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Temporal Information in Sentences of Mandarin

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All languages allow speakers and receivers to locate situations in time. In this chapter, we explore how temporal information is conveyed in Mandarin. The language does not have tense morphemes, and aspectual viewpoint is not obligatory, yet people are able to arrive at consistent temporal interpretations. We identify the resources that convey the relevant information, and state principles for temporal interpretation.¹

There is a precept of linguistic research that counsels a strategy of explicitness: study a domain in languages that code it explicitly, to understand the domain in languages that do not. We use the strategy of explicitness to study temporal location. Tense and aspectual viewpoint, key factors in temporal location, are obligatory in sentences of English. After formulating principles for how temporal information is conveyed in English, we are better able to understand it in Mandarin.

We begin with a sketch of the English system. We generalize to a default principle of interpretation that applies to languages with and without tense, and then give principles and make predictions about temporal location in Mandarin. In the second part of this chapter we report a study of six Mandarin texts, in which we tested our predictions. The predictions were borne out, as demonstrated with examples and discussion.

1. Temporal interpretation in English

Time is a single unbounded dimension. Like space, it requires an orientation point or anchor for location. The anchor may be a time or situation (the term 'situation' includes events and states). Tense morphemes and time adverbials are traditionally deictic, that is, interpreted relative to Speech Time. But when one looks at actual texts, the situation is more complex: tense is interpreted in different ways in different contexts (Smith 2000b).

Three patterns of tense interpretation are found in English, according to the discourse context in which a clause appears. Discourse modes, introduced in Smith (2000a), distinguish different types of context, they are realized in the passages of texts. The discourse modes are recognizable passages of text, intuitively of different types, that have particular force and linguistic features. Five modes are posited: Narrative, Report, Description, Informative, and Argument-Commentary. The list is not exhaustive - it ignores conversation and procedural discourse - but it includes modes that are frequently found. The modes cut across genres. Two interpreted linguistic features characterize discourse modes; both relate to temporality. One feature is the type of entity introduced into the universe of discourse; the second is the principle of advancement.²

The patterns of tense interpretation are Continuity, Anaphora, and Deixis. The Continuity pattern appears in narrative passages and procedural discourse. The Anaphora pattern appears in description. The Deictic pattern is the default, appearing in the other discourse modes.

In narrative, situations are related to each other. The fragment (1), taken from a novel, illustrates. (Sources of examples are given at the end of the chapter.)

(1) The Continuity pattern of tense interpretation

...She put on her apron, took a lump of clay from the bin and weighed off enough for a small vase. The clay was wet. Frowning, she cut the lump in half with a cheese-wire to check for air bubbles, then slammed the pieces together much harder than usual. A fleck of clay spun off and hit her forehead, just above her right eye.

The same tense occurs throughout, typical of narrative. Relative past tenses such as the past perfect and the future-in-past may also occur.³

The next example illustrates the Anaphoric pattern, which relates situations to a previous time. (2) is a descriptive passage from a novel. We assume that passages in this pattern have a durative adverbial, overt or tacit, with the entire passage in its scope.

(2) The Anaphoric pattern of tense interpretation

...In the passenger car every window was propped open with a stick of kindling wood. A breeze blew through, hot and then cool, fragrant of the woods and yellow flowers and of the train. The yellow butterflies flew in at any window,

out at any other, and outdoors one of them could keep up with the train, which then seemed to be racing with a butterfly.

In description, the Anaphoric pattern of tense interpretation holds for all situations. There are some coercion effects, shifts from basic situation types. They follow a well-known pattern that is due to the tacit adverbial of duration (Moens 1987, Smith 1995, Smith 2000a).⁴ The same tense occurs throughout, as is typical in description.

