Distinguishing 'root' from 'embedded' in Mandarin Chinese: the empirical evidence and some theoretical consequences

Alison Biggs

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University of Cambridge

ABSTRACT

Since at least Chomsky (1965), the restriction of the application of transformations – or their contemporary equivalent – has been a central issue in syntactic theory.

A key empirical observation is that, in a range of languages, a subset of syntactic phenomena are restricted to root contexts (Emonds 1970/1976; Hooper and Thompson 1973). This dissertation proposes a range of empirical diagnostics that demonstrate that Mandarin Chinese syntax is also systematically sensitive to a root/embedded distinction. Data is amassed from the distribution and interpretation of discourse particles, aspect particles, and propositional assertion markers, the scope of question constructions, and topicalisation.

These observations, drawn from a language that has not previously been discussed in the root/embedded debate, have some important theoretical consequences. First the data suggests that root/embedded does not constitute a binary distinction as traditionally assumed, but rather a 'continuum'. I argue that present theories, which rely on some notion of structural truncation of embedded CPs, cannot account for this. Instead, I argue (in the spirit of Aboh 2005 on Gungbe; Krapova 2010 on Bulgarian; Haegeman 2009, 2011 and Haegeman and Ürögdi 2010 on English) that any restrictions on the occurrence of movement phenomena in embedded contexts derive from general principles of locality and intervention following the derivation and consequent interaction of moved constituents.

ACKNOWLEDGMENTS

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1. Introduction

It has long been observed that in a range of languages a subset of syntactic phenomena are restricted to root contexts (Emonds 1970; Hooper and Thompson 1973). This dissertation proposes a range of empirical diagnostics that demonstrate that Mandarin Chinese syntax is also systematically sensitive to a root/embedded distinction. The data identified suggest that this sensitivity follows from general principles of locality.

Although a substantial body of literature has amassed on the root/embedded distinction, work has focused almost exclusively on Germanic (for example, on Verb Second) and, to some extent, Romance (e.g. Haegeman and Hill 2010; Munaro and Poletto 2009; Poletto and Zanuttini 2011). This dissertation extends the discussion to Mandarin through identification and examination of the empirical evidence for syntactic root/embedded asymmetries. Phenomena of interest include the distribution and interpretation of discourse particles, aspect particles, and propositional assertion markers, the scope of question constructions, and topicalisation. Many of these issues have been extensively discussed in the Chinese syntax literature, but have not to date been considered from the perspective of a root/ embedded distinction.

A consequence that emerges from the comparison of these constructions in each clause type is that, although the syntax of Mandarin is systematically restricted in embedded contexts, some contexts (such as conditional clauses) are more restricted than others (such as complement clauses). This conclusion, that root/embedded does not constitute a binary distinction, does not appear to have been explicitly explored previously in the literature, but has some significance for existing theoretical accounts of root/embedded distinctions.

Previously, following the observation that transformations identified as 'root' almost exclusively involve movement to (spec-)CP, it has been proposed that (a) clausal differences follows from the presence – or otherwise – of lexical complementisers (den Besten 1983; Emonds 1976); or (b) from the lack of assertion in embedded contexts (Hooper and Thompson 1973; Haegeman 2006; Haegeman and Hill 2010); or (c) from the defectivity of TP in embedded contexts (Hooper and Thompson 1973; Rizzi 1996) (these proposals will be discussed more fully later). The common thread underpinning these accounts is that the embedded CP is somehow structurally deficient – or

'truncated' – relative to its matrix counterpart. If, as observed for Mandarin, restrictions on the size of the embedded CP must be defined relative both to language-specific syntactic phenomena and embedded clause type, it is unclear how coherently 'truncatation' can ever be circumscribed.

I suggest instead that the empirical evidence derives straightforwardly from general computational principles of syntax. I argue that restrictions on embedded contexts derive from general principles of locality and intervention following the derivation and consequent interaction of moved constituents. Precedence for this approach can be found in work on a range of languages (Aboh 2005 on Gungbe; Krapova 2010 on Bulgarian; Haegeman 2009, 2011 and Haegeman and Ürögdi 2010 on English). Here, I extend the account to a wider range of embedded clause types, in a language that has not previously been systematically explored from this perspective.

First some background on the root/embedded distinction is given. §2 gives a theoretical summary of the 'root' and 'embedded' problem in syntactic theory, and some of the issues raised by previous accounts. §3 introduces the different clause types that will be investigated, focusing on their structure and derivation. This provides the foundation for the theoretical account proposed here.

The second half looks at the empirical evidence for a root/embedded distinction in Mandarin. The proposed diagnostics include the interpretation of discourse particles (§5), the distribution and scope of the aspect particle *le* (§6), the distribution of propositional assertion markers (§7), and evidence from argument topicalisation (§8). These diagnostics demonstrate that the root/embedded distinction is not unique to Indo-European languages; however, the data raises some theoretical issues for previous accounts, which take the distinction as a result of the truncation of functional material in embedded domains. Here, an alternative account is developed, in which the distinction derives from general principles of syntactic locality.

2. 'Root' and 'embedded': a theoretical overview

In a seminal work, Emonds (1970) restricts movement operations by the type of clause in which they occur, observing that languages distinguish root from non-root clauses, and transformations are sensitive to these classes. To this end he identifies the transformation '*root*', defined such that it applies only where "an S … is not dominated by any node other than S" (Emonds 1976:2).[1]

The observation has great significance within syntactic theory: since the earliest postulation of transformational theory, a central issue has been the (syntactic) restriction of the occurrence of displacement phenomena in a principled manner (Chomsky 1965; 2001; 2004; 2008). The empirical observation that the syntax of root and embedded clauses is systematically distinguished remains a significant and robust asymmetry attested in natural language.

However, the stipulative character of Emonds (1970) transformational rule is highly undesirable in light of the broader methodological principles of generative syntactic theory towards explanatory, rather than descriptive, adequacy. In addition, further study has shown that certain 'root phenomena' also occur in a subset of embedded contexts ("embedded root phenomena") (Hooper and Thompson 1973). Defining the root/embedded distinction in terms of node dominance has thus been set to one side.

Following the observation that transformations identified as 'root' almost exclusively involve movement to (spec-)CP, a substantial body of work has instead sought to define embedded CP contexts more precisely in functional/pragmatic, semantic, or syntactic terms (Heycock 2006 offers a recent overview).

One such account posits that properties of C derive from (some projection relating to) INFL, such that non-finite, subjunctive and gerundive structures are defective and thus do not exhibit certain phenomena (Haegeman and Zanuttini 1991; Rizzi 1996; Roberts and Rousseau 2002).

A second suggests that root syntax corresponds to asserted contexts (Hooper and Thompson 1973). Following work in cartography, 'assertion' is generally labelled as

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[1] Emonds' (1970) second transformational strategy was *structure-preserving*; this constitutes the general case, where a transformation can only move, copy or insert a node into a position in which a node of that category can otherwise be 'base-generated'.

some subcategory of (but necessarily distinct from) the functional projection Force (e.g. Haegeman 2006, Haegeman and Hill 2010), or as a distinct speaker/hearer projection (Speas and Tenny 2003); it is proposed that these projections are absent in embedded contexts.

Finally, a substantial body of work, largely on V2, has suggested that selectional properties of the matrix verb determine the 'size' of the embedded CP. Much work accounts for the restriction of certain phenomena from embedded contexts by the selection (or otherwise) of a lexical complementiser (for example, den Besten 1983). A related approach posits that the structure of the embedded CP is determined by the 'bridgehood' of the matrix predicate; under this analysis a bridge verb takes a 'double' CP, and this additional structure permits extraction from the complement, as well as the occurrence of various 'root phenomena' (Erteschik-Shir 1973, Vikner 1995, McCloskey 2006).

Each of these theoretical accounts will be introduced more fully in the course of discussion. For the present what is important is that, although differing in detail, each of these existing approaches shares some intuition that the root/embedded distinction relates to the (arbitrarily designated) structural "size" of root and embedded CPs. Specifically, the embedded CP is in some way structurally defective, either by the non-projection of a syntactic node, or by the presence of an element somehow preventing realisation of another, relative to its matrix counterpart.

In what follows, data will be presented that indicates that stipulating the truncation of functional projections does not account for the empirical facts of Mandarin. However, it is worth noting at the outset that there are general theoretical objections suggesting that the truncation account should be re-examined.

First, inherent within each account is the suggestion that the sensitivity of phenomena to clause type is epiphenomenal, thereby avoiding the stipulation of Emonds' original 'root class' of transformations. However, the restriction remains stated rather than derived; the 'truncation' type studies, which view restrictions as a consequence of the availability or otherwise of syntactic nodes, have simply shifted the locus of the stipulation from class of transformational phenomena, to clausal type. Given the customary objective of linguistics towards explanatory adequacy, any such stipulation is highly undesirable.

Further, it is not clear that these approaches are compatible with current theory. The idea that a root/embedded distinction can be stated as the availability or otherwise of syntactic nodes is not coherent with the current conception of phrase markers, given the possibility of multiple specifiers within Bare Phrase Structure (Chomsky 1995), or the expanded domain available in fine-grained functional structure (Pollock 1989, Rizzi 1997, 2004).

The Mandarin data will underscore these shortcomings. In particular, analysis of a broad range of phenomena and embedded clause types reveals that the syntax of different embedded contexts is not uniform (reminiscent of much previous work on 'embedded root phenomena' [Hooper and Thompson 1973; Heycock 2006]). Thus the second claim of this dissertation is that root/embedded should not be viewed as a binary distinction, but that different embedded clauses may exhibit more or less restrictive syntax following from independent properties of that class of embedded structure. Rather than a unique 'root' or 'embedded' property, the root/embedded distinction falls under a more general property of syntactic computation: locality.

Crucial to this will be the observation that different embedded clauses may exhibit more or less restrictive syntax dependent on the featural properties of that embedded structure which must be postulated for independent reasons; it will become clear that where properties (such as adverbs associated with epistemic modality) occur with clause types specified for this property (such as conditionals), a restriction is observed. This suggests that the relevant restriction follows from intervention effects.

Intervention is based on the principle of locality, a well-established property of core syntactic structural relations. The theory of locality adopted here is Relativized Minimality (RM) (Rizzi 1990; 2004). According to RM, a local relation is one which must be satisfied within the smallest environment in which its requirements are met, such that a local relation cannot hold between X and Y when Z intervenes, where Z is a potential candidate for a local relation (based on Rizzi 2004:233):

(1) ... X ... Z ... Y ...

The precise definition (to which all future mention of RM refers) is given as follows:

(2) Y is in a Minimal Configuration (MC) with X iff there is no Z such that
       i. Z is of the same *featural* type as X, and
       ii. Z intervenes between X and Y.

And for this reason:

(3) Z intervenes between X and Y iff Z c-commands Y and Z does not c-command X.

I will argue that certain phenomena are excluded from particular embedded contexts as a consequence of general intervention effects following multiple movements, in the spirit of recent work on the root/embedded distinction, including Haegeman (2009, 2011) and Haegeman and Ürögdi (2010). Taking a feature-based approach to locality, a constituent with the feature α blocks extraction of a constituent with the same feature in its c-command domain (Rizzi 2004, Haegeman and Ürögdi 2010). Under this approach, the ungrammaticality of, for example, argument fronting in adverbial clauses follows from the same constraints that rule out argument fronting in English relatives: movement paths of one element cannot cross the movement path of another. It is therefore the featural specification of the clause, which must be postulated for independent reasons, that precludes the occurrence of a given construction. Crucially, this entails that the embedded CP is not considered functionally 'smaller' or 'truncated', relative to its root counterpart.

3. 'Root' and 'embedded' structures
3.1 'Root' clauses

'Root' is generally understood as the highest matrix clause, or, in Emonds' (1970, 1976) terms, the highest clausal node of a tree: 'S'. However, in the context of the root/embedded debate, it is worth noting that two significant problems are associated with this definition, neither of which has been resolved satisfactorily.

First, (in work developing from Bresnan (1970), Chomsky and Lasnik (1977) et seq.) both root and embedded clauses are headed by the functional category CP. The CP is the highest functional projection within a clause, and is often termed the discourse domain (Grohmann 2003). Its elements are typically associated with interpretative roles (such as Topic and Focus), clause typing (such as *wh-* and Force), and it hosts markers of subordination (complementisers). Given the range of work demonstrating that syntax routinely makes a root/embedded distinction, the structural and functional equivalence/non-equivalence of root and embedded CP projections is mysterious, and is central to any theoretical discussion. I will argue that non-equivalence between the

structures follows from the (independently required) specification, rather than truncation, of functional projections.

Second, in the spirit of Emonds' (1976), root/embedded are often diagnosed in terms of the constructions available in a particular clause type. Yet 'root transformations' – the subset of transformations possible in all contexts – are found not only in canonical root environments ('the highest clausal node'), but also in a specific range of embedded contexts (Hooper and Thompson 1973). These non-matrix clause environments include the following (based on Heycock 2006 and Dixon 2006):

(4) i. *and*, *but*, and *if* parataxis (and their cross-linguistic counterparts)
ii. temporal subordinate linkers such as *after*, *before*, *while*, *till*, *until*
iii. logical subordinate linkers, or causal adverbs, such as *since, because, if, although, even though, unless, in spite of* [2]
iv. contrastive linkers such as *however, moreover, nevertheless, therefore, accordingly, on the other hand, at all events, still*
v. purposive linkers such as *in order… for* (*… to/that*)

These paratactic structures present a complex issue for any account, and for reasons of scope they will not be included in the present discussion.

