Quotation marks in advanced language acquisition: A reading time experiment on English pure quotation*

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Abstract

Quotation marks represent a well-known tool to refer to something in a metalinguistic way. For instance, in the sentence **"***Gold***"** *is a concrete noun*, we focus on a linguistic property of the noun *gold* rather than, or at least in addition to, its standard denotation, which is, in turn, referred to in a sentence like *Gold is a strong metal*. While the semantic and pragmatic characteristics of quotation in general and quotation marks in particular are relatively well understood, we know much less about whether and how one uses, processes, and acquires these marks. The present article aims at connecting to and expanding previous research on the perception and production of quotation marks and concentrates on the role quotation marks play in the detection of English pure quotation in advanced readers. We show that quotation marks are relevant in advanced language acquisition, and that individuals benefit from the marks when being exposed to quotational constructions.

1 Introduction

Quotation marks belong to the more marginal punctuation marks, in comparison to period or comma. They are common in many languages, serve various functions, and (primarily) occur in instances of metalinguistic language use. The most common example is direct quotation, where the marks highlight that an utterance was expressed by someone different from the writer. However, as we will see below, they are also used for other reasons.

We have by now a good understanding of the semantics and pragmatics of quotation and quotation marks, but we still need more empirical research in order to comprehend the use, processing, and acquisition of quotation marks more precisely and profoundly. The present article aims at using previous research on the topic as a point of departure (cf., e. g., Bredel 2004; Fuhrhop/Reinken/Romstadt 2022; Schlechtweg/Härtl 2020, 2021; Schlechtweg/Härtl/de Brabanter 2021), expanding it, and contributing new evidence to the field by relying on the data collected in a reading time experiment. We tested native speakers of English, all of whom had received their high-school diploma, were between 18 and 20 years old, and were thus advanced

* The central linguistic topic of this article are quotation marks. In order to avoid confusion between quotation marks being the topic of the paper and quotation marks being used for formal issues as outlined in the journal's stylesheet, the first type (= quotation marks being the topic of the paper) will be given in bold print throughout the contribution.

language users, more specifically, readers. It was examined whether and how they processed quotation marks in the context of one particular group of quotation, namely pure quotation, as in *“Gold” is a concrete noun.* The results provide us with new insights into the processing and acquisition of quotation marks, which clearly represents an under-researched area.

The paper is structured in the following way. Section 2 considers the theoretical background of the project, discusses the general use of quotation marks (2.1), recent psycholinguistic evidence in this context (2.2), and, in addition to that, the acquisition of quotation marks (2.3). Section 3 outlines the new reading time experiment step by step, before we discuss our results in Section 4. Section 5 finally concludes the paper.

2 Theoretical background

2.1 The general use of quotation marks

Quotation marks are a common means to point to the linguistic form or structure of an item. Apart from the well-known marks used in the examples in (1), other techniques are occasionally used, such as underlining, bold print, italics, capitals, or even air quotes in the gestural mode (cf., e. g., Bennett 1988: 400; Davidson 1979: 27; Klockow 1980: 14; Quassdorf 2016: 78; Schlechtweg/Härtl 2020: 774; Washington 1992: 590). They can occur in different contexts (cf. the examples in 1; cf. also, e. g., Brendel/Meibauer/Steinbach 2011a, 2011b; Cappelen/Lepore/McKeever 2019; Saka/Johnson 2017; Schlechtweg/Härtl 2020).

(1) a. “I’ll be there soon,” Steven said.
b. The coach considered the referee’s decision to be “ridiculous”.
c. The “bus” was in fact a normal car with two additional seats.
d. Liverpool’s soccer team is called “The Reds”.
e. “Gold” is a concrete noun.
f. They only sell “fresh” apples.

In (1a), an example of direct quotation is given, the sentence uttered by Steven is embraced by quotation marks. (1b) represents an example of mixed quotation, that is, a word that was used by someone, here the coach, is highlighted by means of quotation marks within an indirectly quoted sentence (cf., e. g., Davidson 1979; Maier 2014a). An example of scare quotation is listed in (1c), where the word’s interpretation seems to be distinct from its normal denotation; the language user doubts that the word semantically fits in this context (cf., e. g., Meibauer 2007; Predelli 2003). In (1d), we find name-informing quotation, the quotation marks emphasize the name of a specific concept, in this case a soccer team (cf., e. g., Capellen/Lepore 1999: 748; Härtl 2018). (1e) is an instance of pure quotation, in which the quotation marks point to the linguistic shape of the item in focus (cf., e. g., Capellen/Lepore 2007; Ginzburg/Cooper 2014: 291; Maier 2014b). Finally, (1f) is an example of emphatic quotation, where emphasis is added to the word in quotation marks in order to, for instance, direct the addressee’s attention to a positive aspect of the object in focus (cf., e. g., Abbott 2005).

