An Analysis of the Pragmatic Function of English Intonation Based on Speech Act Theory: Taking the Intonation of the Oracle in *The Matrix* as an Example

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Abstract: *Intonation still finds itself one of the most difficult problems for many EFL learners. However, there are few pieces of literature that have explored the relationship between these two elements: illocutionary acts and intonation patterns. Therefore, this study attempts to do so, taking the intonation used in the character Oracle's lines in the film The Matrix as an experimental database, and then summarizing and categorizing the intentions based on John Searle's taxonomy of illocutionary acts. After analyzing 265 lines, four candidates were invited to label their own understanding of the illocutionary act of the character by perceiving the characters' intonation. The chi-square results which show the similarity of their shared understanding turned out to be diverse, from which we concluded several kinds of causes with qualitative analysis: 1) different educational backgrounds; 2) the effectiveness of teaching intonation in China is not up to standard; 3) insufficient understanding of the movie context. Our research studies intonation from a different scope than the traditional top-down model, to provide a theoretical supplement to the intonation function research to some extent, and at the same time to provide English learners with some theoretical help for intonation learning and promote the improvement of their speaking.*

Keywords: Intonation, Illocutionary Acts, Second Language Teaching, Speech Act Theory, Second Language Learning.

1. Introduction

English intonation as an indispensable factor in oral communication, can help eliminate grammatical ambiguity, convey information, and express the speaker's feelings (Wells, 2006). Correct use of intonation allows for the smoothness of a conversation activity, while the incorrect use of intonation, which often functions as a conveyor of utterances' intentions in oral communication, typically made by second language (L2) learners, may result in miscommunications, or affect interlocutors' comprehensibility (Saito & Saito, 2017; van Maastricht et al., 2017; Yarra et al., 2018).

Recent studies concerning intonation connected closely not only to its theoretical aspects where some scholars tend to analyze the more detailed characteristics of a single type of intonation or sentence pattern (Peust, 2019; Zou, 2019) and prosodic encoding of a specific language (Aomin & Li, 2022; Li et al., 2022), and the appliance of language teaching and education (Li et al., 2020; Shutova, Khromov, et al., 2020; Shutova, Nesterova, et al., 2020), but have also reached fields like speech-language pathology (Kuschmann et al., 2017; Zhang et al., 2022), computer science artificial intelligence (Lobanov et al., 2017; Lobanov et al., 2018), psychology and cognition (Sereno et al., 2016; Tomlinson et al., 2017; Voyer & Vu, 2016), and even music (Karpushina & Parshina, 2020; Mauch et al., 2014).

In the last ten years, most research on movie dialogues focused on constructing a dialogue corpus or dataset (Alharahsheh, 2020; Kodama et al., 2022; Radlinski et al., 2019) to offer personalized software or translating programs assistance, or on how to improve listeners' experience through augmenting physical properties such as dialogue clarity (Kirbiz et al., 2015; Lopatka et al., 2016). Some of them innovated new methods for the visualization of movie captions in order to provide help for specific movie factories
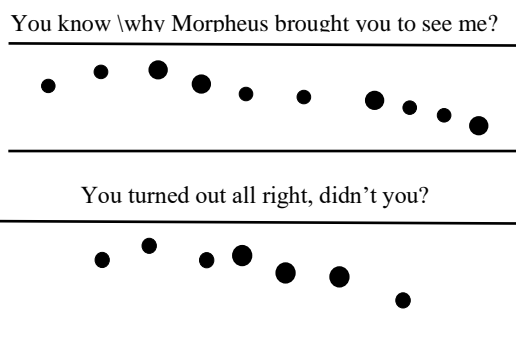
(Kurzhals et al., 2016; Pavel et al., 2015; Rajput & Grover, 2022), and explored its implication on cognition from a psychological perspective (Bairstow & Lavaur, 2017). However, few have studied the relationship between the intonation used in movie dialogues and what kind of role it plays in the conversation.

