Dynamics of conversation and the emergence of illocutionary force

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Mandarin *ba* (吧) with Allyson Ettinger (Maryland)

Utterance-final *ba* is a discourse-move modifier:

\[
\begin{align*}
\text{ni qu} & \quad \text{ni qu ba} \\
2sg \text{ go} & \quad 2sg \text{ go BA} \\
\text{Go!} & \quad `(How about you) go./Go (if you must).'
\end{align*}
\]

- It changes the illocutionary force of its anchor
- It is unembeddable
  - Projects through negation, questions, conditionals, attitudes
Corpus studies of \textit{ba}

Prior lit: no unified function for \textit{ba}

$\Rightarrow$ We need a corpus study & generalization

Initial corpus:

- 7+ hours of Mandarin film & TV, 95 tokens

Follow-up corpora:

- ChTreebank, 230 lines containing \textit{ba}
- CallHome, 1640 lines containing \textit{ba}
Initial corpus study: annotation

• Anchor clause type
  o declarative, imperative, sub-sentential, and morphosyntactically unmarked
  o no interrogatives with *ba* in the data

• (Direct) speech act conveyed by the anchor
  o assertion, directive, commissive, hortative
  o no questions with *ba* in the data
corpus study: example 1

• anchor: declarative assertion

Speaker is talking to a basketball player about a difficult move he performed:

ni    lian    hen    jiu    le    ba
you.sg practice very  long-time PRT BA

“You (must have) practiced for a long time, (right?)”

• effect: confirmation-seeking
corpus study: example 2

- anchor: imperative directive [Chen-Main 2005]

Doctor informs a young man that they cannot save his grandmother, and advises:

ni kuai jinqu ba
you.sg fast enter BA

“Go in quickly.”

- effect: softening/politeness (suggestion or request)
corpus study: example 3

- anchor: declarative assertion
Speaker has never played basketball formally; answers the question of how well he plays:

yinggai   bu   cuo   ba
should    neg. bad  BA

“Should be pretty good, (I’d say).”

- effect: uncertainty
corpus study: example 4

• anchor: commissive
Speaker is told that he should donate more than the $100 he originally pledged. [Chu 2009]

na  wo  jiu  juan  liangbai  ba

then I  just donate  two-hundred  BA

“Well, then, (I guess) I’ll donate 200.”

• effect: reluctance & hesitation
Summary of effects: soliciting agreement/confirmation

The effect of a *ba*-marked utterance is

- to solicit hearer agreement/confirmation
  - *to the extent* that the context raises expectation that the hearer can (and may) provide this
  - when the context doesn't...
Summary of effects: reluctance & uncertainty

The effect of a *ba*-marked utterance is

• to delay the effect of the anchor
  o if the hearer has indicated prior approval
  o e.g., due to politeness or reluctance

• to express uncertainty/tentativeness
  o if prior context indicates that hearer is unable to approve
Summary of effects: the interim conclusion

- effects vary predictably with context

- effects are gradient:
  - some need for confirmation
  - some uncertainty
  - some politeness...

We conclude that ultimate effects are due to pragmatic inference
The proposal (informally)

*Ba* has a single underlying function:

- it transfers **the authority** for the conversational move represented by the anchor

  away from the speaker

- pragmatic reasoning derives the gradient effects
  - soliciting hearer approval [cf. Gunlogson 2008]
  - uncertainty
  - reluctance
We need

• a theory of clause types & their effects...
  o a model of conversation
  o building on Farkas & Bruce 2010, Portner, Starr, Murray, and others.

• ... that supports *ba*'s effects across anchors
  o a unified approach to clause types
  o a meta-linguistic component to allow speech-act modification (cf. Faller 2002)
Pragmatics of speech acts: decision problems

• Agents in conversation can be thought to face decision problems they’re trying to solve

• A decision problem is a tuple <P, A, U>
  o P is a probability function over W [beliefs]
  o A is a set of available actions [alternatives]
  o U is a utility function over WxA [preferences]
  o [Gunlogson 2003, Farkas & Bruce 2010]
Semantics of clause types

• Independently, a unified semantics of clause types is needed to model sentences connecting different types of clauses [Starr 2010, Charlow 2013]

If you want to, sing! If Jo is going, will Mary go? Sing and I will dance (I don’t care which).
If we are accepted to the talent show, sing and I will dance.
Speech acts & clause types

• Pragmatic inferences about speakers’ communicative intentions rely on semantics

• At the semantics-pragmatics interface we need a model that
  o represents agents’ information [beliefs]
  o partitions them into issues [alternatives]
  o ranks alternatives [preferences]
Semantics of clause types: declaratives add information