A crucial theoretical distinction is the one between quotation and quotation marks. The former refers to a metalinguistic process that enables language users to talk about language (see, e. g., Davidson 1979: 27; Recanati 2001: 639; Saka 1998: 129); the latter, in turn, represent a tool to emphasize quotation. In a quotation, an item is mentioned, instead of or in addition to being

used denotationally (cf. Example (2); cf. also, e. g., Quine 1981: 23–26; Schlechtweg/Härtl 2020: 771; Washington 1992: 582).

(2) a. Denotation (using): Gold is a strong metal.
b. Quotation (mentioning): **“**Gold**”** is a concrete noun.

We established the distinction between quotation and quotation marks in the previous paragraph, and we indeed observe cases of quotation occurring without quotation marks. A typical example is indirect quotation, as in *Graham said he would be there soon* (cf., e. g., Brendel/Meibauer/Steinbach 2011b: 3), but even the example given in (1e) can occur without quotation marks (cf. 3). According to Saka (1998: 118), such constructions without quotation marks are grammatical (cf. also, e. g., Washington 1992: 588).

(3) Gold is a concrete noun.

A potential reason for using quotation marks then might be psycholinguistic in nature, that is, quotation marks might possibly support the processing of a specific interpretation. Wang (2018: 119) believes that, in the absence of quotation marks, “much inferential burden will be passed onto the addressee or the interpreter.” Saka (1998: 129) states that the availability of quotation marks “indicates a metalinguistic use; their absence does not necessarily indicate anything at all.” Christensen (1967: 359–360) and García-Carpintero (2011: 110) go in a similar direction and point to quotation marks’ function to facilitate the detection of the intended interpretation. It is exactly this issue, the question whether quotation marks are processed and facilitate the recognition of specific interpretations, which is approached in this contribution.

2.2 Psycholinguistic evidence in the context of quotation marks

Roughly speaking, two types of studies with a focus on the processing of quotation marks can be found in the literature, production and perception studies.

In the first group, we find Kasimir (2008) and Apel et al. (2020), which allow, however, only limited conclusions (for more details and discussion, cf. Schlechtweg/Härtl 2020, 2021). For instance, the sample size in Kasimir (2008) was very low and different types of quotation were not theoretically kept apart. Moreover, both contributions miss an adequate acoustic and inferential statistical examination. In contrast, Schlechtweg/Härtl (2020) carefully designed and analyzed a study and came to the conclusion that language users pronounce quotation marks, that is, passages containing quotation marks are characterized by specific acoustic features, such as longer segments or syllables (measured in milliseconds), in comparison to the same passages without quotation marks. The study focused on name-informing quotation in German, an example from their study is given in (4), with the version without quotation marks (cf. 4a) being pronounced systematically differently than the version with quotation marks (cf. 4b).

(4) a. Viele Mönche tragen die sogenannte Kutte täglich von morgens bis abends.
‘Many monks wear the so-called robe everyday from morning to night.’
b. Viele Mönche tragen die sogenannte **„**Kutte**“** täglich von morgens bis abends.
‘Many monks wear the so-called **“**robe**”** everyday from morning to night.’

Similar results were detected for pure quotation in English (cf. Schlechtweg/Härtl/de Brabanter 2021).

In the second group, we find a study by Regel (2009), which is, however, problematic for several reasons. For example, Regel's study was not completely balanced, the test materials were not ideal, and different types of quotation were mixed (for details and discussion, cf. Schlechtweg/Härtl 2021). Again, in contrast, Schlechtweg/Härtl (2021) investigated the role of quotation marks in ironic situations in a carefully controlled setting in a reading time study. All participants saw a context and a target sentence for each test case and had to decide via button press whether the context fitted to the target sentence on a scale from 1 (fits extremely well) to 6 (fits extremely badly). The context triggered a literal, ironic, or unrelated interpretation of the following target sentence, which was identical across the different conditions, the only difference being that there were quotation marks in half of the conditions but not in the other half. An example is given in (5).

