

# Force shift as speech act anchoring

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# Introduction

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## Assertion

(1) Sue went to the beach ↓.

Speaker is committed to  $p$ .

(Addressee is invited to commit to  $p$ .)

## Question

(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)  $\overbrace{\text{Sue went to the beach}}^{\text{declarative}} \uparrow?$

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

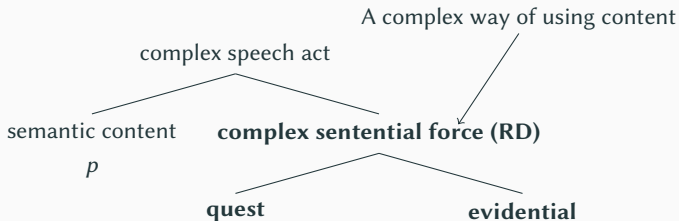
Addressee is invited to commit to  $p$  or to  $\neg p$ -question is introduced.

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**

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# Complex force



ordinary assertion: **assert**( $p$ )

rising declarative: **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

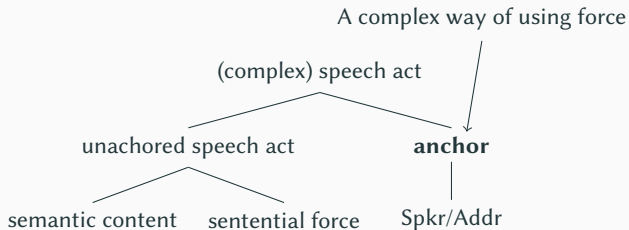
(5) **RD2:** My name is ... Diti Bhadra? meta-linguistic

⋮

**But the declarative syntax has no uniform force contribution.**



## Speech act anchoring + pragmatics



ordinary assertion:  $\text{assert}(p)(\text{Spkr})$   
rising declarative:  $\text{assert}(p)(\text{Addr})$   
 $\neg\text{assert}(p)(\text{Spkr})$  } + 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 → 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

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## 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

Particle	Interpretation	Speaker commitment
<i>gaa4?</i>	'Sue likes the beach? I didn't know that.'	–
<i>gaa3-me1?</i>	'Sue likes the beach? I doubt it.'	$\neg p$
<i>gaa3-ho?</i>	'Sue likes the beach. Right?'	$p$
<i>...?</i>	'Sue likes the beach? Is this helpful?'	–/meta-linguistic

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 **gaa3 ho2?**  
Ziming eat shrimp ASRT HO  
'Ziming eats shrimp. Right?'
- (10) Ziming sik haa **gaa3 me1 ho2?**  
Ziming eat shrimp ASRT BPQ HO  
'Ziming eats shrimp? I don't think so. Do you wonder?'
- (11) Binggo sik haa **ne1 ho2?**  
who eat shrimp WHQ HO  
'Who eats shrimp? Do you wonder?'

Positing complex force is untenable:

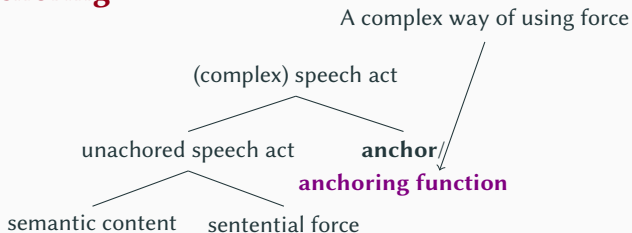
- *me1* and *ho2* require distinct commitments towards the content.
- *wh*-interrogative cannot be mapped to a polar question.

