1. Overview

- Mandarin *ne* = CT
  - Topic-final and sentence-final *ne*
  - CT as strategy marker (Büring 2003)
  - Diagnostics for CT
  - Adjust Büring’s model to accommodate *ne* in questions

- Implications
  - CT occurs at a distance from focalized constituent, *not* type of focus marking
  - English invisible CT, and CT imposters
  - Clarifications are not sub-questions

2. Büring 2003

- CT marks strategies (sets of questions)

- Büring 2003
  - Discourse as d-tree; conditions on well-formed d-trees
  - CT marks response to sub-question within strategy
  - Shape of strategy is constrained by *CT-value* of response

1. CT Contour (CT+F)

   A: Well, what about PERSEPHONE? What did SHE eat?
   B: [ PERSEPHONE ]_{CT} … ate [ the GAZPACHO ]_{F}.

\[
\begin{array}{c}
\text{[ (L+)}H^* L^-% \text{ IntP} & \text{[ H^* L^- L% ] IntP} \\
\text{[ TOPIC ]} & \text{[ COMMENT ]} \\
\end{array}
\]

(2) CT-Value (informal)

CT-value of utterance is set of alternatives given by substituting in *first* focus position, then the topic position.
(3) \[ \{ \text{Persephone}_{CT} \text{ ate } \text{the gazpacho} \}_{F} \]^{ct} \\
= \{ \{ x \text{ ate } y \mid y \in D_e \} \mid x \in D_e \} \\
= \{ \{ \text{Antonio ate the ceviche, Antonio ate the gazpacho, …} \} \} \\
= \{ \{ \text{Persephone ate the ceviche, Persephone ate the gazpacho, …} \} \}
≈ \text{For each person, what did they eat?}

(4) CT-Congruence (informal)
CT marks response to question within larger strategy.
Questions in strategy are contained in CT-value of response.

(5) d-tree for (1)

Who ate what?

\[
\begin{array}{c}
| \text{What did Persephone eat?} | \text{What did Antonio eat?} | \\
\hline
\text{Persephone ate the gazpacho.} & \text{Antonio ate the ceviche.}
\end{array}
\]

Q: Who ate what?
Sub-Q: What did Persephone eat?
Sub-A: Persephone ate the gazpacho.
Sub-Q: What did Antonio eat?
Sub-A: Antonio ate the ceviche.

(6) Sole CT
A: Did Persephone and Antonio eat the gazpacho?
B: [ PERSEPHONE ]_{CT} \text{ ate the gazpacho…} \quad \text{… but Antonio didn’t.}
[ \quad (\text{L+)}H^{\star} \quad \text{L}^- \quad \text{H\%} \quad ]_{init}

(7) \[ \{ \text{Persephone}_{CT} \text{ ate the gazpacho…} \} \]^{ct} \\
= \{ \{ x \text{ ate the gazpacho } \} \mid x \in D_e \} \\
= \{ \{ \text{Persephone ate the gazpacho}, \{\text{Antonio ate the gazpacho}, \ldots \} \} \\
≈ \text{For each person, did they eat the gazpacho?}

° Assumption: [ Is it raining? ] = \{ [ It’s raining. ] \}
(8) \textbf{d-tree for (6)}

Q: For each person, did they eat the gazpacho?
   
   Sub-Q: Did Persephone eat the gazpacho?
   Sub-A: Persephone ate the gazpacho.
   
   Sub-Q: Did Antonio eat the gazpacho?
   Sub-A: No, Antonio didn’t eat the gazpacho.

(9) \textbf{Minimality (informal)}

A sub-answer can’t single-handedly resolve a super-question.

(10) \*Q: Who ate the gazpacho?

   Sub-Q: Did Persephone eat the gazpacho?
   Sub-A: Yes, Persephone ate the gazpacho.
   
   Sub-Q: Did everyone eat the gazpacho?
   Sub-A: Yes, everyone ate the gazpacho.

(11) \textbf{Corollaries (from CT-Congruence + Minimality)}

I. CT illicit on assertion that resolves all questions in its CT-value.

II. CT illicit on complete answer to QUD, unless QUD construed as part of larger strategy.

(12) \#\{EVERYONE\}_{CT} \ldots \text{ate [the GAZPACHO]}_{F}.

\[ (12) \] \parallel \approx \{ \text{What did Persephone eat?}, \text{What did Antonio eat?}, \ldots \} 

(13) \#\{EVERYONE\}_{CT} \text{ate the gazpacho…}

\[ (13) \] \parallel \approx \{ \text{Did Persephone eat the gazpacho?}, \text{Did Antonio eat the gazpacho?} \ldots \} 

(14) A: Who spilled coke on my computer?
B: ??[JOHN]_{CT} did…

(15) A: Where were you (at the time of the murder)?
B: [I]_{CT} was [at HOME]_{F}. \hspace{1cm} [Büring 2003: 523; Roberts 1996: 122]

\* Sole CT can be propositional

(16) A: Is John home?
B: [His LIGHTS are on]_{CT} \ldots \text{(but then, maybe he went out and forgot to turn them off.)}

\[ (16B) \] \parallel = \{ \{ p \} | p \in D_{(5,4)} \} 

\* CT-Congruence: Discourse contains at least one polar question sister to the immediate QUD.