Starr (2010): accepting assertion of A
• Declaratives’ base content: a proposition
• Typical effect: eliminate worlds at which the content is not true
Starr (2010): accepting inquiry whether A

- Interrogatives’ base content: a set of propositions (possible answers)
- Typical effect: introduce a partition corresponding to the answer propositions
Starr (2010): accepting directive in favour of A

- Imperatives’ base content: a ranking of propositions (alternatives)
- Typical effect: introduce a preference corresponding to the ranking
Semantics of clause types: imperatives add preferences

Actually, in the speech act literature the typical effect of imperatives is directive: to (try to) induce the hearer to perform an action

Alternative proposal (Barker 2012):

• Imperatives’ base content: a relation on worlds (set of pairs of worlds, differing by the directed action)

• I prefer this (for reasons to be discussed below), but still working on a full semantics
Semantics of clause types: imperatives add preferences

I will adopt Starr’s approach

• Imperatives’ base content could still be an action (set of world pairs), or else a preference (a pair of propositions)

• Typical effect: introduce a preference for the futures of CG worlds where action has been performed (i.e., for the proposition collecting right elements of each action-pair)
Semantics of clause types: summary

Preference State (R) [from Murray & Starr 2012]

- $R$ is a set of preferences, which are pairs of alternatives/propositions:
  \[ <a, a'> \in R: a \text{ is preferrable to } a' \quad \text{pref}(R) \]
- Set of (non-empty) alternatives in the pairs:
  issues at stake in $R$ \quad \text{altr}(R)
- Set of worlds among those alternatives:
  the contextual possibilities \quad \text{info}(R)
Semantics of clause types: summary

Dynamic semantics of clause types [from Murray & Starr 2012]

Initial state $\{(<\{w_{AB}, w_{Ab}, w_{aB}, w_{ab}\}, \emptyset>)\}$

• **Declaratives**: eliminate non-A worlds
  $\Rightarrow \{(<\{w_{AB}, w_{Ab}\}, \emptyset>)\}$

• **Interrogatives**: introduce issue whether A
  $\Rightarrow \{(<\{w_{AB}, w_{Ab}\}, \emptyset>), (<\{w_{aB}, w_{ab}\}, \emptyset>)\}$

• **Imperatives**: introduce preference for A
  $\Rightarrow \{(<\{w_{AB}, w_{Ab}\}, \emptyset>), <\{w_{aB}, w_{ab}\}, \emptyset>), <\{w_{aB}, w_{ab}\}, \emptyset>\}$
Main claim:

• The unified dynamic semantics
  o models [the dynamics of] content
  o is not sufficient as a model of what speakers do with this content
    ▪ Despite appearances to the contrary
Conversational scoreboard: CG

• The common ground (CG) – things we hold true, for the purposes of the conversation
  ◦ [Stalnaker 1974 ..., Starr 2010, Murray 2014]

• CG is the intersection of the participants' public discourse commitments
  ◦ [Gunlogson 2003, Farkas & Bruce 2010]
Conversational scoreboard: target state

• CG is not just the context set of worlds, but the whole preference state: the target
• The target state includes worlds (propositions), issues, and preferences

• This represents information, issues, preferences jointly accepted for the purposes of the conversation
Scoreboard dynamics: falling short

• The target state (CG) is updated collaboratively.

• Initiating a proposal to update the target will typically fall short.
  o [contra Gunlogson 2003 for hearer commitments]
  o [contra Portner for hearer obligations]
Scoreboard components: Table

• Moves that fall short of the target direct their content to the Table
  o [Farkas & Bruce 2010]
  o cf. a stack or list containing questions under discussion (QUDs)
    [Roberts 1996; Ginzburg 1996, a. o.]

• Such a move is a proposal for an update
Bypassing the Table

• Not-at-issue aspects of a move do update the target directly:
  o The words & intonation used, who’s talking (Ginzburg 1996)...
  o Evidential propositions, appositives (Murray 2010, 2014)

• At-issue content gets into the target only when all interlocutors approve
What’s on the Table

• At-issue content gets into the target only when all interlocutors approve [Farkas & Bruce]

• The discourse move that falls short of the target consists of two parts [cf. Murray & Starr]
  o The entire preference state, updated with the proposed content
  o A propositional discourse referent identifying at-issue content
What’s on the Table

• The Table contains the entire preference state, updated with the proposed content
  o This provides a way to model meanings that refer to the proposed move

• The Table contains a propositional discourse referent identifying at-issue content
  o This provides antecedents for anaphora, such as “yes/no” [Farkas & Bruce 2010, Murray 2010, 2014]
At-issueness: discourse referent

