Comprehending non-canonical and indirect speech acts in German

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We compare the comprehension of non-canonical speech acts with the comprehension of indirect speech acts. Both speech act types are 'mixed' in the sense that they involve secondary and primary illocutionary forces. We conducted a speeded judgment experiment to test whether both types differ regarding how accurate the primary illocutionary force is identified and regarding how fast that force can be identified. Our results suggest that non-canonical speech acts are more accurately identified with their primary illocutionary force than indirect speech acts, but participants need more time to perform this identification for non-canonical speech acts than for indirect speech acts.

1 Introduction

In this paper, we present results from an experimental study on comprehending non-canonical versus indirect speech acts in German. To the best of our knowledge, comparing the comprehension of those two pragmatic categories enters new empirical territory and has not been done before in the psycholinguistic study of speech acts (see Holtgraves & Ashley 2001 for seminal work). For the category 'non-canonical' speech acts (NC-SA), we focused on two types of non-canonical questions: rhetorical questions and so-called surprise-disapproval questions (see Munaro & Obenauer 1999; Bayer & Obenauer 2011 for theoretical and Trotzke & Czypionka 2022 for recent experimental work). Both question types feature interrogative syntax, but at the speech-act level are interpreted either as assertions (rhetorical questions) or as complaints (surprise-disapproval questions). As for the category of indirect speech acts (I-SA), we used classic examples like *Can you pass me the salt?*, where the sentential force (aka 'illocutionary mood') is again a question (see Chierchia & McConnell-Ginet 1990; Hausser 1980 for fundamental discussion), but the utterance is interpreted as a request.

In our materials, we can clearly distinguish between NC-SA and I-SA: While the cases used for I-SA are ambiguous and comprehended by pragmatic inferencing in a particular context, our cases of NC-SA feature interrogative syntax (*wh*-V2 word order, see examples below), but are disambiguated by linguistic and non-contextual means: Rhetorical questions contained the German modal particle *schon* (which indicates the rhetorical-question interpretation) and surprise-disapproval questions were only formed with intransitive verbs where the *wh*-element *was* 'what' cannot refer to a syntactic argument (like in *What is he reading?* [*He is reading a book*]), but rather must express a meaning close to 'why', but with negative emotivity (like in *Why is he laughing so stupidly?* [cf. **He is laughing x*]). Accordingly, NC-SA and I-SA feature a different form-function mapping, and our study is the first to investigate whether they also differ in how they are comprehended by native speakers of German as compared to their canonical (C-SA) and direct (D-SA) speech-act counterparts.

2 Comprehending non-canonical and indirect speech acts: An experimental study

2.1 Methods

60 students from the University of Cologne took part in a web-based study (11 male/ 49 female, mean age 21.3). All were self-declared native speakers of German, except for five speakers. The data of these five speakers were excluded from the data analysis.

We created sentence pairs of two different non-canonical/canonical speech acts and one indirect/direct speech act involving interrogative sentences: a non-canonical rhetorical question vs. a canonical assertion (1), a non-canonical surprise-disapproval question vs. a canonical

complaint (2), and an indirect request vs. a direct request (3). For each group, eight sentence pairs were created, leading to 24 sentence pairs.

(1)   a. Wer mag schon gerne kalten Kaffee?   [non-canonical]
         'After all, who likes cold coffee? (Nobody!)'
      b. Niemand mag gerne kalten Kaffee.   [canonical]
         'Nobody likes cold coffee.'

(2)   a. Was regnet das denn jetzt?   [non-canonical]
         'Why is it raining now (of all times!)?'
      b. Wie bescheuert, dass das jetzt regnet!   [canonical]
         'How stupid that it's raining now!'

(3)   a. Kannst du mir das Salz reichen?   [indirect]
         'Can you pass me the salt?'
      b. Gib mir bitte das Salz!   [direct]
         'Please pass me the salt!'

Each pair was embedded in a short story that ended with the respective speech act. The pairs were divided into two lists so that participants only saw one version of a sentence pair, leading to 24 critical items per list. We added 24 filler sentences that comprised of eight canonical assertions, eight canonical complaints and eight canonical requests—all differing in form from the canonical speech acts presented above.