(5) a. Literal meaning and no quotes
[Context]
Yesterday, a young woman won the jackpot of this month's lottery. She decided to donate ten million of the thirty million dollars to cancer research.
[Target sentence]
We all hope that the generous lady uses the rest of the money to fulfill her own dreams.

b. Literal meaning and quotes
[Context]
Yesterday, a young woman won the jackpot of this month's lottery. She decided to donate ten million of the thirty million dollars to cancer research.
[Target sentence]
We all hope that the **"**generous**"** lady uses the rest of the money to fulfill her own dreams.

c. Ironic meaning and no quotes
[Context]
Yesterday, a young woman won the jackpot of this month's lottery. She decided to donate sixteen cents of the thirty million dollars to cancer research.
[Target sentence]
We all hope that the generous lady uses the rest of the money to fulfill her own dreams.

d. Ironic meaning and quotes
[Context]
Yesterday, a young woman won the jackpot of this month's lottery. She decided to donate sixteen cents of the thirty million dollars to cancer research.
[Target sentence]
We all hope that the **"**generous**"** lady uses the rest of the money to fulfill her own dreams.

e. Unrelated meaning and no quotes
[Context]
Today, a small mouse damaged the engine of the Prime Minister's car. He decided to take the bicycle of his neighbor's grandson to the important summit.
[Target sentence]
We all hope that the generous lady uses the rest of the money to fulfill her own dreams.

f. Unrelated meaning and quotes
[Context]
Today, a small mouse damaged the engine of the Prime Minister's car. He decided to take the bicycle of his neighbor's grandson to the important summit.
[Target sentence]
We all hope that the **"**generous**"** lady uses the rest of the money to fulfill her own dreams.

The authors found that quotation marks impeded processing first, across the board, and independently from the meaning triggered by the context, that is, they led to longer reading times when they occurred/when the portion *the **"**generous**"** lady* (in comparison to *the generous lady*) was displayed. Sentence-finally, however, the authors observed that the quotation marks significantly facilitated the processing of ironic sentences and caused shorter reading times, in comparison to the same sentences without quotation marks. Overall, the study clearly shows that quotation marks are processed and help the reader detect and interpret ironic content.

2.3 Written language acquisition and quotation marks

Acquiring and using written language implies that individuals have to deal with different types of punctuation marks. We know relatively little about the development of punctuation skills in general (cf., e. g., Hall 2009) and even less about the acquisition of punctuation after the initial phases in which children learn to deal with the central marks, such as period, exclamation and question mark, or comma (cf., e. g., Fayol 2016). Considering quotation marks, Bredel (2004) shows that children begin using these marks in direct quotation in primary school (age of eight) to some extent, approximately in 50 percent of the cases, and with more confidence when using the initial (rather than the closing) quotation marks (cited and discussed in Brendel/Meibauer/Steinbach 2011b: 23). Further, a sporadic use of scare quotes is observed at the age of eleven, and a more systematic use of these quotes at 15. Fuhrhop/Reinken/Romstadt (2022) investigate the use of quotation marks in the final exams at the end of students' school career in Germany (in German: *Abiturklausuren*), that is, the use of quotation marks at the age of approximately 18 to 20 or, put differently, at the end of the supervised acquisition of punctuation at school (cf. Fuhrhop/Reinken/Romstadt 2022). The authors detected different cases of quotation, such as scare and name-informing quotation. The study nicely shows that writers rely on different types of quotation marks by the age of 18 to 20. It goes without saying that more research in this area is still needed, and this is where the present study comes into play. While Fuhrhop/Reinken/Romstadt (2022) focused on quotation marks in productions of advanced writers, we concentrate here on the perception of written quotation marks in a similar age group and at a comparable competence level.

3 Methodology

The current study was a reading time experiment, in which native speakers of English participated. They were exposed to sentences containing a pure quotation either with or without quotation marks, and the time they needed to read different portions of the sentence was recorded. Two aspects of the experiment are novel and therefore expand our understanding of the relevance of quotation marks. First, while a previous study (Schlechtweg/Härtl 2021) looked at the role quotation marks play in the recognition of irony/scare quotation, the current contribution investigates the role of quotation marks in a different type of quotation, namely pure quotation. Second, we provide new evidence in the context of the use of quotation marks in advanced users of written language. After a previous study (Fuhrhop/Reinken/Romstadt 2022) analyzed the production of quotation marks, we examine their role in perception.