- The Table contains a propositional discourse referent identifying at-issue content
  - This provides antecedents for anaphora, such as “yes/no” [Farkas & Bruce 2010, Murray 2010, 2014]
  - It may be possible to identify the discourse referent based on the proposed update
At-issueness and commitment

• The Table contains a propositional discourse referent identifying at-issue content
  o This provides antecedents for anaphora, such as “yes/no” [Farkas & Bruce 2010, Murray 2010, 2014]
  o It may be possible to identify the discourse referent based on the proposed update
• Proposed update differs in the degree of speaker commitment or preference for the discourse referent proposition
Declaratives on the Table

Example: a declarative assertion

Initial CG = \{ \langle \{ w_{AB}, w_{Ab}, w_{aB}, w_{ab} \}, \emptyset \rangle \} 

Table contents after a declarative A is uttered:
Proposed update: CG[A]=\{ \langle w_{AB}, w_{Ab} \rangle, \emptyset \} 
Discourse referent: A =\{ w_{AB}, w_{Ab} \}

Inference: speaker is (publicly) committed to A
Declaratives on the Table

Example: a declarative assertion

- The at-issue proposition A is proposed to be added to the information in the CG
- Indicates a high degree of speaker’s authority/commitment to A
- Hearer’s expected involvement: acceptance
Imperatives on the Table

Example: an imperative directive

Initial CG = \{ \langle w_{AB}, w_{Ab}, w_{aB}, w_{ab} \rangle, \varnothing \} \}

Table contents after an imperative *Do X!* is uttered:
Proposed update: CG[Do X!]=\{ \langle w_{AB}, w_{Ab} \rangle, \langle w_{aB}, w_{ab} \rangle \} \}
Discourse referent: A =\{w_{AB}, w_{Ab}\},
where A = “the hearer will perform action X”

Note: if hearer agrees, A will typically enter info(CG)
Imperatives on the Table

Example: an imperative directive

- The at-issue proposition A is promoted in the preferences in the CG
- Indicates a high degree of speaker’s authority/commitment to A
- Hearer’s expected involvement: acceptance
An aside on imperatives

- Suppose the hearer accepts the imperative: preference for A enters the CG
- The CG is a resource for private reasoning: For the purposes of conversation, hearer now has a preference for A.

If she adopts this for her private decision-making,
- if this preference is undominated, action requested by A becomes optimal for the hearer
- Rational hearer will choose to do the action
- A becomes true
Next best thing
to reaching the target

- Table proposes the at-issue proposition as a single update of info(CG) or pref(CG)
  - it doesn’t contain incompatible proposals
- Hearer's expected engagement: acceptance

This kind of proposal is the next best thing to reaching the target/updating the CG directly
Interrogatives on the Table

Example: a polar interrogative question

Initial CG = \{ <\{w_{AB}, w_{Ab}, w_{aB}, w_{ab}\}, \emptyset>\} 

Table contents after an interrogative A? is uttered:
Proposed update: CG[A?]={ <\{w_{AB}, w_{Ab}\}, \emptyset>,
\{w_{aB},w_{ab}\} , \emptyset>\}

Discourse referent: A =\{w_{AB}, w_{Ab}\}
Interrogatives on the Table

Example: a polar interrogative question

Proposed update: CG[A?] = \{ \langle w_{AB}, w_{Ab} \rangle, \emptyset \}, \langle w_{aB}, w_{ab} \rangle, \emptyset \}

• A? is also a proposal to (eventually) update the CG with either A or not-A

• But A? is not a proposal to add A to info(CG)
  - This indicates a low degree of speaker’s authority/commitment to A
Interrogatives on the Table

Example: a polar interrogative question

• This is also a proposal to (eventually) update the CG with either A or not-A
  ○ Hearer’s potential involvement: determining which proposition to update the CG with

• But this is not a proposal to add A to info(CG)
  ○ This indicates a low degree of speaker’s authority/commitment to A
Interrogatives on the Table

Example: a polar interrogative question

• If the at-issue proposition is not part of the proposed updated preference state
  o This indicates a low degree of speaker’s authority/commitment
  o Hearer’s potential involvement: determining the content of eventual update
Scoreboard components: splitting the Table

• We can thus **distinguish moves** according to the level of
  o conveyed speaker authority and
  o expected hearer engagement in advancing the at-issue proposition:

• This is modeled as a two-part division of the Table into
  o $\text{Table}_1\text{choices}$ and $\text{Table}_2\text{proffer}$
Scoreboard components: Table1

• Putting a proposal on Table1\textsubscript{choices} establishes the conversational goals (choice of one or more updates)
  o similar to raising an issue or a QUD

