

The Linguistic Status of Emojis

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## Abstract

Emojis have become a part of our everyday mode of communication. Their ability to capture emotions, perspective, and meaning so readily has led them to be integrated into society. However, their role in language has been under-investigated. Our research presents two experiments investigating the linguistic status of emojis. In the first study, we identified 24 abstract nouns representing four categories of high and low levels of imageability and concreteness. Participants illustrated a representation for each noun, using colored pencils within two-minute intervals. Results indicate that participants converged on strategies for representing abstract nouns, based on type of symbols used, indicating the ease of emojis in conveying lexical information. In the second study, 64 declarative sentences of positive and negative assertions were presented in an online Qualtrics questionnaire. Participants retyped sentences and were given the option of adding punctuation, emoji(s), or nothing at all. Few responses involved no punctuation or emoji. Responses that featured emojis or punctuation often appeared in multiples, but rarely featured a combination of the two. Furthermore, statement types induced different patterns. Negative items induced more emojis, especially face emojis, than positive ones. Positive items induced more exclamations and emojis portraying hands and objects. There was variability in emoji type, indicating flexibility in representing speaker perspective that is not encoded in punctuation, but is typically encoded in prosody, facial expressions, or gesture. These two experiments show that emojis encode lexical information, even at the abstract level, as well as discourse-level information about the speaker and speech act for which punctuation is insufficient. Thus, they bridge text-based and live conversation, giving them unique status in language.

## 1 INTRODUCTION

The objective of this experimental study is to explore the linguistic status of emojis as well as their semantic and pragmatic value with regards to speech acts and speaker perspective. While emoticons only recently developed on ASCII NET in 1986 and the more modern emoji arrived eleven years later on various cellular platforms in 1997, the utilization of paralinguistic elements are by no means a new facet of language (Alt 2015; Yasumoto-Nicolson 2007). 2015; Yasumoto-Nicolson 2007). In his analysis of the variation in function indicating devices of illocutionary acts, Searle (1965) asserts that differences in the paralanguage involved in utterances (such as prosody, intonation, and stress) alter the truth values of a speech act. As emojis possess similar paralinguistic capabilities, albeit in written form, it makes sense to predict they would likewise contribute to speaker/writer perspective as well as the not-at-issue content in speech acts (Azuma and Ebner 2008). Researchers have additionally found that emojis regularly encode information in written discourse (Barbieri *et al.* 2016), but an investigation of the relationships between paralinguistic elements found in verbal speech acts and that of written communication such as emojis is largely absent from literature. This study will ultimately address the contribution of emojis to sentence meaning, targeting their role in conveying linguistic content and shaping the speech act via two experiments.

The structure of the paper is as follows. Section 2 presents theoretical background on the pragmatics and semantics of speech acts and speaker perspective as well as the research on emojis conducted in recent years. Section 3 presents Experiment 1, which was designed to investigate the ways in which emojis convey linguistic content. Section 4 presents Experiment 2, which was designed to investigate the ways in which emojis convey speaker perspective and the

type of speech act. Section 5 concludes with a uniform definition of the role of emojis in language.

## 2 THEORETICAL BACKGROUND

2.1 *Emojis and Speech Acts* Azuma and Ebner (2008) point out that other forms of paralinguage embedded in written text such as softeners (stylizations of words like “helllllloooooo” and “plllllllleeeeee”) and lubricants (emojis like “♥□” and “□”) provide extralinguistic meaning by soothing the tone of a sentence. Their findings provide foundation for our assertion that emojis have the ability to encode and transmit information on speaker perspective. Azuma and Ebner (2008) divide emoji usage into four distinct categories: *paralinguistic graphic emojis* (like “♥□” to indicate a message of affection), *paralinguistic character-based emoticons* (such as the Japanese character for “smile” (笑) and those found in ASCII), *emojis of empathetic use* (like “□” to designate surprise or agreement), and *emojis of lexical use* (such as “□” and “□” for their respective referents). Thus, emojis convey extralinguistic information as paralinguistic elements like prosody and intonation do in verbal speech acts.

Barbieri et al. (2016) observed the meaning of certain emojis across American English, British English, Italian, and Spanish by examining the extent to which similar emojis translate cross-culturally. There was a high rate of preservation of emoji meaning between participants who spoke American English and British English (76%) as well as between American English and Italian speakers (69.8%), albeit lower (possibly resulting from a divergence in vocabulary and syntax) (Barbieri et al. 2016). Ultimately, they concluded that while there are differences in types of emojis used between nations, the semantics of the universal characters between cultures

remains unchanged. Emojis therefore often carry similar meaning across cultures, and therefore individuals engaged in discourse. Emojis can neither be considered at-issue or non-at issue content, however, as they encode meaning at a lexical level yet also convey information about the speaker that cannot be directly addressed.

2.2 *Emojis as At-issue or Not-at-issue Content?* Heim (1983) explains at-issue and not-at-issue content, or that information which can be targeted, in her analysis of the projection problem. She presents the following sentence:

1. *The king of France didn't come.*

Should sentence 1 above had been spoken aloud by a Speaker A, a Speaker B can deny this sentence with sentence 2:

2. *Speaker B: Yes, he did.*

Sentence 1 assumes that there is a real and sentient king of France and that this person did not come somewhere. Sentence 2 contradicts Sentence 1, but only targets the at-issue content “didn’t come.” The not-at-issue content (“the king of France”) is left untargeted. As there is, in fact, no real and sentient king of France in the present day, denying this content would make sense. However, targeting not-at-issue content as such cannot be targeted by a simple sentence like “No, he’s not (the king of France).”

