experimental conditions (monochrome vs. polychrome). The test was also used to determine if the differences between those variables were significant.

Results of the Study

This section provides the results of the experiment. The results include production of referring expressions in the monochrome condition and the polychrome condition and the findings of the interviews.

Production of Referring Expressions

The referring expressions which were obtained from the experiment are presented in **Table 2**.

Table 2: Production of referring expressions elicited from raw data in the two experimental conditions

Participants	Monochrome Condition	Polychrome Condition
1	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
2	shoes, hat, dress	shoes, hat, dress
3	shoes, hat, dress	shoes, hat, dress
4	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
5	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
6	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
7	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
8	shoes, hat, dress	shoes, hat, dress
9	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
10	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
11	shoes, hat, dress	blue shoes, green hat, yellow dress
12	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
13	shoes, hat, dress	shoes, hat, dress
14	blue shoes, green hat, yellow dress,	blue shoes, green hat, yellow dress
15	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
16	blue shoes, green hat, yellow dress	blue shoes, green hat, long dress
17	shoes, hat, dress	blue shoes, green hat, yellow dress
18	shoes, hat, dress	shoes, hat, dress
19	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
20	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
21	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
22	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress

Participants	Monochrome Condition	Polychrome Condition
23	shoes, hat, dress	shoes, hat, dress
24	blue shoes, green hat, yellow dress	blue shoes, green hat, yellow dress
25	shoes at the bottom, green hat, yellow dress	blue shoes, green hat, yellow dress

Each of the 25 participants performed 2 trials which elicited 150 referring expressions (6 from each participant). Of all the referring expressions, 2 were excluded from the analysis because they were included with other categories of modifiers e.g., size modifier *long* (see **Table 2**, no. 16 in Polychrome) and location modifier *at the bottom* (see **Table 2**, no. 25 in Monochrome). The remaining 148 referring expressions (74 from each condition) were therefore analyzed. The results of the production of referring expressions in the monochrome condition and the polychrome condition are presented in **Table 3** and **Table 4**, respectively. Also, the comparison of percentages of referring expressions produced in the two experimental conditions are shown in **Figure 3**.

Table 3: Production of overspecified and optimal referring expressions in the monochrome condition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Overspecified	50	67.6	67.6	67.6
	Optimal	24	32.4	32.4	100.0
	Total	74	100.0	100.0	

According to **Table 3**, 74 referring expressions produced in the monochrome condition were analyzed. 50 referring expressions were labeled as overspecified because a color adjectival modifier was included in each expression i.e. blue shoes, green hat, and yellow dress. The color modifiers were not necessary for unique identification of the intended referent; hence, the expressions are categorized as being overspecified. On the other hand, 24

referring expressions were labeled as optimal because the expressions contained only the target nouns i.e. shoes, hat, and dress. The intended referent could still be identified without the addition of color modifiers; hence, the expressions are considered as being optimal.

Table 4: Production of overspecified and optimal referring expressions in the polychrome condition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Overspecified	56	75.7	75.7	75.7
	Optimal	18	24.3	24.3	100.0
	Total	74	100.0	100.0	

Regarding **Table 4**, 74 referring expressions produced in the polychrome condition were analyzed. 56 of them were categorized as overspecified because a color adjectival modifier was included in each expression i.e. *blue* shoes, *green* hat, and *yellow* dress. The color modifiers were not necessary for unique identification of the intended referent; hence, the expressions are considered as being overspecified. Conversely, 18 referring expressions were labeled as optimal because the expressions contained only the target nouns i.e. shoes, hat, and dress. The intended referent could still be identified without the addition of color modifiers; hence, the expressions are considered as being optimal.