The unsupervised web-based study was executed via the experiment software Gorilla (Anwyl-Irvine et al. 2020). Participants were presented with the context sentences and target sentences (performing a specific speech act) in written form in black letters on a white screen. Context and target sentences were presented separately. Participants first saw the context sentence and after pressing a button, the target sentence appeared. After reading the target sentence, participants had to decide what kind of action the speaker performs: 'behaupten' (asserting), 'fragen' (questioning), 'beschweren' (complaining), or 'bitten' (requesting). The judgment had to be executed with the help of four emojis (see Figure 1). The numbers [1] – [4] next to the speech act terms refer to the keys on the keyboard that had to be pressed in order to give the answer.

Figure 1. *Emojis used to facilitate the choice between different speech act verbs.*
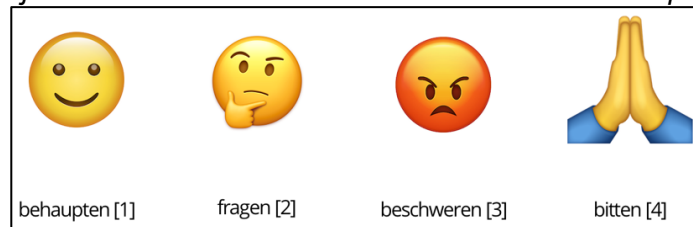
The order of the four emojis and the respective keys were held constant to not overexert the participants. Before reading the critical items, participants were instructed by means of practice items involving explicit direct speech acts. Participants were asked to make their decision as fast and as precisely as possible. We measured the responses and their reaction times.
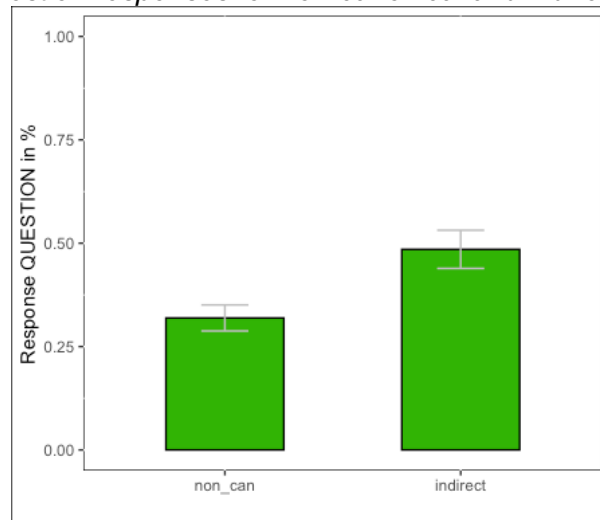
2.2 Results

In a first step, we coded whether a response was correct or incorrect according to our design of the materials. In the case of canonical and direct speech acts, each speech act had only one correct response (assert, complain, request). In the case of non-canonical and indirect speech acts, however, we coded question responses and the intended speech acts (assert, complain,

request) as correct responses. The overall accuracy was with 92% relatively high. The filler sentences had an overall accuracy of 90%, the canonical speech acts of 93%, the non-canonical speech acts of 96%, the direct speech act of 93%, and the indirect speech act of 99%. For the further analysis, we excluded all incorrect answers.

To find out whether the unintended interpretation as a question differs between non-canonical speech acts and indirect speech acts, we performed a binomial logistic mixed effects model on the question responses in R (R core Team 2017, package lme4, Bates et al. 2015). The fixed-effects factor was speech act (NONCAN/INDIRECT), and the model included by-participant intercepts as random factor. The significance of a factor was tested by comparing a model with this factor to a model that excluded it but had an otherwise identical structure. The results show that participants interpret the speech act more often as a question in the case of indirect speech acts (48.5%) than in the case of non-canonical speech acts (31.9%) (β = -0.91, SE = 0.19, t = -4.72, p < .001, see Figure 2). There is no difference between the two non-canonical speech acts assert and complain with regard to the question responses (β = 0.001, SE = 0.23, t = 0.005, p = .996). In the following, we will report the results of the collapsed data of both non-canonical speech acts.