3.2 The derivation and structure of embedded clauses

Instead the focus will be on clause types canonically viewed as embedded. Previous syntactic accounts of the root/embedded distinction vary widely, possibly because the focus of each empirical study looks at different types of embedded structure and focuses on many different diagnostics. In an attempt to avoid this problem, I systematically investigate a range of phenomena in more than one class of canonic embedded CPs; these are complement clauses, adverbial clauses (specifically conditionals), and relative constructions. These typically receive separate attention in the existing literature. In addition, in order to limit the scope of discussion, I exclusively examine constructions that involve fronting-to-CP. This is because the central issue in

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[2] Many languages seem to exhibit both a causal adverbial, which is followed by an apparent root clause and a subordinate counterpart, introduced by a different element. This includes the difference, respectively, for *car* and *parce que* in French, *for* and *because* in English, *denn* and *weil* in German, and *ty* and *därför att* in Swedish (Heycock 2006). Chinese exhibits a large number of causal conjunctions and may exhibit this distinction; potential candidates would be the distinction between *youci* (matrix 'thus') and *yin'er* (subordinate 'thus'). I leave this issue to future research.

the root/embedded debate concerns why syntax systematically distinguishes otherwise functionally equivalent CPs.

An important consequence emerges from adopting this broad scope that does not appear to have been explored explicitly in the literature previously: although syntax is clearly systematically restricted in embedded contexts, some of these contexts, such as conditional clauses, are more restricted than others, such as complement clauses (at least in Mandarin). This is a non-trivial point. If 'root' and 'embedded' constitute a non-binary distinction, the locus of any syntactic restriction cannot follow from whether or not the CP is dominated by another node, or whether or not that dominating node has a particular function, such as 'tensed'. Instead, any such restriction must be viewed as a consequence of an independent property of the CP in question, for example, from independently postulated properties of a conditional.

Problematically, the precise characterisation of the derivation, structure, and functional properties of the different types of embedded clauses continues to be the subject of much research, with the literature on the structure of conditional and complement clauses in Mandarin particularly meagre, and once again the scope of the present work prevents full exploration of the many issues at stake. However, the argument put forward in the empirical study in §5-8 is that it is the independently attested properties of the embedded clause that results in the root/embedded distinction.

For this reason, in §3.3-3.5 I introduce some background on the properties of relative, conditional, and complement clauses specific to Mandarin, as well as appropriate syntactic derivations based on these properties (drawing on previous work where available), that provides some necessary background to later discussion.

3.3 Relative clauses
3.3.1 Properties of relative clauses in Mandarin

Two types of relative clause are typically identified in the context of root/ embedded asymmetries: restrictive and appositive. A restrictive relative clause restricts the reference of the nominal that it modifies (the 'head'), while an appositive relative clause gives additional information about it. In English, the latter is characterised by comma intonation.

(5) a. My cousin who lives in France teaches Japanese.
     b. My cousin, who lives in France, teaches Japanese.

The distinction is important in the root/embedded literature as the properties of appositives closely resemble those of root contexts; for example, sentential adverbs of modification, a well-established root diagnostic, can occur in appositives but not restrictives (Ross 1967).

(6) a.*My cousin who unfortunately lives in France teaches Japanese.
     b. My cousin, who unfortunately lives in France, teaches Japanese.

This syntactic property is generally tied to the semantic characterisation of appositives as independent propositions (Bianchi 2003).

In Chinese, the position of the nominal modification marker *de*[3] determines the two types of relative. Where *de* precedes the demonstrative the relative is interpreted as restrictive:

(7) Ta wei <u>de</u> na   yi   zhi mao[4]
     he feed DE that one CL   cat
     'The cat that he fed.'

Where *de* precedes the nominal, the relative is interpreted as appositive:[5]

(8) Na   yi   zhi ta   wei <u>de</u>   mao.
     that one CL he feed   DE cat
     'The cat that he fed.'

Although Mandarin expresses relative clauses that correspond semantically to their English restrictive and appositive counterparts, Mandarin appositive relative clauses exhibit the same syntactic properties associated with English restrictive relative

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[3] The particle *de* has been claimed to always function as a C type constituent (Huang 1982, Xu 1996). Here I restrict discussion to the subset of clause type involving *de* that are taken to involve canonical CP constructions (i.e. relative clauses). See Appendix 1 for a full outline of constructions involving *de* that have been analysed as embedded CPs.

[4] All examples are my own, unless cited otherwise. Abbreviations used are: DE 'modifier', CL 'classifier', ASP 'aspectual particle', SFP 'sentence-final aspect particle', EXP 'experiential aspect', PROG 'progressive aspect', PART 'discourse particle', NEG 'negator', OBJ 'object marker'.

[5] It is also possible to place the relative following the demonstrative but before the numeral or classifier (see Lu 1998 for discussion); I do not discuss this structure. Nor do I look at relatives using *suo* 'direct object relativizer', or gapless relative clauses with resumptive pronouns.

clauses[6] (Del Gobbo 2003, 2010; Huang, Li and Li 2009 (henceforth HLL)). To take just one example, neither Mandarin appositive nor restrictive relative clauses can be modified by a sentential adverb, parallel to restrictive relative clauses in English (see Del Gobbo 2003 for full discussion). Examples of both types of clause are included in the empirical investigation, but as it has been independently established that their syntax is not distinguished by 'root phenomena', the division is not discussed further.

3.3.2 The derivation of relative clauses in Mandarin

'Raising' and 'matching' are the classic derivational strategies of relative clauses. Following Aoun and Li (2003), I assume both are necessary to capture the full range of phenomena exhibited by relative clauses cross-linguistically and within single languages. The following offers a rough overview.

Under a 'matching' analysis, a relative is a CP that is right-adjoined to the 'head', an NP; the NP is thus merged outside the relative clause itself. Within the relative, a relative pronoun or an empty operator A'-moves to spec-CP. The A'-moved element is then co-indexed with the relative head noun via predication (Bianchi 2003; Aoun and Li 2003).

(9) [DP the [NP cat]$_i$ [CP [OP/which]$_i$ [$_{he}$ fed t_i]]]

Crucially for the Chinese examples, as the external head is not merged within the relative clause but is only related to its 'gap' via predication, reconstruction effects are not predicted under a matching derivation. I assume this construction for English (although see Kayne 1994 i.a.).

Under a 'raising' analysis, it is the determiner that selects the relative clause CP. The NP itself (the 'head') A'-moves from a position internal to the relative clause, and adjoins[7] to the external DP.

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[6] Appositives that modify proper names or pronouns cause an additional complication: although differing from English, their syntax does exhibit some properties cross-linguistically associated with appositives (see del Gobbo 2010 for full discussion). I leave aside this issue here.

[7] Aoun and Li (2003: 191) argue that head-final relatives in Mandarin are derived via adjunction, rather than complementation a la Kayne (1994), partly based on the resemblance between these structures and prenominal adjectives in Mandarin. In addition, it is worth noting that Aoun and Li (2003) demonstrate using evidence from conjunction and reconstruction that an NP is raised to Head position in Mandarin relatives, rather than the DP.

(10) [DP the [NP cat]$_i$ [CP [which t_i]$_j$] [he fed t_j]]

This accounts for reconstruction effects, which are derived by the direct link between the head and the trace within the relative clause IP. In the raising example, a variable contained in the head is bound in the relative clause internal trace position. For example, in the following, the long-distance anaphor *ziji* 'self' is not in the scope of the universally quantified nominal but nevertheless may be coreferential with it.

(11) Wo zai zhao [na ben [[Zhangsan$_i$ xie   [t] de] [t miaoshu   ziji$_i$ de shu]]
     I   at   seek that CL Zhangsan write   DE   describe   self DE book
     'I'm looking for the book that describes self's$_i$ parents that Zhangsan$_i$ wrote.'
                                                          [Aoun and Li 2003: 203]

This shows that the long-distance anaphor is interpreted in the 'trace' position (in the position where the 'head' is generated) from where it can be c-commanded, and hence bound, by the quantifier. Both restrictive (Aoun and Li 2003) and appositive relative clauses (Del Gobbo 2003; 2010) in Mandarin exhibit reconstruction effects. Therefore I adopt a raising analysis.[8]

Following Cinque (2006) and del Gobbo (2010), IP is merged dominating DP$_1$ (the head). As proposed for English and Italian, IP then moves (for licensing reasons) to spec-C. The internal head DP$_2$ moves to spec-CP$_2$; this gives the island effects observed in Mandarin (Huang 1982). In addition, del Gobbo (2010) argues that, as the raised DP$_2$ c-commands DP$_1$, DP$_1$ may be deleted at PF (in the spirit of Nunes 2004).

(12) [CP$_2$ [DP$_2$]$_i$ [CP$_1$ [IP ... [DP$_2$ t]$_i$]] [C$_3$ [*de*] [XP [IPt] [~~DP$_1$~~]$_i$]
                                                          [Based on del Gobbo 2010: 391]

This leaves a head-initial word order; however, Mandarin is of course one of the very few cross-linguistic examples of an SVO language with head-final relative clauses. Del Gobbo (2010) suggests that CP$_1$ raises to CP$_2$. The motivation for this movement is left somewhat mysterious besides deriving the correct surface word order. I suggest that the illocutionary field Force^0, of Rizzi's (1997) split-CP, must be licensed by movement in Mandarin; this ties with the analysis of discourse particles introduced in

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[8] For present purposes the facts are simplified; there are some outstanding issues regarding, for example, modification of proper names (del Gobbo 2010) and non-gap relatives (Huang 1982; Aoun and Li 2003), which might involve matching derivations. The scope of the present work prevents extending discussion to these cases.

§5.3 (see also Li 2006), which are also derived via movement, and which are also head-final.

The final structure of Mandarin relatives adopted here is as follows:

(13) DP D [CP$_3$ [CP$_1$ [IP … [DP$_2$$t$]$_i$]] [C [*de*] [XP [IPt] [~~DP~~$_1$]$_i$]] [CP$_2$ [DP$_2$]$_i$ [CPt_1]]]
[Based on del Gobbo 2010: 391]

3.4 Adverbial (conditional) clauses

Adverbial clauses present a complex issue, as many exhibit root-like syntax (see §3.1). The subtle distinction between root- and embedded-type adverbials has received little discussion in the Mandarin adverbial literature (although see Ernst 2009), and the scope of the present work prevents a full account. For simplicity, I focus on a single type of adverbial, namely conditionals introduced by a Mandarin counterpart of 'if', *ruguo*[9].

3.4.1 Properties of conditional clauses in Mandarin

Two *if* constructions are typically distinguished for English (Quirk et al 1985, Declerck and Reed 2001). Here, the first construction is referred to as *central if*, and the latter as *peripheral if*.[10] Following Quirk et al (1985), in the central construction the truth-value of the embedded clause is dependent on the root clause, but in the peripheral construction the truth-value of each clause is independent. I propose that the Mandarin counterpart *ruguo* 'if' exhibits the same distinction:

(14) Ruguo ni   xiangyao mingtian qu, wo ba ni   dao huochezhan qu.
     If   you want   tomorrow go, I OBJ you to train station go
     'If you want to go tomorrow, I'll take you to the train station.'

(15) Ruguo ni xiang mingtian qu, you yi tang shi-dian   dao lundun qu de
     If   you want   tomorrow go, have one CL   ten-o'clock to London go DE
     huoche.
     train
     'If you want to go tomorrow, there's a train to London at half ten.'

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[9] In fact Mandarin employs a range of words corresponding to 'if' in English, such as *yaoshi, tanguo* and *rutang*; the form discussed here, *ruguo*, is perhaps the most widely used. Characterising their differing syntax would be an interesting topic of future research.

[10] In the literature 'central' *if* is also referred to as 'event-related', 'restrictive', and 'direct'; 'peripheral' *if* is also referred to as 'speech act', 'discourse', 'non-restrictive', 'attributive' or 'indirect' *if*. As they appear to be the most neutral labels, 'central' and 'peripheral' are adopted here.

Further, I argue that the two types are syntactically distinguishable. While central *if* is compatible with adverbials *jiu* 'then' and *cai* 'only then', these cannot be used with peripheral *if*:

(16) Ni   ruguo liang wo jiu/cai   gei ni   wo de   yishang.
     You if   cool I   then/only then give you I   DE   clothes
     'If you get cold then/ only then will I give you my clothes.'

(17) Wo ruguo liang wo (*jiu/*cai)   you wo de yishang.
     I   if   cool I   (*then/*only then) have I   DE   clothes
     'If I get cold I have my own clothes.'[11]

Central and peripheral *ruguo* 'if' therefore <u>will</u> be distinguished in later discussion.

