Intonational sentence-type conventions for perlocutionary effects: an experimental investigation

https://github.com/sunwooj/perlocution

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A classic view: traditional speech act theory

Sentence types → Illocution → Perlocution

- Force or intended act
- Effects on the listener

Context
Real world knowledge

Austin (1962), Searle (1969)
A classic view: traditional speech act theory

Declarative

“It would be a shame if something happened to your store.”

Force or intended act

Threat

Effects on the listener

Fear

Speaker suspected to be a mobster

Listener indebted to speaker
Conventions for illocution

Declarative

Interrogative

Imperative

Assert
Query
Command
Request
Threaten
Express wish
Conventions for illocution: clause type

Declarative: Thereby commits to acting as though she believes $p$

Interrogative: Thereby commits to a preference for having the addressee commit to … an answer to $Q$

Imperative: Thereby commits to acting in accord with having a preference for $p$

Sentence type conventions constraining illocutions

Context

Assert
Query
Threaten
Command
Request
Express wish

Condoravdi and Lauer (2011, 2012), Lauer (2013);
See also: Portner (2007), Malamud and Stephenson (2015)
Conventions for illocution: example

“Get well soon.” ➔ Commits to acting in accord with having a preference for $p$ ➔ well-wish

Speaker is concerned about the listener.

Condoravdi and Lauer (2012)
Conventions for illocution: type + tune

Falling declarative

Thereby signals speaker’s categorical commitment to \( p \)

Rising declarative

“There’s a persimmon?”

Thereby signals speaker’s conditional or projected commitment to \( p \)

Type + Tune conventions constraining illocutions

Context

Assert

Query

Request

Invite

Accuse

Farkas and Roelofson (forthcoming), Malamud and Stephenson (2015)
The nature of these normative conventions

- These conventions attach to type + tune pairs.
- They are normative: use *thereby* signals something.
- They do not *determine* illocution, but rather constrain it.

Our question:

Do similar conventions arise for perlocutionary effects?
Conventions for perlocutions?

Perlocutionary effects are “certain consequential effects upon the feelings, thoughts, or actions of the audience, or of the speaker.” (Austin 1962: 101).

“Perlocutionary acts are not conventional, though conventional acts may be made use of in order to bring off the perlocutionary act.” (Austin 1962: 121).

“Perlocutionary effects are … beyond the control of the speaker and beyond the conventional norms of communicative interactions.” (Van Dijk 1977).
Conventions for perlocutions?

Polar interrogative: **info-seeking** bias

“Are armadillos mammals?”

Polar interrogative: **invitation** bias

“Do you want to grab a bite?”

Polar interrogative: **request** bias

“Can you lend me some money?”
Conventions for perlocutions?

**Declarative**: invitation bias

“We can go dancing.”

**Imperative**: advice/suggestion bias

“Take these pills for a week.”
Hypothesis: Conventions for perlocutions

- An independent set of conventions for perlocutionary effects
  - Sentence type + terminal contour intonation (type + tune)
  - Consistent across: diverse contents, contexts, and illocutions

- Methodology: perception experiments

- Naturally assimilated to existing work on sentence type conventions
## Perception experiment: Materials

Sentences systematically varying in sentence-types and illocutionary biases

<table>
<thead>
<tr>
<th>sentences</th>
<th>sentence-type(s)</th>
<th>illocutionary bias(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are armadillos mammals?</td>
<td>(Polar-Q)</td>
<td>Information seeking</td>
</tr>
<tr>
<td>Where do armadillos live?</td>
<td>(Wh-Q)</td>
<td>Information giving</td>
</tr>
<tr>
<td>Manatees have molars.</td>
<td>(Dec)</td>
<td>Disinterested advice</td>
</tr>
<tr>
<td>Avoid the highway.</td>
<td>(Imp)</td>
<td></td>
</tr>
<tr>
<td>Do you want to go for a run?</td>
<td>(Polar-Q)</td>
<td>Invitation</td>
</tr>
<tr>
<td>What do you say we go grab a bite?</td>
<td>(Wh-Q)</td>
<td>Offer</td>
</tr>
<tr>
<td>We should go get beer.</td>
<td>(Dec)</td>
<td></td>
</tr>
<tr>
<td>Take a cookie.</td>
<td>(Imp)</td>
<td></td>
</tr>
<tr>
<td>Can you close the window?</td>
<td>(Polar-Q)</td>
<td>Request</td>
</tr>
<tr>
<td>Who has a pen?</td>
<td>(Wh-Q)</td>
<td>Command</td>
</tr>
<tr>
<td>You gotta close the window.</td>
<td>(Dec)</td>
<td></td>
</tr>
<tr>
<td>Hand in the assignment by Friday.</td>
<td>(Imp)</td>
<td></td>
</tr>
</tbody>
</table>
Perception experiment: Materials

