What's described *vs.* what's uttered: Communication form modulates effects of typicality

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In contexts where a sentence clearly has a communicative purpose, expectations for high-informativity information (i.e. effects of informativity, e.g. [1,2]) can reduce or eliminate effects of world knowledge on sentence processing (i.e. effects of typicality, e.g. [3]). However, the effects of communicative contexts on sentence interpretation remain under-investigated, e.g. *does the presence/absence of such contexts affect how much world knowledge guides sentence interpretation?* In addition, negation also favors high-informativity, low-typicality information (e.g. [4,5]), resembling the effects of communicative contexts on sentence processing. Nevertheless, *whether communicative contexts affect the interpretations of negative and affirmative sentences in the same way remains an open question*.

Aims: We test how English sentences are interpreted when presented as (i) direct speech uttered by a specific individual (an ***utterance*** with quotation marks, with speaker identity stated) *vs.* presented as (ii) a basic descriptive statement (a ***description*** without quotation marks, no speaker specified). See **Table1**. We hypothesize that when a sentence is presented as a description, its interpretation is mainly guided by world knowledge, but when presented as an utterance, world knowledge effects are moderated by informativity: people expect descriptions to largely reflect *typicality of real-world situations,* but with utterances, they are more sensitive to *utterance informativity* (e.g. Is it something worth mentioning?), which can weaken typicality effects. We also test if this differs in negative vs. affirmative sentences.

Design: We manipulated **(i)** situation typicality (a continuous variable, based on a norming study which covers a wide range of situation typicalities, **Fig1**, *n=60*), **(ii)** sentence polarity (affirmative vs. negative, within-subjects), and **(iii)** communication form (*utterance* vs. *description*, between-subjects). In **Exp1** (**Utterance**, *n=60*), each item consisted of two sentences: one introduced a protagonist and location, and the other was the protagonist's utterance about the location containing something. Typicality of the part-whole relation was varied. **Exp2** (**Description**, *n=40*) used the same items and design, but the second sentence was a description. In both studies (27 targets, 8 catch trials), participants gave *typicality ratings*: they rated the likelihood of a location being its typical kind given the part-whole relation (see **Table1**). ***Analysis***: We calculated the expected means of the distributions of typicality ratings (using a nonparametric density estimation method following [6]) from Exps 1-2 and analyzed them with Pearson correlation and *lmer*.

Results: Typicality ratings (*y*-axis, Figs2-3) differ across communication forms, moderated by situation typicality (x-axis) and sentence polarity. With both affirmative (Fig2) and negative (Fig3) sentences, the **correlation** between situation typicality and typicality ratings **is stronger with descriptions** (affirmative: r_{des} = 0.94 in Fig2; negative: r_{des} = 0.91 in Fig3) **than utterances** (affirmative r_{utt} = 0.84 in Fig2; negative r_{utt} = 0.75; Fig3). As can be seen in the figures, when something is presented as an utterance (**dashed line**), low-typicality situations are rated less **a**typical and high-typicality situations less typical (especially with negative sentences), relative to the same information presented as a description (**solid line** shows a *steeper slope* than **dashed line**). Statistical analyses confirm main effects of situation typicality and communication form (p's<0.01) with both negative and affirmative sentences, and crucially, a significant interaction in both (affirmatives: β = -0.36, p<0.01; negatives: β = -0.39, p<0.01).

In sum, this is the first evidence that situation typicality (world knowledge) effects are moderated by communication form (description/utterance). The results fit our hypothesis that when interpreting descriptions, people mainly rely on world knowledge, but when interpreting direct speech, are influenced by additional factors, e.g. expect newsworthy information. We also see hints that ratings of highly typical situations are more influenced by communicative form than less typical situations, potentially motivated by pragmatic reasoning needed to accommodate seemingly irrational use of language in communication. This applies to both sentence polarities and is more pronounced in negation, resonating with prior findings about negation processing.

Table 1 Sample target

	Lead-in sentence	**Critical sentence**
Exp 1 **(utterance /** direct speech)	Emma visited a friend's house.	"The house {has/doesn't have} bathroom" Emma told her partner.
Exp 2 (**description**)	Emma visited a friend's house.	The house {has/doesn't have} a bathroom.
Question: *How likely do you think it is that the house is a typical house?* (rate on a **0-100% slider**)		

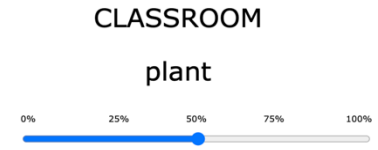

Fig.1 Norming study example: Participants were instructed to rate how likely it is that the two entities form a part-whole relation (The task was explained in a participant-friendly way in the study instructions)

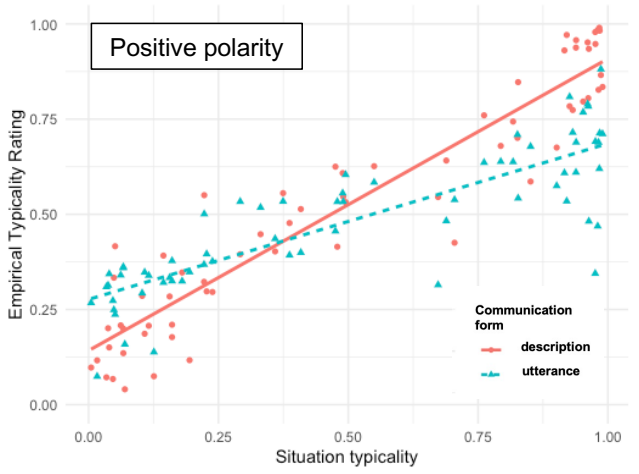

Fig.2 Affirmative sentences: Scatterplot showing the relation between *situation typicality* (x-axis, from norming study) and the *typicality ratings participants gave* (y-axis). **Solid line** shows description conditions, **dashed line** shows utterance conditions.

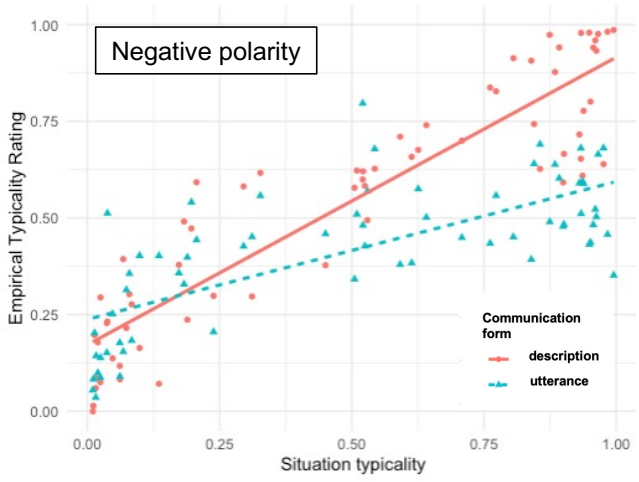

Fig.3 Negative sentences: Scatterplot showing the relation between *situation typicality* (x-axis, from norming study) and the *typicality ratings participants gave* (y-axis). **Solid line** shows description conditions, **dashed line** shows utterance conditions.

References: **[1]** Rohde et al 2021 *Cognition*. **[2]** Rohde & Rubio-Fernandez 2022. *JML*. **[3]** McRae & Matsuki 2009. *Lang & Ling Comp*. **[4]** Xiang et al 2020. *JEP*. **[5]** Nordmeyer & Frank 2014. *Cog Sci*. **[6]** Degen et al 2015. *Cog Sci*.