Force shift as speech act anchoring

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April 8, 2022
S-Circle@UCSC
Introduction
(1) Sue went to the beach ↓.

Speaker is committed to \( p \).

(Addressee is invited to commit to \( p \).)
(2) Did Sue go to the beach?

Choices are offered:
Speaker would like Addressee to commit to $p$ or commit to $\neg p$. 
Declarative question

(3) Sue went to the beach ↑?

Speaker may or may not be committed to $p$—assertion is altered.

Addressee is invited to commit to $p$ or to $\neg p$—question is introduced.

1. How do the declarative syntax and the rising intonation work together to yield the complex discourse conventions?

2. Where does the assertive force go?

3. Where does the question force come from?
Two approaches to force shift
Complex force

A complex way of using content

complex speech act

semantic content

$p$

complex sentential force (RD)

quest
evidential

ordinary assertion: \texttt{assert}(p)
rising declarative: \texttt{RD}(p)

Gunlogson (2008); Malamud and Stephenson (2015); Northrup (2014); Farkas and Roelofsen (2017); Goodhue (2021)
Arguments for the complex force approach

Novel force!

• Weakened speaker commitment—introduced by *evidential*
• Presence of question force—introduced by *quest*.

A variety of declarative questions:

(4) **RD1**: You got a haircut? inquisitive

(5) **RD2**: My name is ... Diti Bhadra? meta-linguistic

But the declarative syntax has no uniform force contribution.
Speech act anchoring + pragmatics

A complex way of using force

(complex) speech act

unachored speech act

anchor

semantic content sentential force

Spkr/Addr

ordinary assertion: \assert(p)(Spkr)

rising declarative: \begin{align*}
\assert(p)(Addr) \\
\neg\assert(p)(Spkr)
\end{align*} + pragmatics

Gunlogson (2001); Rudin (2018)
Arguments for anchoring + pragmatics

The assertive force associated with the declarative syntax is represented (and used in a creative way).

The commitment-question trade off:

Speaker commitment suspended $\rightarrow$ Addressee confirmation needed

More types of force shift demands more pragmatics.
Goals of today

Look at a wider range of force shift phenomena beyond English rising declaratives.

Motivate an approach to force shift with the following features:

• ‘assertive force’ (or clause-type force more generally) is fully represented, as in the anchoring approach—stronger compositionality.
• question force is semantically derived, as in the complex force approach—a larger variety of declarative questions is predicted.
Force shift in Cantonese
Assertion vs. Question

(6) Sue zungji hoitaan (gaa3/aa3).
    Sue like beach Asrt
    ‘Sue likes the beach.’

(7) Sue zungji hoitaan maa3?
    Sue like beach PolQ
    ‘Does Sue like the beach?’
Multiplicity of speaker attitudes

(8) Sue zungji hoitaan ...
    Sue like beach

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<td>p</td>
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<tr>
<td>...?</td>
<td>‘Sue likes the beach? Is this helpful?’</td>
<td>–/meta-linguistic</td>
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Pragmatics does not suffice:

- Speaker commitment status is all over the place.
- A pragmatic commitment-question trade-off is hard to maintain.
Multiplicity of content types

(9) Ziming sik haa  
Ziming eat shrimp ASRT HO
‘Ziming eats shrimp. Right?’

(10) Ziming sik haa  
Ziming eat shrimp ASRT BPQ  HO
‘Ziming eats shrimp? I don’t think so. Do you wonder?’

(11) Binggo sik haa  
who  eat shrimp WHQ HO
‘Who eats shrimp? Do you wonder?’

Positing complex force is untenable:

- *me1* and *ho2* require distinct commitments towards the content.
- *wh*-interrogative cannot be mapped to a polar question.
A semantic approach to force shift
Speech act anchoring

A complex way of using force

(complex) speech act

unachored speech act

semantic content

sentential force

Anchors:

- discourse participants, the speaker and/or the addressee
- semantically simple

Anchoring functions:

- participant quantifiers anchoring speech acts to participants
- can be semantically complex
Overview of anchoring functions

\textit{gaa3(p)}: unanchored assertion (function from individuals to assertive speech acts)

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Step 1: Origin of the (polar) question force
Questions are about choices

(12) Is it sunny?

(13) Who killed Mr. Boddy?

Speech act-level questions are about choices of speech acts!
For deriving question force, we assume a simplistic notion of $c$ as the common ground.

\[ c = \{ p, q, r, \ldots \} \]

It may be enriched with more components, including:

- discourse commitments by different participants (see Step 2)
- a QUD stack for storing issues introduced by questions
- Do-do lists for storing tasks introduced by imperatives

Gunlogson 2001; Farkas and Bruce 2010; Portner 2007
Speech acts as relations between contexts

\[ \mathcal{A} \subseteq C \times C \]

\[ \mathcal{A} := \lambda c. \{ c' \mid \ldots \} \]
**Speech acts are partial**

\[ \text{A} := \lambda c. \{ c' \mid \ldots \}, \]

if \( c \) satisfies requirements for performing \( \text{A} \).