# **A semantic approach to force shift**

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# Speech act anchoring



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

$gaa3(p)$ : unanchored assertion (function from individuals to assertive speech acts)

Anchoring function

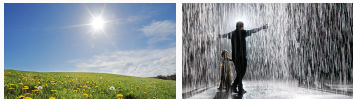
Particle(s)	Function	Speaker commitment
$gaa4?$	Can <b>Addr</b> perform $A$ ?	–
$...?$	Can <b>Spkr</b> perform $A$ ?	–/meta-linguistic
$ho2?$	<b>Spkr</b> performs $A$ ; Can <b>Addr</b> perform $A$ ?	$p$
$me1?$	<b>Spkr</b> cannot perform $A$ ; Can <b>Addr</b> perform $A$ ?	$\neg p$

## **Step 1: Origin of the (polar) question force**

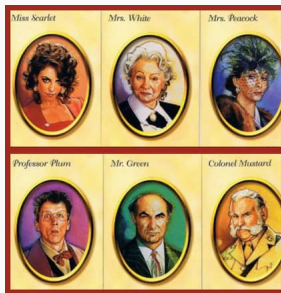
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# Questions are about choices

(12) Is it sunny?



(13) Who killed Mr. Boddy?



Speech act-level questions are about choices of speech acts!

## Context

For deriving question force, we assume a simplistic notion of  $c$  as the common ground.

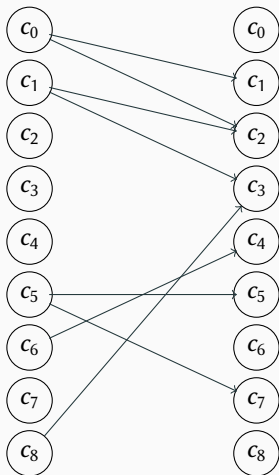
$$c = \{p, q, r, \dots\}$$

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

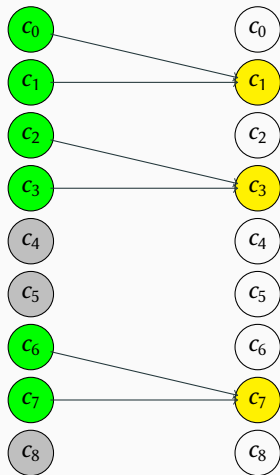
Gunlogson 2001; Farkas and Bruce 2010; Portner 2007

## Speech acts as relations between contexts



$$A \subseteq C \times C$$
$$A := \lambda c. \{c' \mid \dots\}$$

## Speech acts are partial



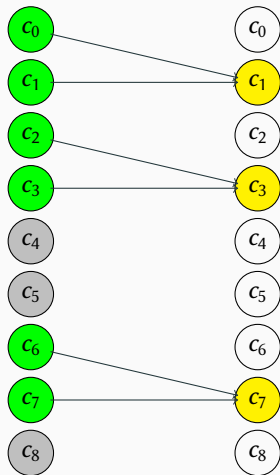
$\mathbb{A} := \lambda c. \{c' \mid \dots\},$

if  $c$  satisfies requirements for performing  $\mathbb{A}$ .

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



$\mathbb{A} := \lambda c. \{c' \mid \dots\},$

if  $c$  satisfies requirements for performing  $\mathbb{A}$ .

Useful classes of contexts:

$\text{SatSet}(\mathbb{A}) := \{c \mid \exists c' : \mathbb{A}(c)(c')\}$

$\text{ProdSet}(\mathbb{A}) := \{c' \mid \exists c : \mathbb{A}(c)(c')\}$

$\text{FailSet}(\mathbb{A}) := \{c \mid \forall c' : \mathbb{A}(c)(c') = \#\}$



## Polar questions are about choices

For any speech act  $\mathbb{A}$  and a pair of input and output contexts  $c$  and  $c'$ , some choices can be made:

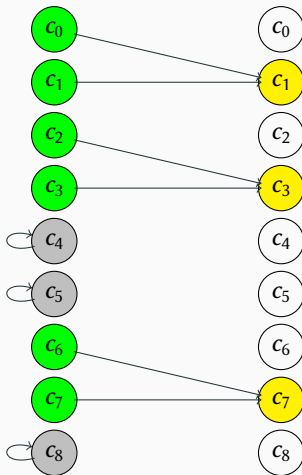
Questioning the input

- Is  $c$  in SatSet or FailSet?

Questioning the output

- Move to a  $c'$  in ProdSet or remain in  $c$  (regardless of what  $c$  is like)?
- Move to a  $c'$  in ProdSet or remain in  $c$  (if  $c$  is in the FailSet)?