We can transition Heim’s findings to emojis as they convey at-issue entailments and encode meaning at a lexical level. They can present content like “tree” or “apple” or “house.” The following two sentences demonstrate this:

1. *Speaker A: I live in a very nice ☐.*

2. *Speaker B: No, you don't.*

Speaker A uses a lexical-based emoji “🏠” in the place of the word “house” and Speaker B denies this fact. As the “🏠” emoji can be denied as having the quality of being nice, we can conclude that it is at-issue content. But emojis can also convey not-at-issue content that is at a paralinguistic level, which helps to indicate the emotions of the speaker (such as happy “😊” or embarrassed “😬”). Read the following two sentences:

1. Speaker A: *I arrived at the party 🏠.*
2. Speaker B: *No, you didn't.*
3. #Speaker B: *No, you aren't.*

Speaker A uses a paralinguistic-based emoji “😊” to convey their feeling of being happy to have arrived at the party. In sentence 2, Speaker B disputes that Speaker A arrived at the party, targeting the at-issue text, however the meaning conveyed by “😊” of being happy remains. In sentence 3, Speaker B attempts to target “😊”, but the response is not successful in doing so. As this is the case, we can also conclude that emojis convey not-at-issue content as well. Emojis, however, cannot solely be categorized as at-issue or not-at-issue content, given their role in speech acts.

2.3 *Speech Acts and Speaker Perspective* Searle (1965) argues that while illocutionary acts often converge in terms of similar semantic meaning, pragmatic influence and function indicating devices such as prosody, stress, and intonation contribute to the ultimate truth values of an utterance. He exemplifies this further by exhibiting the following utterances:

1. *Will John leave the room?*
2. *John will leave the room.*
3. *John, leave the room!*

4. *Would that John left the room.*
5. *If John will leave the room, I will leave also.*

While all five of these utterances semantically involve some degree of “John leaving the room,” each contain some form of a function indicating device that results in differing truth values. With regards to paralinguistic elements, the punctuation in sentences 1 and 3 indicate a question and an exclamation, respectively, which (when spoken aloud) are typically accompanied by a distinguishing intonation, leading to a differentiation in meaning. Skinner (1970) elaborates on this point, explaining that it must be understood that the “non-natural” meaning of utterances, or that which is not bound by logically semantic truth-values alone, must be considered when engaging in discourse. Otherwise, no differentiation in truth values would exist between semantically identical statements in differing contexts such as those presented in Searle (1965).

Together, pairing research on speech acts and speaker perspective with recent research on emojis allows us to conclude that emojis transmit two types of information. First, they convey meaning shared across speakers and cultures in the content they convey. Second, they convey meaning about the speech act and speaker perspective in a way that is similar to that which prosody, facial expressions, or gesture is utilized in speech acts (perhaps as illocutionary force indicating devices) to integrate paralinguistic information in discourse.

### 3 EXPERIMENT 1

The purpose of Experiment 1 is to evaluate the extent to which emojis can successfully convey concepts, even abstract ones. In this experiment, we utilize participant depictions of hand-drawn pictures to draw conclusions on the convergence of distinct representations used.

### 3.1 *Methods*

3.1.1 *Participants* 40 college students ages 18 to 30 participated. Data from two additional participants who did not follow directions and complete the survey were excluded from data analysis. Participation for both Experiments 1 and 2 was covered by an IRB protocol, and participants provided written informed consent before participating. All participants of the experiment were students at Rutgers University and were recruited from a Sona System participant pool. Participants received extra credit points in linguistics and cognitive science courses in return for their completion of the study.

3.1.2 *Stimuli* Most current emojis convey concrete concepts. In this study, we wanted to probe the ability of emojis to convey a range of linguistic content by pushing the boundaries of the content emojis can convey. We therefore targeted abstract nouns specifically as has been done in prior research (Grimm 2014). We identified categories of abstract nouns based on high and low levels of two factors: imageability and concreteness. We defined the levels of these factors in accordance with the MRC Psycholinguistic Database (Low 100-399, High 400-700), as shown in Table 1 (Wilson 1988).

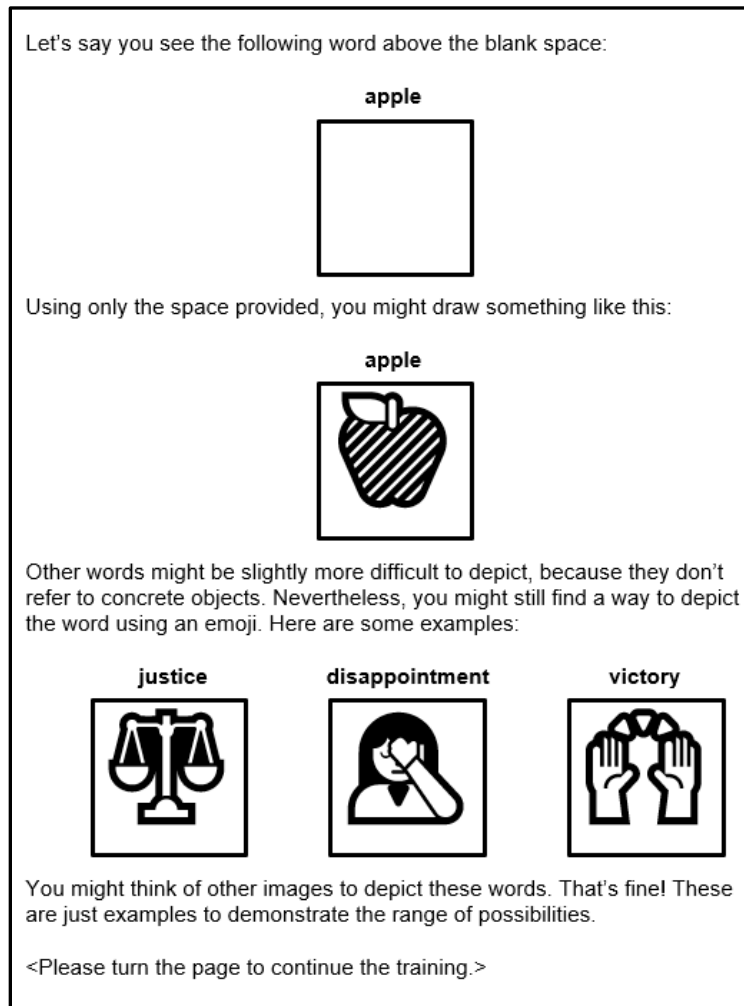
Stimuli by (+/-) Imageability/Concreteness	
(+) Imageability / (+) Concreteness	(+) Imageability / (-) Concreteness
department	administration
job	beauty
university	catastrophe
foreigner	mystery
accident	freedom
vacation	health
(-) Imageability / (+) Concreteness	(-) Imageability / (-) Concreteness
agency	ability

contents	hesitation
debt	improvement
grammar	nonsense
item	perfection
permission	fact