3.1 Subjects

40 native speakers of English took part in the experiment (25 female, 15 male). They had received their high-school diploma and were considered to be advanced readers (Mean age: 19.4 years, Age range: 18–20 years), they did not declare a speech disorder, and had normal or corrected-to-normal vision.[1]

3.2 Materials

The test materials consisted of two groups of English nouns. The first group contained 30 English plural nouns ending in *s* and taking a plural verb when being used in a sentence (e. g., *cats are*). In the second group, there were 30 English nouns taking a singular verb when being used in a sentence (e. g., *gold is*). The reason for including these two groups in the experiment was as follows. If the two groups of nouns appear in a pure quotation, they differ in a substantial aspect. While there is no morpho-syntactic agreement between the noun and verb for the first group of nouns, there is agreement for the second group of nouns. For instance, in a sentence like *Cats is a concrete noun*, we find a plural noun but a singular verb form. We were interested in finding out whether the difference in morpho-syntactic agreement plays a role if quotation marks are or are not used. The two groups of nouns were matched for their frequency; the average frequency of the two groups, based on the ukwac corpus (cf. Hartley et al. 2011), was 31 occurrences per one million words. Further, all items were monosyllabic. The entire list of the items is given (6).

(6) a. First group: cats, trees, birds, blocks, parks, herbs, wars, words, books, stars, walls, drums, balls, peaks, knives, dates, doors, dogs, eggs, fruits, beans, bears, guns, schools, chips, beds, planes, nuts, bombs, ducks
b. Second group: gold, fish, peace, milk, noise, wine, wood, rice, meat, salt, silk, chess, hate, beef, cheese, death, ice, beer, rum, tea, sand, gin, soup, steel, art, wool, juice, speed, oil, chalk

[1] The data from four non-native speakers of English was not taken into consideration during the analysis.

The nouns were embedded in test sentences in the following conditions.

(7) a. No quotation marks and morpho-syntactic agreement: Gold is a concrete noun.
b. Quotation marks and morpho-syntactic agreement: **“**Gold**”** is a concrete noun.
c. No quotation marks and no morpho-syntactic agreement: Cats is a concrete noun.
d. Quotation marks and no morpho-syntactic agreement: **“**Cats**”** is a concrete noun.

Each of the four conditions of interest contains a pure quotation but they differ in the following way. In (7a), we see a noun from the first group without quotation marks and in (7b) we see the same noun embraced by quotation marks. In (7c) and (7d), we see a noun from the second group, again once without and once with quotation marks. All of the 30 nouns from the first group were tested in both of the two conditions given in (7a) and (7b), the 30 nouns from the second group, in turn, were tested in both of the conditions illustrated in (7c) and (7d). However, if a participant was exposed to a specific noun in the experiment (e. g., *gold*), she or he saw this noun in one condition only.[2]

3.3 Procedure

The experiment was conducted in a silent room. Subjects were seated approximately 60 cm (23.6 inch) in front of a computer screen (39.6 cm/15.6 inch) and used a regular keyboard to press the buttons mentioned below. We used the program Eprime 3.0 (Psychology Software Tools 2016) to build and run the experiment. All words were written in black color on a white background and appeared in the middle (horizontally and vertically) of the screen. The sentences were presented in a randomized order for each subject. Each participant saw 10 sentences in each of the four conditions mentioned in (7) above, which were later taken into account in the statistical analysis.[3]

Each trial had the following structure in the test sentences. First, the target noun (either without or with quotation marks), which was always the first word of the sentence, was shown on the screen, subjects pressed the space bar when they completed reading this word, and the reading time was recorded (ReadingTime1). Second, they saw the verb *is*, pressed the space bar again to indicate that they had finished reading the item, and the reading time was measured (ReadingTime2). Third, the rest of the sentence appeared on the screen, subjects pressed the space bar after the completion of reading, and the reading time was recorded (ReadingTime3). Fourth, subjects were asked to answer the question *Did the sentence refer to the linguistic properties of a word of the sentence?* by pressing “1” (= Yes) or “2” (= No). If they were confronted with one of the test sentences/pure quotations, the correct response was “1”; for all other sentences,

[2] The experiment further contained 120 filler sentences (without quotation marks) and sentences in which the 60 nouns (30 from the first and 30 from the second group) were not used in a quotation but with their standard denotation (e. g., *Gold is a strong metal./Cats are the smartest pets.*). However, we finally decided not to include these sentences in the statistical analysis since, on the one hand, this would have created an imbalance in the statistical design and, on the other hand, it would have been hard to interpret the data anyway, that is, for instance, the difference in length in the predicate between a pure quotation (e. g., *Cats is*) and a denotation (e. g., *Cats are*) would have affected the reading times.

[3] All subjects further saw the 120 filler sentences and 20 sentences with the nouns used with their denotation (no quotation, no quotation marks). As mentioned in the previous footnote, we did not include these cases in the analysis.

the right answer was "2". The accuracy of the response (ResponseAccuracy) and the time participants needed to press one of the buttons "1" or "2" (ResponseTime) were recorded. The trial structure is illustrated in Figure 1. The next example was preceded by the # sign for one second to indicate that a new sentence starts.