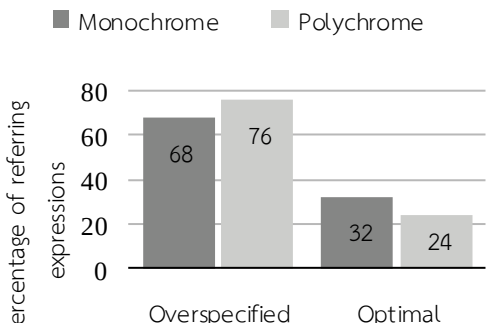

Figure 3: Percentages of participants' production of overspecified and optimal referring expressions in the monochrome and the polychrome conditions

From **Figure 3**, it can be seen that overspecified referring expressions were produced more in both experimental conditions. The percentages of the overspecified referring expressions in the monochrome and the polychrome conditions were 67.6 and 75.7, respectively. On the other hand, the percentages of the optimal referring expressions were 32.4 in the monochrome condition and 24.3 in the polychrome condition. In sum, the majority of participants were overspecified in their referring expressions concerning color terms in both experimental conditions. However, they more often overspecified in the polychrome condition in which the experimental items were in distinct colors.

According to the fact that the focus of the present study is on the phenomenon of color overspecification in reference production, the paired samples *t*-test was used to determine whether the differences between the production of overspecified referring expressions found in the monochrome condition and the polychrome condition were statistically significant (See **Table 5**).

Table 5: Differences of overspecified referring expressions in the monochrome and the polychrome conditions

Production of Referring Expressions	**Mean**	**N**	**Std. Deviation**	**t**	**df**	**Sig. (2-tailed)**
Overspecified (monochrome)	.68	74	.471	-2.174	73	.033
Overspecified (polychrome)	.76	74	.432			

In a comparison between the production of overspecified referring expressions in the monochrome condition and the production of overspecified referring expressions in the polychrome condition, as **Table 5** displays, there was a significant difference in the total numbers of overspecified referring expressions in the monochrome condition (Mean = .68,

S.D. = .471) and in the polychrome condition (Mean = .76, S.D. = .432) conditions; $t(73) = -2.174$, $p < .05$. These results indicate that Thai EFL learners were overspecified in their references by including redundant color adjectival modifiers when they referred to the intended referential targets; however, the phenomenon of color overspecification occurred more often when objects in comparison in the experiment were in different colors.

Findings from Interviews

The present study also employed semi-structured interviews as one of the data collection procedures. The interviews collected additional information by asking participants to elaborate on their production of referring expressions from the experiment. As can be seen in **Table 2**, participants could be categorized based on their referring expressions – participants who were optimal in both monochrome and polychrome conditions, participants who overspecified in both experimental conditions, and participants who were optimal in the monochrome condition but overspecified in the polychrome condition. Five participants were purposively selected according to their referring expressions which fitted one of the three categories.

To begin with, regarding two interviewees, referring expressions without color adjectival modifiers were produced during the experiment due to the fact that color modifiers were not necessary. One interviewee stated, *"I was looking at all the (experimental) objects, and I noticed that there was only one object which was the same as what the doll had on. I did not feel the need to include color because you (the researcher) would still be able to identify the object I was talking about"* (Interviewee 1). Another interviewee stated, *"I saw that out of the 4 (experimental) items there was only one item that matched with what the doll was wearing. I did not think that adding color modifiers was necessary"* (Interviewee 2). Besides, Interviewee 1 also mentioned that her personality could be what made her referring expressions optimal. She stated, *"When I speak Thai, I don't use a lot of words. I tend to be very short and most of the time not aware if people would understand me or not"*.

On the contrary, two interviewees who overspecified in their referring expressions during the experiment mentioned that color adjectival modifiers could help with the ease of understanding. One interviewee stated, *"I included color modifiers because I wanted you (the researcher) to see a clearer picture of what I was referring to. Color, in my opinion, helps to specify what we want to convey in terms of reference. It makes our listeners understand us easily"* (Interviewee 3). The same interviewee also mentioned that color captured her attention. She stated, *"Color was the first thing registered in my mind when I saw the (experimental) objects. I saw color, therefore, I had to talk about those objects using color modifiers"*. The other interviewee stated, *"I included color modifiers because I wanted to make my messages very explicit so that you (the researcher) would understand me easily"* (Interviewee 4). This interviewee also added that one of the reasons why she was overspecified could be owing to her habit. She stated, *"I have been teaching for awhile. When I teach, I tend to be excessively informative. I have been teaching young students many lessons concerning modifiers. So, it seems like I automatically include modifiers in my references even when they are not necessary"*.