*Table 1.* Complete list of the 24 abstract noun stimuli appearing in Experiment 1, divided into high/low concreteness and imageability levels, as defined by the MRC Psycholinguistic Database.

3.1.3 *Procedure* Participation took place in a quiet laboratory room under the supervision of a research assistant. Participants were presented with a set of 24 colored pencils and an 18-page packet containing experiment instructions and 12 pages of stimuli. Two sets of packets were created, each containing 12 pages of different stimuli, as shown in Appendix A. Up to three participants were run during each session and were placed at a single table, alternating packets among participants. Each experiment approximated 26-30 minutes in duration.

Participants were told that each of the pages of the packet would contain a word in need of an emoji to represent it. Participants were asked to think carefully about how each word would be depicted as if it were an emoji. Participants were instructed to use the colored pencils to draw a simple emoji in the style of current emojis in the provided space. They were walked through a few examples (*Figure 1*).



*Figure 1.* Page 3 of the test packet for Experiment 1. Participants were instructed to draw a simple emoji in the style of current emojis in the provided space and were walked through a few examples.

Participants were instructed to contain their drawings within the square on each respective page of the packet. Participants were further told that they were to not include words and letters, but that numbers and punctuation were allowed.

The experimenter gave participants the opportunity to ask questions before proceeding to the experiment. The experimenter informed participants that they would be given two minutes to complete each of their drawings. At the end of two minutes, a tone sounded. Participants then turned to the next page of the packet with a new word and began their next drawing. There were

12 such tones in the session. Participants were told of the importance of these time constraints as well as the disallowance of returning to previous pages of the packet once completed.

### 3.2 Results

3.2.1 *Representation Method* Participant responses were coded according to whether the representation featured a person, a body part (such as an arm, leg, hand, heart, or brain, but not face), a symbol (such as a red cross or grammatical object), a building (such as a school or office building), an object (any depiction that did not fall into any other category), and in addition, whether there were singular or multiple items within the image. These features are summarized in Table 2 below.

	Face	Person	Body Part	Symbol	Building	Object	Single	Multiple
<b>+I, +C</b>	6.67%	35.00%	0.83%	24.17%	24.17%	80.00%	28.33%	70.83%
<b>+I, -C</b>	13.33%	27.50%	5.00%	47.50%	10.00%	67.50%	34.17%	64.17%
<b>-I, +C</b>	12.50%	18.33%	7.50%	58.33%	6.67%	68.33%	36.67%	62.50%
<b>-I, -C</b>	28.33%	22.50%	20.00%	68.33%	0.83%	48.33%	39.17%	60.83%

*Table 2.* Distribution of features among participant responses.

Figure 2 highlights the data in the last two columns (use of a single item or multiple items) by plotting these values against the type of abstract noun. Here, it becomes clear that the abstract nouns that are the most imageable and concrete are those that were portrayed with multiple items, while those that are the least imageable and concrete are captured with one representation.

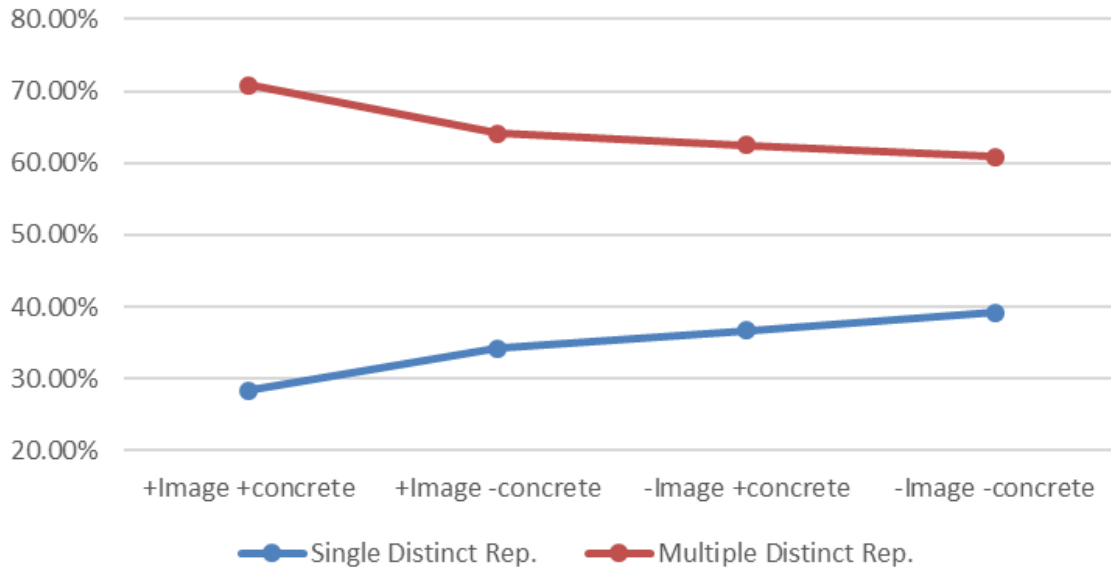


Figure 2. Use of single or multiple representations among abstract noun type. Participant usage of multiple distinct representations was highest in (+I, +C) nouns and single distinct representations was highest in (-I, -C) nouns as can be seen in Figures 3 and 6, respectively.