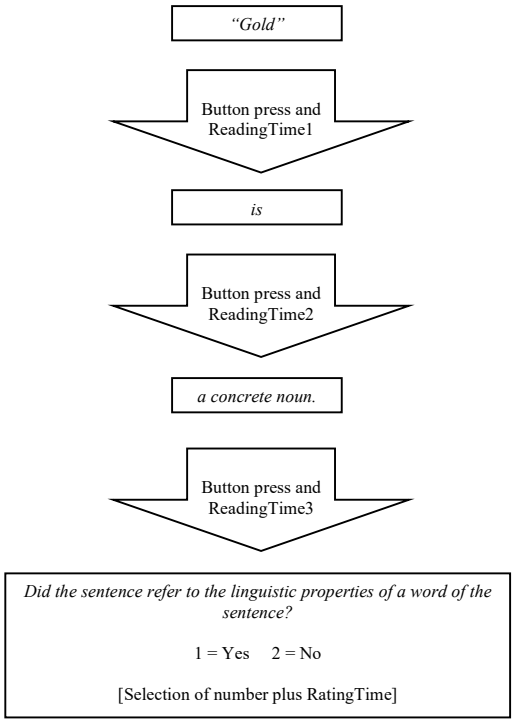

Figure 1: Trial structure

3.4 Data analysis

All of the 40 participants showed an individual accuracy rate of at least 70 percent, 34 subjects had even an accuracy rate of 92.5 to 100 percent. The overall accuracy rate across all subjects and answers was 95.6 percent. In the analyses of the three reading and the response times, we considered times associated with correct answers only. That is, we kept 1530 (95.6 percent) of the 1600 responses (40 subjects x 10 responses per condition and subject x 4 conditions).

Individual analyses were conducted for the five response variables ReadingTime1, ReadingTime2, ReadingTime3, ResponseTime, and ResponseAccuracy. The explanatory variables were Quotes (yes, no) and NV [Noun-verb] Agreement (yes, no). In the analyses of the four continuous response variables, extreme values/statistical outliers, defined as 2.5 standard deviations from the overall mean (cf. Loewen/Plonsky 2016: 134), were removed from the dataset (ReadingTime1 = 1.1 percent of the data was removed; ReadingTime2 = 1.6 percent; ReadingTime3 = 2.0 percent; ResponseTime = 1.6 percent). In the subsequent step, the data was inspected descriptively/visually using Minitab (2019). Next, the four continuous response variables were log transformed (to the base 10) (cf. Winter 2020: 91). Finally, we fitted linear mixed effects models for the four continuous response variables and a logistic regression model for ResponseAccuracy using the lme4 package (cf. Bates et al. 2015) and the lmerTest package (Kuznetsova/Brockhoff/Christensen 2017) in R (R Core Team 2021).[4]

[4] The tidyverse package (Wickham et al. 2019) was also involved in the analyses.

In the linear mixed effects models, we started with a model containing the fixed effects Quotes, NVAgreement, and their interaction, the random intercepts for Subject and Item, and the four random slopes NVAgreement by Item, NVAgreement by Subject, Quotes by Item, and Quotes by Subject. We fitted the model (fit by maximum likelihood; cf., e. g., Field/Miles/Field 2012: 879) and, due to convergence issues, reduced the random effects structure (that is, the number of slopes) step by step until the model was adequate. Note that, although complex random effects structures can be theoretically desirable (cf., e. g., Winter 2020: 235), their reduction is beneficial under certain circumstances to increase the reliability of the analysis (cf., e. g., Barr et al. 2013; Cohen/Kang 2018; Matuschek et al. 2017). In the logistic regression model, model fitting started with the model containing the fixed effects Quotes, NVAgreement, their interaction, and the two random intercepts by Subject and Item.

Furthermore, non-significant fixed effects (Quotes, NVAgreement, Interaction) were removed from the model. The order of elimination of non-significant fixed effects was based on the R output in the "Pr(>|t|)" column, excluding the fixed effect with the highest value first. A remaining, significant fixed effect ($p < .05$) was additionally investigated against the background of three tests mentioned in Plag/Homann/Kunter (2017: 194). That is, in order to remain in the final model, the respective fixed effect had to show a t value greater than 2 or smaller than -2, the model with the fixed effect needed to be significantly different from the model without it (based on an ANOVA), and the AIC (Akaike Information Criterion) had to show a lower value for the model with in comparison to the model without the respective fixed effect (cf. also, e. g., Pinheiro/Bates 2000: 10; Wu 2010: 90).

3.5 Results

3.5.1 ReadingTime1

The descriptive analysis of ReadingTime1 is visualized in Figure 2.

