

# Chapter 2

## Conceptualising Construction Disputes

Sai On Cheung and Hoi Yan Pang

**Abstract** Construction dispute resolution is a topical research area. These studies typically start from dispute identification and subject matter is the most commonly used approach. However, this approach does not take account of the contextual factors that may in fact be the true causes. This prompts the diagnostic approach. This chapter gives an overview of these two approaches to identify construction disputes. In addition, a third approach that draws on the concepts of bounded rationality and opportunism is proposed. Minefields and manifestations of opportunism in construction contracting in relation to occurrence of construction disputes are also discussed. Accordingly, an anatomy of construction disputes is provided. It is suggested that construction disputes are mostly contractual but can also be speculative where people factor is a major trigger.

### 2.1 Subject Matter Approach to Identify Construction Dispute

The issues in dispute must be clearly stated in all claims. The subject matter approach employs these issues to identify the dispute. This approach is widely used for the convenience and ease of understanding. Semple et al. (1994) illustrated this observation by suggesting that site overhead, loss of productivity, loss

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S. O. Cheung (✉) · H. Y. Pang  
Construction Dispute Resolution Research Unit, Department of Civil and Architectural Engineering, City University of Hong Kong, Hong Kong, People's Republic of China  
e-mail: saion.cheung@cityu.edu.hk

H. Y. Pang  
e-mail: karen-pang@hotmail.com

of revenue and financing costs are the main types of construction dispute. Likewise, Yates (1998) argued that the main types of construction dispute arising from the contract document include (1) variations; (2) ambiguities in contract documents; (3) inclement weather; (4) late issue of design information/drawings; (5) delayed possession of site; (6) delay by other contractors employed by the client and (7) postponement of part of the project. Furthermore, Hewit (1991) found six principal types of construction dispute and these are change of scope, change conditions, delay, disruption, acceleration and termination. With reference to the construction disputes that reached the Supreme Courts of New South Wales and Victoria, Australia in 1989 and 1990, Watts and Scrivener (1993) assembled 59 categories of dispute with 117 sources. The 59 categories of dispute fall into the following subject matters: (1) determination of the agreement; (2) payment related; (3) the site and execution of work; (4) time related; (5) final certificate and final payment and (6) tort related. Heath (1994) also found seven main subject matters of construction dispute; (1) contract terms; (2) payments; (3) variations; (4) extensions of time; (5) nomination; (6) re-nomination and (7) availability of information. Similarly, Conlin et al. (1996a, b) summarised that payment, performance, delay, negligence, quality and administration are major issues of construction disputes. Kumaraswamy (1997) also found that construction disputes can be categorised as (1) variation due to site conditions; (2) variations due to client changes; (3) variations due to design errors; (4) unforeseen ground conditions; (5) ambiguities in contract documents; (6) variations due to external events; (7) interferences with utility lines; (8) exceptional inclement weather; (9) delayed design information and (10) delayed site possession. This categorisation is another manifestation of the subject matter approach. In fact, Totterdill (1991) pointed out that construction contract disputes must have a contractual base. Sykes (1996) further elaborated that construction disputes originate from two main interrelated sources; construction contracts and unexpected events. As construction works are subject to many uncertainties, exhaustive planning for the possible eventualities within the contract is daunting. This can be the result of outright failure to recognise the sources of uncertainties. More problematic though is having unintended contradicting contractual provisions to deal with them. With reference to Sheridan (2003) data collected by the Adjudication Reporting Centre (ARC), the typical disputes settled by adjudication in the United Kingdom include: 'valuation of variations', 'valuation of final account' and 'failure to comply with payment provisions'. Brooker (2002) examined the types of disputes where mediation had been used in U.K. and found that payment, delay, defect/quality and professional negligence as subject matters contributed 72 percent of the reported cases. A similar study on construction mediation conducted in Hong Kong also found that variation, delay in work progress, parties' expectations and intra-parties' problem were the significant types of dispute source (Yiu and Cheung 2004). Table 2.1 summarises the studies that employ the subject matter approach to identify construction disputes.