The default pattern of tense interpretation is Deictic: the situations mentioned are related to Speech Time. The pattern occurs in the Report, Argument-Commentary, and Informative modes; and probably in conversation and other modes as well. Example (3) is taken from a newspaper report:

(3) The Deictic pattern of tense interpretation

A week that began in violence ended violently here, with bloody clashes in the West Bank and Gaza and intensified fighting in Southern Lebanon...Despite the violence, back-channel talks continued in Sweden. Israeli, Palestinian and American officials have characterized them as a serious and constructive dialogue on the process itself and on the final status issues. News accounts here say that Israel is offering as much as 90 percent of the West Bank to Palestinians, although it is difficult to assess what is really happening by the bargaining moves that are leaked.

It is common for Deictic passages to have different tenses, as in this example.

We have demonstrated three patterns of tense interpretation. The first two appear in passages of Narrative and Descriptive discourse modes; both are special contexts. We assume that they are recognizable to the reader - although recognition need not be conscious - and that the reader adjusts to them automatically. We also assume that the discourse modes and patterns of temporal interpretation hold across languages, *mutatis mutandis*.

1.2 The deictic pattern

We now consider in more detail the Deictic pattern of tense interpretation in English, which we take to be typical of a tensed language. One reason for our confidence is the traditional view, not limited to any particular language, that tense is deictic. We ignore relative tenses, which anchor to a time explicit in the context.

Essential to the deictic pattern are the aspectual notions of event and state, and of bounded and ongoing situations; we discuss them in greater detail below. In deixis both events and states are related to Speech Time (SpT). The default is that bounded events are located in the Past, while ongoing events and states are located in the Present; other cases require additional information:

(4) The Deictic pattern of temporal form and interpretation

- a. Ongoing events are in the Present (present tense): located at SpT
 - i Mary is singing.
- b. States are in the Present (present tense): located at SpT
 - i Sue knows the answer.
 - ii Tom (often) feeds the cat.
- c. Bounded events are in the Past (past tense): located before SpT
 - i Mary sang.
 - ii Tom fed the cat.
- d. Additional explicit temporal information may override a-c

The summary in (4a-c) expresses the most frequent choices found in passages with the deictic pattern; (4d) provides for the less frequent choices. The Present is conveyed by present tense, location in the Past is conveyed by past tense.⁵

Other possibilities also appear, though less frequently. States may be located in the Past or Future, ongoing events located in the Past or Future, and bounded events in the Future. These temporal locations are conveyed by tense, auxiliary *will*, adverbials and lexical information (such as the future orientation of certain verbs, e.g. *suggest*, *predict*).

However, bounded events may not be located at Speech Time. This is not an omission but an important gap in the paradigm. A constraint exists on bounded events that prevents them from being located in the Present. Events in the Present must be presented as ongoing, e.g. *John is talking*, *Mary is drawing a circle*; otherwise event verb constellations are taken as Statives conveying a general pattern, like *Tom (often) feeds the cat*. There are exceptions, notably performatives (*I christen this ship the 'Queen Elizabeth'*) and sports-announcer reports (*Now Jones throws the ball to third base*).

This constraint, which we call the Bounded Event Constraint, is pragmatic in nature. It comes from a principle of communication that holds in language generally: Speakers follow the convention that communication is instantaneous. The perspective of

the Present is thus incompatible with bounded events, because the bounds would go beyond that perspective (Kamp and Reyle 1993).

Information about events and states, and boundedness, is aspectual. Aspectual systems have two components, 'viewpoint' and 'situation type' (Smith 1997). Situation type indirectly classifies a sentence as expressing a state or an event. Aspectual viewpoint presents a situation, or eventuality (Bach 1981), as bounded or unbounded.

Event and state categories are idealizations of types of situations. Events, with the feature [+Dynamic], occur at successive stages and have endpoints. States are undifferentiated and homogenous, holding consistently throughout an interval (the sub-interval property). Simple states hold at a specific time (*Lee knew the answer, Kim is sick*). Generalizing states (*Terry plays tennis*) hold as a pattern over time (Krifka et al 1995). Other temporal features are not relevant here (see Smith 1997).