\* Prediction: Broad CT marks partial answer to question that breaks into set of polar questions.
(17) **d-tree for (16)**

Q: Is John home?

Sub-Q: Are his lights on?
Sub-A: His lights are on.
Sub-Q: Can we infer from the fact that his lights are on that he’s home?
Sub-A: …

3. Mandarin *ne* as **CT**

- Discourse particles (e.g. -lə, -nə, -mə, -bə): toneless, enclitic, stack in order (Chao 1968, Li 2006)
- Focus prominence: pitch range expansion, articulatory strength, duration (Chen 2002, Xu 2004)
- *ne* [nə] occurs in just two places, following extracted topic, and sentence-finally.

(18) **Topic-Final ne** (CT+F)

māmā měi-tiān wǎnshàng hěn wǎn cái huí-jiā.
mom every-day night very late only.then return-home

[BÀBA]CT ne, [gāncuì jiù bù HUÍ-lái]F.
dad simply just not return-come

‘Every day mom doesn’t come home until late. Dad NE, doesn’t even come back at all.’

\[
\begin{align*}
[ (18) ]^c_t & = \{ \{ \text{Mom returns on time, Mom returns late, Mom doesn’t return, … } \} \\
& \{ \text{Dad returns on time, Dad returns late, Dad doesn’t return, … } \} \\
& \ldots \}
\end{align*}
\]

\[ \approx \text{For each person, when do they get home each day?} \]

- Many observe topic-marking *ne* involves contrast. Lee (2003: 357) – Topic-marking *ne* is CT.

(19) **Sentence-Final ne** (Sole CT)

A: zhāngsān yào qù kāi-huì ma?
Zhangsan will go have-meeting Q
‘Is Zhangsan going to the conference?’

B: tā [SHUŌ yào qù]CT ne… dānshì tā hái méi mǎi jī-piào.
he say will go NE but he still have.not buy plane-ticket
‘He *said* he’s going NE… but he hasn’t bought a plane ticket.’

\[
\begin{align*}
[ (19B) ]^c_t & = \{ \{ \text{He said he will go}, \{\text{He will go}\}, \ldots \} \\
& \ldots \}
\end{align*}
\]

- Mandarin [·]CT does not entail any special prosody (though see Wang and Xu 2006 for contrary view)
Mandarin *ne* resists assertions that resolve all questions in CT-value:

(20) a.  [**DÀBÜFEN**]_{CT} de shìqing *ne* [dōu hěn nán-bàn]_{F}.
    most DE matter NE DISTR very difficult-manage

    ‘*Most* of these things *NE* are hard to deal with.’

    b.  [**SUÒYÓU**]_{CT} de shìqing (#ne) [dōu hěn nán-bàn]_{F}.
    all DE matter NE DISTR very difficult-manage

    ‘*All* of these things (#NE) are hard to deal with.’

    ⟦(20ab)⟧_{CT} =
    \[
    \begin{cases}
    \{ \text{Some of these things are hard, Some of these things are easy, } \ldots \} \\
    \{ \text{Most of these things are hard, Most of these things are easy, } \ldots \} \\
    \{ \text{All of these things are hard, All of these things are easy, } \ldots \}
    \end{cases}
    \]

    \[\approx\] How difficult are (each subset of) these things?

Note, without *ne*, (20b) is felicitous, as contrastive *focus*:

(21) A: něi xiē shìqing bǐjiào nán-bàn?
    which few thing fairly difficult-manage

    ‘Which of these things are relatively hard to deal with?’

    B: **SUÒYÓU** de shìqing dōu hěn nán-bàn.
    all DE matter DISTR very difficult-manage

    ‘*All* of these things are hard to deal with.’

Mandarin *ne* resists completely resolving answers, unless some larger issue remains unresolved:

(22) A: tā shuō shénme le?
    he say what PRT

    ‘What did he say?’

    B: tā shuō yào qù (#ne).
    he say will go NE

    ‘He said he’s going (#NE).’

(23) Context: A wants to find out if Zhangsan will present a paper at the conference.