• It does so without proffering the at-issue proposition as information or preference to be added to the CG
Table1 & Table2 moves

• Questions recruit addressee involvement in decisions about potential updates
  o and thus are Table1\textsubscript{choices} moves
  o \textit{Is John here?}

• Assertions proffer a single update directly
  o and thus are Table2\textsubscript{proffer} moves
  o \textit{John is here.}
The conversational model: at a glance

Target CG: info, issues, preferences

**Table2\_profer**
- add information that A to CG
- add preference for A to CG
- add issue whether A or not-A to CG

**Table1\_choices**
- add information that A or that not-A to CG
- add information that A to CG
- add preference for A to CG

- <= assertion
- <= directive
- <= question
- <= BA-assertion
- <= BA-directive
The function of $ba$

$ba$ marks

the update conveyed by the anchor

as destined for $Table_1_{choices}$

$ba$ presupposes

that the update conveyed by the anchor

proffers the at-issue proposition

as info or preference to be added to the CG
Pragmatic inference

• A speaker may direct a move to any stage along the Table1-Table2-target path that s/he is authorized to change.

• So, the update cannot be derived from utterance denotation
  o [contra Groenendijk 2008, among others]
  o [cf. "non-default initiatives" Farkas & Roelofsen in print]
Pragmatic inference

• When the speaker does not get the content as far as it can go, hearers will draw additional inferences
  o [Grice 1975]
  o e.g. reluctance, uncertainty, deference...

• Expectation that content will move along the Table1-Table2-target path drives inferences
Pragmatic inference: examples 1 & 2

you.sg practice very long-time PRT BA
• Table1_{choices} : add-$p$-to-info(CG)

you.sg fast enter BA
• Table1_{choices} : add-preference for $p$-to-pref(CG)

• Expectation: hearer will advance content from Table1_{choices} if possible
Pragmatic inference: examples 1 & 2

• Context:
  o Hearer can reasonably be expected to advance the content

• Hearer inference:
  o Speaker is willing to commit, once hearer moves content to CG
  o Suggests a need for approval/confirmation
    ▪ uncertainty or polite deference
Pragmatic inference: example 3

should neg. bad BA

- Table1\textsubscript{choices} : add-\(p\)-to-info(CG)
- Context: hearer has asked a question; cannot reasonably be expected to advance content
- Hearer inference:
  - Speaker is not willing to get "add-\(p\)-to-info(CG)" to Table2\textsubscript{proffer} knowing hearer can't either
  - Suggests epistemic uncertainty about \(p\)
Pragmatic inference: example 4

*then I just donate two-hundred  BA*

- Table1\textsubscript{choices} : add-preference-for-p-to-pref(CG)
- Context: hearer has pre-approved p; seeking approval is redundant

- Hearer inference:
  - Speaker expects to become committed, but chooses not to proffer update directly
  - Delay suggests reluctance about p
Conclusions so far: \textit{ba}

\textit{Ba} modifies a conversational move by signalling that the speaker is not willing to take full responsibility for the proposed update

\begin{itemize}
\item a unified treatment of \textit{ba}
\item The structure of the model + context gives rise to implicatures
\end{itemize}
Our proposal builds on Starr’s 2010 semantics, and on prior work by Farkas & Bruce, Portner, and others.

- a unified treatment of various speech acts
- a handle on meta-linguistic moves (e.g., ba)
- Implicatures based on direct update + overall dynamics of conversation determine illocutionary force
**Ba as a window to (in)directness**

*Ba* only modifies the direct update of the anchor:

```
wo  xuyao  yi  gen  bi  BA
1sg  need  one  CL  pen  BA
```

‘I need a pen, do I?’
Consequences: interrogatives are not requests (generally)

• BA is generally bad with interrogatives
  o No examples in the three corpora
• But many speakers accept interrogatives+BA in ‘impatience’ scenarios:

zhe liang che (daodi) duoshao qian ba?
this Cl car (on earth) how much money BA

‘How much (on earth) is this car?’

`C’mon, tell me how much this car costs!’
Consequences: interrogatives are not requests (generally)

• Claim: BA presupposes that its anchor is NOT already a Table1
  choices move
  o So BA is generally bad with questions

• Claim: in the okay examples, there is an implicit imperative embedding the question
  o Hence the question gets strengthened into a request
  o But that’s a lot of implicit material
  o So an extra-clear scenario is needed to license it
Consequences: performative verbs and modals

BA takes away performative flavour from performative verbs and modals:

ni yinggai gei wo yi zhi bi BA

2sg should give 1sg one CL pen BA
‘You should give me a pen, shouldn’t you?’