Situation types are realized at clause level by the verb and its arguments, the 'verb constellation'. Clauses of each type have unique distributional and interpretive properties. Thus, the situation types are covert linguistic categories in the sense of Whorf (1956). All languages, so far as we know, have situation type categories.

Aspectual viewpoints make available for semantic interpretation all or part of a situation. They are conveyed morphologically, and are obligatory in English:

- | | | |
|-----|-------------------------|-------------------|
| (5) | a. Lee sang. | Perfective Event |
| | b. Lee was singing. | Progressive Event |
| | c. Lee knew the answer. | State |

The perfective is conveyed by the simple verb form, (5a,c); the imperfective by the progressive verbal auxiliary *be+ing*, (5b). The progressive appears neutrally only with event verb constellations.⁶ Progressives and other imperfectives share an important property with states: they present a situation without endpoints, and thus have the sub-interval property. The perfective occurs with clauses of all situation types; it presents bounded events, and states.

In the Present, all sentences with the simple verb form are taken as states. They may be simple (6a), or Generalizing /habitual states (6b-c):

- | | |
|-----|--------------------------------|
| (6) | a. Lee knows the answer. |
| | b. Lee sings. |
| | c. Sam (often) feeds the cats. |

The Generalizing interpretation of simple Present event sentences follows from the Bounded Event Constraint introduced above.

2. The deictic pattern generalized

The Deictic pattern relates events and states to Speech Time. The pattern can be stated as a generalization about how situations are located in time without reference to tense; ongoing events and states form the natural class of Unbounded situations.⁷

- (7) Generalized deictic pattern of temporal interpretation. a. Unbounded eventualities are located at Speech Time. b. Bounded events are located before Speech Time. c. Explicit temporal information overrides a and b.

This pattern is not invariant. Bounded events may be located in the Future, and states or ongoing events in the Past or Future. Crucially, explicit temporal information conveys departures from the pattern. The simplicity of (7) is partly due to the Bounded Event Constraint, which blocks bounded events from location in the Present

We predict that tenseless languages follow the Deictic pattern of temporal interpretation unless there is contextual indication of another pattern. Specifically: clauses expressing states and ongoing events are interpreted as Present; clauses expressing bounded events are interpreted as Past; and clauses expressing other possibilities will have additional temporal and aspectual information. We do not claim that this pattern holds for all texts. We expect differences in passages of narrative and descriptive discourse modes.

3. Mandarin

In this section we discuss temporal location in Mandarin. We begin by summarizing the linguistic resources that convey temporal information in the language. We then state the predictions of the deictic approach for Mandarin, and show how they explain the temporal interpretation of six written Mandarin texts.

3.1 The temporal resources of Mandarin

The Mandarin aspectual system consists of the categories of situation type and viewpoint. Temporal location is conveyed by temporal adverbials, indirectly by modal verbs, which we take to be future-oriented; and the lexical properties of certain verbs. Mandarin does not have tense.

Aspectual viewpoints are conveyed by the morphemes *-le*, *-guo*, *zai*, and *-zhe*. The *-le* and *-guo* are perfective; perfectivity is also conveyed by Resultative Verb Complements such as *-wan*.⁸ The *zai* is a progressive imperfective, appearing neutrally only with event clauses; *-zhe* is a general imperfective (Smith 1994). Viewpoint morphemes are often optional.⁹

Situation type is conveyed by verb constellation in Mandarin, as in other languages (Smith 1994, 1997). The situation type categories include events and states.

Generalizing/habitual clauses belong to the category of states. Such clauses have the verb constellations of events, but express a pattern of events rather than a particular event. They are semantically stative. Generalizing/habitual clauses can be recognized by these linguistic tests (Krifka et al 1995):

1) habitual adverbials like *zong* 'always', *changchang* 'often', *mei tian* 'every day' occur or can be inserted without changing the sense of the clause. 2) they can be rephrased with 'whenever X, Y...', 'every time'.