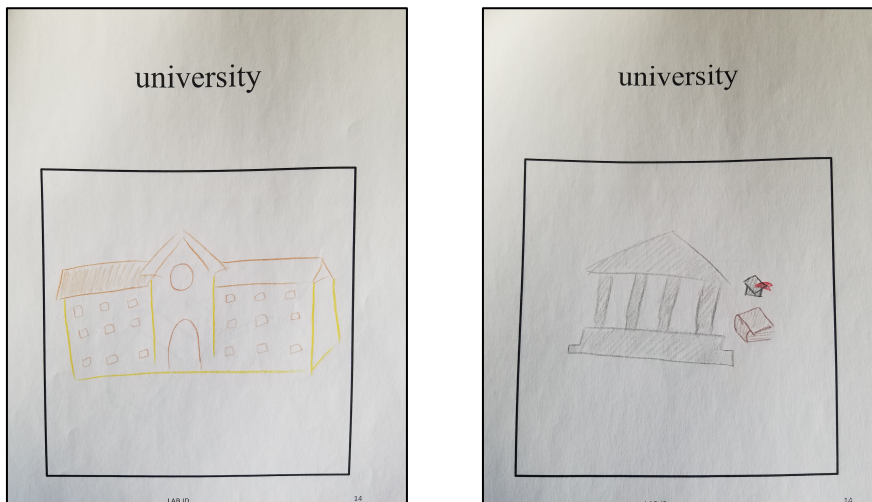


Figure 3. Examples of participant responses that featured single and multiple distinct items for the abstract nouns *university*. This noun is of the +I, +C category.

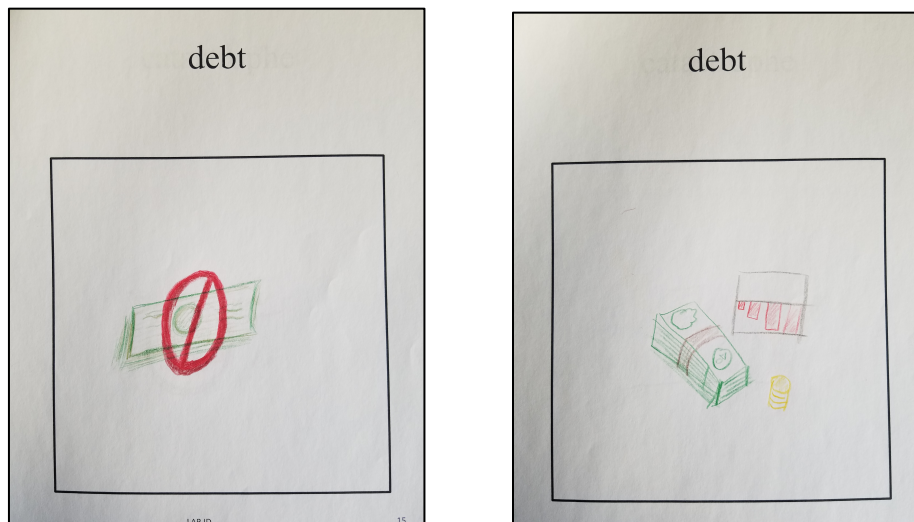


Figure 4. Examples of participant responses that featured single and multiple distinct items for the abstract nouns *debt*. This noun is of the -I, +C category.

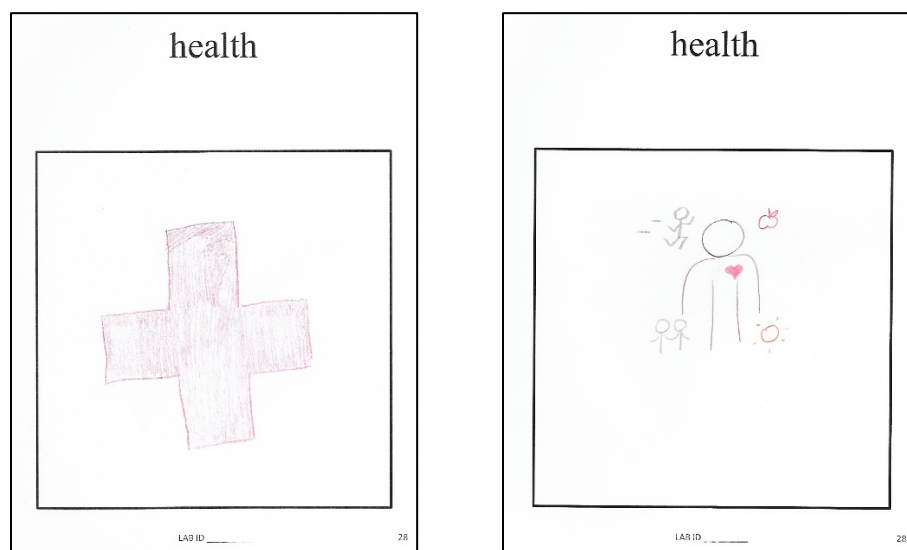


Figure 5. Examples of participant responses that featured single and multiple distinct items for the abstract noun *health*. This noun is of the +I, -C category.