NOT ‘How about you give me a pen!’
Consequences: performative verbs and modals

• One possible explanation:
  o Sentences with performative verbs/modals are direct assertions.
  o Performativity emerges indirectly
  o BA only modifies the direct update of the anchor
Consequences: performative verbs and modals

• An alternative explanation:
  o Sentences with performative verbs/modals are the wrong type to combine with BA
  o Actions? [Szabolcsi 1982]
  o Direct CG updates rather than proposals?
Consequences: clause types in Mandarin

BA modifies the **direct** update of the anchor

• e.g., *You should clean BA*
  
is about optimality of cleaning, in the info(CG)
  
  NOT about hearer’s preferences & actions

• Mandarin has anchors that update preferences regarding speaker action and joint speaker/hearer action
  
  o commissive & hortative clauses types (?)
Example: joint action

- call to joint action (hortative)

Speaker approaches addressee with the following proposal

women yiqi qu chifan ba
We together go eat BA

"Let's/how about we go eat together."
English declarative force modifiers

*with Tamina Stephenson (MIT)*

- Reverse-polarity tags

  Walters: What do you say to people who say, `Dr. Kevorkian, you are playing God?'

  Dr. Kevorkian: Well, *so is a doctor who takes your heart from one body and puts it in another, isn't he?* [ABC News] (COCA)

- Declaratives with rising intonation

  TCS: *I live in Cambridge?*
[ABC Nightline] (COCA)
Ambassador Strauss, talk to me for a moment about the Perot factor. It may seem early in an administration to be talking about a man who was a third-party candidate only a few months ago, but clearly he is a factor, isn't he?
o informed hearer, speaker seeking agreement
o informed speaker

clearly he is a factor, isn't he?
RP tags

- uninformed biased speaker seeks confirmation
- informed hearer

(MiCASE)

4: I don't get any of that. I didn't understand it when he talked about it in lecture even. **It's not in there is it?**

5: No

4: Okay. I didn't understand that.

5: I think that has to do with speciation doesn't it?
RP tags

- somewhat informed but uncertain speaker
- uninformed hearer

(MiCASE)

4: I don't get any of that. I didn't understand it when he talked about it in lecture even. It's not in there is it?

5: No

4: Okay. I didn't understand that.

5: I think *that has to do with speciation doesn't it*?
Alice:
You’ve got to see this picture of my new neighbour!

Bob [without looking]:
#He’s attractive, isn’t he?
RP tags

• infelicitous when
  o hearer is uninformed, speaker certain
  o speaker is unsure of the whole move

adapted from Pierrehumbert & Hirschberg, 1990, p. 290 [to a receptionist]:
  # Hi, my name is Mark Liberman, isn’t it?
RP tags are just like BA

• All of the above example types were checked with Mandarin informants
• A corpus study of RP-tags using Corpus of Contemporary American English is in progress
  ○ Preliminary analysis (first 100 data points)
• So far, *ba* with declaratives is like RP tags
RP tags are just like BA

• So far, BA is judged to be just like RP tags

Claim: RP tags mark the declarative update denoted by the anchor as destined for Table\_1^{choices}
i.e. RP tags put the proposal to update CG with the at-issue proposition on Table\_1^{choices}
RP tags are just like BA?

• So far, *ba* is judged to be just like RP tags

Question: can we extend the *ba*-like analysis of RP tags to imperatives?

‘*Open the door, will you? – No, I won’t!*’

• The at-issue proposition is `Hearer will do it’
RP tags are just like BA?

• So far, *ba* with declaratives is judged to be just like RP tags

Claim: RP tags are exactly like *ba*, but just with declaratives

Question: can we extend the study of RP tags to imperatives?

‘Marry your mother, will you? – Yes, I will!’

-- Okay, I will!’

• The at-issue proposition is `Hearer will do it’
Future directions, *please*

- Conditionals
- Proper treatment of commissives in English
  - Commitments vs preferences
  - “okay” test: commissives involve actions/preferences
  - Yet, they are declarative
- Non-directive uses of imperatives
  - Threats: *Cross this line and you’ll regret it!*
  - This means crossing this line is not added to preferences
  - Actions? [Barker 2012]
- Compositional analysis of RP-tags
- *Please vs. pożalujsta*
Future directions?

Rising intonation in English

• Malamud & Stephenson 2014:
  o rising declaratives introduce metalinguistic issues concerning the anchor
  o Depending on the issue, level of speaker commitment to the at-issue proposition varies

• Follow-up extensions to other clause types:
  o Corpus study of imperatives: analysing intonation?!
  o Experimental study?
  o Looking for phoneticians!