The modals *hui*, *yao*, *neng* and *keyi* tend to convey future time, as in:

(8) *.neng zai meili qingjie de huanjing xia chengzhang.*

'...be able to grow up in a beautiful, clean environment.'

We are aware that there is a great deal more to be said about the contribution of modals, but for the purposes of this chapter we believe that this informal characterization suffices.

Future-oriented verbs indicate Future time, e.g. *jihua* 'plan', *tiyi* 'propose', *jueding* 'decide':

(9) *bing jueding jiaogei zhongguokexueyuan wubaiwanyuan,*

'... and also decided to transfer 5,000,000 RMB to the Chinese Academy of Sciences.'

We assume that modals appear in clauses quite generally; restrictions on their occurrence are beyond the scope of this discussion.

Mandarin has several types of temporal adverbials. Locating adverbials include *xianzai* 'now' and *mingtian* 'tomorrow':

(10 *zai zuori de fangong'an fa dayouxing...*

'At yesterday's large demonstration against the Public Order Ordinance....'

Adverbial connectives include *yihou* 'after, then', *jiu* 'then, at once', *cai* 'only then':

(11) ...you LE *yitao xiangfa zhihou cai neng zhuoshou yanjiu.*

'...only after having a set of ideas can one begin research.'

These and related temporal expressions convey temporal information in Mandarin.

We can now state the predictions of the generalized pattern of deictic interpretation (given in (7) above) for Mandarin forms at clause level:

(12) a. Unbounded situations are located at Speech Time: expressed by:

Clauses with aspectual *zai* or *-zhe*;

Clauses with state verb constellations;

Generalizing/habitual clauses.

b. Bounded events are located before Speech Time: expressed by:

Clauses with aspectual *le* or *-guo* and/or RVC

Clauses with event verb constellations.

c. Other temporal information overrides a and b: expressed by:

Modals, adverbials, and temporally-oriented verbs in all clause types

We follow the interpretive convention that event clauses are taken as bounded if they have either a perfective morpheme, or no viewpoint morpheme. The Bounded Event Constraint excludes locating specific, bounded events in the Present.

3.2 The empirical study

We analyzed six discursive articles from current Hong Kong newspapers and magazines. All are from serious publications, in standard written Chinese style. We avoided articles in the colloquial written Cantonese style, popular in Hong Kong advertising, gossip columns, and tabloid papers. Three are editorials from the *Ming Pao* 明報, a standard newspaper which serves as stylistic model for literature students.

The editorials average about 700 characters. The *Ming Pao* also publishes an English translation on the following day. Three longer articles come from the *Ming Pao*

Monthly, *Asiaweek*, and *Frontline Monthly*. These contain about 2,000 characters each. (See Sources for complete list.) The six articles have a total of 7,640 characters, 176 sentences, in 699 clauses. The sentences are long, averaging 43 characters or 4 clauses each. (See Table 1.) English translations typically divide into two or three times more sentences.

Procedure: Each clause was coded for: situation type (event, state, generalizing-habitual), explicit aspectual viewpoint or RVC, temporal adverbial or other temporal form, modal, special lexical verb factors, whether within the scope of a preceding temporal adverbial.

Results: The predictions were borne out: Events tended to be located in the Past, Simple states and Generalizing/habitual states tended to be located in the Present. Adverbial information appeared in clauses that conveyed past states, and future states and events. There were no ongoing events. This last result should be seen in the context of another fact: the number of aspect morphemes was vanishingly small.

4. Temporal information in the Mandarin texts

We discuss our results according to the predictions of the generalized deictic pattern of interpretation. The first prediction is that unbounded situations will be temporally located in the present, unless the context conveys information to the contrary. Recall that unbounded situations are expressed by clauses with stative verb constellations, generalizing statives and imperfective aspectual markers. There were few of the latter in these texts.