3.4.2 The derivation of conditional clauses in Mandarin

According to a long-standing tradition, (central) conditional adverbial clauses are derived by movement of an operator from an IP internal position to the left periphery (Geis 1970; Larson 1990; Bhatt and Pancheva 2006). The account has been previously extended to Mandarin *ruguo*-conditionals in Cheng and Huang (1996) and Chierchia (2000); this Section presents these analyses, with some modifications based on more recent work on conditionals in other languages.

The operator account of conditionals closely resembles the operator-movement ('Matching') account of relative clauses introduced in §3.3.2. Indeed it has been suggested that conditionals are restrictive clauses ('event-relatives') in which the truth value of a proposition is restricted (Cheng and Huang 1996); specifically, the proposition represented by the conditional restricts the set of worlds compatible with the proposition represented by the head clause (Lipták 2009:32; Arsenijević 2009; Kayne 2008:fn.60). In short the conditional is taken to involve a relativized constituent that is an extended projection of the predicate, and as such, the relative must refer to the entire content of the TP (Haegeman 2007; Haegeman and Ürögdi 2010).

The insights of the cartographic framework on the articulated structure of CP and IP (Rizzi 1997 et seq.) can be incorporated here. The cartographic project postulates a series of functional projections within the CP and IP whose function is to localise

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[11] It is possible to interpret this sentence as 'If I get cold I will then have my own clothes' but, as in English, the rather unlikely interpretation must be that clothes magically appear only when necessary.

semantic or pragmatic interpretation to a particular syntactic position. The following is (a simplified version of) the universal structural hierarchy obtained for the CP (based on Rizzi 2004):

(18)   Force > Topic > Focus > (Mod) > Fin > IP

The articulated structure illustrates the range of elements associated with the CP, and how they might relate to one another. In previous work on the root/embedded distinction, the cartographic approach has made possible the precise identification of those functional projections supposedly truncated in embedded contexts (Haegeman 2003, 2009, 2011 etc.) (although this has proved a complex task, especially when approached from a comparative perspective; more on this later).

Returning to the structure and derivation of conditionals, convincing arguments have been made in cartographic research showing conditional-operators originate in SpecMood$_{irrealis}$ of IP (Cinque 1999; Haegeman 2011).

(19) MoodP$_{SpeechAct}$ > MoodP$_{evaluative}$ > MoodP$_{evidential}$ > ModP$_{epistemic}$ > MoodP$_{irrealis}$ > ModP$_{alethic}$ > AspP$_{habitual}$ > AspP$_{repetitive}$ > ModP$_{volitional}$ > etc.

It has also been proposed that the landing site of the event-operator is ForceP in CP (Haegeman 2011; Haegeman and Ürögdi 2010: 115); this will be important later.

(20) [$_{CP}$OP$_i$ C…[$_{FP}$ t_i [$_{TP}$…]]]

The syntax of peripheral adverbials is much less well understood. Haegeman and Danckaert (2011) argue that peripheral-*if* is merged directly to Force meaning that the structure does *not* trigger operator movement. Pending further research, this is the derivation adopted here.

3.5 Complement clauses
3.5.1 Properties of complement clauses in Mandarin

Complement clauses characteristically involve the selection of a clause (a CP) or proposition as a verb's core argument.

(21)   Everyone said that they would arrive late.
(22)   Dave promised that Nick would go.

As can be seen from the examples, complement clauses in English languages can be straightforwardly identified by the presence of a complementiser (although this may be phonetically null). The structure of complement and control clauses in Mandarin closely resemble those in English:

(23) Zhangsan shuo ta hai   mei wan.
     Zhangsan say   he still NEG finish
     'Zhangsan says he still hasn't finished.'

(24) Zhangsan renwei Lisi xie   wan   le.
     Zhangsan thinks   Lisi write finish ASP
     'Zhangsan thinks Lisi has finished writing.'

As these examples illustrate, Chinese does not exhibit an overt complementiser in these contexts.[12] For this reason I do not attempt to extend previous accounts of root/embedded distinctions in which the restriction of certain phenomena from embedded contexts follows from the presence (or otherwise) of a lexical complementiser (den Besten 1983 etc.).

3.5.2 The nominal characteristics of Mandarin complement clauses

Perhaps as a result of the lack of overt complementiser, little work has been completed on the structure of complement clauses in Mandarin. However, comparative work on Indo-European has long observed that complement clauses do not all exhibit the same syntactic sensitivities; specifically, it has been suggested that both complements of non-factives (Hooper and Thompson 1973) or of 'bridge' verbs exhibit 'root' syntax (Vikner 1995, Heycock 2006 and references therein). Extraction facts from Chinese suggest that analysis of complement clauses in Mandarin must make similar considerations.

Specifically, Mandarin exhibits an asymmetry, such that it is always possible to extract *wh*-arguments from complement clauses ('covertly') (Huang 1982, Aoun and Li

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[12] Simpson and Wu (2002) and Hsieh and Sybesma (2008) suggest that the Taiwanese Chinese verb *kong* 'say' is undergoing grammaticalization to an embedding complementiser. Both tentatively extend this claim to Mandarin Chinese *shuo* 'say'. This 'complementiser' is not discussed here because its use in Mandarin is so limited: it is optionally used with verbs of cognition in only a very few dialects, all of which seem to be influenced by Taiwanese. I therefore leave discussion for future research.

2003), but not reason and causal *wh*-adjuncts such as *weishenme* 'why' and *zenmeyang* 'how' (Lin 1992; Tsai 1994):[13]:

(25) Ni   zui   xihuan [mai shenme de ren]?
     You most like   buy what   DE person
     'What do you like [the person who bought *t*]?'

(26) Ni renwei [Lisi yinggai zenmeyang chuli   zhe jian shi]?
     you think   Lisi should how   handle this CL   matter
     'What is the means *x* such that you think [that Lisi should handle this matter by *x*]?'
                           (Tsai 1994: 137)

Of interest here is the status of manner and instrument adjunct *wh*-words (i.e. instrumental *how,* resultative *how* and purpose *why*), which at first blush pattern with *wh*-arguments in Mandarin and are extractable:

(27) Ni   renwei [zhe jian shi,   Lisi chuli   de zenmeyang]?
     You think   this CL   matter Lisi handle DE how
     'In what manner *x* did you think [Lisi handled this matter in *x*]?'

However, the wide-scope construal of manner and instrumental *wh*-adjuncts is possible with only a subset of matrix predicates; in the spirit of work on Germanic, the subset of predicates allowing wide-scope are labelled 'bridge' verbs.

Tsai (1994) suggests that the 'bridgehood' of matrix predicates derives from the 'nominality' of the complement clause. Tsai (1994) shows that those predicates allowing extraction of these *wh*-adjuncts – 'bridge' verbs – are those that cannot take nominal complements.[14] To illustrate, *yihan* 'regret', *jide* 'remember' and *tongyi* 'agree' do not permit wide-scope construal of embedded *wh*-words and A-NEG-A questions; by contrast *renwei* 'think', *cai* 'guess' and *shuo* 'say' are compatible with wide-scope construal:

(28) a. Ni   renwei [zhe jian   shi,   Lisi chuli   de zenmeyang]?
        You   think   this CL   matter Lisi handle DE how

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[13] These extraction facts have been discussed extensively in the literature, including Huang (1982), Tsai (1994, 1999) and Aoun and Li (2003); the distinction between *wh*-arguments and *wh*-adjuncts has also been observed in English (Collins 1991).

[14] Tsai (1994) actually bases this on more complex facts regarding the extraction of *wh*-adjuncts, such that – in current terms – CP-merged *wh*-adjuncts pattern instrumental *zenmeyang* 'how' with *wh*-arguments *shenmeshihou* 'when', while IP-merged modificational *wh*-adjuncts manner *zenmeyang* 'how' are restricted (following observations in Collins 1991, Lin 1992). For reasons of space I do not go into details.

'In what manner *x* did you think [Lisi handled this matter in *x*]?'

    b. *Ni   renwei [Lisi weishenme cizhi]?
       You   think   Lisi why   resign
       'What is the reason *x* you think [that Lisi resigned for *x*]?'

(29)   a. *Lisi hen yihan   [zhe jian shi,   ta buneng chuli   de zenmeyang]?
           Lisi very regret this CL matter he cannot handle DE how
           'What is the manner *x* such that Lisi regrets [that he could not handle this matter in *x*]?'

    b. *Lisi hen yihan [ta weishenme cizhi]?
       Lisi very regret he why   resign
       'What is the reason *x* such that Lisi regrets [that he resigned for *x*]?

Tsai (1994) draws a connection between this and the ability of these predicates to take a nominal complement. The former group, which are incompatible with *wh*-extraction, can take a nominal complement:

(30) a. Ta jide   [NP [Lisi jie   che] de shi].
         he remember   Lisi borrow car DE matter
         'He remembers [the matter [that Lisi borrowed a car]].'

    b. Ta tongyi [NP [Lisi jie   che] de shi].
      he agree   Lisi borrow car DE matter
      'He agrees to [the matter [that Lisi borrowed a car]].'

(31) a. Ta jide   [NP Lisi de tuilun].
       he remember   Lisi DE reasoning
       'He remembers Lisi's reasoning.'

    b. Ta tongyi [NP Lisi de tuilun].
      he agree   Lisi DE reasoning
      'He agrees with Lisi's reasoning.'

                                           (Tsai 1994: 141)

The latter group, which are incompatible with nominal complements, are compatible with *wh*-extraction:

(32) a.*Ta renwei [NP [Lisi jie   che] de shi].
       he think   Lisi borrow car DE matter
       'He thinks [the matter [that Lisi borrowed a car]].'

    b.*Ta shuo   [NP [Lisi jie   che] de shi].
       he say   Lisi borrow car DE matter
       'He says [the matter [that Lisi borrowed a car]].'

(33) a. *Ta renwei [NP Lisi de   tuilun].
       he think   Lisi DE   reasoning
       'He thinks Lisi's reasoning.'

    b. *Ta shuo [NP Lisi de   tuilun].
       he say   Lisi DE   reasoning
       'He says Lisi's reasoning'

(Tsai 1994: 141)

Tsai (1994) therefore characterises matrix predicates alternately as 'nominal' and 'non-nominal' selecting. This gives rise to the generalisation that matrix predicates that take 'nominal' clauses are always islands for non-nominal adjuncts.[15]

The 'complex nominal' complement proposal finds precedence in much previous work on the structure of embedded contexts. For example, Kiparsky and Kiparsky (1970) account for factivity in terms of complex nominals.[16] More recently, it has been claimed for some languages that subsets of complement clauses mirror the 'nominal' characteristics of relative clauses, for example, factives in Gungbe (Aboh 2005) and Bulgarian (Krapova 2010), and complement clauses in English (de Cuba and Ürögdi 2009, Haegeman and Ürögdi 2010). This observation, as well as analogous locality effects in relative and conditional clauses, can be captured formally through a movement derivation of complement clauses, paralleling that of relatives (Aboh 2005; Krapova 2010; Kayne 2008; Arsenijević 2009; Haegeman 2009, 2011; Haegeman and Ürögdi 2010). I will assume this derivation is relevant to the syntactic properties of Mandarin complement clauses.

3.5.3 The derivation of complement clauses in Mandarin

While a movement derivation is relatively uncontroversial for relatives (Bianchi 2002) and adverbials (Alexiadou 2003), and although it is not a novel characterisation of complement clauses (Aboh 2005; Haegeman and Ürögdi 2010), the precise details of movement accounts of complement clauses are much more controversial.

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[15] Relative clauses also do not permit wide-scope construal of embedded A-NEG-A or *wh*-questions.

[16] The possibility that factivity plays a significant role in the syntax of Mandarin has not been fully addressed in the literature: Tsai (1994) argues explicitly against this conclusion based on *wh*-extraction facts, some of which are presented above, as there is no clear parallel between the syntactic behaviour of those verbs defined as factive in Indo-European with their Mandarin counterparts. The diagnostics introduced here on the distribution of discourse markers §5, propositional assertion markers (§6) and topics (§8), will suggest that factive verbs in Mandarin do not share the syntactic restrictions associated with factive verbs in Indo-European, supporting Tsai's (1994) conclusion.

One such account builds on the argument that finite clauses require complementisers to be licensed as arguments or adjuncts. Kayne (2008) proposes that rather than being a sentential complementiser, *that* is cross-linguistically equivalent to a relative pronoun.[17] This entails that all declarative complement clauses are in fact hidden relatives.

Arsenijević (2009) (based on the idea of 'conflation' in Hale and Keyser (1993, 2002)) independently suggests that a complement-selecting verb such as *claim* is derived syntactically from a light verb that incorporates a light nominal element *claim*. *Claim* therefore roughly corresponds to *make a claim*.

(34) a.   '… claimed that John kissed Mary.'
      b.   claimed = 'made the claim that….'

Under this approach the light nominal element is marked by the specification of a Force feature, and it is this element that is selected by the verb (*not* the complement). The light nominal then selects the complement clause. This selectional relation is formally captured by the requirement that both the complement and the nominal share an illocutionary Force of the same feature and value.

This parallels relatives, where a coreference exists between the nominal head and an element of the relative clause: the head noun and the relativisation site must have to share the potential to refer. Here I will assume that the complement clause is in fact a relative, derived via Matching (see §3.3): this is because the clauses under discussion do not exhibit reconstruction effects (the key diagnostic for adoption of a Raising strategy). This requires further investigation, but provides a foundation for the following discussion.

