



Non-manuals reveal signers' intentions in DGS imperative speech acts

Marianthi Koraka, Thomas Finkbeiner & Nina-Kristin Meister

Expressing Emotions in Sign Languages Hamburg University, 04.07.2024



Non-manuals reveal signers' intentions in DGS imperative speech acts

Outline

- 1. Imperative speech acts
- 2. Non-manual elements in sign languages
- 3. Imperative speech acts in DGS
- 4. What non-manuals convey in imperative speech acts

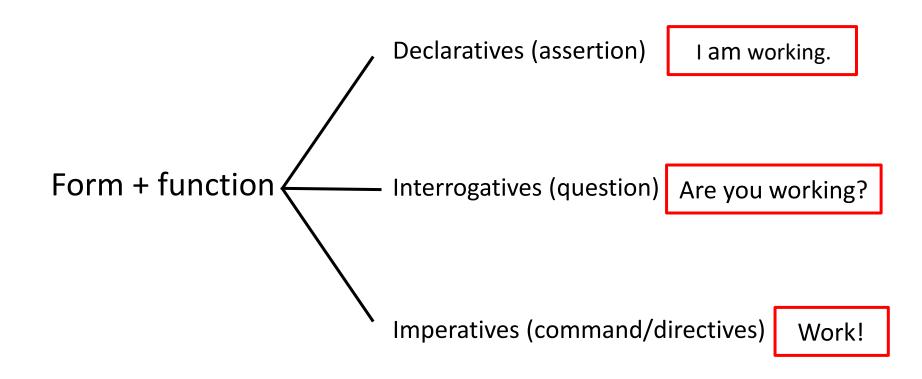


Imperative speech acts





Sentence type





Imperative speech acts

- The same imperative form can express a variety of meanings
 - → imperative speech acts

Go to your room! → command, request, advice, instruction, permission...



Imperative speech acts in spoken languages

- Imperative speech acts can be distinguished by modal particles and intonation in spoken languages
 - Badiotto: ma is used in advice imperativesmo is used in command imperatives

(Poletto & Zanuttini 2003)

English: Have a seat! ↑ (advice, weak imperatives)
Have a seat! ↓ (command, strong imperatives)

(Portner 2018)



Imperative speech acts in sign languages

 Imperative speech acts can be distinguished by manual elements and manual and non-manual prosodic cues in sign languages

Manual elements:

PEN TAKE **MOVIMP** (LIS) 'Take the pen!'





Imperative speech acts in sign languages

- Manual prosody
 - Temporal cues (e.g. sign duration, hold duration) mark imperative speech acts

Holds _____

1. FIND BOOK

Command (ASL)

2. FIND

Explanation (ASL)

BOOK



Imperative speech acts in sign languages

- Non-manual prosody
 - Specific non-manual elements mark imperative speech acts



Furrowed brows \rightarrow commands (LSC)



Protruding lips \rightarrow permissions (LSC)



Non-manual elements in sign languages



Functions of non-manuals

- Functional categories → e.g. Negation
- Lexical non-manuals
- Sentence types \rightarrow e.g. Declaratives Interrogatives
- Communicative intentions → intentionally influence the reaction of the addressee during communication
- Emotions

Non-manual elements in sign languages

Functions of non-manuals

- Emotions in sign languages can be expressed in two ways:
 - Conventionalized signs → SAD − HAPPY
 (see Pendzich 2017 and the presentation by Sarah Schwarzenberger et al. tomorrow)
 - Non-manual elements → combinations of facial expressions that universally are the same



The question

What's the function of non-manuals in DGS imperative speech acts?

INTENTIONS EMOTIONS (speech act marker)



The question

What's the function of non-manuals in DGS imperative speech acts?

INTENTIONS (speech act marker)

EMOTIONS



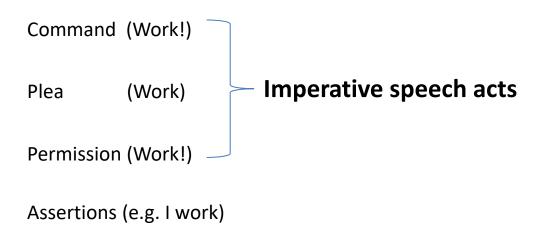
Imperative speech acts in DGS



- Target language: German Sign Language (DGS)
- Participants: 5 deaf native DGS signers
- Task: Picture and Sign Elicitation Task
 - Why?
 - Difficult to search imperatives in the Hamburger DGS corpus
 - Also, comparative study on Greek Sign Language
 - Aim → comparable dataset



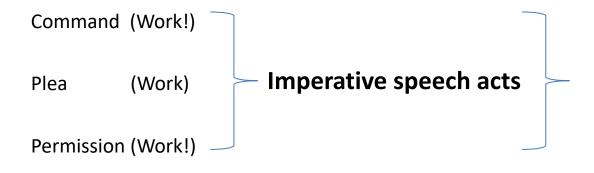
Speech act





Speech act

Assertions (e.g. I work)



Video in DGS

Where is each speech act used?