## Force-level polar question—to perform or not to perform?

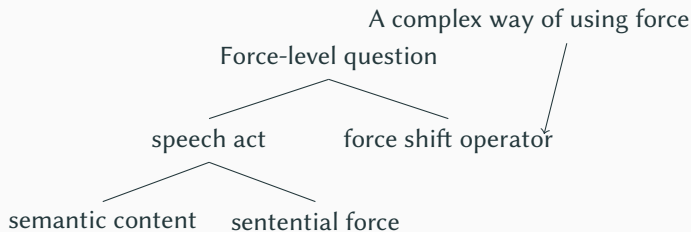


$$\mathbf{fs}(\mathbb{A}) := \lambda c. \{c' \mid \mathbb{A}(c)(c')\} \cup \{c' \mid c' \in \text{FailSet}(\mathbb{A}) \wedge c = c'\}$$

## 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.



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**

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## Discourse commitments by participants

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

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

$$(14) \quad \mathbf{assert}(p) := \lambda x \lambda c. \{c' \mid c[\text{DC}_x]c' \wedge \underbrace{\text{DC}_x^c \cup \{p\}}_{\text{Consistency}} = \text{DC}_x^{c'}\}, \text{ if } \text{DC}_x^{c'} \neq \emptyset$$

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

$$(15) \quad \mathbf{quest}(Q) := \lambda x \lambda c. \{c' \mid \exists y \in \text{Part}^c \exists p \in Q : \mathbf{assert}(p)(y)(c)(c')\}, \text{ if } \underbrace{\forall p \in Q : p \notin \text{DC}_x^c}_{\text{Presumed ignorance}}$$

## Gunlogsonian anchors

- (16) **assert**( $p$ ) :=  $\lambda x \lambda c. \{c' \mid c[\text{DC}_x]c' \wedge \text{DC}_x^c \cup \{p\} = \text{DC}_x^{c'}\}$ , if  
Consistency.

Intonational contour as simple participants (type  $e$ )

$\downarrow$  := Spkr ordinary assertion

$\uparrow$  := Addr declarative question

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

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

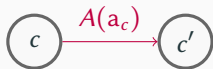
$\uparrow$  :=  $\lambda A \lambda c \{c' \mid A(\text{Addr})(c)(c')\}$  declarative question

Lifted participants are like quantifiers.

Gunlogson (2001)

## Force shift anchored to Addr

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



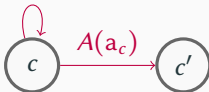
**AddrNotAct** :=  $\lambda A \lambda c \{c' \mid c' \in \text{FailSet}(A(\text{Addr})) \wedge c = c'\}$  if  $c \in \text{FailSet}(A(a))$   
Addr does not perform A



**AddrAct?** :=

$\lambda A \lambda c \{c' \mid A(\text{Addr})(c)(c')\} \cup \{c' \mid c' \in \text{FailSet}(A)(\text{Spkr}) \wedge c = c'\}$   
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

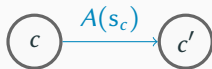
Suspending speaker commitment with (19) is compatible with (18) but not (17):

- (19) Ngo gokdak m-hai lo1.  
I think not-yes SFP  
'I don't think so.'



## Force shift anchored to Spkr

**SpkrAct** :=  $\lambda A \lambda c \{c' \mid A(\text{Spkr})(c)(c')\}$   
Spkr performs A



**SpkrNotAct** :=  $\lambda A \lambda c \{c' \mid c' \in \text{FailSet}(A(\text{Spkr})) \wedge c = c'\}$   
Spkr does not perform A

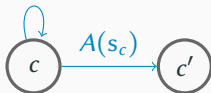
if  $c \in \text{FailSet}(A(s))$



**SpkrAct?** :=

$\lambda A \lambda c \{c' \mid A(\text{Spkr})(c)(c')\} \cup \{c' \mid c' \in \text{FailSet}(A)(\text{Spkr}) \wedge c = c'\}$   
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?' meta-linguistic
- (21) #Ziming zungji sik haa **gaa4**?  
Ziming like eat shrimp ASRT  
'Ziming likes to eat shrimp?' Only inquisitive

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:

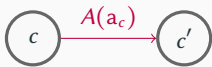
A: I'm having trouble managing my time lately. I don't know what my plans should be for this evening, do you have any advice?