Arsenijević (2009) goes on to argue that the clause embedded under *claim* has to be incorporated into the complement clause of the nominal, itself derived as a relative. I suggest that Tsai's nominal complement corresponds to the incorporation of the nominal; where a nominal does not incorporate, a clause exhibits island effects.

To summarise, if the Force-related feature of the (light verb plus) nominal Matches that of the complement, incorporation occurs and island effects with manner and instrument adjunct *wh*-words are not exhibited; this is what we see with *renwei*

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[17] Although not in Chinese: particles that separate prenominal relatives from the following 'head' in a language like Chinese are not relative pronouns (cf. Keenan 1985: 149; Kayne 2008: fn.61; del Gobbo 2010).

'believe' and *shuo* 'say' in the examples above. However, as the predicate must already select for a nominal, *renwei* 'believe' and *shuo* 'say' cannot take an additional nominal complement.

In contrast, *tongyi* 'agree' and *jide* 'remember' are not light verbs, and do not select a light nominal. These predicates are therefore able to take nominal complements. However, as they take full (non-incorporated) complements, the complement is not transparent for extraction of manner and instrument adjunct *wh*-words, perhaps because the complement is already fully specified for Force.

4. Diagnosing the root/embedded distinction

To reiterate the intuition behind Emonds (1970), whilst an operation that may occur in an embedded clause may always occur in a root clause, the reverse is not true. A root diagnostic can be defined as an operation that occurs only in root clauses.

Those identified for English include VP preposing, negative constituent preposing, topicalisation, left dislocation, directional adverb preposing, prepositional phrase substitution, preposing around "be" and participle preposing, subject auxiliary inversion, direct quote preposing, and complement preposing (Emonds 1970, 1976; Hooper and Thompson 1973).

Outside of English by far the most widely discussed phenomena are V2 in Germanic (Iatridou and Kroch 1992, Vikner 1995 etc.) and topicalisation in Romance (Ernst 2009, Haegeman 2006, 2011). Discourse particle distribution has also been the focus of much recent debate, with many works suggesting that particles are restricted to main clauses (e.g. Munaro and Poletto 2009, Haegeman and Hill 2010). Finally, there has been some discussion regarding the distribution of Japanese and Korean topic markers (Whitman 1989; Kuroda 1992).

As an explicit and systematic claim for systematic root/embedded sensitivity has not been previously made for Mandarin,[18] the first objective here is to establish relevant empirical evidence. However, given general properties of Mandarin syntax, many of the

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[18] Paul (2007, To appear) has made the claim that Chinese exhibits a systematic root/ non-root distinction but without a wide range of supporting evidence; her claims are restricted to the distribution and interpretation of discourse particles, the subordinator *de* and certain connective adverbs. Here I develop more fully some of these ideas, and extend discussion to a broader range of phenomena.

classic diagnostics are inappropriate. For example, in Chinese, verb movement is highly limited, and arguably does not occur, whereas topicalisation occurs very freely. Therefore the diagnostics summarised above cannot be directly translated to Mandarin.

Nevertheless certain generalisations can be drawn from previous studies. First, these diagnostics can be characterised as operations that front to CP. Second, root diagnostics may vary cross-linguistically, but what is crucial is that a syntactic distinction is made systematically *within* a language. Third, the operations available in the embedded clause represent a subset of those possible in non-embedded contexts.

Establishing a root/embedded distinction for Mandarin therefore requires diagnostics relevant to those properties that are sometimes non-characteristic of Indo-European languages. Diagnostics of interest will therefore include the distribution and interpretation of discourse particles (§5), aspect particles (§6), and propositional assertion markers (§7), and topicalisation (§8). The interaction of each is examined separately for complement, relative, and conditional clauses.

5. Discourse particles

Discourse particles express illocutionary force in Chinese. They include the interrogative *ma* 'yes/no question marker, *a* 'impatience/ exclamation', *ne* 'contrast, unexpectedness' and *ba* 'suggestion'. All excluding *ma* 'question marker' may also follow an NP, so their scope may be smaller than a full clause. All appear sentence (string) finally.

It has long been claimed for individual discourse particles that a systematic asymmetry exists such that the distribution and interpretation of discourse particles is restricted to root clauses (see e.g. Li and Thompson 1981: 556-7 and Tang 1988: 363 on *ma*, Cheng 1991 and Li 1992: 153 on *ne*, and Li 2006 on *ma*, *ne*, and *ba*). More recently it has been argued that this asymmetry holds uniformly for all sentence-final discourse particles in Mandarin (Paul To appear: 28); here, I clarify and extend this claim.

5.1 Discourse particles and root clauses

As the observation that discourse particles distinguish root from embedded is relatively well-established, for the sake of illustration I will begin by reviewing the

status of root and 'root-like' clauses as discussed in §1.1. First, the scope of particles holds of an entire clause, whether neutral or discourse marked (i.e. including a topic or focus element[19]):

(35) Zhe zhong shi   ni   cai neng ziji   zuo-zhu   ma?
      this type thing you then can self decide   PART
      'Are these matters the ones you can decide yourself?'
      'These matters, can you make a decision on them yourself?'

These examples can be interpreted in two ways, with the possibility of questioning either the topic 'these matters' or the pronoun 'you'. The distinction is clear in speech, such that if the subject does not receive emphatic stress the topic is within the scope of the discourse particle; a stressed subject 'cuts off' the domain over which the particle can scope. I leave this issue aside here; what is important is that discourse particles are able to scope over the complete clausal domain.

The scope of discourse markers over paratactic structures has sometimes been disputed. For example, it has been suggested that *ma* can hold scope over both a root and a paratactic clause (Shi 1989: 234) (see §3.1 on temporal sequencing as a non-embedded context):

(36) Wangwu haorongyi qing le   yi   ge guanjia zuotian   cizhi le   ma?
     Wangwu difficult   ask ASP one CL cleaner yesterday quit ASP PART
     '(Is it true) Wangwu hired a housekeeper with great effort, and she quit yesterday?'

The translation implies that both the hiring and the quitting of the housekeeper are being questioned; in fact, the speaker is committed to the truth-value of Wangwu's action, and the scope of the discourse particle is restricted to the second clause (Eifring 1995:14; my informants agreed with this). This can be clearly brought out by a negating response such as *mei you* 'has not'. This negation can only imply 'No, the housekeeper did not quit', and not 'Wangwu did not hire a housekeeper with great difficulty'. An alternative translation is therefore: 'After so much effort Wangwu was finally able to hire a housekeeper, and she quit yesterday?' (Eifring 1995:14).

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[19] Cross-linguistically this is not always the case: Indian Sign Language discourse particles (including question particles) scope over the entire clause *excluding* the topic (Aboh and Pfau 2011). I leave this interesting contrast aside.

In short, while discourse particles potentially mark different elements within a single clause (such as a topic-comment structure), a particle can only hold scope within the CP in which it occurs. Discourse particles are therefore a useful CP diagnostic.

5.2 The distribution of discourse particles in embedded clauses

Of interest to the present discussion is the observation that discourse particles cannot be interpreted with reference to embedded clauses, but must hold scope over the matrix clause (Li and Thompson 1981, Li 2006).

(37) Ta bu zhidao Zhangsan zai zuo   fan   ma?
     She NEG know   Zhangsan at make food PART
     'Doesn't she know that Zhangsan is cooking?'
     *'She doesn't know if Zhangsan is cooking or not?'

(38) Hongjian   renwei   Xiaofu hui zuo   yu   ba.
     Hongjian   think   Xiaofu can cook fish PART
     '(Probably) Hongjian thinks that Xiaofu can cook fish.'
     *'Hongjian thinks that (probably) Xiaofu can cook fish.'   (Li 2006: 48)

Discourse particles must always occur string-finally:

(39) *Zhangsan xiangyao ma   qu chaoshi?
     Zhangsan want   PART go supermarket

On a side note, the claim made previously in the literature refers exclusively to complement clauses, but the same observation holds for control clauses:

(40) Hongjian   dasuan   Zhangsan xi   wan ne?
     Hongjian   plan   Zhangsan wash   bowl PART
     'Is Hongjian planning that Zhangsan will do the washing up?'
     *'Hongjian plans that Zhangsan will wash up or won't?'

Li (2006) and Paul (To appear) show that discourse particles do not scope over relative clauses.

(41) Zuotian   chi yurou de ren   dou bing le   a?
     yesterday eat fish DE people all ill ASP PART
     'So all the people who ate fish yesterday are ill then?'
     *'So all the ill people, did they eat fish yesterday?'

And again, nor can they occur 'within' the embedded structure:

(42) Zuotian   chi yurou (*a) de (*a) ren   dou bing le?
     yesterday eat fish   (*a) DE (*a) people all   ill   ASP

Predicates of central *if* clauses are also interpreted as outside the scope of discourse particles.

(43) Ruguo ni xiang chi qiaokeli, wo qing ni   chi ba.
     If   you want eat chocolate I   invite you eat   PART
     'If you want some chocolate, how about I give you some.'
     *'How about if you want some chocolate, I'll give you some.'

However the neat asymmetry exhibited by discourse particles in their sensitivity to root and embedded structures is broken, perhaps predictably, by peripheral adverb *if*. It appears that in these structures discourse particles are interpreted as related to the peripheral adverb clause itself.

(44) Ruguo ni xiang chi qiaokeli, wo zheli you de shi ne.
     If   you want eat chocolate I   here   have DE be PART
     *?'If you want some chocolate, it's here that I've got lots of it.'
     'If (it's) chocolate you want, I've got lots of it.'

Further, both types of adverb clause are compatible with discourse particles occurring at the end of the embedded clause.[20]

(45) Ruguo ni   xiang   chi   qiaokeli   ne/ba/a, wo   qing   ni   chi.
     If   you   want   eat   chocolate PART   I   invite you   eat
     'If it's chocolate you want, I'll give you some.'

(46) Ruguo ni   xiang chi qiaokeli   ne/ba/a, wo zheli you de   shi.
     If   you want eat chocolate PART   I   here have DE   be
     'If it's chocolate you want, I've got lots of it.'

There is a semantic distinction between the use of the discourse particles in the two central *if* examples: where the discourse particle is sentence final, the truth value of the adverb clause seems to be dependent on the matrix clause; however, where it appears *if*-clause-finally, its truth value seems to be independently asserted. I suggest that in the latter example, the adverb clause is interpreted as a 'peripheral' type clause, which is possible given the ambiguity afforded by the two functions of the adverb *if*.
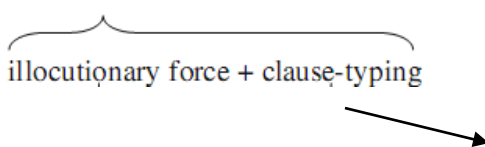
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[20] Possibly with the exception of the *ma* 'question' particle; I leave this observation to future research.

The observation has interesting implications regarding analysis of adverb clauses. First, it demonstrates clearly that the two types of adverb clauses must have different structures, such that peripheral *if* patterns with root and central *if* with embedded. Second, it suggests that if the conditional adverb is not *prima facie* incompatible with discourse particles, incompatibility must therefore be a result of the derivation of the relevant adverb clauses.

5.3 A syntactic account

In Mandarin, particles function as clause-typers (Cheng 1997, Li 2006); I assume they are inherently specified for Type and are merged directly in CP.

It has been shown that discourse particles exhibit a specific ordering related to their function. These correspond with the hierarchy proposed in the cartographic framework (Rizzi 1997; Cinque 1999). I assume the following structure of discourse particles in the Mandarin left periphery (based on Li 2006:65):[21]

(47) a.

$$\text{Force} > (\text{Top*}) > (\text{Foc}) > (\text{Top*}) > \text{Fin} > \text{IP}$$

illocutionary force + clause-typing

b. Discourse > Degree > Evaluative > **Force** > **Mood** > Fin > IP
    a   *ba, ma*   *ne*   *de*   *ø*

An extensive body of work has shown in the spirit of Antisymmetry (Kayne 1994) that Chinese is uniformly underlyingly head-initial (Sybesma 1999; Simpson and Wu 2002; Lin 2006; Hsieh and Sybesma 2007). In addition, analyses on a range of languages (including Chinese) have argued that the clause-final position of discourse particles derives from the raising of structure from a lower position to the specifier of the particles projection in CP (Munaro and Poletto 2004; Lin 2006; Aboh and Pfau 2011; Poletto and Zanuttini 2011). Their derivation is generally regarded as obligatory remnant IP movement to the specifier of the particle in CP. In the movement analyses of

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[21] I make one alteration placing Evaluative above Force: it gives me a neater account, and Li does not actually discuss the ordering, but bases it on Cinque's (1999) ordering of similar projections in IP (she leaves precise ordering for future research: fn.33); further, it is clear from work on Speech Act- or Participant-related projections (which are all above ForceP) readily admit a higher EvaluativeP (Speas and Tenny 2003; Giorgi 2010).

embedded clauses presented in §3, derivation of a relative clause followed a raising analysis:

(48) [CP [IP I give one book]*t* [ForceP *de* [XP *t* IP [DP that person]]]]
'The person [to whom] I gave a book'

(Based on del Gobbo 2010)

I propose that the incompatibility of discourse particles with relative clauses follows from the anti-locality condition on movement (Abels 2003; Aboh 2004; Haegeman 2010c), where anti-locality precludes movement of a complement to a specifier within the same complement.