As John Austin proposed the famous classification between locutionary, illocutionary, and perlocutionary acts, research concerns of intonation have since been expanded into pragmatic scopes. Most research concerning speech acts was developed in terms of sentence structure, such as *wh*-exclamatives and *wh*-questions (Repp, 2020), the illocutionary force (Rakhilina, 2021), or classification and categorization of different speech acts and their properties (Pablos-Ortega, 2020). However, Tomasello and his fellows have brought tones and intonations together with the speaker's communicative intentions and functions (Tomasello et al., 2022). Trott studied the role that prosody plays in disambiguating English indirect requests (Trott et al., 2023). Hübscher studied intonations with facial cues for assessing preschool-aged children's sensitivity in order to signal speakers' polite stance in request (Hübscher et al., 2020). While Rodrigues (Rodrigues & Lunguinho, 2019) discovered the pragmatic function of a single word in Brazilian Portuguese based on its different meanings under different intonations. And Hidalgo made research that connected prosody with speech acts (Hidalgo Navarro & Ruano Piqueras, 2022) based on the functional diversity of intonation.
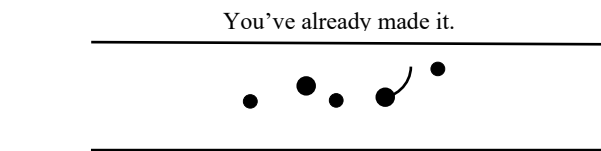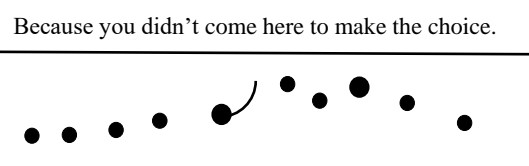
There have developed different collections of the classification of intonation patterns. Earlier Butler (Butler, 1633) had initially used four tones: level, fall, superlative, and rise, and Walker (Walker, 1787) went on to propose the theory of inflexions, which identified five tones used to express stress, namely, rise, fall, solo, rise-fall, and fall-rise. At the end of the 19th century, Sweet (Sweet, 1892) proposed that

English intonation contains three basic tones: level, rising, and falling. Palmer (Palmer et al., 1969) first proposed to divide an English tone into head, nucleus, and tail and suggested that the nucleus would fall on the syllable with the highest degree of prominence (usually the last stressed syllable) and that the tone of the nucleus would extend to the end of the cluster, called nuclear tone. Regarding nuclear tones, Crystal (Crystal, 1969), Halliday (Halliday, 1970), O'Connor & Arnold (O'Connor & Arnold, 1973), Cruttenden (Cruttenden, 1997) all have identified seven types, but the specific categories vary. Crystal's classification (Crystal, 1969) are: rise, fall, fall-rise, rise-fall, fall plus rise, rise plus fall; Halliday's (Halliday, 1970) includes falling, high rise, low rise, rise-fall, fall plus low rise compound tone, rise-fall plus low rise compound tone; O'Connor & Arnold's (O'Connor & Arnold, 1973) include low fall, high fall, rise-fall, low rise, high rise, fall-rise, and mid-level tones, while Crittenden's (Cruttenden, 1997) are high fall, low fall, high rise, low rise, fall-rise, rise-fall, and level tones. Although various detailed classifications of intonation patterns are made, there is a common recognition of general intonations in EFL teaching, that is, falling intonation, rising intonation, and fall-rise intonation. J.C. Wells (Wells, 2006) said that the most basic distinction among English nuclear tones is that between falling and non-falling. He mentioned in his book that the various different kinds of falling tones (high fall, low fall, rise-fall) evidently have some degree of meaning in common, and the same for non-falls, which will help a lot if only a general analysis of intonation is conducted. However, here it is often necessary to distinguish between rises on the one hand and fall rises on the other. Therefore, this paper will continue to use this way to determine the intonation of each sentence used, and this study will only take three basic intonation patterns into the experiment, that is, fall, rise, and fall rise, as well as the notation system for intonation devised in his book *English intonation: an introduction*. Sentence intonation patterns are analyzed based on Halliday's 3Ts, that is, tonality, tonicity, and tone (Halliday, 1967), next shows some sample lines that adopted Wells notation systems and analyzed in terms of Halliday's 3Ts:
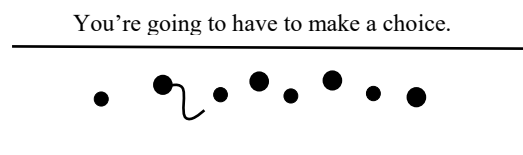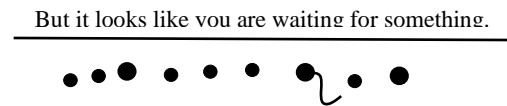
1) For falls