Our first example focuses on stative verb constellations. The temporal interpretation is derived from the situation types for each clause. Clauses are marked with superscripts as Event (E) or State (S) at what we take to be the boundaries of each clause; we do not wish to commit ourselves about the syntax. The interpretation is our own, checked with native speakers. A literal translation provides a rough guide. The sentences in (13) come from an editorial about economic planning after the Seattle riots against the World Trade Organization. The first two clauses express events. In context, these are located in the past according to our predictions. The next few clauses are stative.

(13) a. [*weici fazhanzhong guojia xiang fadaguoja tichu you*
to-this-end develop-amidst nation toward develop-nation propose have

zhixu kaifang shichang, jiangdi guanshui,] E1
orderly open market, lower tariff,

[*yi qiu yiding shiqinei baozhang benguo de*
and request fixed time-period-within guarantee own-country DE

shichang yu gongye,] E2
market and industry,

shi wanquan heli de zuofa.] S1
is entirely reasonable DE action.

b. [*buguo, xianggang meiyou biguan zishou de tiaojian.*] S2
however, Hong Kong not-have close self-self DE situation.

c. [*xianggang shi shijieshang ziyoudu zuigao de jingjitixi.*] S3
Hong Kong is world-on freedom-degree most-high DE economic system.

d. [*miandui fadaguoja gaokeji chanpin,*
confront developed-nation high-technology product

yiji linjindiqu dichengben laodong
along-with neighboring-region low-cost [capital] labor

mijixing chanpin de liang mian jiaji,] S4
intense-type product DE two-side pincer-attack,

[*xianggang de chulu zhiyou yi tiao,*] S5
Hong Kong DE out-road only-have one-route CL ,

[*jiushi nuli xiang fadaguojia kanqi,*] E3
that-is effort toward developed-nation emulate,

[*jiasu fazhan gaokeji yu zhishixing jingji.*] E4
speed-up develop high-technology and knowledge-shaped economy.

'To this end, it is totally reasonable for developing countries to have proposed to developed nations that they should open their markets in an orderly manner and lower their tariffs gradually so that their markets and industries can be safe for some time. However, Hong Kong does not have the option of closing its doors. Hong Kong is the freest economy in the world. Under a pincer attack of high tech products from developed countries and low-cost, labor-intensive products from its neighbors, Hong Kong has only one option: to emulate developed countries and try to speed up its high tech development and transition to a knowledge-based economy.'

The clauses marked with a superscript S are located in the present, as we predict. The last two clauses express unrealized events set in the future. The linguistic cue is *nuli xiang* 'make an effort toward', a future-oriented expression.

Generalizing statives are illustrated in the next example. These express a general pattern rather than a specific event or state. They are semantically stative, and predicted to be located in the present, unless there is information to the contrary. Example (14) comes from an article in *Asia Week* about Hong Kong men who keep concubines in Shenzhen. Most clauses in the article are generalizing statives:

(14) ..[*youxie ernai*] S1
have-some "concubine"

[*geng hui zhuanhuan shenfen*], S2
even will change identity,

[*dang buyong peiban zhangfu shi*], S3
when need-not accompany "husband" time,

[*hui chuan de hen liangkuai*] S4
may dress DE very "cool"

[*waichu dang "qijie"*] S5
outside-go become "street walkers"

[*jietou lake de jinu,*] S6
street-corner solicit-patron DE prostitute,

[*huo zai kalaoukei zhuan waikuai.*] S7
or at karaoke earn quick-cash.

'There are some "concubines" who will even change identities, when they don't need to accompany their "husbands" they wear very "skimpy" clothes, go out and become "streetwalkers," prostitutes who solicit on the street corners, or earn some quick cash at karaoke bars.'

The clauses all express generalizations about the women's habits. The linguistic cues are: (a) a class rather than individual is introduced (*xie ernai* 'certain concubines'); (b) a pattern of events is expressed (*dang...huo...* 'when... or ...').

Another example appears in (15), which begins an article asking why Hong Kong universities are not producing great scholars. All the clauses express generalizing statives.