In the case of the structure given above, in a raising relative structure, IP must move to spec-ForceP:

(49) [.... [ForceP$_i$ IP [ForceP0 *de*] ... [IP$_j$]]]

In order for the discourse particle to occur clause finally, the IP together with the Force head *de* must raise to the relevant functional projection:

(50) Discourse > Degree > Evaluative > **Force** > **Mood** > Fin > IP
    a   *ba, ma*   *ne*   *de*   ø

If, following Rizzi (1997), functional projections in the CP are syncretic unless an element projects within it, selection of the complement containing [IP+*de*] to that functional projection's specifier violates Anti-Locality. In this way the incompatibility of discourse particles is derived from a general principle on movement.

Arsenijević (2009) argues that Force is also relativized in the movement derivation of complement clauses. This is based on the observation that complements may constitute proper propositions, but they do not compositionally contribute their truth-value to the structure they appear in (Hinzen 2007). The Force barrier between the matrix and embedded clause is argued to account for their semantic isolation.

Arsenijević (2009) proposes that all finite complement clauses have a variable (abstract) force; this variable value is assigned to the subject of the complement's ForceP (i.e. spec-ForceP). Possible values for this variable would include [declarative], [interrogative] and [imperative]; the nominal head of the complement also involves a force feature, which is assigned the same range of values. It is the availability of the

nominal head that determines whether the complement clause is classed as a bridge verb, but as detailed in §3.5.3, all complement clauses are specified for a Force value: complement clauses combine only with predicates that also involve a force component, and, moreover, a force component with a specified value. Therefore complement clauses (as well as conditionals) correspond to a relative such that a syntactic element with a variable feature occurs in spec-ForceP.

Conditionals and complements are therefore both derived via movement to spec-ForceP of (e.g.) an event-operator originating in IP, in a Matching derivation. The assignation of variable value of ForceP to the IP event-operator acts to Type the clause. I propose that this Typing prevents additional Typing by the Clause-Typing discourse particles. Then, if peripheral adverbial clauses are not derived via movement of an IP-operator, movement of IP should not be problematic.

6. The INFL approach to root/embedded

One line of research into the root/embedded distinction relates restrictions on non-root syntax to complement types whose verbs are uninflected. These include infinitives, gerunds and subjunctives (Hooper and Thompson 1973:484–485).

6.1 The distribution of sentence-final particle *le*

Mandarin exhibits aspect rather than tense.[22] While tense temporally references a situation described in a sentence with regard to the utterance itself, aspect can express various perspectives on the situation described. The sentence-final aspect particle (SFP) *le* can broadly be understood as a perfective marker. It is well established that the distribution of SFP *le* differs to that of the discourse particles discussed in §4 (Li and Thompson 1981; Xu 1997). Here I review some of those observations and extend discussion across the full spectrum of embedded structures.

In contrast to discourse particles, when SFP *le* occurs in a complement selecting predicate, its scope is restricted to the embedded predicate:

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[22] The relationship of either AspP to TP or AspP to CP is not well understood. The proposals set out here assume a relationship between FinP and AspP similar to that between FinP and TP.

(51) Ta bu zhidao Zhangsan zuo   fan   le.
     She NEG know   Zhangsan make food ASP
     *'She didn't know that Zhangsan is cooking.'
     'She doesn't know that Zhangsan has cooked.'
     'She didn't know that Zhangsan had cooked'

SFP *le* must scope over the embedded predicate; however, it is ambiguous as to whether it also holds over the matrix predicate; the use of more than one *le*, which might disambiguate it, is not permitted (Lin 2011:56, fn.7) (I assume this is a phonological restriction):

(52) *Zhangsan zhidao   [Lisi taozou le] le]
     Zhangsan know   Lisi escape ASP ASP
     Intended: 'Zhangsan knew that Lisi escaped.'

SFP *le* is also incompatible with both types of adverb clause, which were shown in §4 to pattern – in some instances – with root clauses:

(53) *Ruguo   ni xie   wan   zhe pian wenzhang le,   gei   wo   da dianhua.
     If   you write finish this CL   essay   ASP give I   hit phone
     Intended: 'If you have finished writing this essay, give me a call.'

(54) *Ruguo ni xiang   chi   qiaokeli le, wo zheli you de shi.
     If   you want   eat   chocolate ASP I   here have DE be
     Intended: 'If you had wanted to eat chocolate, I've got lots of it.'

Finally SFP *le* is also incompatible within relative clauses (Xu 1997: 103; Simpson and Wu 2002:194); temporal reference is instead established from context:

(55) a. Zuotian   chi yurou de ren   dou bing le.
       Yesterday eat fish   DE people all   ill   ASP
       'The people who ate fish yesterday are ill.'

     b. *Zuotian   chi yurou le de ren   dou bing le.
       Yesterday eat fish   ASP DE people all   ill   ASP
       'The people who ate fish yesterday are ill.'

(56) a. Xia   yu   le.
       down rain ASP
       'It rained.'

b. *Xia   yu   le   de   xiaoxi.[23]
   Down rain ASP   DE   news
   'The news that it rained.'

6.2 Mandarin SFP *le* and tense

A possible explanation for this restriction, in the spirit of Hooper and Thompson (1973), would be that embedded clauses are defective, whereby defectivity is defined in terms of Tense, or uninflected verbs (i.e. infinitives, subjunctives and gerunds). The lack of root phenomena in conditionals and relative contexts could thus derive from a deficiency on T.

As already noted, from a theoretical standpoint this line of thinking is somewhat circular if properties of T are inherited from C (Chomsky 2001, 2008). Empirical evidence also contradicts this account: both relative and adverb clauses are compatible with all aspect markers, as illustrated by *guo* 'experience/ past' marker.

(57) Qu guo Sichuan de ren   dou xihuan chi xiangliao cai.
     Go EXP Sichuan DE people all like   eat spice   food
     'People who have been to Sichuan all like eating spicy food.'

(58) Ruguo ni   qu guo Sichuan, ni jiu yiding   tiyan   chi xiangliao cai.
     If   you go EXP Sichuan you then certainly experience eat spicy   food
     'If you've been to Sichuan, then you will definitely have tried spicy food.'

Complement clauses are also compatible with tense markers.

(59) Zhangsan zhidao Lisi zai zuo   zuoye.
     Zhangsan know   Lisi PROG do   homework
     'Zhangsan knows that Lisi is doing his homework.'

(60) Zhangsan zhidao Lisi qu   guo Lundun.
     Zhangsan know   Lisi go   EXP London
     'Zhangsan knows that Lisi has been to London.'

This suggests that the restriction on *le* in conditional and relative contexts is independent of any restriction on tense; instead it suggests that the incompatibility

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[23] My informants accept this sentence with an emphatic (non-past) interpretation 'It's raining'; I assume this corresponds to a different non-perfective function of *le*; this idea is discussed later in this Section. This emphatic reading is also preferred for the non-relative clause counterpart in (X).

relates to specific properties of *le*. An apparent counterexample aids identification of this feature.

6.3 A potential counterexample

A potential counterexample is the occasional occurrence of SFP *le* in relative structures.

(61) Hong le de pingguo   cai   haochi.
     Red ASP DE apple   then delicious
     'Only apples which have reddened are delicious'

(62) Zuowan le de keyi xian   zou.
     Finish   ASP DE can first   leave
     'Those who have finished can leave first'
                                                    (Jingqi Fu, cited by Paul and Whitman 2008:fn.16)

This is an important observation, as it means that the *le* + *de* restriction is not phonologically imposed (as proposed by Simpson and Wu 2002:194 fn.15); it also means that the restriction is not the presence or not of a complementiser (as suggested by Paul To appear: 32).[24] However, this leaves the distribution of SFP *le* unexplained.

A possible explanation is that the particle *le* actually enjoys a range of functions, and that the different functions exhibit different syntactic properties. I will assume three types are distinguishable:

(a) 'Accomplished action' <u>verb-suffix *le*</u> indicates that something has been done at a point in the past, or something must be completed before something else is done; the more specific the object, the more necessary its use (Tung and Pollard 1981).

(63) You   ren   jieshao   ta jin   le zhei jia gongsi.
     Have people introduce her enter ASP this CL company
     'Someone introduced her to join this company.'

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[24] Paul (To appear) justifies this claim using examples such as the following, where *de hua* 'in the case that...' is a non-root only CP complementiser. She claims that *le* is incompatible with the following example, but my informants readily accept it.
     i. Ruguo mei you wenti   le de hua,   hui jiu kai dao zher.
        If   NEG have questions le DE HUA, will then open to here.
        If there are no more questions, we'll end the meeting here.
It is possible that the *le* in this example corresponds to a non-SFP function of *le*; see discussion in this Section for development of this idea.

(b) 'Accomplished fact' <u>SFP *le*</u> indicates (objectively) that an event took place before a certain point, including the present conversation. It can be used with non-specific or indefinite objects.

(64) Wo zaochen kan   bao   le.
     I   morning read   paper ASP
     'I read a paper this morning'

(c) '<u>Change-of-state *le*</u>' is associated with progression or development, and is often used with stative verbs (adjectives). It has the sense of 'now that…' or 'no longer, anymore' in English, and is in complementary clause-final distribution SFP *le*.

(65) Wo   de haizi   xianzai   da le.
     I   DE child   now   big ASP
     'My children are now grown up.'

(66) Wo mei you shi   le.
     I   NEG have thing ASP
     'I don't have anything more to do.'

In short, progressive *le* indicates progressive up to the present, verb-suffix *le* focuses on completion of the act itself, and SFP *le* establishes the fact that something has taken place. Where a verb occurs string finally the three particles are of course ambiguous, but their function can be understood from context. The following example is intended to illustrate this:

(67) Wo he   le(a) wu bei   le(b) bu   neng zai   he   le(c).
     I   drink ASP five glasses ASP   NEG can   again drink ASP
     'I've drunk five glasses, I can't drink anymore.'[25]

The different *le* particles must also be distinguished formally. Verb-suffix *le*, which is not claimed to exhibit a root/embedded sensitivity has long been distinguished from the clause final occurrences of *le* (Sybesma 1999). It is widely regarded as occupying AspP, situated above vP (Li 1990, Simpson and Wu 2002).

However, in the literature, the 'change-of-state' *le* identified above appears to always be conflated with 'completed event' *le* (Sybesma 1999: 75). Here I adopt the

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[25] This must be a paratactic type construction (see §1.1 for a summary) or else SFP *le* would be sentence final.

traditional analysis for SFP *le,* such that it occupies DeikP,[26] an Epistemic-related functional projection of CP (Xu 1997:101, Li 2006: 118).

The scope of the present work prevents full development of a formal account of change-of-state *le.* In particular it is not clear whether change-of-state *le* is merged in the CP domain or not. According to the semantics it could be lower, as it closely resembles Duffield's (2007) analysis of Vietnamese *có* 'assertion emphasis marker', which occurs in AsrP (AssertionP) in the T-domain; in particular, both *có* and change-of-state *le* are associated with 'subjective assertion' (Sybesma 1999:66; Li and Thompson 1981). Interestingly, the T-element analysis would then parallel Laka's (1990/1994) analysis of English auxiliaries, which, when focused, involve the affirmation/negation Pol(arity) functional projection above T. However, Pol, according to Laka (1990), can, subject to parametric variation, occur either in the TP or CP domain. I leave full development of these ideas to future research.

Returning to the question of the distribution of *le* in relative clauses as illustrated in (57), I have suggested that, in contrast to previous accounts which conflate the functions of clause final *le*, Mandarin distinguishes two homophonous sentence-final *le* aspect particles: an 'objective' completed-event SFP *le*, and a 'subjective' change-of-state *le*. Evidence for this analysis comes from the semantics of the examples above: as can be seen from the translations in (57-8), the *le* particle corresponds to the semantics of 'progression' rather than 'completed event'. A syntactic test for this is that the negatives *bu* and *mei* do not occur with accomplished fact SFP *le*, but occur readily with change-of-state *le.*

(68) Bu   xia   yu   le   de   xiaoxi.
     NEG   down   rain   ASP   DE   news
     'The news that it is not raining anymore'
     *'The news that it didn't rain'

This example indicates clearly that relative structures are incompatible with SFP *le* but not change-of-state *le*. As both relative and adverb clauses are otherwise compatible with tense, and indeed it is not clear that SFP does involve tense, it does not

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[26] Li's work on *le* is based on Cantonese and extended to Mandarin; nothing rests on the precise label of the functional projection here. For example, Paul (To appear) suggests that *le* occupies a LowC; this is shared with *laizhe* '' and *ne*1 'stative predicate *ne*', with which it is in complementary distribution. The relevant point is the widely accepted status of SFP *le* as an element of CP.

appear that it is the function of SFP *le* that precludes use in these contexts, but that the restriction instead results from how these types of clause are derived.