Verbs used

Verb type

Intransitive (No object = No picture) e.g. WARTEN (wait)

Transitive (1 object = 1 picture) e.g. TRINKEN (drink) + JUICE



Ditransitive (2 objects = 2 pictures) e.g. SENDEN (send) + LETTER, DOCTOR







Imperative speech acts in DGS

Methodology

Verb class Verb

Plain (body anchored)

Drink



Learn



Wait



Plain (neutral)



Build

Draw



Work

Swim

Regular agreement Answer



Help

Verb class

Regular agreement

Backward

agreement

Give

Send

Take

Verb

Accept



Invite



Pick up



Verb class

Spatial agreement Verb Fly



Go



Walk

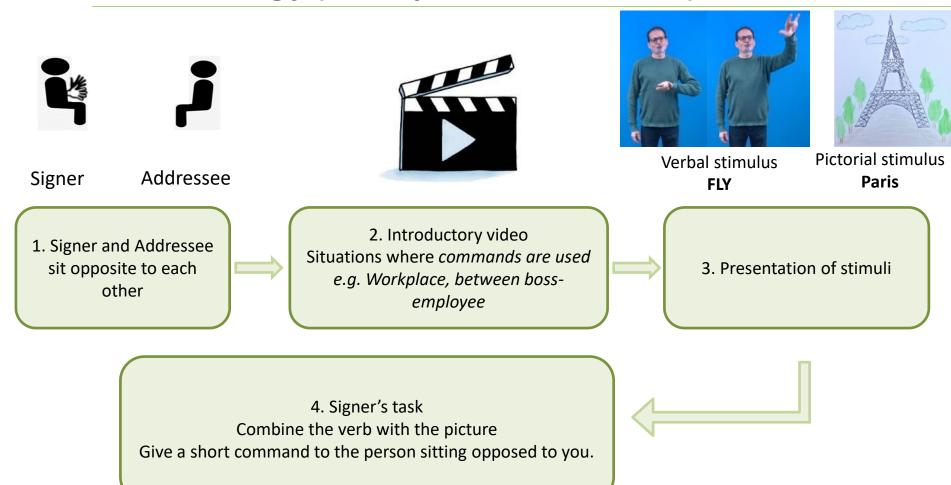


Move





Methodology (example for command)





- Annotation of non-manual elements:
 - Application and extension of the Facial Action Coding System (Ekman et al. 2002) for sign languages by Pendzich 2017, 2020
 - Initially used for psychology studies, studies on emotions
 - Very helpful for objective analyses of non-manuals in sign languages



- Compare the facial expression of a person to this person's neutral face
- Scoring of the deviations from the neutral pose



Neutral face



Command



- Compare the facial expression of a person to this person's neutral face
- Scoring of the deviations from the neutral pose



Neutral face

O brow lowerer



+ brow lowerer

Ekman et al. 2002; Pendzich 2017, 2020



FACS can also measure Intensity degree



+ brow lowerer High intensity



+ brow lowerer Low intensity



- Many AUs can appear (did not annotate them all)
- Observe which AUs appear systematically with each speech act
- Decide which ones are important for this study



Elicited sentences

Speech act	Elicited sentences	Sentences that were put into the analysis	Sentences with overt performative verbs	Sentences with overt modals	Interrogative sentences	Possible imperative sentence types
Assertions	115	115	-	-	-	-
Commands	115	70	-	14 (MUST)	-	54
Permissions	115	107	52 (ALLOW)	38 (CAN), 17 (MAY)	-	52
Pleas	115	111	-	-	14	97
Total	460	403	52	69	14	203

Table 1. Total results from the elicitation task

- How are the imperative speech acts distinguished?
 - Manual elements
 - Manual prosodic cues
 - Non-manual prosodic cues



Elicited sentences

Speech act	Elicited sentences	Sentences that were put into the analysis	Sentences with overt performative verbs	Sentences with overt modals	Interrogative sentences	Possible imperative sentence types
Assertions	115	115	-	-	-	-
Commands	115	70	-	14 (MUST)	-	54
Permissions	115	107	52 (ALLOW)	38 (CAN), 17 (MAY)	-	52
Pleas	115	111	-	-	14	97
Total	460	403	52	69	14	203

Table 1. Total results from the elicitation task

- How are the imperative speech acts distinguished?
 - Manual elements
 - Manual prosodic cues
 - Non-manual prosodic cues