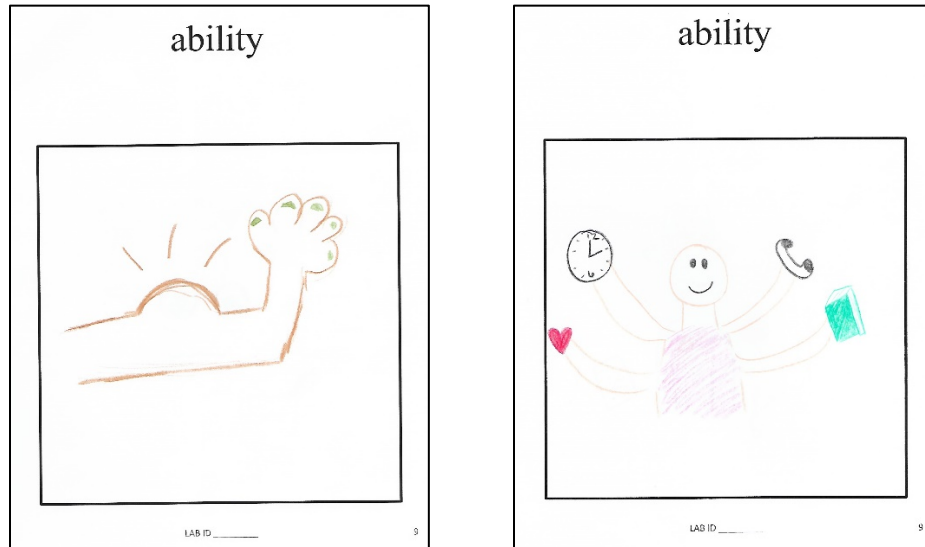
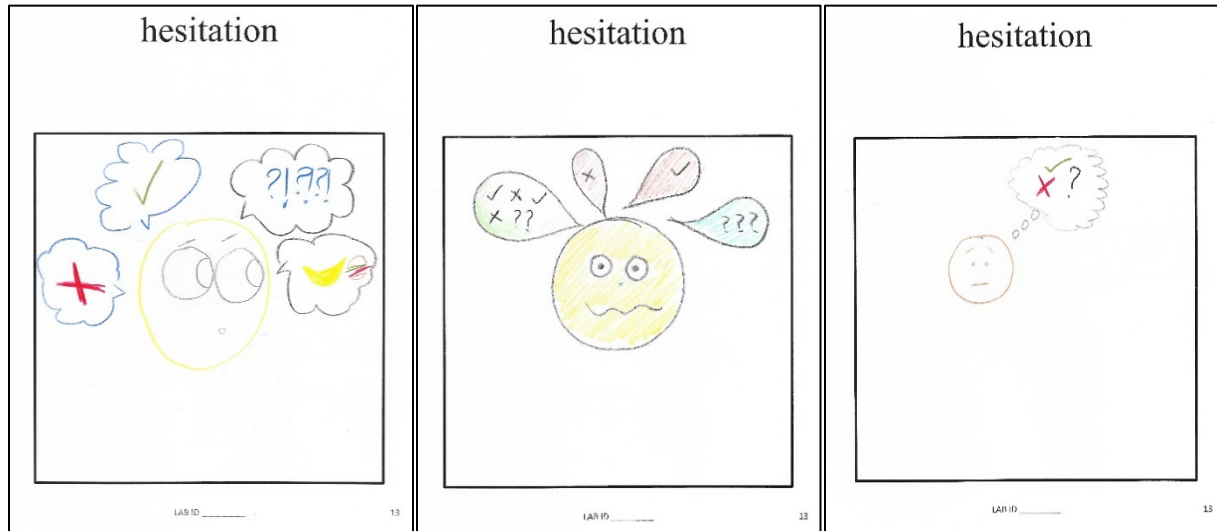


Figure 6. Examples of participant responses that featured single and multiple distinct items for the abstract nouns *ability*. This noun is of the -I, -C category.

3.2.2 *Depiction Convergence Rate* While the categories of *face*, *person*, *body part*, *symbol*, *building*, and *other* may not in and of themselves shed light on speaker perspective, a closer look at individual representations revealed that participants often converged in their depictions. An example of this can be seen in the responses for the abstract noun *hesitation* in Figure 5. In each of the three depictions below, participants converged through depiction of a *face*, *thought bubble*, *question mark*, *check mark*, and 'x' in their respective representations.



*Figure 7.* Examples of participant responses to the stimulus *hesitation* that converged through depiction of a *face*, *thought bubble*, *question mark*, *check mark*, and *'x'* in representation.

As an illustration of both individual convergence and variability, we take space here to focus on this –I, –C abstract noun in particular. We present each individual's depictions, as logged and analyzed in a spreadsheet, in Table 3. A face occurred 14 times (67%), a question mark 7 times (33%), a person six times (29%), thought bubble five times (24%), a speech bubble times (14%), and a clock four times (19%).

Participant #	Items
018	face, thought bubble, check mark, x, question mark
020	face, clock, tense marks
040	person, thought bubble, question mark, traffic light
061	face
068	ellipsis, thought bubble, man
068	face, hands
079	face
085	speech bubble, ellipsis, exclamation point, question mark
096	speech bubble, face, check mark, x, question mark
099	lips, cross out symbol
102	man, woman, speech bubble, face, heart, question mark
105	face, woman
107	face
119	thought bubbles, check, x, banana, hamburger, question mark, exclamation point, face
135	person, thought bubble
139	hand, clock, arrow, apple, line
140	face
144	thought bubbles, numbers, clock
147	person, footsteps, question mark, roads
148	face
149	face, clock
150	face, sweat

Table 3. Breakdown of components in the illustration of the noun *hesitation* for all participants

3.2.3 *Discussion* The goal of Experiment 1 was to observe how effectively emojis can convey abstract concepts through hand-drawn pictures and draw conclusions on if single or multiple distinct representations were used.

We concluded that there is a negative correlation between +I, +C abstract nouns and use of single distinct representation in depictions. Additionally, we established that there is a positive correlation between +I, +C abstract nouns and use of multiple distinct representations. From these findings we contend that the concreteness and imageability of an abstract word impacts speaker decision to use single or multiple representations.

Our findings add to the current knowledge about emojis and their role in a speech act. Currently, we understand that the type of emoji used is dependent on what information a speaker wishes to convey (Azuma and Ebner 2008). Additionally, Barbieri et al. (2016) asserts that emojis have the capability to hold their meaning between speakers and cultures, indicating that their meaning is shared knowledge in speech acts. Our results in Experiment 1 demonstrate that the concreteness and imageability of a noun additionally plays a role in speaker use of a single emoji or multiple emojis to convey a shared meaning.