    A: tā shuō shénme le?
    he say what PRT

    ‘What did he say?’

    B: tā shuō [yào QÛ ]_{CT} ne… dànsì tā jiǎng bù jiǎng wǒ bù quèdìng.
    he say will go NE but he speak not speak I not certain

    ‘He said he’s *going* NE, but I’m not sure whether he’ll give a talk.’
4. CT Questions

(24) Context: A calls B on the phone out of the blue.

A: 你 想 不 想 今天 晚上 出去 吃 火锅 (??ne) ?
   `Do you want to go out for hotpot tonight (??NE) ?'

B: 不 太 想.
   `Not really.'

A: (那) 你 想 不 想 吃 [水煮鱼]CT ne?
   `Then do you want to have boiled fish NE?'

◦ Hypothesis: CT on questions marks sub-questionhood within a strategy

(25) **CT-Congruence** (revised, informal)

CT marks **question** within larger strategy **or response** to such question. Questions in strategy are contained in CT-value of utterance.

◦ Büring (2003: 519 ff. 7) suspects CT questions impossible, claims questions have no CT-value.

◦ Yet nothing stops us from cranking out CT-values:

(26) \[ C \_Q \_t \_Q [ [John]CT dances ] \_tct = \{ \{John dances\}, \{Mary dances\}, \{Fred dances\}, … \} \]

◦ Problem: These CT-values are unusable; \{\{ John dances \}\} is not a question denotation.


(27) (那) 你 想 不 想 吃 [水煮鱼]CT ne?
   `Then do you want to have boiled fish NE?'

\[ (27) \]tct = \{ \{You want hot pot\}, \{You want boiled fish\}, \{You want Peking duck\}, … \}

◦ Q: Why can’t A’s initial question in (24) also satisfy CT-congruence?
◦ A: On utterance, user of CT must intend for (potentially upcoming) discourse to satisfy CT-congruence.
• The same pattern holds generally over all A-not-A and wh-questions:

(28)  A: lǐsì dài shá le (#ne)?
       Lisi bring what PRT NE
       ‘What did Lisi bring (#NE)?’

B: lǐsì dài-le yú.
       Lisi bring-PERF fish
       ‘Lisi brought fish.’

A: nà [ ZHĀNGSĀN ] CT dài shá le ne?
       then Zhangsan bring what PRT NE
       ‘And what did Zhangsan bring NE?’

[ (28A2) ]^ct = { { Zhangsan brought fish, Zhangsan brought lamb, … } 
                   { Lisi brought fish, Lisi brought lamb, … } 
                   … }

• Broad CT in questions just marks sub-questionhood, without constraining strategy:

(29)  A: I’m the smartest person in the world! I can answer any question!

B: nà [ yī yì chéng-yǐ YĪ YĪ děngyú duō-shǎo ] CT ne?
       then one hundred.million times-by one hundred.million equal much-little NE
       ‘Then what’s 100,000,000 times 100,000,000 NE?’

[ (29B) ]^ct = { Q | Q ⊆ D_s,d }
Problem: Some uses of *ne* fail CT diagnostics.

(33) A: yàoshi dài-zhe  ne  ma?
    key carry-ASP  NE  Q
    ‘Are you carrying the keys NE?’

B: dài-zhe  ne.
    carry-ASP  NE
    ‘Yeah, I’m carrying them NE.’

Solution: These uses are the aspectual *ne* described by Chan (1980).

Isolating CT *ne* requires selecting predicates that either:
(a) describe events lacking duration
(b) describe situations which have terminated, or
(c) contain complements denoting frequency, extent, or duration of action.

4. Suggestions for CT in English and Cross-linguistically

Question: Which parts of (L+)H★ L− H% do what?

Pierrehumbert and Hirschberg (1990) argue meaning built up compositionally from parts

Büring (2003: 537) identifies CT meaning with *edge* of IntP: L− H%
However he claims boundary tone appears on the constituents so marked

CT *ne* appears exactly where English CT L− H% does!

L− H% or *ne* cue presence of CT, but don’t reveal which constituents are CT-marked.

(L+)H★ accent shape within CT has no meaning beyond marking (alternative) focus.

(34) Hypothesis
a. CT operator binds focus from a distance (e.g. Wagner 2008ab, Tomioka 2010)
b. CT constituent is garden-variety focus.
c. Differences in accent shape are allophonic, conditioned by IntP phrase properties

Suggestion: English has CT questions, but L− H% CT particle incompatible with H− H% question particle.