**Table 2.1** Subject matter approach to construction dispute identification

Subject matters of construction disputes	References
(1) Change of scope, (2) change conditions, (3) delay, (4) disruption, (5) acceleration and (6) termination	Hewit (1991)
(1) Determination of the agreement; (2) payment related; (3) the site and execution of work; (4) time related; (5) final certificate and final payment and (6) tort related	Watts and Scrivener (1993)
(1) Contract terms; (2) payments; (3) variations; (4) extensions of time; (5) nomination; (6) re-nomination and (7) availability of information	Heath et al. (1994)
(1) Payment, (2) performance, (3) delay, (4) negligence, (5) quality and administration as headings of construction disputes	Conlin et al. (1996a, b)
(1) Variation due to site conditions; (2) variations due to client changes; (3) variations due to design errors; (4) unforeseen ground conditions; (5) ambiguities in contract documents; (6) variations due to external events; (7) interferences with utility lines; (8) exceptional inclement weather; (9) delayed design information and (10) delayed site possession	Kumaraswamy (1997)
(1) Variations; (2) ambiguities in contract documents; (3) inclement weather; (4) late issue of design information/drawings; (5) delayed possession of site; (6) delay by other contractors employed by the client (e.g. utility companies) and (7) postponement of part of the project	Yates (1998)
(1) Valuation of variations, (2) valuation of final account and (3) failure to comply with payment provisions	Sheridan (2003)
(1) Payment, (2) delay, (3) defect/quality and (4) professional negligence	Brooker (2002)
(1) Ambiguous contract documents, (2) competitive/adversarial attitude and (3) dissimilar perceptions of fairness by the participants	Spittler and Jentzen (1992)
(1) Project uncertainty; (2) contractual problems, (3) opportunistic behaviour, (4) contractors' financial position and (5) cost of conflict and culture	Mitropoulos and Howell (2001)

## 2.2 Diagnostic Approach to Identify Construction Dispute

Diagnostic approach to identify construction disputes aims to unveil the underlying causes. To certain extent, this approach is more informative as far as understanding construction dispute is concerned. Construction disputes are often underpinned the conflicting interests of the contracting parties. Mururu (1991) described that dispute is the formation of a position to maintain in conflict. Brown and Marriott (1999) suggested that dispute can be viewed as a class or kind of conflict that require resolution. Furthermore, according to Hellard (1987), construction dispute is the opposition of interests, values or objectives. Spittler and Jentzen (1992) showed that ambiguous contract documents, competitive/adversarial attitude and dissimilar perceptions of fairness by the participants are the main sources of construction

dispute. It is further suggested that if the interests of the participants can be satisfied, disputes can be resolved by managing the time, cost and quality factors. Tillet (1991) defined construction dispute as the incompatibility of two (or more) people's (or groups') interests, needs or goals. As they seek to achieve their own interest through compromise, one party may yield to the counterpart on less important issues. When this happens, the dispute is having a better chance to be settled. This was consistent with the view of Fenn et al. (1997) who opined that dispute requires resolution and is associated with distinct justifiable issues. Similar proposition is also suggested by Burton (1990) who maintained that dispute is always negotiable. Bristow and Vasilopoulos (1995) and Sykes (1996) are also concerned with personality and suggested that disputes are due to unrealistic expectation, lack of team spirit and misunderstandings. Apparently, these studies suggested that conflict is a prime driver of dispute. Diekmann et al. (1994) suggested that people, process and product are the main sources of construction disputes. Likewise, Rhys Jones (1994) enlisted ten main sources: (1) management; (2) culture; (3) communications; (4) design; (5) economics; (6) tendering pressure; (7) law; (8) unrealistic expectations; (9) contracts and (10) workmanship.

In search for theoretical anchors, Mitropoulos and Howell (2001) applied the contracting framework of Williamson (1979) and used the effect of project uncertainty, contract, working relations and problem solving effectiveness to explain the development of disputes. It is suggested that "environmental" and "behavioural" factors play important roles in problem making. Notable examples include (1) project uncertainty; (2) contractual problems and (3) opportunistic behaviour. Table 2.2 summarises the identification of construction dispute from a diagnostic perspective.

## 2.3 Towards a Conceptualisation

Yates (1998) argued that complex contracts are invariably incomplete due to bounded rationality and uncertainty (Williamson 1975). As a consequence of contract incompleteness, whenever events/contingencies occur ex post which are not fully specified ex ante, one or both of the parties may behave opportunistically. Such behaviour predictably results in conflict and disputes.