## 4 EXPERIMENT 2

The purpose of Experiment 2 was to investigate the discourse function of emojis above the word level and their ability to express information about speaker perspective and the speech act. We conducted an online survey in which participants were asked to modify statements with punctuation or emoji(s). Systematic choice of emojis over punctuation indicates that emojis easily encode consistent paralinguistic information about speaker and speech act. Choice of punctuation or emojis indicates that these elements are on par in conveying this linguistic content.

### 4.1 *Methods*

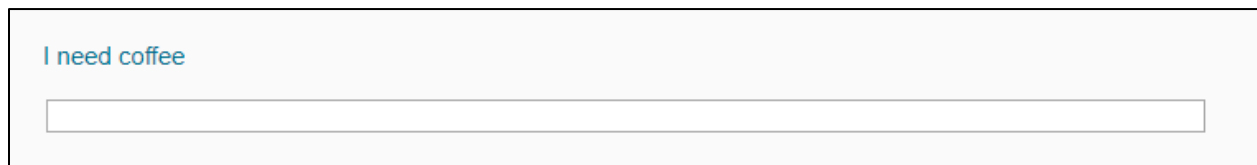
4.1.1 *Participants* 43 college students ages 18 to 30 participated. As this study required consistency in the replication of sentence stimuli, the data of six participants who left blank answers or typed phrases that differed from that of the presented stimuli were excluded from data analysis.

4.1.2 *Stimuli and Procedure* Participants completed Experiment 2 online via a Qualtrics survey, and were instructed to use a device capable of producing emojis from an emoji keyboard. Participants were told they would encounter a series of sentences and to please read and subsequently retype each sentence in a provided space as if they were sending it as a text message in the shoes of the speaker/texter. Participants were then told to add either punctuation, an emoji, a combination of their choice, or nothing at all to the end of the sentence before submitting. Participants were then presented with the following sequence of examples seen in Figure 8 below.

<p>Each sentence will look like this:</p> <p>My phonology class is in Scott Hall next semester</p>
<p>Your response might look something like this:</p> <p>My phonology class is in Scott Hall next semester!!!</p>
<p>Or this:</p> <p>My phonology class is in Scott Hall next semester 😞😞😞</p>
<p>Or this:</p> <p>My phonology class is in Scott Hall next semester 😞</p>
<p>Or this:</p> <p>My phonology class is in Scott Hall next semester</p>

Figure 8. Examples presented to participants in Experiment 2.

The survey then continued to a brief four-item training sentence before the introduction of target sentences. Target items were presented in randomized order. (A complete list of stimuli can be found in the Appendix). There was no time limit, but the experiment lasted approximately 30 minutes. The instructions encouraged participants to take breaks if needed. After the initial examples were given, participants were presented with four training sentences that reflected the stimuli in the experiment. Participants were to fill in their answers within the space provided (*Figure 9*).



*Figure 9.* Sample training item presented to participants in Experiment 2.

After the completion of the training session, participants then continued to the experiment proper. There were 60 target declarative sentences balanced between positive and negative assertions, based on the lexical item (negative: 15, positive: 19) or event type (negative: 8, positive: 19), and 10 conditionals as fillers.

## 4.2 Results

Results were collected from Qualtrics surveys and logged and analyzed in a Microsoft Excel spreadsheet. Stimuli were categorized by positive and negative statements of both lexical-based and event-based types.

4.2.1 *Positive and Negative Categories* For each individual response, we documented instances of emoji and punctuation usage and used this information to calculate an average for

each sentence type. Emojis were divided into three subgroups: *face*, *hand*, and *object*. Face emojis included any instance of a face emoji or emoticon. For the sake of consistency in this study, we defined *face emojis* as any humanoid face or humanoid emoji that presents no more than the waist up. Examples included “☺”, “:-)”, “😊”, “😁”, “😂”, and “😃”. Examples of common emojis not considered *face emojis* included “👍” and “👉”. *Hand emojis* were considered to be any emoji or emoticon that exclusively depicts only a finger, hand, wrist, or arm. By default, *object emojis* included any instance of an emoji or emoticon that did not fall under the *face emoji* or *hand emoji* categories and included all full body people and animals as well as objects, places, and things.

Results indicated that certain sentence categories elicited different response rates and patterns of emojis and punctuation. Statements of the positive lexical item or positive event type, such as those seen below in Figures 10 and 11, elicited a wide array of emoji types and a higher percentage of hand and object emojis. Conversely, negative lexical item or negative event statements, such as those in Figure 12 and 13 on the following page, triggered a higher response rate of face emojis than that of their positive counterparts.

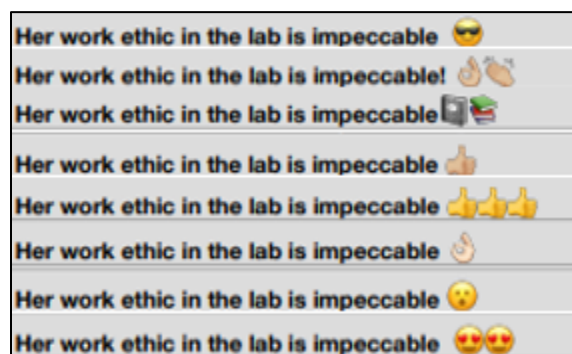


Figure 10. Sample participant responses for the stimulus sentence “Her work ethic in the lab is impeccable.” This sentence is of the positive lexical item category

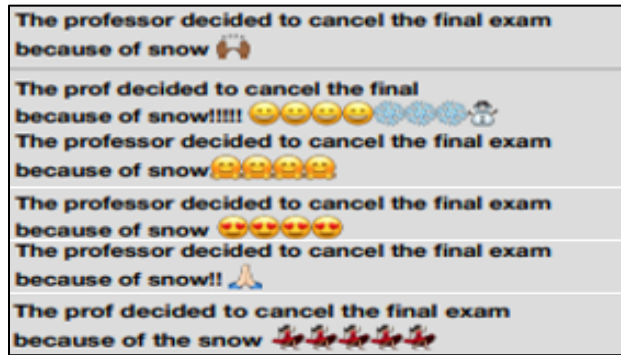


Figure 11. Sample participant responses for the stimulus sentence “The professor decided to cancel the final exam because of snow.” This sentence is of the positive event category.