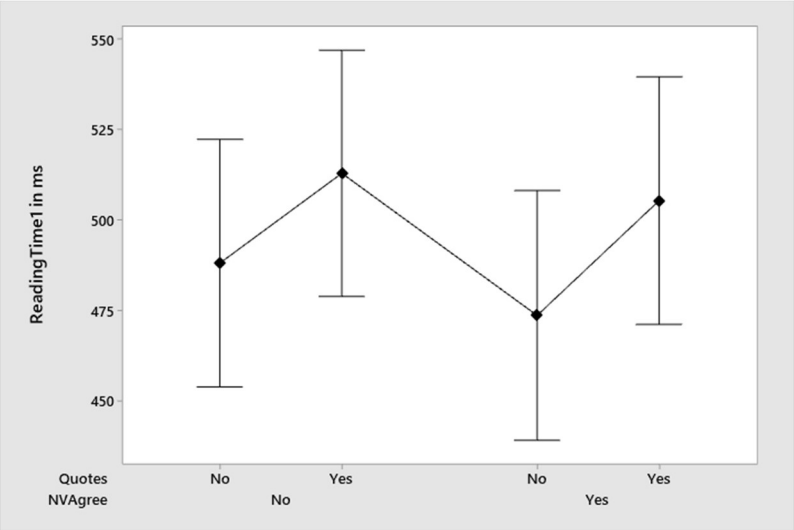

Figure 2: Error bars of ReadingTime1. Raw reading times without statistical outliers. The diamond symbols represent the means.

We see, for both groups of nouns, that the presence of quotation marks leads to longer reading latencies. However, the mixed effects model did not indicate any significance and, therefore, the pattern has to be treated with great caution.[5]

3.5.2 ReadingTime2

The descriptive analysis of ReadingTime2 is visualized in Figure 3.

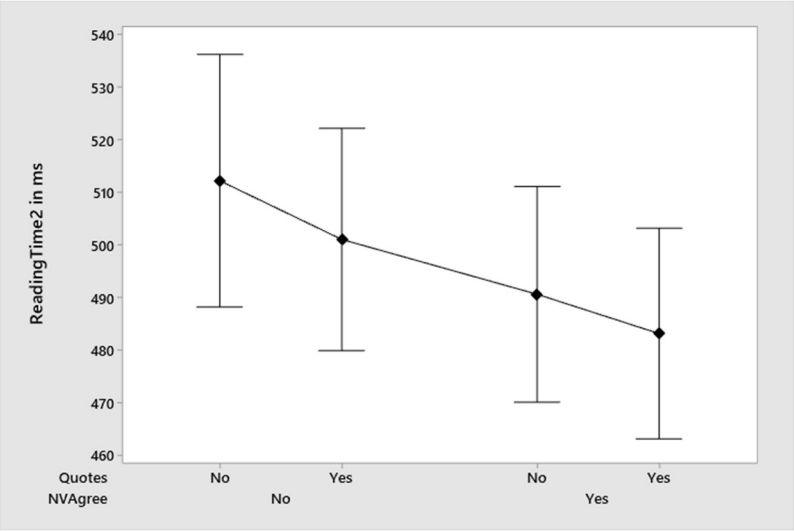

Figure 3: Error bars of ReadingTime2. Raw reading times without statistical outliers. The diamond symbols represent the means.

In this analysis, we observe that the cases without agreement cause longer reading times than the cases with agreement but, again, the mixed effects models did not detect any significance and we must be very cautious when interpreting the trend.

[5] In the analysis of ReadingTime1, convergence issues remained throughout and could not be resolved by removing the random slopes. Therefore, we cautiously considered the intercept-only model and found no significant fixed effect.

3.5.3 ReadingTime3

The descriptive analysis of ReadingTime3 is visualized in Figure 4.