(35) (And) is [PERSEPHONE]_{CT} going?
    L★ H− H%
Wagner (2008ab) treats complex focus examples as CT, based on prosody:

(36) **Single Pair Answer**
A: I know one of the visitors attacked one of the zookeepers, but I don’t know which visitor attacked which zookeeper.
B: PERSEPHONE attacked the LION trainer.
\[(L+)H^* L^- H%\quad H^* L^- L%\]
B': ?? \(H^* L^- L%\quad H^* L^- L%\)

(37) **Switched Arguments**
A: Did John insult Mary?
B: No, MARY insulted JOHN.
\[(L+)H^* L^- H\%\quad H^* L^- L\%\]
B': ?? \(H^* L^- L\%\quad H^* L^- L\%\)

**Suggestion**: These *do* sound like CT (contra Büring), but should *not* be analyzed as CT (contra Wagner).

(38) A: tīng-shuō jīntiān yǒu rén běi bié-rén dā-le, dānshì wǒ bù-zhīdào shéi dā-le shéi. hear-say today have man by other-man hit-ASP but I not-know be who hit-ASP who ‘I heard someone hit someone today, but I don’t who hit who.’
B: (shi) zhāngsān (##ne) dā-le lǐsì (##ne). be Zhangsan NE hit-ASP Lisi NE ‘Zhangsan (#NE) hit Lisi (#NE).’

(39) A: jù-shuō lǐsì dā-le zhāngsān. according-say Lisi hit-ASP Zhangsan ‘I heard Lisi hit Zhangsan.’
B: bù bù bù, (shi) zhāngsān (##ne) dā-le lǐsì (##ne)!
no no no be Zhangsan NE hit-ASP Lisi NE ‘No, Zhangsan (#NE) hit Lisi (#NE)!’

**Mandarin ne provides a diagnostic for formal sub-questionhood**

**Finding**: Questions of *clarification* are not sub-questions

(40) A: zěnme lǚ dāhāi hái zhèr děng-zhe yào jiàn nǐ ne? how Lu Dahai still here wait-ASP want see you NE ‘Why is Lu Dahai still waiting for you here?’
B: shéi shì lǚ dāhāi (##ne)? who be Lu Dahai NE ‘Who is Lu Dahai (##NE)?’ [Shi 1997: 134]
Problematic d-tree for (40)

Q: Why is Lu Dahai still waiting for you here?
   Sub-Q: Who is Lu Dahai?
   Sub-A: Lu Dahai is the tax collector.
   Sub-Q: Is it that I forgot to pay him?
   Sub-A: …

• Where does the interruption hang in the d-tree?

d-trees for (40)

a. Primary d-tree:
   ① Q: Why is Lu Dahai still waiting for you here?
   ④ Sub-Q: Is it that I forgot to pay him?
   ⑤ Sub-A: …

b. Secondary d-tree:
   ② Q: Who is Lu Dahai?
   ③ A: Lu Dahai is the tax collector.

5. Conclusions

• Mandarin *ne* can and should analyzed as a CT morpheme, but CT-congruence and CT-value need adjusting.
• CT assertions *answer* sub-questions; CT questions *are* sub-questions.
• CT binds focus from a distance.
• English prosody is not a robust cue to CT pragmatics.
References


Appendix

(43) **CT-Congruence** (Büring 2003: 520)
An utterance $U$ containing a contrastive topic can map onto a move $M_U$ within a d-tree $D$ only if $U$ indicates a strategy around $M_U$ in $D$.

$U$ indicates a strategy around $M_U$ in $D$ iff there is a non-singleton set $Q'$ of questions such that for each $Q \in Q'$ —

(i) $Q$ is identical to or a sister of the question that immediately dominates $M_U$, and

(ii) $[Q]^o \in [U]^{ct}$

(44) **CT-Value** (Büring 2003: 539)
$$[A]^{ct} =$$

a. if $A$ is F-marked, \{ $D_{typ(A)}$ \}

b. otherwise, if $A$ is CT-marked, \{ $\{a\} | a \in D_{typ(A)}$ \}

c. otherwise, if $A$ is a terminal, \{ $[A]^o$ \}

d. otherwise, if $A = [B]$, $[B]^{ct}$

e. otherwise, if $A = [B C]$, \{ $\beta | \exists b,c \ [ b \in [B]^{ct} \wedge c \in [C]^{ct} \wedge \beta = \{ \alpha | \exists b',c' \ [ b' \in b \wedge c' \in c \wedge \alpha = b' + c' \} ] \}$

(45) **Minimality** (Büring 2003: 534, 540)
If $M$ is a complete answer to $Q$ (i.e., if $[M]^o$ logically entails $p$ or $W-p$ for every $p \in [Q]^o$), $Q$ immediately dominates $M$. 