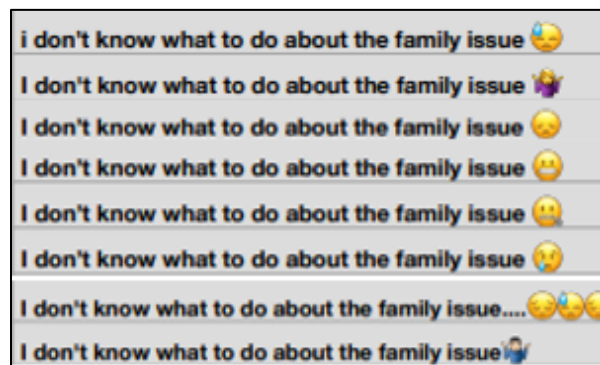


Figure 12. Sample participant responses for the stimuli sentence “I don’t know what to do about the family issue.” This sentence is of the negative lexical item category.

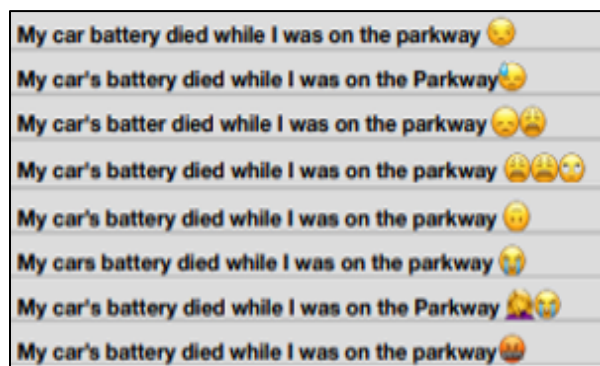


Figure 13. Sample participant responses for the stimuli sentence “My car battery died while I was on the Parkway.” This sentence is of the negative lexical item category.

4.2.2 *Emoji and Punctuation Response Rates* Results indicated that participant responses to sentence stimuli varied between categories. In each of the four target statements (negative events, negative lexical items, positive events, positive lexical items) as well as the training and control statements (conditionals), we observed that participants preferred emoji usage over punctuation (*Table 4*).

While participants overwhelmingly preferred using emojis to punctuation in their responses, punctuation usage was far greater in positive target statements (37.5 percent for positive events and 25.2 percent for positive lexical items) than negative target stimuli (13.25 percent for negative events and 10 percent for negative lexical items). Conversely, participants utilized emojis and emoticons more frequently for negative target statements (72.77% for negative events and 64.04% for negative lexical items) than positive target sentences (52.4% for positive events and 43.52% for positive lexical items).

	Types of Response		
	Punctuation	Emoji	Mixture
<b>Negative Event</b>	13.25%	72.77%	5.54%
<b>Negative Lexical Item</b>	10.00%	64.04%	2.12%
<b>Positive Event</b>	37.50%	52.40%	14.18%
<b>Positive Lexical Item</b>	25.20%	43.52%	5.26%

*Table 4.* Participant Use of Emoji or Punctuation by Sentence Type chart displaying rate of punctuation and emoji usage in each sentence category

We categorized participant emoji usage into three distinct classifications: *face emojis*, *hand emojis*, and *object emojis*. We observed that face emojis were overwhelmingly favored in participant responses (71.3% for negative events, 62.7% for negative lexical items, 39.9% for positive events, and 33.3% for positive lexical items) but were overall more prevalent in negative statements than positive stimuli. While they were not as common within participant responses,

hand and object emojis were much more prevalent in positive event and positive lexical item statements than their negative counterparts (*Table 5*). From these findings we can conclude that positive and negative lexical items and events play a role in speaker preference in emoji usage during discourse.

	Type of Emoji		
	Face	Hand	Object
<b>Negative Event</b>	71.33%	1.20%	1.69%
<b>Negative Lexical Item</b>	62.69%	0.96%	0.96%
<b>Positive Event</b>	39.90%	7.21%	10.34%
<b>Positive Lexical Item</b>	33.30%	6.07%	6.68%

*Table 5.* Participant Use of Emojis by Type chart displaying rate in which participants utilized face, hand, and object emojis.

*4.2.3 Discussion* The goal of Experiment 2 was to understand how emojis functioned above the word level and how they conveyed information about the perspective of a speaker in speech acts. Through an online survey in which participants added punctuation or emoji(s) to statements, we found that participants held a preference of using emojis over punctuation (53.8% of statements had emojis, 21.9% of statements had punctuation), showing that emojis easily encode consistent paralinguistic information about the speaker and speech act.

Searle (1965) discussed that function indicating devices, such as prosody, stress, and intonation (like that found in verbal questions and exclamations), allow humans to convey paralinguistic meaning. We asserted that emojis would behave equally to that of punctuation (like question marks and exclamation points) in written speech acts. As emojis and punctuation

were used interchangeably in participant responses in Experiment 2, we can conclude that both in fact possess the capability in conveying information about the speaker and speech act.

Lastly, punctuation usage was far greater in positive target statements than negative target stimuli and responses contained emojis and emoticons more frequently for negative target statements than positive target sentences. As a result, we can conclude that the degree of emoji use was impacted by speaker perspective of an event. Furthermore, emojis give speakers a greater range of meaning conveyance that punctuation alone cannot, such as the ability to convey both at-issue and not-at-issue content.

