

## ***More cues are not always “better”: Resolving instrument atypicality in the visual domain***

Serpil Karabüklü & Diane Brentari  
University of Chicago

**Background:** A collaborative and efficient interlocutor is neither over-informative nor under-informative (Grice 1975), yet the limits of *right* amount are still unknown. In instrumental constructions, interlocutors (speakers and signers) were generally found to produce more details (Lockridge & Brennan 2002; Hakgüder 2021) and mention instrument more often (Brown & Dell 1987; Brown et al. 1991) in *atypical* than in *typical* situations to accommodate their interlocutors' needs. Crosslinguistically, signers have also been found to produce more nonmanual cues of the facial and body (NMMs) in atypical situations (Karabüklü et al. 2024). We now focus on one of the most well-studied sign languages—Turkish Sign Language (TİD) to ask: “How much do NMMs help signing interlocutors in perception?” Based on Grice (1975) we hypothesize that more NMMs might be helpful to perceivers, but not in a linear fashion, and that there is a “sweet spot” of informativity that underlies the task of resolving atypical meanings in instrumental clauses.

**Methodology:** Participants' accuracy (% accuracy) and reaction time (RT) in choosing the correct vignettes (milliseconds) were measured for 20 TİD signers, 144 items per participant (2880 data points). Material for the stimuli were drawn from a production task where 6 signers described short vignettes, which included scenes balanced across three event types (8 items each)—**typical instrumental** (TYP, e.g., STIR-WITH TEASPOON), **atypical instrumental** (ATY, e.g., CUT-CHEESE-WITH TEASPOON), and **nonfunctional instrumental** (NFN, e.g., FAN-FLAME-WITH-TEASPOON)—and two types of objects (4 items each)—**instruments** (ins- hammer, teaspoon, screwdriver, knife) and **non-instruments** (non-ins - book, coin, mug, cardboard).

The perception stimuli were composed of tightly cropped video clips of a signer's face showing the NMMs (the body and hands were blurred) along with the three scene types as choices: typical, atypical and non-functional. Signers from the production data were selected to represent three “informative” types (2 signers each) based on the amount of their nonmanual cues: **under-informative**, **informative**, and **over-informative**. Linear mixed effects models were used to analyze the proportion of accuracy and RTs.

**Findings:** The major finding was that participants were more accurate and had shorter RTs with instrumentals in non-functional events with informative signers. Specific Results for Accuracy (Fig1) and Reaction Time (Fig 2-3) show the following:

- a. **Accuracy:** Participants' accuracy (Fig 1) was significantly affected by *typicality* ( $X^2=9.77$ ,  $p=.01$ ; non- functional > atypical, typical), *signer informativity* ( $X^2=15.09$ ,  $p=.001$ ; informative signers > under- informative, over-informative signers), and *instrumentality* ( $X^2=25.19$ ,  $p<.001$ ; ins > non-ins). Specific findings regarding accuracy show that participants were more accurate: (i) with under-informative signers in both ins and non-ins in typical trials and (ii) over-informative signers did not affect accuracy in typical events.
- b. **Reaction Time (RTs):** Participants' RTs (Fig. 2; accurate responses only) were significantly affected by: (i) *signer informativity* ( $X^2=44.34$ ,  $p<.001$ : over-informative signers yielded longer RTs than under-informative signers), (ii) *instrumentality* ( $X^2=21.61$ ,  $p<.001$ ; instrumentals had longer RTs than non-instrumental cases).
- c. **Accuracy & RT:** Participants' all responses (Fig. 3; all trials) were significantly affected by the interaction of (i) *signer informativity*, (ii) *typicality*, and (iii) *instrumentality* ( $X^2=184.92$ ,  $p<.001$ ). Specifically, participants were more accurate and quicker (i) with over-informative signers with ins (but not non-ins) trials; (ii) with informative signers with ins in NFN events; and (iii) with under-informative signers with both ins and non-ins in TYP events.

Altogether, an increase in the quantity of cues was not always helpful in visual domain, confirming Grice's maxim of quantity for instrumental descriptions in a sign language. These data from TiD extend the notion of informativity to sign languages.