You know \why Morpheus brought you to see me?

You turned out all right, didn't you?

2) For Rises

Because you didn't come here to make the choice.

You've already made it.

3) For Fall Rises

But it looks like you are waiting for something.

You're going to have to make a choice.

Austin himself and many later researchers believed that the illocutionary act remains the central concern of the speech act theory, which is defined as the ultimate meaning and intention of the speaker. In order to discover the relationship between intonation patterns and intention types, this study made use of John Searle's taxonomy of illocutionary acts to categorize the intention types. Searle classified five basic categories of illocutionary acts, that is, representatives (assertive), directive, commissive, expressive, and declarations (Searle, 1976). And this paper will make use of the taxonomy and its standards, in order to match each intonation type and illocutionary act.

2. Methods

Participants labeled a sample of 265 movie audiovisuals, and the results of labeling were analyzed quantitatively and the interviews qualitatively.

2.1 Materials

This study took the intonation used in the character Oracle's lines in the film *The Matrix* as an experimental database, which is a series of action films produced by Warner Bros, telling the story of Neo, a young cyber hacker who discovered that the seemingly normal real world was actually controlled by a computerized artificial intelligence system called "the matrix".

The character Oracle had made a total of five appearances, with a cumulative duration lasting 22 minutes. Most of her conversations in the movie took place with Neo, one with Morpheus, one with Trinity (Neo's lover), one with the Architect, one with Sati (a homeless girl), and one with Smith (the bad guy). Table 1 shows part of the collection of lines.

	Addressee	Lines	Intonation
001	Neo	Not quite what you were expecting, right?	rise
002	Neo	Almost done.	rise fall
003	Neo	Smell good, don't they?	fall rise
004	Neo	I'd ask you to sit down, but you're not going to anyway.	fall
005	Neo	And don't worry about the vase.	fall
…	…	…	…

2.2 Participants

Four participants (adults; age=20-24) were invited to label their own understanding of the illocutionary act of the character by perceiving the character's intonation. Two of the participants majored in English and have related rating experience, while the rest two majored in geographics but both of them had learned English for 13 years and passed the CET-6, which is a compulsory English test for university students, covering listening, speaking, reading, and writing in English. To best control objective factors, all the participants are instructed by the same teacher to learn how to distinguish between different illocutionary acts, and basic knowledge about the indication of common intonation types (including fall, rise, and fall rise), which guaranteed the same interpretation of the taxonomy, teaching method, and in-train practice. Immeasurable facets such as personality and after-class practice are theoretically acceptable in this quantitative research. And participants were made it clear that no judgment would be given to their work, which can help them make decisions out of pressure and ensure that the results were the true and natural release of their own cognitive proficiency. All the participants were willing to be in this study with their labeling anonymously.