## 5 GENERAL DISCUSSION AND CONCLUSIONS

The purpose of this study was to explore the linguistic status of emojis as conveyors of semantic and pragmatic meaning via written speech acts. Through two experiments, we sought to establish a definition as to the role of emojis in transmitting information on speaker perspective. In Experiment 1, we presented participants with abstract nouns representing four categories of high and low levels of imageability and concreteness and tasked them with creating a representation for each noun using colored pencils to measure speaker perspective. In Experiment 2, we administered declarative sentences of positive and negative assertions on an online questionnaire and asked participants to retype sentences and add punctuation, emojis, or nothing at all as a means of understanding how speakers utilize emojis in speech acts to convey meaning.

In Experiment 1 we found that there is a negative correlation between +I, +C abstract nouns and use of single distinct representation in depictions and established that there is a

positive correlation between +I, +C abstract nouns and use of multiple distinct representations, adding to the current knowledge of emojis and their role in a speech act. Ultimately, we demonstrate that the concreteness and imageability of a noun additionally play a role in speaker decision to use a one or more emojis to convey a shared meaning.

In Experiment 2 we found that participants held a preference of using emojis over punctuation, showing that emojis easily encode consistent paralinguistic information about the speaker and speech act. As emojis and punctuation were used interchangeably in participant responses, we can conclude that both in fact possess the capability in conveying information about the speaker and speech act. As a result, we can conclude that the degree of emoji use was impacted by speaker perspective of a positive or negative event. Furthermore, emojis give speakers a greater range of meaning conveyance that punctuation alone cannot, such as both at-issue and not-at-issue content.

As we found that the concreteness and imageability level of an abstract word impacts the number of representations created, we can deduce that speakers apply this to emoji selection, either lexical or paralinguistic. Furthermore, as we found that humans prefer emoji usage to that of punctuation as a method of conveying semantic and pragmatic meaning, we assert that emojis allow speakers to express other paralinguistic information that punctuation cannot, such as prosody, intonation, and stress. Ultimately, we conclude that emojis have a unique and multifaceted place in language that allows speakers to convey both at-issue and not-at-issue information that can either be lexical or paralinguistic.

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**APPENDICES**

**APPENDIX A**

**Complete list of Experiment 1 Stimuli by Packet**

**Packet 1**

department  
job  
accident  
agency  
debt  
grammar  
administration  
catastrophe  
freedom  
ability  
hesitation  
nonsense

**Packet 2**

foreigner  
university  
vacation  
contents  
permission  
item  
beauty  
mystery  
health  
fact  
improvement  
perfection

**APPENDIX B****Experiment 2 Sentence Stimuli****Training Items**

- (1) I need coffee
- (2) We're ordering Chinese for takeout tonight
- (3) I'm on the LX
- (4) She showed me a picture of her sister's new baby

**Conditional Controls**

- (5) If you're not home by 9, you're grounded
- (6) If you get an A on your test, you can have ice cream
- (7) If we go to the gym, we can eat that pizza
- (8) If you get an F on that test, then there will be trouble
- (9) If they come to the party, I'd expect chips and guacamol
- (10) If he understands German, we can go to Germany
- (11) If you don't know the material, you will fail the exam
- (12) If we don't finish our dinner, we can't have dessert
- (13) If you avoid paying the fine, you will be in big trouble
- (14) If you can't do this, I'll just get someone else

**Negative Event**

- (15) The order I was expecting from Amazon never came in the mail
- (16) The bus at Scott Hall left without me
- (17) They took mozzarella sticks off the menu
- (18) The Board of Governors increased tuition
- (19) I left my final project at home
- (20) I tore a hole in my new bookbag
- (21) My flight to London has two layovers
- (22) My girlfriend and I are spending some time on our own

**Negative Lexical Item**

- (23) My interview at the office went so poorly
- (24) My football team lost the big game on Sunday
- (25) The show we were going to go to was canceled
- (26) The exhibit on dinosaurs we saw was lame
- (27) That class on historical mathematics was boring
- (28) I don't know what to do about the family issue
- (29) Your friend had a bad attitude at the dinner table
- (30) My car's battery died while I was on the Parkway
- (31) They canceled the party at the house on Saturday
- (32) Our team came in last place in the race
- (33) I arrived fifteen minutes late for work today
- (34) The new stylist gave me a bad haircut yesterday
- (35) I was disappointed that the college entrance exams were difficult
- (36) I thought that my grandmother's artichokes were disgusting at Thanksgiving
- (37) All of the first years agreed that the Rutgers buses were crowded

**Positive Event**

- (38) We adopted a rescue puppy today
- (39) They had their baby last week
- (40) The professor decided to cancel the final exam because of snow
- (41) There was a 50 percent discount at the register on Monday
- (42) They got married in an incredible ceremony by the beach
- (43) We recognized an old friend from high school at the mall
- (44) The professor announced that the class all passed the test
- (45) The parking ticket I got yesterday at the lot was appealed

**Positive Lexical Item**

- (46) That deep dish pizza was so delicious
- (47) That picture of the Grand Canyon was so beautiful
- (48) That was a great play in the fourth quarter
- (49) I got an excellent score on the SAT
- (50) That show we saw on Saturday was hilarious
- (51) That dress she wore at the prom looked amazing

- (52) Her work ethic in the lab is impeccable
- (53) He was delighted to have had us over for the Super Bowl
- (54) The strawberry shortcake she made was excellent
- (55) I was so excited that there was sale at Macy's on Friday
- (56) They were so happy to have found their lost coats at the restaurant
- (57) We were happy that the rainy skies cleared up for the game
- (58) It was unanimous to the crowd that Louisiana had the best music
- (59) Every third grader agreed that M&M's were the best candy
- (60) Reading was my favorite activity as a kid
- (61) Math was my favorite subject in middle school
- (62) I thought New Jersey's beaches were beautiful when we traveled down the shore
- (63) All of the college students believed Ben and Jerry's had the best ice cream
- (64) Those Chicagoans thought the New York style pizza was good

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