6.4 Deriving the distribution of SFP *le*

As with discourse particles, surface final position of SFP *le* derives from an underlying head-initial structure, via IP movement to spec-DeikP (Lin 2006).

A possible explanation for the incompatibility of SFP *le* with relative clauses would follow the same argumentation proposed in §4, whereby movement of IP to spec-DeikP to derive a surface-final SFP *le*, followed by movement of DeikP to spec-ForceP to derive the relative clause, would violate Anti-Locality.[27]

As before, both complement clauses and conditional clauses are derived via operator-movement to spec-ForceP. I suggest that the compatibility of complement clauses versus the incompatibility of conditional clauses is a product of the features associated with the conditional event-operator.

If, following Haegeman and Danckaert (2011), the Irrealis operator that derives conditionals belongs to the class of high modal markers in Cinque (1999) it will share crucial features with these modal markers (see also Agouraki 1999 for modals as interveners for operator movement). It thus directly follows from this hypodissertation that conditional antecedents are incompatible with modal expressions located higher than MoodP$_{irrealis}$, with which they share a crucial feature ('Fα').

(69) *MoodP$_{speech\ act}\alpha$>MoodP$_{evaluative}\alpha$>MoodP$_{evidential}\alpha$>MoodP$_{epistemic}\alpha$>TP > ModP$_{irrealis}\alpha$
(based on Haegeman and Ürögdi 2010:5)

Epistemic modality is the precise characterisation of DeikP, the functional projection associated with SFP *le* (Li 2006). Although the event-operator posited for complement clauses also originates in IP, there is no suggestion that it is associated with any specification of Mood. I suggest this is the reason no incompatibility between SFP *le* and complement clauses arises.

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[27] As before I assume, following Rizzi (1997), that C^0 is syncretic such that potentially intervening heads such as Topic or Focus only project between DeikP and ForceP when a relevant element is present:
     i. C^0-Force-Topic-Focus-Topic-DeikP-T^0

7. Propositional assertion

Although the embedded /root distinction was initially proposed as a syntactic constraint (Emonds 1970), there has been a long tradition of characterising the distinction semantically or functionally, such that rootness is equated with clauses that are asserted (Hooper and Thompson 1973: 472).

A significant issue with this account has been the rather vague definition of 'propositional assertion'; Hooper and Thompson originally proposed that it is the "core meaning or main proposition... which can be negated or questioned" (1973). Although their work has been extremely influential, this fundamental issue has not been resolved (Heycock 2006, Haegeman 2011). This Section discusses some of the proposed root/ embedded 'propositional assertion' diagnostics, and examines whether they can be extended to Mandarin.

7.1 Factivity and the distribution of discourse particles

§4 illustrated that Chinese syntax is systematically sensitive to a root/ embedded distinction. This appears to parallel similar observations for Germanic and Romance discourse particles (Haegeman and Hill 2010; Munaro and Poletto 2009). However, the behaviour of the Indo-European particles is actually a little more complex: these occur only in root clauses and in embedded clauses with independent illocutionary force (complements of non-factive predicates and 'peripheral' adverbials), and are excluded from the complements of factive predicates and 'central' adverbials (Haegeman and Hill 2010; Poletto and Zanuttini 2011).

(70) Al   m a   dit   c   al n   ee   *pa* nia bel.
     SCL   me has said that SCL NEG was PA   NEG nice
     'He told that it wasn't nice.'
                        (San Leonardo, Italian; Poletto and Zanuttini 2011: 205)

'Factivity' relates to presupposition. A presupposed proposition is logically not asserted (Heim and Kratzer 1998). Factive verbs form a semantic class which presuppose the truth of their complement; examples include *houhui* "regret", *aonao* "be annoyed" or *zhunbei* 'expect'. Non-factive verbs are those such as *renwei* "think", *huaiyi* "suspect", and *cai* "guess", which express the speaker's belief or assumption of the truth

of a proposition, as well as those verbs, such as *jiazhuang* "pretend" and (*hai*…) *yiwei* "mistakenly thought", which presuppose the falsity of their complement clause (Yuan 2008).

Haegeman and Hill (2010) suggest that the distribution of discourse particles in Romance and Germanic follows from the illocutionary function of the particles. 'Illocution' and 'assertion' are equated in this work, and thus the illocutive feature of the particle is restricted by the assertive force of the matrix predicate through feature incompatibility. However, the same nuance does not appear to hold for Chinese. In §4, Mandarin discourse particles were insensitive to the semantics of the matrix verb, cleanly distinguishing root and embedded as understood in traditional grammar terms.

The reason for this could lie in the different functions of the particles. In Mandarin, discourse particles are associated with clause-typing (Cheng 1997; Paul To appear); in West Flemish, Romanian and Rhaetoromance, particles appear to be associated with the coordinates of the speaker, in the sense of Giorgi (2010) (Haegeman and Hill 2010; Poletto and Zanuttini 2011). The insensitivity of Mandarin discourse particles to factivity or 'propositional assertion' may therefore follow simply from the fact that they are not associated with an asserted or speaker-hearer function, and thus exhibit no distributive sensitivity to a 'speaker' force as determined by the matrix predicate. Rather, as discussed in §4, in the spirit of Arsenijević (2009), Mandarin discourse particles are sensitive to the uniform presence of the Force variable in embedded contexts; the values proposed for this variable, [assert], [question] and [imperative], correspond precisely to the functions defined for Mandarin discourse particles.[28]

7.2 Speaker Oriented Adverbs

Speaker Oriented Adverbs (SpOA) have long been employed as a root diagnostic (Green 1976). Nilsen (2004) suggests that speaker-oriented adverbials are positive polarity items (PPI) which are incompatible with non-asserted (i.e. embedded) contexts (Hooper and Thompson 1973, Haegeman 2006 etc).

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[28] It is possible this analysis could be extended to Venetian discourse particles, which appear to pattern both in function and distribution with the Mandarin particles (Munaro and Poletto 2004; Poletto and Zanuttini 2011).

SpOAs take a proposition, fact, or speech-act as their single (semantic) argument (Ernst 2002, 2009). Of interest to the present discussion is that SpOAs appear to exhibit hierarchical ordering (in the sense of Cinque 1999) according to their relations to one another and to negation markers. SpOAs can be roughly split as: Discourse-Oriented *frankly, honestly, briefly*; Evaluative *unfortunately, amazingly, conveniently, appropriately*; and Epistemic *probably, definitely, possibly, obviously* (Ernst 2009). They are ordered as follows (Cinque 1999; Ernst 2009):

(71) Discourse-Oriented > Evaluative > Epistemic

It has often been claimed that SpOAs can be equated with speaker deixis. For example, in English, appositives are compatible with SpOAs:

(72) a. Those boys, who have frankly lost their case, should give up.
     b. *Those boys who have frankly lost their case should give up.
                                                              [Emonds 1979]

In addition, non-factives are compatible with SpOAs, but factives are traditionally argued to be incompatible with SpOAs:

(73) a. John knows that unfortunately/probably Jane did not leave.
     b. *John regrets that unfortunately/probably Jane did not leave.

Mandarin also exhibits asymmetries with SpOAs; it is uncontroversial that the true discourse adverbs such as *tanbaide* (*shuo*) 'frankly, honestly' or *jianduande* (*shuo*) 'briefly' are restricted to root contexts (they are obligatorily root-clause initial) (Li and Thompson 1981). However, Evaluative and Epistemic adverbs exhibit a more fine-grained distribution, dependent both on adverbial type and type of embedded clause.

In Mandarin SpOAs are incompatible with both central and peripheral *if*-clauses (Peng 2003, Ernst 2009):[29]

(74) *Zhangsan ruguo dagai   hui   jia   le, jiu zaogao le.
       Zhangsan if   probably return home ASP, then mess   ASP
       'If Zhangsan probably went home, that's a real problem.'
                                                              [Ernst 2009: 507]

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[29] As noted by both Nilsen (2004: 811 n.5) and Haegeman (2006:1652), judgments regarding the two types of conditional are "slippery", precisely because the same conjunction *if* (here *ruguo*) introduces two distinct types of clause, and one use can easily be exchanged for the other; see also §3.4.

(75) *Zhangsan ruguo jintian xiawu   dagai   bu zai jia,   wo jiu   bu deng.
Zhangsan if   today   afternoon probably NEG at home, I   then NEG wait
'If Zhangsan probably went home, I won't wait.'

Relatives are also incompatible with SpOAs (adapted from del Gobbo 2005):

(76) *Nei xie dagai kaoshi shibai de nanhair zhuan   dao lingwai yi suo daxue qu le.
DEM fewlikely test   fail   DE boy   change to other a CL school go ASP
'Those boys, who probably failed the exams, transferred to another school.'

(77) *Dagai kaoshi shibai de nei xie nanhair zhuan dao lingwai yi suo daxue qu le.
Likely test   fail   DE DEM few boy   change to other a CL school go ASP
'Those boys, who failed the exam by the way, transferred to another school.'

However all (factive and non-factive) complement clauses are compatible with these adverbs.

(78) Wo renwei ta dagai/yiding   tou le nei   ge   qianbao.
I   think   he probably/definitely steal ASP that CL   wallet
'I think he has probably/ definitely stolen that wallet.'

(79) Ta hai yiwei   Zhangsan dagai/yiding   diu le   shoubiao.
he still thought Zhangsan probably/definitely lose ASP   watch
'He wrongly thought Zhangsan probably/definitely lost his watch.'

(80) Wo baoyuan   ta   dagai/yiding   tou le nei ge qianbao.
I   complain   he   probably/definitely steal ASP that CL wallet
'I complained that he had probably/ definitely stolen that wallet.'

(81) Wo bu renshi   nei wei dagai/yiding   shuo Yuenanyu de ren.
I   NEG recognise that CL probably/definitely speak Vietnamese DE   person
'I didn't recognise that person who probably/definitely spoke Vietnamese'

Crucially, these adverbs – *dagai* 'probably' and *yiding* 'definitely' – are Epistemic, which appear lowest on (69); when Epistemic adverbs are replaced by evaluative adverbs, complement clauses are ungrammatical.

(82) *Wo renwei ling-ren-chijing-de-shi/buxing ta shuo Yuenanyu.
I   think   amazingly/ unfortunately   he speak Vietnamese
'I think that amazingly/ unfortunately he speaks Vietnamese.'

(83) *Ta hai yiwei   ling-ren-chijing-de-shi/buxing   ta   shuo   Yuenanyu.
He still believes amazingly/ unfortunately   he   speak Vietnamese
'He wrongly thought that amazingly/ unfortunately he speaks Vietnamese.'

(84) *Wo baoyuan   ling-ren-chijing-de-shi/buxing ta   shuo Yuenanyu.
I   complain amazingly/ unfortunately   he   speak Vietnamese
'I complained that amazingly/ unfortunately he speaks Vietnamese.'

This finding clearly tallies with the observation in the previous Section that complement clauses are compatible with SFP *le*, which occupies the Epistemic DeikP. The generalisation appears to be that while complement clauses are compatible with epistemic heads, conditionals and relatives are not.

As discussed in §5 it is possible that the incompatibility of relatives with Epistemic as well as the other functional heads associated with SpOAs can be derived from general principles regarding movement, such as Anti-Locality; I will leave full exploration of this idea to future research.

As regards conditionals, following the analysis presented in §5, the Irrealis conditional operator belongs to the class of high modal markers in Cinque (1999), and will share crucial features with these modal markers. Therefore as before, if the Irrealis-operator moves, any modal marker above IrrealisP will give rise to intervention effects

(85) $*\text{MoodP}_{\text{speech act}}\alpha > \text{MoodP}_{\text{evidential}}\alpha > \text{MoodP}_{\text{epistemic}}\alpha > \text{TP} > \text{ModP}_{\text{irrealis}}\alpha$
[based on Haegeman and Ürögdi 2010:5]

It thus directly follows from this account that conditional antecedents are incompatible with speech act adverbials, evidential adverbials and epistemic adverbials.

It is possible that the apparent compatibility of conditional clauses with Epistemic but not Evidential or Discourse-oriented SpOAs can also be derived from a feature intervention account, given that 'Evidential' and 'Discourse-oriented' features clearly bear some relation to the [assert] force Arsenijevic associates with the complement clause relativising-operator. Again, I leave full development of this idea to future research.

7.3 *shi… de* 'propositional assertion' marker

As discussed, root contexts have long been associated with the property of assertion. Mandarin presents interesting evidence for this hypothesis, as it exhibits an overt propositional assertion marker.

General consensus has viewed *shi…de* uniformly as a focus construction[30] (Huang 1982, 1988; Chiu 1995); following Cheng (2008), I assume *shi…de* enjoys more than one function, and that these functions exhibit different syntactic behaviour and distribution. This Section focuses exclusively on 'propositional assertion' *shi…de*. This can be distinguished syntactically by three properties: the element *de* occurs sentence-finally in all cases; the construction takes a broad focus reading; and the clause is not obligatorily interpreted in the past tense (see Cheng 2008 for full discussion). *Shi…de* 'propositional assertion' is associated with sentential emphasis:

(86) Wo   shi   qunian   qu   Beijiqu   de.
       I   is   last year go   Arctic   DE
       '[It is the case that] I was in the Arctic last year.'