In addition, one interviewee who was optimal in the monochrome condition but overspecified in the polychrome condition mentioned that color was not necessary, yet it would still help with the ease of understanding. He stated, *"I looked at every (experimental) object and saw that only one object was my target. I did not feel the need to include any modifiers until I was shown the objects that were in different colors. What came into my mind was that I had to specify the object I was about to refer to since it was surrounded by the other objects in other colors. Adding color would make it faster for you (the researcher) to understand what I was talking about"* (Interviewee 5).

To conclude, there were things which influenced how the interviewees produced their referring expressions concerning color terms. For some interviewees, it was the contexts which play a role in their judgment on how much information they should provide when they communicate. For some interviewees, it was the salience and absoluteness of color which

captured their attention, resulting in their production of referring expressions containing unnecessary color terms. The belief that color is beneficial for listeners' easy understanding as well as the individual personality and behavior seems to have had an influence on the interviewees' reference production as well.

Discussion

The results obtained from the experiment confirm that, on the whole, Thai EFL learners overspecify their referring expressions concerning color terms in both monochrome condition (67.6%) and polychrome condition (75.7%). The results of the experiment are not consistent with one of Grice's (1975) maxims of conversations called Maxim of Quantity which states that speakers are expected to provide sufficient information, but not more than is necessary, for unique identification of the intended referents for their interlocutors when they engage in a conversation. The results show that speakers perform the opposite action of what they are expected to do by overspecifying their utterances. In other words, speakers do not always observe the maxim of quantity. What do the results reflect? The reason why speakers provide more information than they should could be owing to the fact that extra details may not always hinder successful communication, instead they may facilitate object identification for the addressee. Regarding the findings of the interviews, some interviewees mentioned that including color terms would be beneficial for object identification. It could be interpreted that as long as the references can be identified and the whole conversation can be understood by the addressee, speakers do not need to conform to what they are expected to do.

On the other hand, the results showing that overspecified referring expressions were produced more often support the notion that color is preferred and used in reference production by speakers because it is intrinsically salient as well as absolute (Arts et al., 2011; Gatt et al., 2013; Koolen et al., 2013; & Tarenskeen et al., 2015). This suggests that color commonly attracts speakers' attention when it comes to a conversation with a visual context, which in turn leads to references being overspecified in their referring expressions. According to the findings of the interviews, color was

said to instantly register in one of the interviewees' head when she saw the colored experimental items, which in turn led her to include color terms in her expressions. The notion is also supported by the previously discussed study by Brown-Schmidt and Konopka (2011) in which the eye-tracking results revealed that speakers started producing references which contained color terms even before they fixated their eyes on other objects in the experiment. With regard to the above-mentioned information, it could be interpreted that overspecified referring expressions concerning color terms are produced because of the salience and absoluteness of color that commonly catches the human eyes and attracts people's attention.

In addition, the results of the present study are congruent with one of the experiments conducted by Rubio-Fernández in 2016. Her experiment revealed that the difference between the number of participants who produced overspecified referring expressions in monochrome and polychrome conditions was statistically significant, with more uses of overspecified referring expressions including color adjectival modifiers being produced in the polychrome condition. As can be seen from the results presented above, Thai EFL learners were also found to be more likely to overspecify in their referring expressions in the polychrome condition than in the monochrome condition. Furthermore, the *t*-test results shown in **Table 5** demonstrated that there was a statistically significant difference between the production of overspecified referring expressions in the two experimental conditions. It is safe to say that Thai EFL learners have a tendency to overspecify in their referring expressions concerning color terms. Their utterances are also inclined to be more overspecified when they refer to intended referential targets that are surrounded by other targets in different colors.