Imperative speech acts in DGS

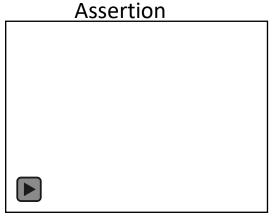
Results

Stimuli

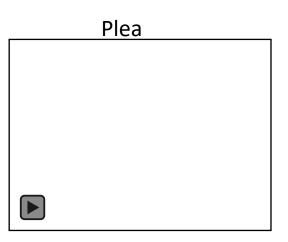




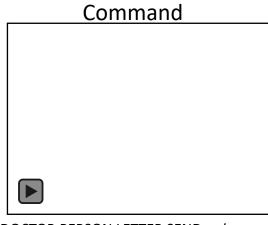




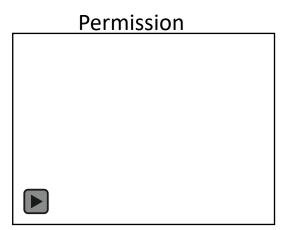
I DOCTOR LETTER SEND



YOU PLEASE DOCTOR PERSON LETTER SEND



DOCTOR PERSON LETTER SEND palm-up



YOU PLEASE DOCTOR PERSON LETTER SEND MOVIMP-B

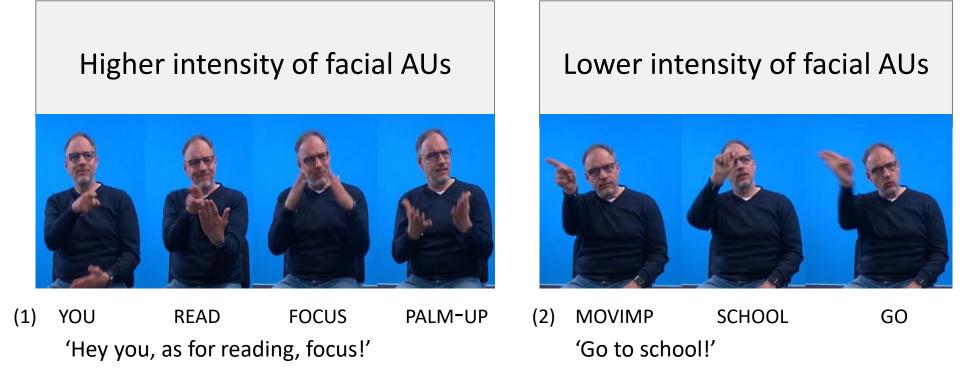


Condition	Non-manual markers	Examples
Neutral declarative sentences (Assertions)	No particular non-manual marking	
Commands	Brow lowerer (AU 4) Head forward (AU 57) followed by head back (AU 58) with certain verbs Head forward (AU 57) Body forward (AU 107, AU addition by Pendzich 2020) in some cases Lip puckerer (AU 18) combined with chin raiser (AU 17)	
Permissions	Brow lowerer (AU 4) Head nod up and down (AU 85) Lip puckerer (AU 18) combined with chin raiser (AU 17)	
Pleas	Brow lowerer (AU 4) combined with inner brow raiser (AU 1) and lid tightener (AU 7) Lip puckerer (AU 18) combined with chin raiser (AU 17) Head down (AU 54)	

Table 2. Non-manual markers per speech act.



- Same non-manuals for the same speech act
- Different degrees of intensity





- Non-manuals can (solely) distinguish imperative speech acts
- Preferred combinations of NMMs per speech act
- In some cases different intensity degrees within the same speech act level
 - Possibly related to the expression of emotions



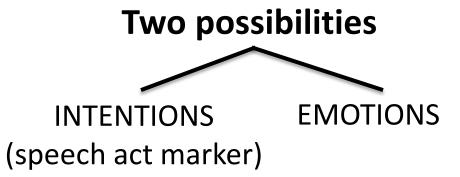
What non-manuals convey in imperative speech acts



Two possibilities

INTENTIONS EMOTIONS (speech act marker)

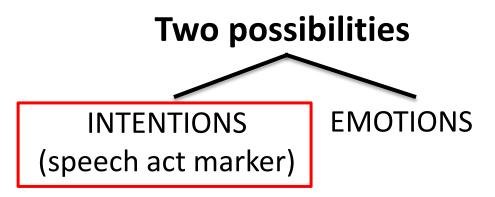




- Properties of imperative speech acts
 - Directives
 - Perlocutionary act

- Methodology
 - Elicitation task
 - Controlled data
 - Don't know whether they felt emotions





- Note however that:
 - Strong relation between intentions emotions
 - \mathcal{T} E.g. emotion of *anger* \rightarrow intention of *commanding*