- Speakers: 2 males, 2 females for each experiment
- Each sentence acoustically manipulated to yield stimuli with 3 types of terminal contours:
  - Falling (\L* L-L\%)
  - Level (\L* H-L\%)
  - Rising (L* H-H\%)

![Diagram showing pitch vs time with labels for falling, level, and rising contours. The graph shows a sentence with falling contour and the question 'Do you have a problem?' at the bottom.]
Perception experiment: procedure

- All 31 sentences presented in randomly chosen intonation
  - Experiment 1: 16 polar-interrogatives, 15 fillers
  - Experiment 2: 16 wh-interrogatives, 7 declaratives, 8 imperatives

- 240 Native speakers of American English (Amazon Mechanical Turk)
Perception experiment: questions

❖ Q1: Typing in what they heard (verification step)

❖ Q2: Choosing the most likely interpretation (**Illocution** oriented)

- Information-seeking
- Invitation
- Request or command
- Accusation
- (Information-giving) / (Expressing wish) / (Suggestion)
Perception experiment: questions

❖ Q3 – Q5: Giving graded responses; 0 – 100 (perlocution oriented)

➢ How annoyed does the speaker sound?
➢ How authoritative does the speaker sound?
➢ How polite does the speaker sound?
➢ What kind of attitude does the speaker have towards the listener? (degree of positivity)

❖ Q6 – Q7: Free responses; qualitative answers
Results: participants’ illocutionary inferences

Polar-interrogatives with illocutionary biases: falling, level, rising

“Do manatees have molars?”
“Did Maria bring those bananas?”

“Can you open the door?”
“Can you close the window?”

[Diagrams showing illocution counts for different illocution types and intonations]
Results: participants’ illocutionary inferences

Declaratives with illocutionary biases: falling, level, rising

“Hippos are predators.”
“Manatees have molars.”

“You need to help me carry this box.”
“You gotta close the window.”

![Graph showing illocution count for info-giving and request biases with different intonation levels: falling, level, rising.](image-url)
Results: participants’ illocutionary inferences

Polar-interrogatives with ambiguous biases: **falling, level, rising**

![Graphs showing illocution count for different intonations and questions]

- **'Do you have a problem?'**
  - illocution count
  - **accuse**: 15
  - **request**: 10
  - **info-s**: 20

- **'Do you want to do the laundry?'**
  - illocution count
  - **invitation**: 5
  - **request**: 20
  - **info-s**: 15

**falling intonation:** 🟠 **level intonation:** 🟡 **rising intonation:** ⬤
Illocutionary inferences: summary

- Intonational effects on illocution: constrained by content and context
  - Intonational effects emerged primarily for ambiguous cases
  - These effects were dominated by the sentences’ content-related biases

- Subject made a wide range of choices on illocutions
  - Setting a necessary background to test our hypothesis about perlocution
Perlocutionary conventions: hypotheses

- **Central hypothesis**: Perlocutionary effect conventions that are not predictable from content, context, and illocution alone, but rather inhere in specific type + tune conventions.

- **Secondary hypothesis**: Perlocutionary effect conventions will rely primarily on ‘tune’, but also on ‘type’ as well. → To what extent are they dependent on sentence-types?
Results for perlocutionary effects: across ‘types’

- Consistent tune ordering across sentence-types
- Possible secondary effects of sentence-type

\[ \text{(cf. Uldall 1960)} \]
Results for perlocutionary effects: across ‘types’

- Consistent tune ordering across sentence-types
- Possible secondary effects of sentence-type

Rising > \{Level, Falling\}  
Rising > Falling > Level

(cf. Uldall 1960)
Results for perlocutionary effects: across illocutions

- **Central hypothesis**: There are perlocutionary effect conventions that are not predictable from content, context, and illocution alone, but rather inhere in specific type + tune conventions.