(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**



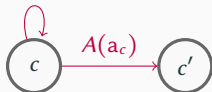
if  $c \in \text{FailSet}(A(a))$

**AddrNotAct**

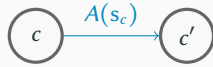


if  $c \in \text{FailSet}(A(a))$

**AddrAct?**



**SpkrAct**



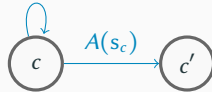
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**SpkrNotAct**



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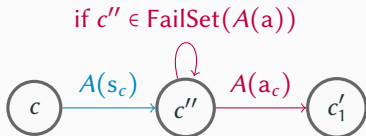
**SpkrAct?**



## Force shift anchored to multiple participants

**SpkrAct-AddrAct?** :=  $\lambda A \lambda c \{c' \in A(\text{Addr})(c'')(c') \mid A(\text{Spkr})(c)(c'')\} \cup$   
 $\{c' \in \text{FailSet}(A)(\text{Addr}) \mid A(\text{Spkr})(c)(c'')\}$

Spkr performs the act; Can Addr perform the act?



## Cantonese *ho2* clusters

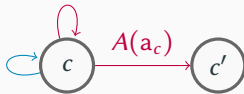
- (25) Ziming sik haa **gaa3 ho2?**  
Ziming eat shrimp ASRT HO  
'Ziming eats shrimp. Right?' #I don't think so.
- (26) Mingzai sik haa **me1 ho2?**  
Ziming eat shrimp BPQ HO  
'Mingzai eats shrimp? I doubt it. Do you also wonder?'  
I don't think so.
- (27) Binggo sik haa **ne1 ho2?**  
Ziming eat 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?** :=

$$\lambda A \lambda c \{c' \in A(\text{Addr})(c'')(c') \mid c'' \in \text{FailSet}(A)(\text{Spkr}) \wedge c'' = c\} \cup \\ \{c' \in \text{FailSet}(A)(\text{Addr}) \mid c' \in \text{FailSet}(A)(\text{Spkr}) \wedge c'' = c\}$$

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



## 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)

Anchoring function

Particle(s)	Function	Speaker commitment
$gaa4?$	Can <b>Addr</b> perform $A$ ?	–
$...?$	Can <b>Spkr</b> perform $A$ ?	–/meta-linguistic
$ho2?$	<b>Spkr</b> performs $A$ ; Can <b>Addr</b> perform $A$ ?	$p$
$me1?$	<b>Spkr</b> cannot perform $A$ ; Can <b>Addr</b> perform $A$ ?	$\neg p$

## 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?

2. Where does the assertive force go?

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Absorbed by force transformation into the question force as an ingredient.
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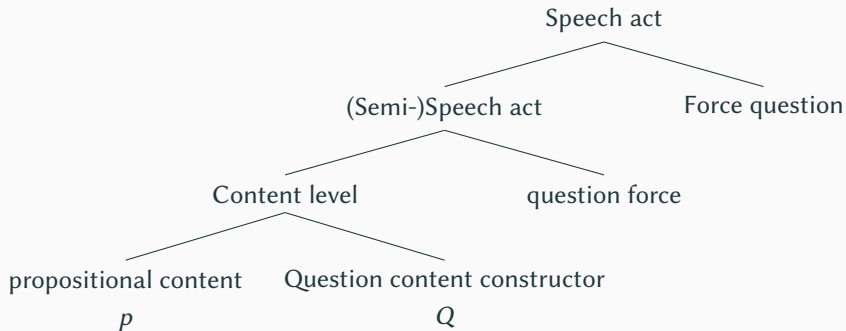
On the surface: from a force shift operator.

At a deeper level: from any force-bearing expression itself.

## Zooming out

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## Levels of questions





## Operating on utterances/acts

A speech act  $\mathbb{A}$  is an action potential relative to...

- input and output contexts force shift

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

- discourse participants
- time
- the common ground

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