Our proposal

2 levels of functions

Level 1

- Non-manuals mark the "unmarked" / "prototypical" speech act level in DGS
 - Specific combinations of AUs used with specific speech acts, e.g.
 command
 - Also suggested by the data: signers tend to use the same combinations for most cases

Level 2

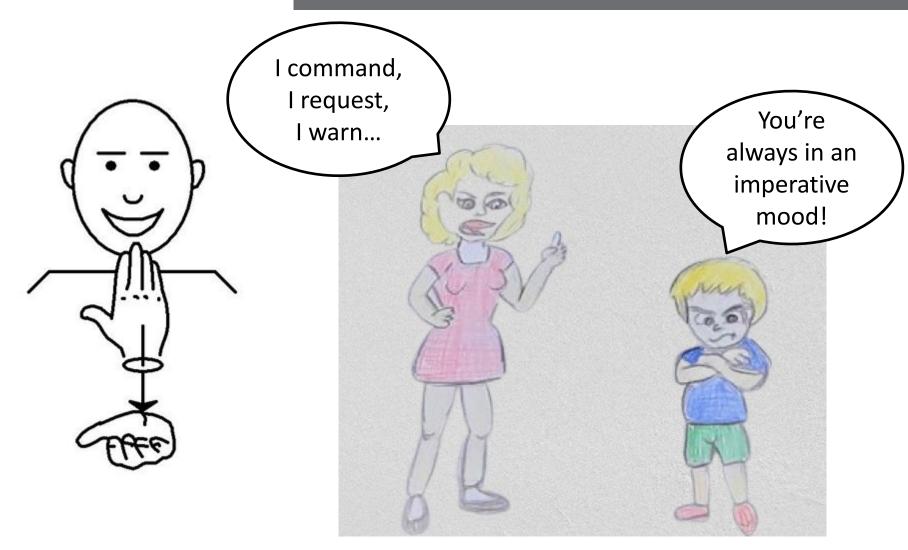
- Degree of intensity of non-manuals convey additional intentions, e.g. urgency or possibly emotions
 - Deviation from the basic intensity degree of the prototypical speech act



Our proposal

- Maybe a universal phenomenon?
 - Similar findings for imperatives in spoken languages
 - Non-manuals Intonation/particles (see Oikonomou 2016; Hellbernd & Sammler 2016; Jeong & Condoravdi 2018)
 - Basic prototypical way of uttering an imperative speech act
 - Different melody patterns convey additional meanings (see Oikonomou's (2016) work on imperatives in Greek)
 - More studies needed!







Non-manuals reveal signers' intentions in DGS imperative speech acts

References

Aikhenvald, A. Y. (2010). Imperatives and commands. Oxford University Press.

Brentari, D., Falk, J., Giannakidou, A., Herrmann, A., Volk, E. & Steinbach, M. (2018). Production and comprehension of prosodic markers in sign language imperatives. Frontiers in psychology 9, 770.

Condoravdi, C. & Lauer, S. (2012). Imperatives: Meaning and illocutionary force. Empirical issues in syntax and semantics 9, 37-58.

Donati, C., Barberà, G., Branchini, C., Cecchetto, C. & Quer, J. (2017). Searching for imperatives in European sign languages. Imperatives and directive strategies, 111-155.

Ekman, P., Friesen, W. V., Hager, J. C. (2002). Facial Action Coding System. The manual. Salt Lake City: Research Nexus Division of Network Information Research Corporation.

Fridlund, A. J. (1994). Human facial expression: An evolutionary view. Academic Press.

Han, C. H. (2001). Force, negation and imperatives.

Hellbernd, N., & Sammler, D. (2016). Prosody conveys speaker's intentions: Acoustic cues for speech act perception. Journal of Memory and Language, 88, 70-86.

Jeong, S., & Condoravdi, C. (2018). Imperatives and intonation: The case of the down-stepped level terminal contour. In Proceedings of the 35th West Coast Conference on Formal Linguistics, ed. Wm. G. Bennett et al (pp. 214-223).

Kaufmann, M. (2011). Interpreting imperatives (Vol.88). Springer Science & Business Media.

Mastop, R. (2005). What can you do? Imperative mood in semantic theory. University of Amsterdam.

Oikonomou, D. (2016). Covert modals in root contexts (Doctoral dissertation, Massachusetts Institute of Technology).

Pendzich, N. K. (2020). Lexical nonmanuals in German Sign Language: Empirical studies and theoretical implications (Vol. 13). Berlin/Boston: De Gruyter Mouton / Ishara Press.

Portner, P. (2007). Imperatives and modals. Natural language semantics, 15 (4), 351-383.

Rivero, M. L., & Terzi, A. (1995). Imperatives, V-movement and logical mood. Journal of linguistics, 31(2), 301-332.