As it draws focus to the truth of a proposition, the construction relates to speech act or illocutionary force. It appears that this assertion construction is uniformly rejected in all embedded contexts. The following illustrates its use with a factive and a non-factive complement:

(87) *Zhangsan   renwei   ta   shi yijing   bu zai   xi-du   de.
       Zhangsan   believes he   is   already NEG again take-drugs DE
       'Zhangsan believes [it is the case that] he's already through with drugs.'

(88) *Wo baoyuan   ta   shi   tou   le   nei   ge   qianbao de.
       I   complain he   is   steal ASP that CL   wallet   DE
       I complained that [it is the case that] he had stolen that wallet.'

It is also incompatible with either type of adverb clause, or with relatives:

(89) *Ruguo Zhangsan shi hui   jia   de,   jiu   zaogao le.
       If   Zhangsan is   return home DE, then mess   ASP
       'If [it is the case that] Zhangsan went home, that's a real problem.'

(90) *Ruguo Zhangsan shi jintian xiawu   bu zai jia   de, wo   jiu   bu deng.
       If   Zhangsan is   today afternoon NEG at home DE, I   then NEG wait
       'If [it is the case that] Zhangsan went home, I won't wait.'

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[30] In fact the distribution of focus constructions is not well understood (Danckaert and Haegeman 2011), although they are traditionally regarded as a root diagnostic (Emonds 1976, Hooper and Thompson 1973). For example, the English *it*-cleft, whose function clearly parallels the *shi…de* construction discussed here, is traditionally viewed as a root phenomenon; however, in contrast to Mandarin, the following is readily acceptable:
    i.   If it's John who drives, we'll get there on time.

(91) *Wo shi bu yao   jieshi   nei ge ta   shi jieshou de zhuyi.
     I   is NEG want explain that CL she is   reject DE scheme
     '[It is the case that] I don't want to explain the plan that she'll reject'

Although at first blush this finding might be expected, the consistency is actually surprising. Cross-linguistically it is typical for the complements of, for example, non-factive verbs to be treated as asserted, but Mandarin appears insensitive to this distinction. Instead these findings offer additional support for the movement based account developed here.

It is suggested that *de* acts as an assertion operator which heads an AssertionP in CP (Cheng 2008: 238)[31]. The *de* signals the presence of an assertion operator and a *pro* predicate undergoes inversion to become the subject of a small clause. The small clause (the proposition) raises to precede *de* and it is assigned the Force Assert.

I assume a high assertion type projection in the spirit of Speas and Tenny (2003) and Giorgi (2010); it is possible this corresponds to Li's (2006) Discourse projection. As before, the following structure of discourse particles in the Mandarin left periphery is adopted (based on Li 2006:65):

(92)   DiscourseP > ForceP > MoodP > FinP > IP
        de

Building on the analysis presented throughout Part II, the raising derivation of Mandarin relatives involves the raising of IP to ForceP. Raising of ForceP (containing IP) to spec-DiscourseP would once again constitute movement of a projection's complement to its specifier, in violation of Anti-Locality. Once again this anlaysis derives the incompatibility of a phenomenon from an embedded context from general considerations.

The incompatibility of complement and conditional clauses also very much resembles their incompatibility with discourse particles. As discussed in §4, in the spirit of Arsenijević (2009), the event-operator that derives these structures is assigned a Force ([assert]) in spec-Force. Following Cheng's (2008) analysis, *shi…de* also assigns Force to the small clause. I suggest that the incompatibility of these embedded

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[31] 'Propositional assertion' *shi…de* is equivalent to Cheng's 'bare' *de* as well as her 'broad' *shi…de*, both of which take broad scope over the clause (2008: 238); however, 'bare' *de* takes the whole proposition as its argument.

structures with the assertion marker *shi*…*de* follows from the impossibility of assigning IP a ForceP more than once.

8. Topics

Topicalisation is widely regarded as a main clause phenomenon (Watanabe 1993, Maki et al.1999, Haegeman 2003,2006,2011). Specifically, it is generally understood that it is not possible to front arguments in embedded contexts.

(93) *If that girl he really likes, he'll call her tomorrow.

From this it could perhaps follow, adopting the cartographic perspective to the CP (Rizzi 1997, Cinque 1999 et seq.), that the relevant Topic position is unavailable in embedded CPs. In fact this is an undesirable account given that adverbial adjuncts and Romance CLLD (Haegeman 2003) – which are also associated with a CP Topic functional projection – are acceptable in the same contexts.

(94) If by Saturday she still hasn't responded, he should really give up.

This is an interesting observation in light of the previous Section: *wh*-phrases also exhibited an argument/adjunct asymmetry, but there it was the adjuncts that were restricted. This strongly suggests, following Tsai (1994) that we should not look to the A/A'-distinction to account for the properties under discussion.

In the spirit of Hooper and Thompson (1973), it has been suggested that, as with extraction of *wh*-phrases, argument topicalisation is sensitive to properties of the matrix predicate. Examples such as the following show that complements of non-factive verbs also permit argument topicalisation (Haegeman and Ürögdi 2010:113), and that this is a consequence of the complement-selecting predicate.

(95)   I can assure you that that film, I don't want to ever see again.

In Mandarin, the previous claim regarding topicalisation and a root/embedded distinction suggests – following Kuroda (1992) on the distribution of topics in Japanese

– that base-generated[32] topics, but never derived topics, occur in embedded contexts (Shyu 1995).[33]

§8.1 and §8.2 reviews and clarifies the evidence regarding embedded-clause topics in Mandarin with regard to the root/embedded debate; I suggest that the previous account is insufficient, and develop an alternative account of the distribution of topicalised arguments in §8.3. Finally in §8.4 I suggest that properties of the distribution and interpretation of topicalised arguments within different types of complement clause can inform the account of complementisation-as-relativisation developed in Part II.

8.1 Distribution of topics: base-generated topics

In line with Shyu (1995) it has been widely observed that 'base-generated' Topics occur in all embedded contexts in Mandarin (Huang 1982, Peng 2003, Baden and del Gobbo 2011). For reasons of space, the evidence will not be extensively reviewed; however, I will note that this is an important observation with regards to cross-linguistic evidence regarding work on topics in embedded contexts.

Base-generated topics are also described as 'Aboutness' topics in Shyu (1995). They appear to correspond to the function of A-topics identified in Bianchi and Frascarelli (BF) (2010): [34] A-topics newly propose or reintroduce a topic into the discourse. In addition, A-topics and Aboutness topics share the syntactic property of being base-generated.

BF (2010) develop an 'interface root condition' based on A-topics. They argue that information structure phenomena that affect the conversational dynamics – specifically A-topics – must occur in clauses endowed with illocutive force, and therefore that A-topics constitute a root diagnostic (BF 2010: 82). A-topics are therefore excluded from (non-asserted) embedded contexts. However, as illustrated in the following example

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[32] The contrast between base-generated and derived topics has been extensively discussed (Li and Thompson 1976; Huang 1982, 1984; Tsai 1994, 1997; Xu 1986; Aoun and Li 2003; Huang, Li and Li 2009); I do not review the arguments here, but follow consensus in assuming Mandarin exhibits both strategies.

[33] Shyu (1995) also discusses *Focus*-constructions, which exhibit interesting embedded-restrictions too; I leave discussion to future investigation.

[34] More recently, cartographic work in the spirit of Beninca and Poletto (2004) suggests Shyu's label can be split into distinct 'Aboutness' and 'Hanging Topic' (HT) functional projections (Baden and Del Gobbo 2011). HT are not equivalent to A-topics (BF 2010:fn.17), and only Mandarin Aboutness topics are discussed here. Regardless of their re-labelling, the salient point is that both 'Aboutness' and HT are base-generated, and both are available in embedded contexts.

where an Aboutness Topic appears in a conditional, this observation needs to be revised with regard to Mandarin.

(96) Ruguo <u>hua</u>,   ni   zui bu xihuan meiguihua, wo jiu   mai   huangshuixian
     If   flowers, you most NEG like   rose   I   then buy   daffodils
     'If (among) flowers you really dislike roses, then I'll buy daffodils.
                                                           [based on Baden and del Gobbo 2011: 78]

Many more examples can be seen in the works cited. I leave this issue open to future research; for the present it is interesting to note that topicalisation does not appear sensitive to any concept of assertion, as has been proposed for Indo-European (Haegeman 2009; 2011).

8.2 Distribution of topics: derived topics

Kuroda's claim (extended to Mandarin in Shyu (1995)) that derived topics are incompatible with embedded contexts is an insufficient characterisation of topicalisation in Chinese.

Instead the evidence suggests that Mandarin relative and conditional clauses exhibit an argument/adjunct asymmetry parallel to that found in Indo-European; in these contexts, although argument-fronting is precluded, it is always possible to topicalise adjuncts. This is illustrated as follows for relative clauses:

(97) Na   yi ben [<u>gei Lisi</u> Zhangsan bu hui mai de] shu...
     that one CL give Lisi Zhangsan NEG will buy DE book
     'The book that, for Lisi, Zhangsan won't buy...'
                                                           [Badan and del Gobbo 2011: 77]

(98) *[<u>Zhe pian wenzhang</u>$_i$ ni xie   wan t_i] de shihou gei wo   da dianhua.
     DEM CL essay   you write finish   DE time   give I   hit phone
     'When, this essay, you finish writing, call me.'

And adverbial clauses:

(99) Ruguo <u>jintian wanshang</u> ni xie   wan   na pian wenzhang, gei wo da dianhua
     If   today evening   you write finish DEM CL essay,   give I   hit phone
     'This evening, if you finish writing that essay, give me a call.'

(100) ??Ruguo <u>zhe pian wenzhang</u> ni xie   wan le, gei   wo   da dianhua.
      If   DEM CL essay   you write finish ASP, give I   hit phone
      Intended: 'If you finish writing this essay, give me a call.'

The base-generated v. derived topic asymmetry claim is even less robust with regard to complement clauses. Again, adjunct-topicalisation is readily permitted in these contexts:

(101) Ta xiangxin <u>jintian xiawu</u>   Zhangsan wulunruhe hui lai.
      she believes today afternoon Zhangsan no matter   will come
      'She believes that Zhangsan will come no matter what this afternoon.'

(102) Ta baoyuan   <u>shang ge yue</u>   ta ye   mei fu.
      she complained last   CL month he also   NEG pay
      'She complained that he didn't pay last month either.'

However, in contrast to Indo-European, it is also always possible to front arguments in complement clauses (Tang 1990):

(103) Ta xiangxin <u>na yi ben shu</u> ni mei mai.
      she believe   DEM one CL   book you NEG buy
      'She believe that, that book, you did not buy.'

It has been suggested that in Mandarin a position available to derived topics "is not projected in embedded or non-root contexts due to the non-asserted (non-judgmental) function of embedded complements" (Shyu 1995: 128).[35] This observation clearly parallels accounts of Indo-European that argument topicalisation is permitted in non-factive contexts (Urmson 1963, Maki et al.1999, Gärtner 2001, Haegeman 2006: 1664; 2009; Haegeman and Ürögdi 2010).

Evidence suggests the factivity account cannot be extended to Mandarin. The following are examples of non-factive (asserted) contexts compatible with topicalised arguments:

(104) Wo cai   <u>jiu</u>   ta   bu   zai   he   le.
      I   guess alcohol he   NEG again drink ASP
      'I guess that he won't drink alcohol again.'

(105) Wo renwei <u>nei ge qianbao</u> ta tou le.
      I   think   DEM CL wallet   he steal ASP
      'I think he has stolen that wallet.'

However, the following demonstrates that factives (non-asserted, presupposed contexts) are also compatible with topicalised arguments:

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[35] The possibility of extraction from factive complements in Indo-European is discussed in.

(106) Ta zhunbei <u>hetong</u> mingtian qian.
      she plan   contract   tomorrow sign
      'She plans to sign the contract tomorrow.'

(107) Ta houhui <u>na yi ben shu</u>   mei   mai.
      she regret that one CL book NEG   buy
      'She regretted not buying that book.'

I therefore conclude that 'factivity' is not a relevant factor in the distribution of topicalised arguments in complement clauses in Mandarin. Instead I propose that bridgehood (in the sense developed in §3.5.3) should be adopted.

8.3 'Bridgehood'

Although Shyu (1995) argues that the restriction of (derived) Topics is a result of the 'non-asserted' status of embedded clauses (in the spirit of Kuroda 1992), she also suggests that topics occur relatively easily in the complements of bridge verbs (1995:128,fn.1);[36] however this is not discussed (nor is 'bridgehood') defined.

The bridgehood account could nevertheless account for the presence of the (derived) topicalised argument in the following:

(108) Wo zhidao <u>nei ge qianbao</u> ta   tou   le.
       I   know   DEM CL wallet   he   steal ASP
       'I know he has stolen that wallet.'

However, the 'bridgehood' explanation is not immediately satisfactory. The following verbs do not allow extraction of *wh*-adjuncts; following Tsai (1994), this dissertation considers these 'nominal' verbs as non-bridge verbs (Also, note that non-factive *tongyi* 'agree' patterns with factive *yihan* 'regret').