2.3 Procedure

In Step One, the lines were collected from the movies and organized sentence by sentence into a spreadsheet, and these lines were labeled as 001, 002, 003, … according to the order of appearance in the movie for the sake of convenience. In Step Two, the intonation patterns were analyzed by Praat based on the 3Ts (tonality, tonicity, and tone) (Halliday, 1967). In step three, participants were trained on how to label before an actual task. After that, they were required to do that in a given spreadsheet under the same period of time, and then a Chi-square test was arranged to analyze the correlation of the results.

The statistical analysis was conducted using SPSS 26 and Excel, employing the Chi-square test.

3. Results

3.1 Results of Participants' Labels and Chi-square Test

The results of the participants' labels are demonstrated in Table 2. It is shown that Participant 3 marked a total amount of 85 declarations while others had only 5 or 0 for this type of illocutionary act.

Table 2: Participants' Labeling

Participant	Illocutionary Acts		
	Directive	Assertive	Expressive
I	51	161	45
II	22	192	46
III	70	62	36
IV	72	145	39

265 lines were given to these participants for labeling, and the results showed that there exists a distinctive difference between them. Table 3 presents the results of the chi-square test (cross-analysis) in this study which is used to check the independence of the participants' judgment on the 'illocutionary acts' recognition with 265 lines and

corresponding movie clips. The results of the Pearson chi-square test analysis showed a significant P-value far less than 0.05, which presents significance at the level and rejects the original hypothesis, so there is a significant difference between Participants and Illocutionary Act data. From Table 3 below, it can be seen that different items, "participants", had significant differences in the judgment with the χ2=326.283, and the two-tail p-value <0.05, which means that evaluators did diverge significantly in the judgment of intonation-illocutionary act in all audio-clips. It, therefore, can be concluded that participants do not share a similar understanding of the categorization of illocutionary acts.

Table 3: Results of the Chi-square Test for Four Participants

Items	Classifications	Participants				Total	X²	P
		I	II	III	IV			
Labels	Assertive	161	192	62	146	561	329.831	0.000***
	Commissive	9	2	12	4	27		
	Declaration	0	3	86	5	94		
	Directive	51	22	70	72	215		
	Expressive	45	46	35	38	164		
Total		266	265	265	265	1061		

And more can be inferred from Table 2: Participants III and IV used fewer assertives while the other two used more, and there shows a huge slope in the number of assertives marked by Participant III.

3.2 Results of the Chi-square test between Participants I & II and III & IV (English Majors Vs. Other Majors)

Table 4: Results of Chi-square Test for Participant I & II and III & IV

Items	Classifications	Participants		Total	X²	P
		I&II	III&IV			
Labels	Assertive	353	208	561	144.704	0.000***
	Commissive	11	16	27		
	Declaration	3	91	94		
	Directive	73	142	215		
	Expressive	90	73	163		
Total		530	530	1060		

Participants were divided into two groups based on major, and here are the results of the Chi-square test for Participants I&II and III&IV, table 4 shows a rather less correlation between the two groups with a p-value far less than 0.05.

3.3 Results of the Chi-square test between Participant I and II (Both are English Majored)

These two English major participants were taught by the same phonetic teacher in university, however, the following Table 5 again shows differences between their labeling.

Table 5: Details of the Chi-square test of the English-majored participants

Items	Classifications	Participants		Total	X²	P
		I	II			
Labels	Assertive	161	192	353	20.854	0.000***
	Commissive	8	2	10		
	Declaration	0	3	3		
	Directive	51	22	73		
	Expressive	45	46	91		
Total		265	265	530		

From Table 5, it can be inferred that the labels of the two English-majored participants I and II are still in diversity

(p-value < 0.05), though rather smaller than the above, with an X2 of 20.854.

3.4 Interviews on How Participants Perceived the Movie Context

All participants were interviewed after the labeling procedure, and the following are the questions and answers from them.

(Q: Question; A: Answer)

Q1: Do you think Neo (the main character) believes the Oracle or not?
A (I): I think with the movie developing he gradually believed the Oracle.
A (II): I don't think we can call it a kind of trust but rather a kind of dependence, that is, the mission of the Oracle herself in the movie.
A (III): I think he did believe in the Oracle and he did what she told him to do.
A (IV): He just thought the Oracle is a guide.