With regard to the study of Rubio-Fernández (2016) and the results of the present study, a difference concerning the individual performance of participants can be seen. It was not the case for each of Rubio-Fernández's participants to carry out the same action in both experimental conditions. For instance, one participant was optimal in the monochrome, but was overspecified in the polychrome condition. This is different from the

participants in the present study in which each of them carried out the same action in the two experimental conditions, except for two participants. In other words, Thai EFL learners who produced overspecified referring expressions in the monochrome condition performed the same action in the polychrome condition. Similarly, those who produced optimal referring expressions in the monochrome condition repeated the action in the polychrome condition. This suggests that the intrinsic salience and absoluteness of color may not be the only aspects that govern speakers' reference production. The optimal referring expressions produced in both experimental conditions by some participants could be the result of L1 interference since adjectives appear in post-nominal position in Thai whereas they appear in pre-nominal position in English. In the Thai context, the attention is given to the target noun first before it is given to other elements of the target noun. This could be an influence on how these participants produce their referring expressions in English. Additionally, according to the findings of the interviews in which two interviewees commented on how their personality and habit could have an influence on their reference production, it seems safe to argue that speakers who were optimal in their referring expressions in both experimental conditions are the people who are personally and naturally precise in their words, while those whose utterances were overspecified in their referring expressions are the people who personally and naturally like to elaborate on what they have to say.

To conclude, similar to native speakers of English, Thai EFL learners have a tendency to produce overspecified referring expressions concerning color terms. This could be the result of color salience and absoluteness, individual personality and behavior, and belief that color is beneficial for object identification. Still, further studies need to be done because the present study did not aim to testify the cause of color overspecification in reference production. Nevertheless, what is noteworthy is that the phenomenon of color overspecification has been proven to occur not only to native speakers of English but also to EFL learners when it comes to the production of referring expressions.

Limitations and Recommendations

This section discusses some limitations of the experimental work reported in the present study and some suggestions that further language production research or other related works should take into consideration.

To begin with, the present study experimented with only Thai EFL learners who were pursuing a Master's degree in English Language Teaching at Thammasat University. This limitation has made it difficult for the researcher to draw a conclusion that the occurrence of the phenomenon of color overspecification applies to all Thai EFL learners since there are no Thai EFL learners from other majors or other levels of proficiency. Consequently, further research studies should consider replicating the present study by including a larger population so that the findings of the study can be generalized to the entire population.

Additionally, the findings of the interviews revealed that individual personality could have an influence on reference production concerning the phenomenon of overspecification. Future researchers are encouraged to investigate whether there is a positive or negative correlation between the individual personality and the phenomenon in order to provide another aspect to the area of reference production since there is no study, to the researcher's knowledge, that has been done before. Moreover, the findings also revealed that the participants of the present study favored the use of color terms because they thought it helped facilitate the addressee's understanding. Since the present study did not testify factors causing the phenomenon of color overspecification, further research studies should consider testing whether it is truly the case that providing unnecessary color terms helps with the ease of understanding in EFL settings. In sum, further research studies should highlight factors that could possibly have an effect on reference production.

Another limitation that should be addressed is the use of only color adjectival modifiers to examine the phenomenon of overspecification in reference production. Additional research studies should be carried out in order to investigate the phenomenon by focusing on other categories of modifiers such as size, pattern, and location. Due to the fact that very little

attention has been paid to the phenomenon of overspecification in EFL settings, examining other categories of modifiers will help expand the research area of overspecification.