- **Assertion**  Not contradictory in \( c \)
- **Question**   No answer provided in \( c \)
- **Imperative** Unrealized in \( c \)

Searle (1969, 1979); MacFarlane (2005); Condoravdi and Lauer (2012); Lauer (2013); Krifka (2015)
Speech acts are partial

\[ \Lambda := \lambda c. \{ c' \mid \ldots \} , \]

if \( c \) satisfies requirements for performing \( \Lambda \).

Useful classes of contexts:

\[ \text{SatSet}(\Lambda) := \{ c \mid \exists c' : \Lambda(c)(c') \} \]

\[ \text{ProdSet}(\Lambda) := \{ c' \mid \exists c : \Lambda(c)(c') \} \]

\[ \text{FailSet}(\Lambda) := \{ c \mid \forall c' : \Lambda(c)(c') = \# \} \]
For any speech act $A$ and a pair of input and output contexts $c$ and $c'$, some choices can be made:

Questioning the input

- Is $c$ in $\text{SatSet}$ or $\text{FailSet}$?

Questioning the output

- Move to a $c'$ in $\text{ProdSet}$ or remain in $c$ (regardless of what $c$ is like)?
- Move to a $c'$ in $\text{ProdSet}$ or remain in $c$ (if $c$ is in the $\text{FailSet}$)?
Force-level polar question—to perform or not to perform?

\[ \text{fs}(\mathcal{A}) := \lambda c. \{ c' \mid \mathcal{A}(c)(c') \} \cup \{ c' \mid c' \in \text{FailSet}(\mathcal{A}) \land c = c' \} \]
Force shift as operations on speech acts

Origin of the question force:
Speech acts are partial action potentials supporting the generation of force-level questions.

A complex way of using force

Force-level question

speech act force shift operator

semantic content sentential force

Multiplicity of content types is no longer an issue—force shift targets speech acts, all of which are (partial) action potentials.

see also Gunlogson 2001; Davis 2011; Rudin 2018, 2022
Step 2: Force shift anchored to participants
Discourse commitments by participants

A context $c$ is a tuple consisting of discourse participants and their discourse commitments.

$$c = \langle \text{Part}^c, \text{DC}_x^c, \text{DC}_y^c, \ldots \rangle$$

(14) \hspace{1cm} \textbf{assert}(p) := \lambda x \lambda c. \{ c' \mid c[\text{DC}_x]c' \land \text{DC}_x^c \cup \{ p \} = \text{DC}'_x \}, \text{ if } \text{DC}'_x \neq \emptyset \hspace{1cm} \text{Consistency}

$c[\text{DC}_x]c'$ iff $c'$ differs from $c$ at most with respect to $\text{DC}_x$.

(15) \hspace{1cm} \textbf{quest}(Q) := \lambda x \lambda c. \{ c' \mid \exists y \in \text{Part}^c \exists p \in Q : \textbf{assert}(p)(y)(c)(c') \}, \text{ if } \forall p \in Q : p \notin \text{DC}_x^c \hspace{1cm} \text{Presumed ignorance}
Gunlogsonian anchors

(16)  \textbf{assert}(p) := \lambda x \lambda c. \{ c' \mid c[DC_x]c' \land DC^c_x \cup \{ p \} = DC^c_x \}, \text{ if Consistency.}

Intonational contour as simple participants (type e)

\downarrow := \text{Spkr} \quad \text{ordinary assertion}

\uparrow := \text{Addr} \quad \text{declarative question}

Lifted participants (type $(e \rightarrow T) \rightarrow T$)

\downarrow := \lambda A \lambda c \{ c' \mid A(\text{Spkr})(c)(c') \} \quad \text{ordinary assertion}

\uparrow := \lambda A \lambda c \{ c' \mid A(\text{Addr})(c)(c') \} \quad \text{declarative question}

Lifted participants are like quantifiers.

Gunlogson (2001)
Force shift anchored to Addr

\[ \text{AddrAct} := \lambda A \lambda c \{ c' \mid A(\text{Addr})(c)(c') \} \]
Addr performs A

\[ \text{AddrNotAct} := \lambda A \lambda c \{ c' \mid c' \in \text{FailSet}(A(\text{Addr})) \land c = c' \} \]
Addr does not perform A if \( c \in \text{FailSet}(A(a)) \)

\[ \text{AddrAct?} := \lambda A \lambda c \{ c' \mid A(\text{Addr})(c)(c') \} \cup \{ c' \mid c' \in \text{FailSet}(A)(\text{Spkr}) \land c = c' \} \]
Can Addr perform A?

if \( c \in \text{FailSet}(A(a)) \)
Inquisitive rise

(17) Ziming sik haa **gaa3**.
Ziming eat shrimp ASRT
‘Ziming eats shrimp.’