Q2: Which side do you think Oracle stands in the movie? (Neutral, Human, or Machine)
A (I): Humankind.
A (II): Neutral.
A (III): Humankind.
A (IV): Humankind.

Q3: What do you think is the identity of the Oracle?
A (I): I am not very clear… but I think she is a kind of material that lies between the human and the machine.
A (II): The imitation of humankind by the machine.
A (III): I don't really know it.
A (IV): It is a part of the code of the source (machine world).

Q4: Please describe how the trust that Neo shows to the Oracle changes from series I to III.
A (I): I think Neo believes her in a general way, but that kind of belief fluctuates.
A (II): At first he believed her but later it weakened.
A (III): I think he believes the Oracle throughout the movie.
A (IV): He did not trust the Oracle at first time, but gradually he became.

Q5: What's the real intention of the Oracle?
A (I): To end the war, to save humans.
A (II): To select the One.
A (III): To help human beings.
A (IV): Guide Neo to fight with the machines.

The interview shows that four participants held quite different views, especially in Q3 and Q5. Three of them agreed in Q2 that Oracle stands with human beings, while only Participant II believed that she is neutral. And it can be inferred through the answers of Q3 that Participant III had not noticed the very detail of the Oracle's identity because it was revealed in series II.

The third participant was invited to receive an individual interview later because her labels were quite distinct from others. She was asked several questions including: 1) what's the movie plot? (to know whether she knew the storyline); 2) how did she understand some of the lines of the character? (a few scenes of the Oracle were selected from the movie, to know how she comprehended the Oracle's behaviors); 3) how did she distinguish between different illocutionary acts from her lines? (to investigate the mental process when she made the mark). It was found that she had made more steps on the lines that may perform declarations because she thought this illocutionary act type is the most difficult to distinguish and define. For example, there is a scene when the Oracle tells Neo things about the key-maker, and she said "He disappeared some time ago." While others chose to mark it as assertive, the third participant opted for a declaration, and the reason is that she thought it is because the Oracle said that, the key maker's whereabouts is been told at the same moment. Same with another scene when the Oracle had changed into another look, and Morpheus and Trinity came to visit her, she said "I'm the Oracle." The reason why Participant III chose to mark it a declaration remains the same as the previous one: she thought that it is at the same moment when this sentence is uttered that the identity of her is revealed.

4. Discussion

It has been found that the distributions of these four participants' labeling are quite different, and three possible factors may cause the diversity.

4.1 Background Matters Cause Differences in Participants' Labeling

Since there exist big differences between Participants I&II who are English major students and III&IV who major in geographics, it is of need to take different educational backgrounds into consideration for the cause.

Different educational backgrounds may to a large extent cause different cognition patterns in students. Askell Williams and Lawson said that in current constructivist paradigms, learners' previous subject-matter knowledge, or cognitive models, provide the foundations for the construction of new knowledge, and their cognitive models about learning will also mediate students' capacities to learn in their chosen topics of study (Askell-Williams & Lawson, 2006). The relationship between education and cognition has been studied in New Zealand that educational system operational in New Zealand impacts differentially on its participants—both teachers and learners (Bruce Ferguson et al., 2015); cultural courses could bring influence students' structures of cognition, affect, and rationality, and how the shifts in cognition go on a process (Andreotti et al., 2014). Apart from cultural courses, other kinds of curriculum would also make a corresponding influence on students, such as innovation and entrepreneurship education in China (Zhao et al., 2022).