(15) a [*xianggang de jiaoyu yijing guodu zhiduhua,*] S1
Hong Kong DE education already exceed-limit systematized,

[*yiqie dou zai zhaoban <helihua> de moshi.*] S2
everything all ZAI indiscriminately-imitate "rationalization" DE model.

b. [*dan wenzhang fabiao de yu duo,*] S3
but article publish DE the-more many,

[*bingbu biaoshi xueshujiashi benshen de tigao,*] S4
by-no-means indicate academic-value itself DE increase,

[*faner shi xuezhe biancheng lianghua de jiqi.*]^{S5}
instead make scholar become "quantization" DE machine.

'Education in Hong Kong is already overly systematized, everything is always indiscriminately imitating some model of "rationalization." But publishing more essays certainly does not indicate an increase in scholarly merit, on the contrary, it turns the scholar into a "quantization" machine.'

The first two clauses concern Hong Kong education; the next three are generalizations about scholars. Although they involve actions, the clauses are semantically stative because they involve a pattern of events rather than a particular event. No temporal location information is given. The interpretation is present, in accord with our predictions.

The deictic pattern does not require that states be located in the present, of course. Overt information can locate a state in the past or future. The fragment in (16) illustrates states located in the recent past; the clauses come under the scope of the time adverbial *jinnian* 'in recent years'.

(16) [*jinnian, [shenzhen jingji jisu fazhan],*]^{E1}
recent-years, Shenzhen economy rapidly develop,

[*xianggang he shenzhen liangdi jiaotong fangbian,*]^{S1}
Hong Kong and Shenzhen two-place transportation convenient,

[*renliu riyi pinfan,*]^{S2}
people-stream increasingly frequent,

[*jiashang xiaofei yu shenghuo zhishu shuiping chaju....*]^{S3}
add-on consumption and living index level difference....

'In recent years, as the Shenzhen economy developed rapidly, transportation between Hong Kong and Shengzhen was convenient, the flow of people

increased, add to that the differences in standards of spending and quality of life....'

Fragment (17) has a state located in the future. The stative clause is within the scope of *ying* 'should', which is forward-looking:

- (17) [ciwai zhengfu geng ying kaolu touzi....]^{S1}
in-addition government more should consider investing in....
'In addition, the government should even more consider investing in....'

In cases like this, which we take to be the default, the modal indicates the future. In some contexts ”*ying* 'should' and other modals may have a different force.

We now turn to events. The deictic pattern predicts that events are temporally located in the past. Events are recognizable by verb constellation; they may appear with no overt temporal information, with perfective aspect markers or RVCs, or with temporal adverbials. In the texts we examined there were many temporal adverbials, very few aspect markers. We did not find any unmarked event verb constellations with past interpretation in our sample.

The examples below illustrate. In fragment (18) an event verb constellation has an RVC, for a conclusion reached after scholarly discussion. In (19) the events are expressed with *de*, in a) to describe funding for high tech research, and in b) for government violations of public trust. In (20) an event, announcement of a management shake-up, is interpreted as past because it comes within the scope of a past time adverbial.

- (18) [zhe shi wo he duowei nianqing xuezhe jiaotan hou]^{S1}
this be I and many-CL young scholar exchange-talk after

[suo dedao de jielun.]^{E1}
SUO reach-RVC DE conclusion.

'Many young scholars and I reached this conclusion after discussion'.

- (19) a [...zhexie yanjiu dou bei pizhun le.]^E

...this-several research all BEI approve LE.
'...these research projects were all approved'.

b.

[...ye dou sipo cuihui le.]^E
... also all rip-apart destroy LE.
'... were all also ripped apart and destroyed'.

(20) [*budao lianggeyue de shijian li,*
not-reach two-month DE time in,

zhongguo kejjie de xinzangdi qu --
China technology-world DE heart-place --

zhongguancun de sanjia daibiaoxing qiye
Zhongguan-Cun DE three-company representative-character business --

si tong, fangzheng he lianxiang xianhou
Sitong, Fangzheng and Lianxiang all

fasheng zhongda renshi biandong.
arise enormous personnel changes.]^E

'Yet before two months had passed, the very heart of China's technology world
-- the three most representative companies in Zhongguan Cun -- Sitong,
Fangzheng and Lianxiang -- had all undergone enormous changes in
personnel.'