- Perlocutionary ratings (Q3–6) plotted across subjects’ choices on illocutions
  - x-axes: subjects’ choices on illocutions
  - y-axes: mean perlocutionary ratings / standard errors
Results for perlocutionary effects: polar-questions

- **Annoyance**: Level > Falling > Rising
- **Authority**: Falling > Level > Rising
- **Politeness**: Rising > {Falling, Level}
- **Stance**: Rising > {Falling, Level}
Results for perlocutionary effects: imperatives

- **Annoyance**
  - Level > {Falling, Rising}
  - {Rising, Falling} > Level

- **Authority**
  - Falling > Level > Rising
  - {Rising, Falling} > Level

- **Politeness**
  - Level > {Falling, Rising}
  - {Rising, Falling} > Level

- **Stance**
  - Level > {Falling, Rising}
  - {Rising, Falling} > Level
Results for perlocutionary effects: wh-questions

**Annoyance: Polar-interrogative**

Level > Falling > Rising

**Annoyance: Wh-interrogative**

Level > \{Falling, Rising\}

Bigger baseline changes depending on illocution
Results for perlocutionary effects: declaratives

**Politeness: Imperative**

- Level > Falling > Rising

**Politeness: Declarative**

- Level > \{Falling, Rising\}

**Bigger baseline changes**

- Declarative requests
Discussion: type + tune conventions for perlocutions

Linear mixed effects models fitted to the combined data

- Each of the perlocutionary ratings as the dependent variables
- Intonation, participants’ choice of illocution, and sentence-type as independent variables
  - All the possible two-way & three-way interactions between them
- Participants and speakers as random effects
Discussion: type + tune conventions for perlocutions

- Significant and independent effects of intonation on perlocution
  → Core tune conventions on perlocutions

  - Annoyance: Level > Falling > Rising
  - Authority: Falling > Level > Rising
  - Politeness: Rising > \{Falling, Level\}
  - Positive stance: Rising > Falling > Level

Significance (p < .01) across all pairs!
Discussion: type + tune conventions for perlocutions

- Significant and independent effects of intonation * sentence type
  → Secondary type + tune conventions on perlocutions

- Imperative + Rising: less polite, less positive
- Wh-interrogative + Rising: less polite, less positive
- Declarative + Level: less annoyed sounding
- Declarative + Rising: even less authoritative

Significance (p < .01) for all interactions!
Results for perlocutionary effects: summary

- The existence of type + tune perlocutionary conventions that cannot be subsumed under, and thus independent from, illocution, context, and content

- The type + tune perlocutionary conventions hold across different speaker voices and across different participants
Other interactions

- Significant effects of *illocution*
- Significant effects of *sentence-type*

- Significant effects of \textit{illocution} * \textit{sentence type} interactions
- Significant effects of \textit{illocution} * \textit{intonation} * \textit{sentence type} interactions
Discussion: type + tune conventions for perlocutions

- Illocution-oriented type + tune conventions for English
  - Primary type conventions
  - Secondary type + tune conventions

- Perlocution-oriented type + tune conventions for English
  - Primary tune conventions
  - Secondary type + tune conventions
Core tune conventions for perlocutions

Falling ——— Thereby signals that she seeking to sound authoritative.

Level ——— Thereby signals a sense that she is annoyed.

Rising ——— Thereby signals that she is polite and has positive stance towards the listener.
Secondary type + tune conventions

Rising declarative — Signals even lower authority than for other clause types

Level declarative — Signals annoyance to a lesser degree than for other clause types

Rising imperative — Signals politeness to a lesser degree than for other clause types

Rising wh-Q —
Emerging picture

Sentence types + Tunes

Context

Illocutionary force

Conventions

Perlocutionary effects
Discussion: the source of perlocutionary conventions

- Sound symbolism
- Deviation from the norm (a division of pragmatic labor)
  - Canonical declaratives: falling
  - Canonical polar-interrogatives: rising
- Arbitrary conventions
- A combination of all three

Ohala (1983), Gussenhoven (2002), Grice (1975)
Conclusion

- Separate, context-independent conventions for perlocution signaled by specific type + tunes, and distinct from illocution.
- The conventions of language extend to interactional information relating to style, stance, and other kinds of social meaning.
- Potential connections to non-at-issue, expressive, and perspective dependent meanings.
- Full paper and data: https://github.com/sunwooj/perlocution

Thank you!