### 2.3.1 *Bounded Rationality and Opportunism*

Transaction Cost Economics (TCE) has been recognised as a major theoretical underpinning in explaining governance structures of economic exchange activities (Coase 1975). In construction, TCE has been applied to analyse governance structure (Reve and Levitt 1984), project management (Winch 1995), conflict and dispute (Yates 2003), procurement systems (Ive and Chang 2007) and trust

**Table 2.2** Diagnostic approach to construction dispute identification

Contributors to construction disputes	Reference
(1) People, (2) process and (3) product	Diekmann et al. (1994)
(1) Management; (2) culture; (3) communications; (4) design; (5) economics; (6) tendering pressure; (7) law; (8) unrealistic expectations; (9) contracts and (10) workmanship	Rhys Jones (1994)
(1) Technical, (2) legal and (3) managerial dispute issues must have a contractual reference	Totterdill (1991)
(1) Construction contracts and (2) unpredictable events	Sykes (1996)
Dispute is the formation of a position to maintain in conflict	Mururu (1991)
Dispute can be viewed as a class or kind of conflict that require resolution	Brown and Marriott (1999)
Construction dispute is the opposition of interests, values or objectives	Hellard (1987)
Construction dispute is linked with difference in perspectives, interests and agenda of human beings	Spittler and Jentzen (1992)
Construction dispute is the incompatibility of two (or more) people's (or groups') interests, needs or goals	Tillet (1991)
Dispute requires resolution is associated with distinct justifiable issues	Fenn et al. (1997)
Construction disputes are due to unrealistic expectation, lack of team spirit and misunderstandings	Bristow and Vasilopoulos (1995) and Sykes (1996)

(Cheung 2007). TCE aspires to describe 'man as he is' in cognitive and self-interestedness respects and works out of two key behavioural assumptions: bounded rationality and opportunism (Coase 1984). The principal ramifications of these behavioural assumptions for economic organisation (Williamson 1985) therefore include:

- (i) All complex contracts are unavoidably incomplete and many incentive alignment processes cannot be complemented (because of bounded rationality), thus most contingent adjustment mechanisms would fail for unanticipated eventualities.
- (ii) To rely on contract as promise is fraught with hazard (because of opportunism). Hence, ideal forms of organisation are disallowed.
- (iii) Added value will be realised by organising in such a way as to economise on bounded rationality and to safeguard transactions against the hazards of opportunism. As such, transaction cost economising is implicated.

According to Simon (1997), the behaviour of decision makers is intendedly rational, but only limitedly so. Bounded rationality is used to identify rational choice that takes into account the cognitive limitations of the decision maker. Moreover, Williamson (1991), from a strategic perspective, advocates that there are two substantive approaches: strategising and economising. The latter is considered as more important and involves effective adaptation and the elimination of waste.

Within the remit of economising, Eisenberg (2001) suggested that a decision maker will only evaluate all possible options if the cost of searching and possessing information are zero and human information possessing capabilities are perfect. In reality, such searches will normally be limited because of the cost required. Furthermore, decision makers are also bounded by their limitations on computational capacity as well as the ability to calculate consequences, understand implications, make comparative judgments on complex alternatives, organise and utilise memory (Simon 1979). In these regards, rationality is bounded by both the limitation on cost of information search and the computational effort. The decision so made may not be optimal as suggested under a neo-classical economic framework.

Actual happenings thus deviate from the game of perfect information presumed in a rational model; *“Theories of bounded rationality are thus theories of decision making that assume that the decision maker wishes to attain goals, and uses his or her mind as well as possible to that end”* (Simon 1997). Under the rational model, good administration is the up keeping efficiency for which scarce resources of an organisation shall be deployed to accomplish its objective through rational behaviour. Rationality is therefore concerned with the selection of preferred behaviour alternatives in terms of some system of values whereby the consequences of behaviour can be evaluated (Simon 1957). Economic man as described by Simon (1957) is having a complete and consistent system of preferences that allows him to choose among the options open to him; he is completely aware of what these options are; there are no limits on the complexity of the computations he can perform in order to determine which option is best; probability calculations are therefore neither frightening nor mysterious. However, using the chess game as illustration, Simon (1972) suggested that instead of finding the optimal solution, choices are made when the decision maker regards an option is satisfactory. Simon (1957) introduced the concept of ‘satisfying’ which suggests that ‘people will satisfy when they make a decision that satisfies and suffices for the purpose’.