The present study also suggests a theoretical implication of applying Grice's (1975) Maxim of Quantity in everyday conversations with regard to the findings of the study. The Maxim of Quantity has been proven to be violated by speakers in various studies (e.g., Davis & Katsos, 2009; Engelhardt, Bailey & Ferreira, 2006; Maes, Arts & Noordman, 2004; Nadig & Sedivy, 2002; Rubio-Fernández, 2016; Tarenskeen, Broersma & Geurts, 2015) as well as the present study. It can be inferred that when it comes to verbal communication, the attention is primarily given to getting a point across rather than to the conversational maxim governing the quantity of information. A pedagogical implication can be drawn from the inference which is that English language teachers should consider focusing on equipping Thai students with the ability to get their messages across by implementing communicative activities to familiarize students with communication strategies and skills as well as to boost their communication competence.

References

Arts, A., Maes, A., Noordman, L. G. M., & Jansen, C. (2011). Overspecification facilitates object identification. **Journal of Pragmatics**, 43(1), 361-374.

Belke, E. (2006). Visual determinants of preferred adjective order. **Visual Cognition**, 14(3), 261-294.

Brown-Schmidt, S., and Konopka, A. E. (2011). Experimental approaches to referential domains and the on-line processing of referring expressions in unscripted conversations. **Information**, 2, 302-326.

Cummins, C., & Katsos, N. (2019). **The Oxford Handbook of Experimental Semantics and Pragmatics**. Oxford University Press, UK.

Davies, C., & Katsos, N. (2009). Are interlocutors as sensitive to over-informativeness as they are to under-informativeness? **Proceedings of the Workshop on Production of Referring Expressions: Bridging Computational and Psycholinguistic Approaches**. **PRE-CogSci-09**, Amsterdam.

Davies, C., & Katsos, N. (2013). Are speakers and listeners 'only moderately Gricean'? An empirical response to Engelhardt et al. (2006). **Journal of Pragmatics**, 49(1). 78-106.

Engelhardt, P. E., Bailey, K. G. D., & Ferreira, F. (2006). Do speakers and listeners observe the Gricean maxim of quantity. **Journal of Memory and Language**, 54, 554-573.

Engelhardt, P. E., Demiral, S. B., & Ferreira, F. (2011). Overspecified referring expressions impair comprehension: an ERP study. **Brain and Cognition**. 77, 304-314.

Gatt, A., Krahmer, E., van Gompel, R. P., & van Deemter, K. (2013). "Production of referring expressions: preference trumps discrimination," in **Proceedings of the 35th Annual Conference of the Cognitive Science Society** (Berlin), 483-488.

Grice, H. P. (1975). Logic and Conversation. In P. Cole & J. Morgan (Eds.), **Syntax and semantics: Speech acts**, 3, 41-58.

Koolen, R., Goudbeek, M., & Krahmer, E. (2013). The effect of scene variation on the redundant use of color in definite reference. **Cognitive Science**. 37, 395-411.

Maes, A., Arts, A., & Noordman, L. (2004). Reference management in instructive discourse. **Discourse Processes**, 37(2), 117-144.

Nadig, A. S., & Sedivy, J. C. (2002). Evidence of perspective-taking constraints in children's on-line reference resolution. **Psychological Science**, 13(4), 329-336.

Rubio-Fernández, P. (2016). How Redundant Are Redundant Color Adjectives? An Efficiency-Based Analysis of Color Overspecification. **Frontiers in Psychology**, 7, 153.

Tarenskeen, S. (2016). **What's the use of colour? On the role of salience in overspecification**.

Tarenskeen, S., Broersma, M., & Geurts, B. (2015). Overspecification of color, pattern, and size: salience, absoluteness, and consistency. **Frontiers in Psychology**, 6, 1703.

Jeeranan Arden is a graduate student pursuing a master's degree of Arts in English Language Teaching at Language Institute, Thammasat University. She held the bachelor's degree (first-class honors) in English from the Faculty of Humanities and Social Sciences, Khon Kaen University. Her research interests lie in Pragmatics, Applied Linguistics, and Needs Analysis. She can be reached at j.buasai@windowslive.com or at jjbuasai@gmail.com.