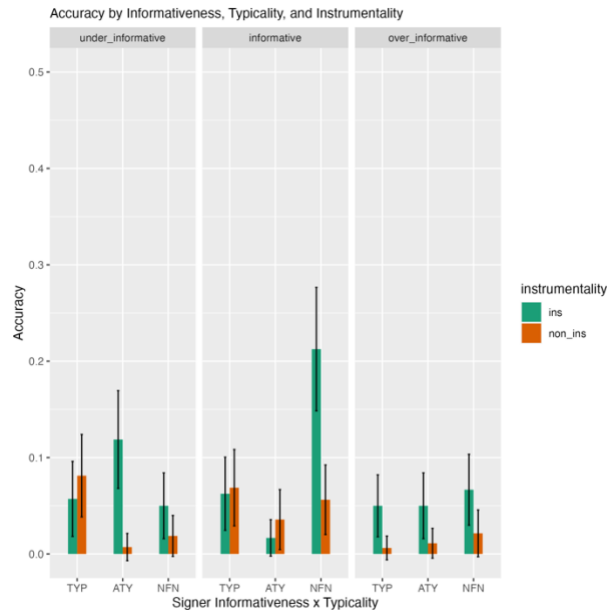


Fig 1. Accuracy levels by informativeness, typicality, and instrumentality

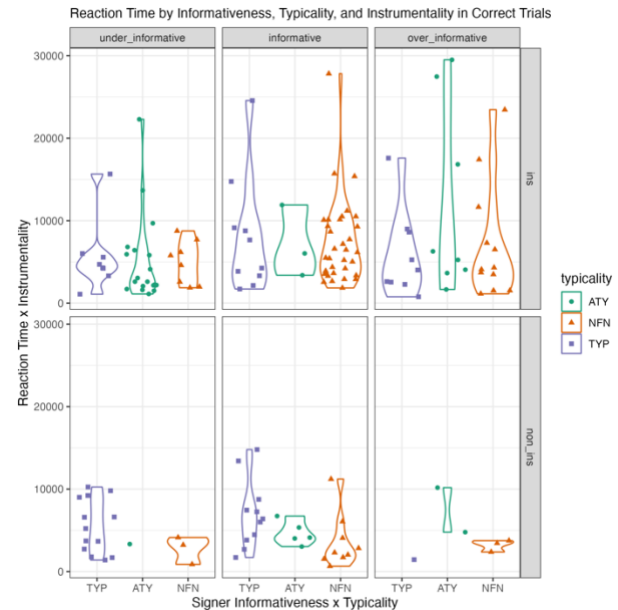


Fig 2. Reaction time by informativeness, typicality, and instrumentality in correct trials

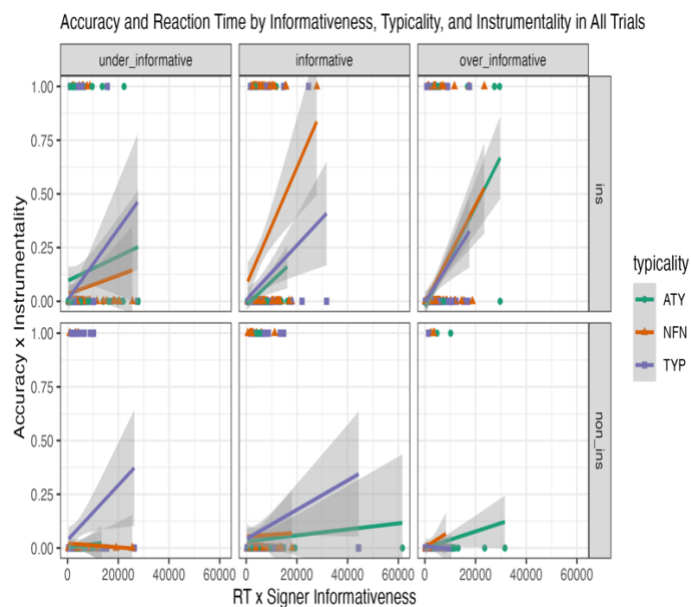


Fig 3. Accuracy and reaction time by informativeness, typicality, and instrumentality in all trials

**References:** Brown, PM & Dell, GS. 1987. Adapting production to comprehension: The explicit mention of instruments. *Cognitive Psychology*. Brown, PM., Fischer, S. & Janis, W. 1991. Pragmatic and linguistic constraints on message formulation: A crosslinguistic study of English and ASL. *Journal of Speech and Hearing Research*. Grice, H.P., 1975. Logic and conversation. In: Cole, P., Morgan, J. (Eds.), *Speech Acts (Syntax and Semantics, 3)* pp. 41–58. Håkigüder, E. 2021. *Iconicity in Grammar: Typological Patterns in Sign Language Classifiers*. UChicago Diss. Karabükü, S., Brentari, D. & Håkigüder, E. 2024. A crosslinguistic study of signers' accommodations to atypicality: Effects of simultaneity. Talk at LSA. Lockridge, C. B., & Brennan, S. E. 2002. Addressees' needs influence speakers' early syntactic choices. *Psychonomic bulletin & review*, 9(3), 550-557