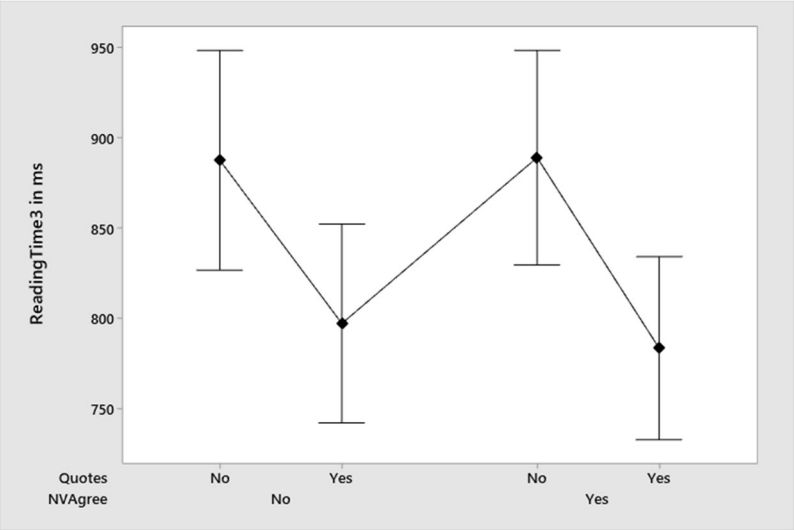

Figure 4: Error bars of ReadingTime3. Raw reading times without statistical outliers. The diamond symbols represent the means.

Figure 4 shows that, both in the cases without and in the cases with agreement, quotation marks trigger shorter reading times in comparison to the sentences without quotation marks. The final and fitted mixed effects model contained the two random intercepts (Subject, Item) and the fixed effect Quotes. Quotes, being significant, passed all the tests referred to in Section 3.4. That is, the model confirms the observation from Figure 4: Quotation marks accelerate the reading of a pure quotation sentence-finally. The details of the final model are given in Tables 1 and 2. If we transform the values estimated by the model and given in Table 2 back from the logarithm, we find that quotation marks speed up reading by 77 milliseconds (ms) (761 ms (without quotation marks) versus 684 ms (with quotation marks)).

	Variance	Standard deviation
Item (Intercept)	0.0007471	0.02733
Subject (Intercept)	0.0197391	0.14050
Residual	0.0382790	0.19565

Table 1: Random effects statistics of the mixed-effects model

	Estimate	Standard error	df	t value	Pr(>|t|)
Intercept	2.88118	0.02361	45.34678	122.042	<2e-16***
QuotesYes	-0.04636	0.01014	1417.56550	-4.574	5.21e-06***

Table 2: Fixed effects statistics of the mixed-effects model

3.5.4 ResponseTime

The descriptive analysis of ResponseTime is visualized in Figure 5.

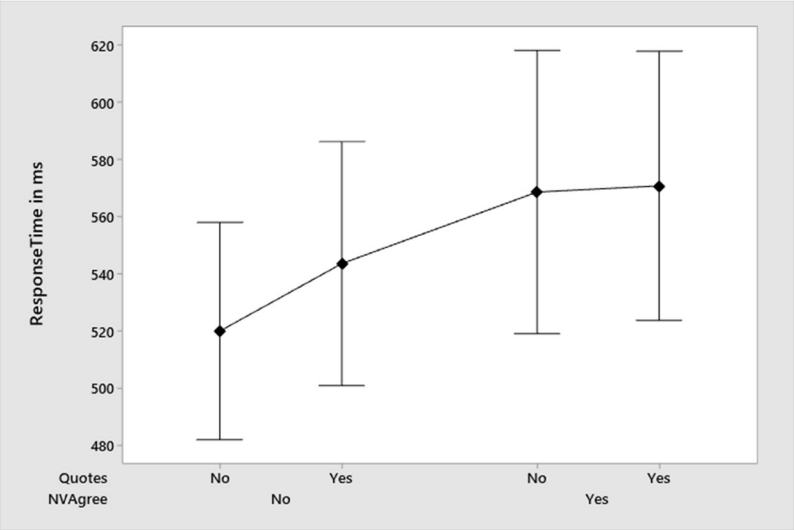

Figure 5: Error bars of ResponseTime. Raw response times without statistical outliers. The diamond symbols represent the means.

Figure 5 indicates that participants gave quicker answers in the absence of agreement, suggesting that the lack of agreement serves as an additional emphasis of the quotation status. However, similar to ReadingTime 1 and ReadingTime2, the model did not reach any significance and we can therefore not speak of more than a slight tendency.[6]

3.5.5 ResponseAccuracy

The descriptive analysis of ResponseAccuracy is visualized in Figure 6.