Temporal adverbials can also locate an event in the future, as in (21), about
mainland controls on pollution:

(21) [*neidi jiangyu benzhouliu quanmian jinyong*
mainland about-to on-this-Saturday completely ban-use
jiyongjiqu de fabao canju....]^E

disposable DE styrofoam food-containers....

'This coming Saturday the mainland will completely ban use of disposable styrofoam food containers....'

5. Summary and discussion

The main patterns in the texts are these:

- (a) Events are located in the past. Temporal adverbials, often with scope over many clauses, locate events and states in the Past.
- (b) Simple and Generalizing States are located in the Present.
- (c) Modals and future-oriented verbs locate situations in the Future.

The patterns conform to our predictions.

Somewhat unexpectedly, past adverbials appeared with most event clauses temporally located in the Past. This may be due to the type of articles we studied. There were few aspect markers: only 49 of 7,640 characters (Table 2). One editorial contained only one *le*, and no other markers. Together the six articles contained just one progressive *zai*, four stative imperfective *-zhe*, five past *-guo*, and 39 perfective *-le*. This is an average of one aspect marker every three sentences. Measured more reliably, as aspect markers per clause, that averages one aspect marker every 14 clauses, or 7% of clauses.

Although precise comparisons are not available, the texts had fewer aspectual markers than are found in narratives, or probably in ordinary conversation. Christensen, for example, found aspect markers in 36% of the 'idea units', which generally correspond to clauses, in written Chinese narrations of Chafe's 'Pear Stories' experimental film (1994). The most representative spoken Mandarin narrative in Erbaugh's 'Pear Stories' finds 26% aspect markers (1992). Purely descriptive texts such as museum catalog descriptions may contain no aspect markers at all.

The amount of aspect marking in the written Mandarin articles is variable and skewed, ranging from 1% - 23% of clauses with aspect markers (Table 3). Perfective *-le* is overwhelmingly the most frequent, 78% of all aspect morphemes.¹⁰ Some 40% of all aspect markers appeared in one article, in blow-by-blow narrative passages about management shake-ups. A rhetorical comparison of Chinese and English newspapers in

Beijing and Hong Kong also finds extensive variation (Scollon, Scollon, and Kirkpatrick 1994).

The rare overt aspect markers add emphasis. For example, our sole progressive (‘/ *zai*) seems clearly emphatic in the discussion of scholarly life. (Fuller context in (15) above.)

(22) [*yiqie dou zai zhaoban <helihua> de moshi.*] S¹

everything all ZAI indiscriminately-imitate "rationalization" DE model.

'Education in Hong Kong is already overly systematized, everything is always indiscriminately imitating some model of "rationalization."

Viewpoint aspect markers are usually optional in written texts, with high variability among speakers (Spanos 1979, Chu 1983). The other aspect markers are much rarer, as shown in Tables 2 and 3.

6. Conclusion.

The most important finding is that aspectual situation types – event and state – are the key to understanding temporal location in Mandarin. These covert categories interact with aspectual viewpoint, adverbial, and lexical information to convey temporal information. Mandarin discursive prose follows the generalized Deictic pattern of temporal location, complemented by the Constraint on Bounded Events.

In the study of written texts, temporal location was frequently marked by adverbials. Overt aspectual morphemes were few, with perfective 了 by far the most frequent. This result suggests that viewpoint marking is relatively infrequent in the discursive genres we studied. The high degree of variability and optionality illuminates the stylistic subtleties of Mandarin rhetoric.

We have shown that there is a strong commonalty in tensed and tenseless languages, due to the aspectual component. In the discussion we have taken English as representative of a tensed language, and Mandarin Chinese of a tenseless language. An interesting question for future research is whether our findings extend to other tenseless languages such as Vietnamese, Thai, and Cantonese.