(109) *Zenmeyang, ni   tongyi [[Lisi chuli   zhe jian shi]   bijiao qiadang]?
       how   you agree   Lisi handle DEM CL matter   more   appropriate
       'What are the means x by which you would agree [it is more appropriate [for Lisi to handle this matter by x?]]'

---

[36] Shyu (1995: 28,fn.1)) does not define 'bridgehood', but refers to Hooper and Thompson (1973) and Emonds (1976); I assume she adopts the standard interpretation of bridgehood whereby a bridge verb allows extraction from its complement while a non-bridge verb does not.

(110) *Weishenme, ni   baoyuan [[Lisi chuli   zhe jian shi]   bu   qiadang]?
      why   you complain   Lisi handle DEM CL   matter   NEG   appropriate
      'What is the reason x such that you complaine [it is inappropriate [for Lisi to
      handle this matter by x?]].'

<div align="right">(Based on Tsai 1994: 124)</div>

However, these verbs allow argument topicalisation:

(111) Ta tongyi <u>hetong</u>   mingtian   qian.
      she agree   contract tomorrow sign
      'She agrees, the contract, to sign it tomorrow.'

(112) Ta   baoyuan   <u>na   yi ben shu</u> ni   hai mei   mai.
      she   complained   DEM   one CL   book you still NEG   buy
      'She complained that, that book, you did not buy.'

   This is not an unexpected outcome. Empirically, it has already been observed that the argument/adjunct asymmetry of *wh*-elements and Topics directly contrast in their interaction with the CP is very different. From a theoretical perspective, work on locality has often observed that, although both are A'-elements, Topics and *wh*-words exhibit very different properties (see especially Rizzi 2004).

   Yet, although the 'bridgehood' factor as identified by Shyu (1995) does not appear to reveal anything very useful about the occurrence of argument-topicalisation, a clear asymmetry emerged regarding the interpretation of these Topics. My informants reported a *contrastive* reading for each topicalised argument in these 'non-bridge' verbs.

(113) Ta baoyuan   <u>na yi ben shu</u> ni   hai mei mai.
      she complained DEM one CL   book you still NEG buy
      Contrastive: 'She complained that, that book, you did not buy [but perhaps you bought another one.]'

   Those verbs which allow extraction of *wh*-words – 'non-nominal' or bridge verbs – seemed to permit both a Contrastive and a Familiar Topic, which is used to resume background information or for topic continuity (Bianchi and Frascarelli 2010: 57).

(114) Wo renwei <u>nei ge qianbao</u> ta   tou   le.
      I   think   DEM CL wallet   he   steal ASP
      Familiar: '[I don't trust him], I think <u>that wallet</u> he has stolen.'
      Contrastive: ??'I think <u>that wallet</u> he has stolen; [this one, maybe not].

These observations require much more investigation, particularly as the precise functions of topics and their properties are so poorly understood in Mandarin. However, that an asymmetry exists at all presents an interesting point of departure. At the very least it suggests that argument topicalisation provides additional support for Tsai's (1994) nominal vs. non-nominal characterisation of complement clauses.

8.4 Definiteness

It has been observed that Chinese exhibits a restriction against indefinite subjects and topics in root contexts; in contrast therefore to the diagnostics discussed so far in this dissertation, indefinites occur exclusively in non-root contexts (Li and Thompson 1981; Lee 1986; Tsai 1994; Shyu 1995). To illustrate, Topics in root clauses are obligatorily interpreted as either definite or generic (Shyu 1995: 152; HLL 2009: 200).

(115) Shu,   wo hui kan.
      book, I   will read
      'The book(s), I will read.'

Indeed, Topics are characteristically defined as definite (or generic), unless used contrastively where they may be indefinite. For example, in the following root context, the indefinite reading is available *only* where the Topic receives a contrastive reading (Tsai 1994):

(116) <u>Yi pian lunwen</u> wo hai keyi yingfu (liang pian, na jiu   tai duo   le)
      one CL   paper I   still can handle (two CL   DEM then too much PART)
      Non-contrastive: '(The) one paper, I can only handle (it).' (def.)
      Contrastive: 'One paper, I can handle (two papers, that's too much).' (indef.)

If an argument is embedded under a non-bridge verb where it is interpreted as contrastive, an indefinite reading is always (optionally) available:

(117) Wo yihan <u>yi pian wenzhang</u> mei kan   wan.
      I   regret one CL   article   NEG read finish
      'I regret that an article, I didn't finish reading (as opposed to any books).'

An argument embedded under a bridge verb can be interpreted as a Familiar Topic in which case it is always interpreted as definite or generic; although a contrastive

reading should be available, my informants had much more of a problem with an indefinite reading even there:

(118) Ta   renwei <u>yi   pian wenzhang</u> wo hai keyi yingfu.
       He think   one CL   article   I   still can   handle
       Familiar: 'He thinks one article, I can handle (that) '
       Contrastive: ??'He thinks <u>an article</u> I can handle [but a book, I could not].

It is not clear how to account for this. It appears that the distinguishing feature between a Familiar Topic and a contrastive is their referentiality. A possibility is therefore to follow Campbell (1996) who proposes that referentiality is derived via a specificity operator in spec-D; quantity-denoting nouns project a NumP (HLL 2009:294). Given the analysis developed in the previous Section, whereby a non-nominal (non-bridge) verb corresponds to a structure in which the nominal does not incorporate, one possibility is that the nominal structure includes the existential operator necessary to license the variable in spec-D of the topicalised DP. I leave this to future research.

9. Conclusion

Taking as a null hypothesis that all CPs are functionally equivalent, it remains mysterious why syntax should distinguish CP projections dependent on whether or not it is dominated by a syntactic node. Why should the syntax of 'embedded' contexts be restricted?

The data presented here from Mandarin, a language not previously discussed in this context, offers some new insights into the problem.

First, the evidence presented indicates that Mandarin exhibits a clear root/ embedded asymmetry, with syntax systematically restricted in embedded contexts. However, embedded structures are shown not to form a uniform class. Traditionally a clean distinction is drawn between, for example, root-type clauses with independent illocutionary force (matrix, paratactic, non-factive complements, and 'peripheral' adverbials), and embedded-type non-asserted contexts (such as relatives, central adverbials, and factive complements), yielding the binary root/embedded distinction, with some additional discussion of 'embedded root phenomena' (Heycock 2006). Yet the evidence from Mandarin has revealed that the syntax of different embedded clauses is

not uniform: for example, topicalised arguments and epistemic particles and adverbs are compatible with complement clauses regardless of the semantics of the selecting matrix predicate; the syntax of relatives and conditionals appears to be more restricted.

A full summary of the findings is given in the following table:

(119)

	Complement clause	Relative	Conditional
Discourse particles	-	-	-
SFP *le* aspect particle	✔	-	-
Speaker oriented adverbs	Epistemic	-	-
Shi…de assertion marker	-	-	-
Base-generated topic	✔	✔	✔
Derived topic (adjunct)	✔	✔	✔
Derived topic (argument)	✔	-	-

The table gives a clear indication that the traditional binary root/ embedded distinction is an insufficient characterisation of the sensitivity exhibited by different phenomena in different embedded contexts. This observation has two important consequences.

Rather than stipulate that certain embedded contexts – or certain transformations are associated with – the label 'root' or 'embedded', an adequate theory must allow for different embedded clause types to exhibit more or less restrictive syntax. This can be derived from their different structures and derivations, and their interaction with the syntactic properties of the derivation of the relevant phenomena. Specifically, this dissertation proposed that the root/embedded distinction in Mandarin follows from the intervention effects associated with general principles of locality (Aboh 2005; Krapova 2010; Haegeman and Ürögdi 2010) to Mandarin. In formal terms the generalisation emerged that where some property – such as Force – of a clause is necessarily determined by operator movement or remnant-IP movement in the course of its derivation – such as to spec-Force – the occurrence of other elements specifying the same property is excluded. Depending on the derivational strategy associated with

the embedded clause, this exclusion can be defined in terms of general principles on Anti-Locality or Intervention.

As regards 'root phenomena', the generalisation emerged that the specification of Force or Assert Type are simply associated with unmarked clause types. Following the assumption that every clause must be typed (Cheng's 1991 Clause Typing hypothesis), the question thus arises as to the compatibility of, for example, *shi...de* 'propositional assertion with root clauses, which must of course at the very least be Typed declarative. In the spirit of Haegeman (2011) I suggested that *shi...de* is essentially available in unmarked clause types, and that declaratives constitute the unmarked force type (Roberts and Roussou 2002: 141). Therefore in these cases the specified Force does not intervene.

This offers a unified account of the restriction of the application of transformations in embedded contexts and thus provide some insight into our understanding of the root/embedded distinction.

Finally, the data shows that the syntactic phenomena restricted in Mandarin embedded clauses do not parallel the phenomena exhibited in embedded contexts in Indo-European languages. Particularly striking in this regard is the insensitivity of Mandarin syntax to propositional assertion in embedded clauses, as well as the widespread compatibility of topicalised arguments in Mandarin embedded structures. However, if restrictions on the syntax of embedded clauses follow from general properties of syntax, and the particular class of embedded structures, it is no longer surprising that there is such variation in root diagnostics. Instead, cross-linguistic variation is expected according to the properties of the derivational strategies available in the language in question.

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Appendix: summary of the *de* particle

The Mandarin particle *de* has been discussed extensively in the literature, analysis of which has swung (broadly) between *de* as a complementiser in all cases (Huang 1982, Xu 1997), or more fine-grained approaches distinguishing particular syntactic contexts with particular functional projections. The approach adopted in here, in which only relative clause *de* structures are discussed, can be justified by clarifying a few of the relevant issues.

First, it is worth noting that the Chinese script in fact distinguishes three particles, each with the phonetic realisation *de*: adverbial 地, predicate 得, and nominalising 的.[37] The first two modify predicates while the third is associated with the modification of nominals. Adverbial *de* follows an adjective and precedes a verb. I assume that this is an AP. Like the other *de* particles it is head-final.

1) Ta haoqi   de zouchuqu   kan le kan
   He curious   DE go   look ASP look
   'He inquisitively went out to have a look'

The second type of *de* is also associated with verbs, and has been extensively discussed in the literature. It follows the verb and functions to focus the comment on the action, focusing interest on the manner or quality attained; this is 'manner *de*', and following Huang (1989) I assume the *de* complement involves a V' structure.

2) Qiguai de shei ye mei fazi huida.
   Strange DE who also NEG way respond
   'Strange to the extent that noone has any way of answering.'

3) Ta kai   che kai   de hao bu hao?
   He drives car drives DE   good NEG good
   'Does he drive well?'

It is probably best known for its employment in resultative constructions (Li 1990, Cheng 2007) which often allow ambiguous readings. These have been analysed as elements of vP.

4) Ta qi   ma   qi de hen lei
   He ride horse ride DE very tired
   'He rode the horse and he/the horse got really tired'

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[37] Although the *de* particles all function as modifiers, and (at least superficially) share the property of occurring phrase finally, there is evidence besides their different characters to suggest they should be distinguished. In other Chinese dialects, these particles are distinguished phonetically: for example, in Amoy (a Hokkien dialect, South East China) *gao* or *dioh* are equivalent to predicate *de* whereas nominalising *de* is rendered *e* (Huang 1982: 74).

The third *de* particle is associated with nominals and is that discussed in the main text. I won't repeat the description of its use in relative clauses; crucially this type of *de* involves a gap structure (all relative clause in Mandarin are externally headed). *De* is also used in a number of other situations. First, it is used in possessives:

5) Ta   meimei   de airen   de kuzi.
   Her   little sister DE partner DE   trouser
   'Her little sister's partner's trousers.'

Second, it can also be used without an antecedent; following Zhang (2010) I assume this *de* heads nP.

6) Gui   de bu   yi   ding   hao.
   Expensive DE NEG one certain good
   'Expensive is not necessarily good.'

Third, *de* can be used in a focus construction, often with the copula *shi* (e.g. Gasde and Paul 1996, Paul 2005). At least three functions can be distinguished. The canonical use places *shi* before the verb with *de* preceding the internal argument (although pronouns precede *de*). Its effect is to attach an aspect of permanency to a description.

7) Wo   shi xiawu   mai de   piao.
   I   is afternoon buy DE   ticket
   'It was in the afternoon that I bought the tickets.'

8) Ta shi shenme shihou qu zhao ni de?'
   He is what   time   go find you DE
   'What time was it that he went out to find you?'

It can also be used with an implicit internal argument, where the implicit argument is understood to be a generic version of the subject; the effect, as before, is to indicate permanency. This version of the construction does not appear to have been discussed in the syntactic literature.

9) Zhongguo cai   shi shijie wenming de (cai).
   China   food is world famous   DE (cai).
   'Chinese food is (food that is) world famous'

Finally, there is a construction which I term 'topicalising' *de*. This also does not appear to have been discussed in the syntax literature. It requires a topic.

10) Xican,   ta haishi chi-bu-lai   de
     Western food he still   eat-NEG-come DE
     'He still can't stomach western food.'

Note that if the topic 'western food' were placed following the *de* as in the first construction described, the meaning would alter to 'the western food that he cannot eat'. I think this is actually another discourse particle. *De* is entirely optional; it implies a force that the statement cannot be challenged. I leave these to future investigation.