assertion

(18) Ziming sik haa (**gaa4**)?
Ziming eat shrimp ASRT
‘Ziming eats shrimp?’

question

Suspending speaker commitment with (19) is compatible with (18) but not (17):

(19) Ngo gokdak m-hai **lo1**.
I think not-yes SFP
‘I don’t think so.’
**Force shift anchored to Spkr**

\[ \text{SpkrAct} := \lambda A \lambda c \{ c' | A(\text{Spkr})(c)(c') \} \]

Spkr performs \( A \)

\[ \text{SpkrNotAct} := \lambda A \lambda c \{ c' | c' \in \text{FailSet}(A(\text{Spkr})) \land c = c' \} \]

Spkr does not perform \( A \)

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Can Spkr perform \( A \)?

if \( c \in \text{FailSet}(A(s)) \)
Meta-linguistic rise

A: What food does Ziming like?

(20) Ziming zungji sik haa?
    Ziming like eat shrimp
    ‘Ziming likes to eat shrimp?’

(21) #Ziming zungji sik haa gaa4?
    Ziming like eat shrimp ASRT
    ‘Ziming likes to eat shrimp?’

Westera (2013); Malamud and Stephenson (2015)
Rising imperative

A: I really like this present grandma gave me.

(22) Write her a thank-you note.

(23) Write her a thank-you note?

Speaker attitude suspended:
A: I’m having trouble managing my time lately. I don’t know what my plans should be for this evening, do you have any advice?

(24) Work on your paper? Blow it off and go to the beach?

All examples are from Rudin (2018); see also Portner (2018)
The building blocks, again

AddrAct

\[ c \xrightarrow{A(a_c)} c' \]

if \( c \in \text{FailSet}(A(a)) \)

AddrNotAct

\[ c \]

if \( c \in \text{FailSet}(A(a)) \)

AddrAct?

\[ c \xleftarrow{A(a_c)} c' \]

SpkrAct

\[ c \xrightarrow{A(s_c)} c' \]

if \( c \in \text{FailSet}(A(s)) \)

SpkrNotAct

\[ c \]

if \( c \in \text{FailSet}(A(s)) \)

SpkrAct?

\[ c \xleftarrow{A(s_c)} c' \]

29
SpkrAct-AddrAct? := \lambda A \lambda c \{ c' \in A(Addr)(c'')(c') \mid A(Spkr)(c)(c'') \} \cup \\
\{ c' \in \text{FailSet}(A)(Addr) \mid A(Spkr)(c)(c'') \} \\
Spkr performs the act; Can Addr perform the act?

\[ c \xrightarrow{A(s_c)} c'' \xrightarrow{A(a_c)} c'_1 \]

if \( c'' \in \text{FailSet}(A(a)) \)
Cantonese *ho2* clusters

(25) Ziming sik haa *gaa3 ho2*?  
Ziming eat shrimp *asrt ho*  
‘Ziming eats shrimp. Right?’  
#I don’t think so.

(26) Mingzai sik haa *me1 ho2*?  
Ziming eat shrimp *bpq ho*  
‘Mingzai eats shrimp? I doubt it. Do you also wonder?’  
I don’t think so.

(27) Binggo sik haa *ne1 ho2*?  
Ziming eat shrimp *whq ho*  
‘Who eats shrimp? Do you also wonder?’  
# if Spkr or Addr has revealed knowledge.
Multiple-participant force shift 1: $ho2$

$SpkrNotAct-AddrAct\? :=$
\[\lambda A \lambda c \{ c' \in A(Addr)(c'')(c') \mid c'' \in \text{FailSet}(A)(Spkr) \land c'' = c \} \cup \{ c' \in \text{FailSet}(A)(Addr) \mid c' \in \text{FailSet}(A)(Spkr) \land c'' = c \}\]

$Spkr$ does not perform the act; Can $Addr$ perform the act?

![Diagram](image)
Multiple-participant force shift 2: *me1*

(28) Ziming sik haa gaa3 *me1*?
Ziming eat shrimp ASRT ME
‘Ziming eats shrimp? I doubt it. Do you also wonder?’
**Summary: Who stands in what relation to an act?**

\( gaa3(p) \): unanchored assertion (function from individuals to assertions by those speakers)

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Comprehension quiz time

(29) Sue went to the beach ↑?

1. How do the declarative syntax and the rising intonation work together to yield the complex discourse conventions?
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Final rise (inquisitive): Force transformation—to perform or not to, by the addressee?

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   Absorbed by force transformation into the question force as an ingredient.

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3. Where does the question force come from?
   On the surface: from a force shift operator.
   At a deeper level: from any force-bearing expression itself.
Zooming out
Levels of questions

Speech act
  (Semi-)Speech act
    Content level
      propositional content $p$
      Question content constructor $Q$
  Force question
    question force

$Q$
A speech act \( A \) is an action potential relative to...

- input and output contexts

A context has many parameters to yield complex force shift with anchoring

- discourse participants
- time
- the common ground