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Endnotes

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- ² The discourse modes and interpreted linguistic features are discussed extensively in Smith 2000a. Patterns of tense interpretation are given in Smith 2000b, both articles are available through Smith's web page.
- ³ The past perfect (*Yesterday, John had (already) left*) and the future-in-past (the tense of the complement clause in *John told me yesterday that he would leave*) are relative tenses, understood as anchored to an explicit time - *yesterday*.
- ⁴ Shifted situation types such as inchoatives (*Suddenly Mary knew the truth*) occur when an element in the context is incompatible with the basic-level situation type, triggering a shift. The process of shift is known as 'coercion', from Moens 1987. Smith 1995, 1997 uses the terms 'shifted' or 'derived-level' for the results of coercion processes.
- ⁵ In complex sentences, and in certain contexts, past tense and present tense may not have their usual temporal values.

- ⁶ Progressive statives are informal and somewhat marked, though not uncommon, in speech. For example, *I'm loving this walk*, *The river is smelling particularly bad today*. Sentences like this present states as though they were events. These are instances of shifted situation types, due to coercion.
- ⁷ Ongoing events and states are unbounded; this property is essential for all three patterns of tense interpretation. Scholars such as Herweg (1991) claim that the two comprise a single semantic category of imperfective. For arguments against this, see Smith 1999.
- ⁸ Resultative Verb Complements (RVCs) function in both the viewpoint and situation type components of Mandarin. *Ōlan* and others convey the perfective viewpoint, RVCs may appear with or without aspectual viewpoint morphemes (Smith 1994, 1997).
- ⁹ The optionality of aspectual morphemes is quite well-known (Spanos 1979, Chu 1983), but underestimated we think.. See section 5 for discussion.
- ¹⁰ For comparison, note that $\dot{\lambda}$ tends to be most frequent in other types of discourse: 66% of aspect morphemes in Christensen's written Pear Story, 82% in Erbaugh's spoken Pear Story, and a stunning 92% among preschool Mandarin-speaking children (Erbaugh 1992:426). This validates Smith's claim that Mandarin overt aspect marking highlights the perfective. The $\dot{\lambda}$ perfectives correlated with verbs for dynamic events with RVCs, as in example (19).
- ¹¹ The aspectual value of sentences with π -*guo* is unclear. Given their similarity to perfects, at least some may function as resultant statives. We cannot pursue this question here.

Sources for English examples

- (1) Peter Robinson, *A Necessary End*.
- (2) Eudora Welty, *Delta Wedding*.
- (3) The New York Times, May 5, 2000.

Sources for the Mandarin texts

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Table 1 Article Length

	Articles				Editorials		
	Total	Shenzhen	Hi Tech	Scholars	Order	Seattle	Environment
Characters	7,640	1,910	2,171	1,420	501	900	738
Sentences	176	50	45	29	13	24	15
Clauses	699	197	123	198	60	91	30
Mean clauses per sentence	4	4	3	6	4	4	2

Table 2 Aspect Morphemes

	Articles				Editorials		
	Total	Shenzhen	Hi Tech	Scholars	Order	Seattle	Environment
ǰǎe	39	2	18	6	5	1	7
π''-guo 5		1	1	-	2	-	1
◇≈zhe	4	3	1	-	-	-	-
‘/ zai	1	-	-	1	-	-	-

Table 3 Clauses with Aspect Morphemes

	Articles			Editorials			
	Mean	Shenzhen	Hi Tech	Scholars	Order	Seattle	Environment
Clauses with $\dot{\lambda}$	6%	1%	15%	3%	8%	1%	23%
Clauses with π - <i>guo</i>	1%	-	6%	-	-	-	-
Clauses with \diamond - <i>zhe</i>	1%	-	3%	-	-	-	-
Clauses with \prime <i>zai</i>	-	-	-	-	-	-	-