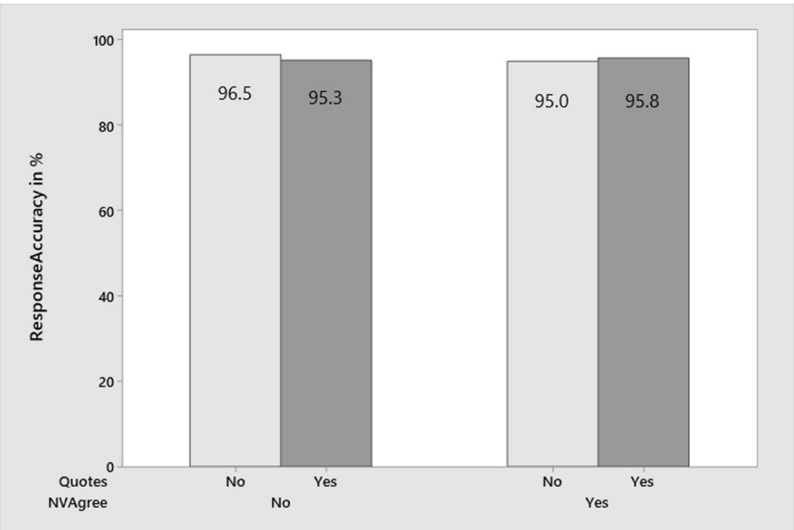

Figure 6: ResponseAccuracy in percentage.

[6] In the analysis of ResponseTime, convergence issues remained throughout and could not be resolved by removing the random slopes. Therefore, we cautiously considered the intercept-only model and found no significant fixed effect.

In the analysis of ResponseAccuracy, no significance was reached and we observe high accuracy rates in each of the four conditions.

4 Summary and discussion

The current experiment suggests that advanced readers use quotation marks when being exposed to English sentences containing a pure quotation, that is, more precisely, they read and understand the quotational character more quickly if the target noun is embraced by quotation marks, in comparison to the same sentences without quotation marks. The effect occurred sentence-finally, while earlier regions were not significantly affected by the presence or absence of the marks.

Previous research showed that quotation marks are pronounced/read aloud, specifically in name-informing and pure quotation (cf. Schlechtweg/Härtl 2020; Schlechtweg/Härtl/de Brabanter 2021). Furthermore, a study revealed that readers benefit from quotation marks to detect irony (cf. Schlechtweg/Härtl 2021). The study in focus in the present paper connects to and expands this research with a focus on pure quotation. A central finding that the two investigations on irony and pure quotation share is that readers take advantage of quotation marks when wrapping up the entire sentence meaning, that is, when they arrive at the end of the sentence.

The work described here underlines further that advanced readers are capable of processing quotation more efficiently when quotation marks support the quotational interpretation. That is, advanced language users systematically rely on the marks both in production (cf. Fuhrhop/Reinken/Romstadt 2022) and perception. In this sense, we add evidence to the field of the acquisition of punctuation, the acquisition of more marginal punctuation marks in particular. It is evident that the present article opens directions for future research. We have now a better understanding of what advanced writers and readers do with quotation marks, and we have some first evidence with regard to when and how children use quotation marks in direct and scare quotation (cf. Bredel 2004). In future work, it should be the objective to examine the developmental steps in the acquisition of other types of quotation, such as name-informing and pure quotation.

5 Conclusion

We showed that advanced readers of English process and benefit from quotation marks when they are confronted with sentences containing a pure quotation and therefore expand the line of research concerned with the role quotation marks play in language production and perception.

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Appendix: Test sentences

First group of nouns	Second group of nouns
Cats is a concrete noun.	*Gold is a concrete noun.*
Trees is a concrete noun.	*Fish is a concrete noun.*
Birds is a word.	*Peace is a word.*
Blocks is a word.	*Milk is a word.*
Parks is a short noun.	*Noise is a short noun.*
Herbs is a word.	*Wine is a word.*
Wars is an English substantive.	*Wood is an English substantive.*
Words is an English noun.	*Rice is an English noun.*
Books is a concrete noun.	*Meat is a concrete noun.*
Stars is an English noun.	*Salt is an English noun.*
Walls is an English substantive.	*Silk is an English substantive.*
Drums is a short substantive.	*Chess is a short substantive.*
Balls is a substantive.	*Hate is a substantive.*
Peaks is a concrete noun.	*Beef is a concrete noun.*
Knives is a common noun.	*Cheese is a common noun.*
Dates is a substantive.	*Death is a substantive.*
Doors is a short substantive.	*Ice is a short substantive.*
Dogs is a word.	*Beer is a word.*
Eggs is a word.	*Rum is a word.*
Fruits is a word.	*Tea is a word.*
Beans is an English substantive.	*Sand is an English substantive.*
Bears is a concrete noun.	*Gin is a concrete noun.*
Guns is a short word.	*Soup is a short word.*
Schools is an English substantive.	*Steel is an English substantive.*
Chips is a short word.	*Art is a short word.*
Beds is an English substantive.	*Wool is an English substantive.*
Planes is a common noun.	*Juice is a common noun.*
Nuts is a short word.	*Speed is a short word.*
Bombs is an English noun.	*Oil is an English noun.*
Ducks is a common noun.	*Chalk is a common noun.*