Figure 2. *Question responses for non-canonical and indirect speech acts.*

For the analysis of the reaction time data (only for correct responses), we excluded all data points exceeding 10000 ms and deceeding 500 ms. (2.8% data loss). The mean reaction time was 3658.7 ms (SD 1754.2 ms). The results of a linear mixed effects model with condition (CAN| NON_CAN) as fixed effect, and with by-participant intercepts as random factor show a significant main effect of condition, in that canonical speech acts are processed faster (3659.2 ms) than the non-canonical speech acts (4064.1 ms) (β = 472.0, SE = 118.2, t = 3.99, p < .001). For the indirect speech acts, it is the other way around. Results of a linear mixed effects model with condition (DIRECT| INDIRECT) as fixed effect, and with by-participant intercepts as random factor show a significant main effect of condition, in that the direct speech act is processed more slowly (3608.2 ms) than the indirect speech act (3161.0 ms) (β = -399.8, SE = 133.0, t = -3.01, p < .01, see Figure 3). Interestingly, the reaction times to canonical and direct speech acts do not differ.

A linear mixed effects model on the responses (intended vs. question) to the non-canonical and indirect speech acts shows two main effects. First, responses to non-canonical speech acts (4064.1 ms) are generally slower than to the indirect speech act (3161 ms) (β = 890.0, SE = 141.5, t = 6.30, p < .001). Second, question responses (3333.1 ms) are faster than intended responses (3997.7 ms) (β = -346.8, SE = 155.4, t = -2.23, p = .026). There is no significant interaction between both factors, indicating that question responses are faster than intended responses for non-canonical as well as for indirect speech acts (see Figure 3).

Figure 3. *Reaction times for intended and question responses for non-canonical and indirect speech acts.*
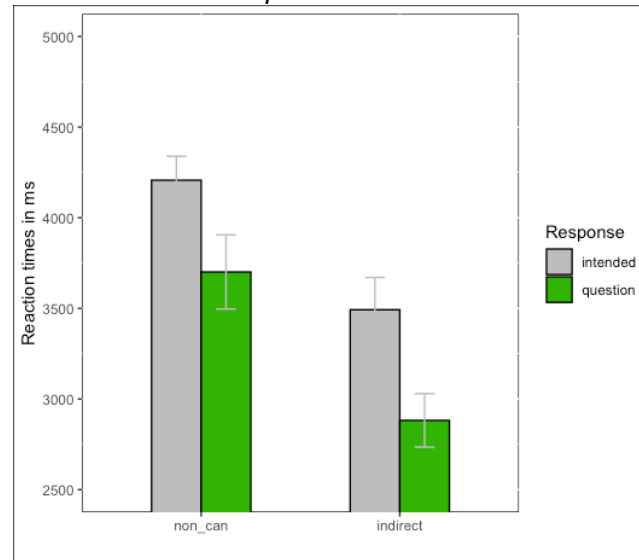
2.3 Discussion

Our driving hypothesis was that the two speech act classes NC-SAs and I-SAs are actually two distinct pragmatic and psychological phenomena. This hypothesize is in line with the classic claims by Searle (1975), but it contradicts more recent conceptions in the linguistics literature, according to which NC-SAs such as rhetorical questions are I-SAs as well. We tested our hypothesis in the domain of non-canonical questions versus indirect requests performed by utterances with question syntax. What we found is that participants interpreted the speech act more often as a question when it instantiated an I-SA than when it was a NC-SA. This suggests that conventionalization as a cue for interpretation is less strong than explicit force-indicating elements (e.g., modal particles) as part of the sentence. In all cases, the question interpretation was faster than the intended assertion/complaint/request-interpretations. Note that all sentences had the form of an interrogative sentence, which, apparently, was taken as the first source of information during sentence comprehension. This is compatible with the claim by Meibauer (2019) and others that the category 'sentence type' plays a major role in interpreting both indirect speech acts and non-canonical questions. However, while the I-SAs and NC-SAs have in common that the question interpretation has a processing advantage over the intended interpretation, both types of speech acts differ when they are compared to their direct/canonical counterparts. The I-SA was processed faster than its direct counterpart. The NC-SAs, however, were processed slower than their canonical counterparts. This suggests that elements indicating illocutionary force (e.g., modal particles or *why*-like-*what wh*-elements) help hearers to correctly identify the intention of a speaker, but that these formal markers make the comprehension process harder when they contradict other formal information such as word order and sentence type.

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