4.2 The Effectiveness of Teaching Intonation in Second Language Teaching is Not Up to Standard

EFL learners often find problems in intonation, and the Chinese EFL pronunciation classroom has long been criticized for its teacher-centered and "one-size-fits-all" teaching, which causes ineffectiveness in solving individual students' specific pronunciation problems (Li et al., 2020). Meanwhile, the focus of English phonetic teaching in China has consistently been on segmental acquisition, while the

instruction on suprasegmental knowledge in terms of speech naturalness, coherence, and understanding is relatively insufficient (Wu, 2017). Moreover, grammar and vocabulary are emphasized over phonetics in the teaching of English as a second language in China, and the rhythm of English is almost completely ignored, consequently resulting in a weak awareness of intonation among learners.

As oral pronunciation now is considered an important embodiment of English ability while the accuracy of pronunciation can determine the smoothness of communication (Duan & He, 2023), a more effective intonation teaching method for Chinese EFL learners is required. And with movies as well as other audio-visual industries keep on growing, it may be of some need to reconsider the feasibility and possibility of applying them to language teaching and learning. Lang (Lang et al., 2021) mentioned that movies with rich resources have been applied to many fields including Second/Foreign language learning, and have been proven to be effective and supportive as teaching materials in EFL learning (Sert & Amri, 2021; Turkmen, 2020). More related technologies have been developed to help construct an in-class and out-of-class practice (Yeh et al., 2017), like Visual Learning (Lang et al., 2021; Suzuki et al., 2017), an English Pronouncing application for phonetic students. And audition for silent movie clips is tested to be helpful for learners' oral proficiency (Kim, 2014). Moreover, Nematzadeh & Narafshan (Nematzadeh & Narafshan, 2020) also claimed that the implementation of intercultural movie clips can contribute to improving learners' personal identity and critical pedagogy (Lee, 2019).

4.3 Insufficient Understanding of the Movie Context

Dijk investigated in *Discourse and Context* (Dijk, 2008) that "contexts are not some kind of objective social situation, but rather a socially based but subjective construct of participants about the for-them-relevant properties of such a situation, that is, a mental model." In language learning, a contextual approach has a long-gained history and recognition. Bloom (Bloom, 1974) contained that language learning is a three-way interaction between the input, the learner, and the interactional context. Whinney established a three-dimension model and explored how the traditional classroom context affects learning and how can it be varied to improve the learning process (MacWhinney, 2001). Not only in linguistics but other fields have also seen the significance of contexts (Cauchoix et al., 2020; Hahn & Klein, 2023; Ibáñez & García, 2018; Thomas, 2023) and contextual factors could lead to differences in effect, cognitive processes, and individual agency (Konopasky et al., 2020). More studies and experiments had been conducted to examine the role of context in language learning, and it had been concluded that learning contexts can impact learners' acquisition in (Broner & Tarone, 2001; Chaudhary et al., 2021; Lan et al., 2015).

Therefore, providing a suitable context for language teaching can help enhance learners' second language ability. While at the same time, multimodal documents (i.e. movies), which contain rich and diverse resources, also play an important role in language learning, especially in terms of linguistic elements, and can help minimize the comprehensibility

difficulties (Randria et al., 2020), used in a multimodal perspective teaching for ESP (Bonsignori, 2018) and so on. Among those linguistic elements, movie contexts are examined to facilitate the learning of second language grammar, which Hazrinani (Hazriani et al., 2016) agrees with and adds: it also facilitates the learning of intonation and is more effective than classroom learning in terms of the relationship between intonation and pragmatic functions. Omar & Razi had experimented (Omar & Razi, 2022) that movie and TV series clips had a significant influence on learners' pragmatic competence, especially their production of requests and suggestions.

5. Conclusion

This study concluded that different intonation patterns can perform multiple illocutionary acts at the same time, and there is a certain relationship between intonation patterns and illocutionary acts, specifically, falls are mainly assertive, fall rises directives, but rises, however, account for smaller proportion, so the relationship between them and illocutionary acts still needs more relevant experiments. The paper also found that the frequency of using different intonation patterns may bear some relationship to the character's characteristics, and for a 'prophet' character, falls were used more often than the other two.

Acknowledgments

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