To put these concepts in perspective, Dyner and Franco (2004) incorporated bounded rationality in modeling choice of electricity users. It was found that administrative men exhibit a kind of rational behaviour that is compatible with the access to information and the computational capacities that are actually possessed by organisations (Simon 1957). This is the difference between ‘economic men’ from ‘administrative men’ and is significant as far as decision making is concerned. An economic man is assumed to have evaluated all alternatives before making a choice. However sequential evaluation of options is the reality and the first satisfactory option is often chosen. The decision is therefore satisfying. The concept of bounded rationality is built on this characterising behaviour of ‘administrative man’.

Opportunism often goes hand in hand with bounded rationality. Williamson (1993) further elaborated that contractual incompleteness (due to bounded rationality) never gives rise to contractual difficulties if parties to a contract can be relied on to self-enforce the agreement. As such, incompleteness, notwithstanding all gaps, omissions, errors etc. will be cured. A general clause such as “disclose all

**Table 2.3** Contracting environment under bounded rationality and opportunism (Williamson 1985)

		Condition of bounded rationality	
		Absent	Admitted
Condition of opportunism	Absent	Bliss <sup>a</sup>	“General clause” contracting <sup>b</sup>
	Admitted	Comprehensive contracting <sup>c</sup>	Serious Contracting difficulties <sup>d</sup>

<sup>a</sup> An Utopia condition  
<sup>b</sup> Example of a general clause like “I agreed candidly to disclose all relevant information and thereafter to propose and cooperate in joint profit-maximising courses of action during the contract execution interval, the benefits of which gains will be divided without dispute according to the sharing ratio herein provided”  
<sup>c</sup> A scenario whereby perfect presentation is achieved  
<sup>d</sup> Typical contracting environments in reality

relevant information candidly and to behave in a co-operative way during contract execution and at contract renewal intervals” may be included in the contract to formalise this desired state of cooperation. However, Hobbes (1928) was more cautious and claimed that “*Words... [are] too weak to hold men to the performance of their covenants*”. Gauss (1952) added that if opportunism is accepted to be the appropriate way to describe self-interest seeking, breaking promises to suit one’s purposes can be expected. In his seminal paper about contractual man, Williamson (1995) described that opportunism is the strong form of manifestation of self-interest seeking behaviour. He further discusses the relationship between bounded rationality and opportunism. His view is presented in Table 2.3.

2.3.1.1 Opportunism in Construction Contracting

As afore-stated, opportunism refers to a lack of candor or honesty and is characterised by self-interest seeking with guile (Williamson 1975). Opportunism can be viewed as unethically calculated efforts to mislead, distort, disguise, obfuscate, or confuse (Williamson 1985). Wathne and Heide (2000) further noted that opportunists practice guileful behaviours such as lying, stealing and cheating. Opportunism is at work when an individual attempts to maximise his interest in any situation where he could gain one way or another (O’Donovan 1962). Goffman (1969) suggested that an opportunist is one who makes false or empty, self-disbelieved threats and promises. For example, an opportunist may not abide by the terms of the agreement in order to exploit the other’s short-term difficulties (Parkhe 1993; Wathne and Heide 2000). A firm is behaving opportunistically if it pursues acts for unilateral gains (Brown et al. 2000). In the situation of supplier–buyer relationship, opportunism is exemplified by those conscious behaviours engaged by a dependent supplier firm to influence the decisions of the dominant buyer through deceit and guile in ways that are presumed by the supplier to enhance its position or outcomes (Provan 1993). Opportunism therefore is

exemplified by “*given the opportunity, decision-makers may unscrupulously seek to serve their self-interests*” (Judge and Dooley 2006). Opportunism is at work when the following occurs: (1) misrepresenting information, activities or effects; (2) distorting results; and (3) misrepresenting intentions (Anderson 1988; Muris 1981). In construction, contracting parties may behave opportunistically by pursuing acts that will lead to cost increase/revenue reduction of the other party. For example, contracting parties may take advantage of unforeseen circumstances and exploit their counterparts (Lee et al. 2009). Other examples of opportunism in construction include speculative pricing (Winch 1989), blatant underperformance of consultants (Reve and Levitt 1984), unjustified claims for extra money and/or time by contractors (Yates and Hardcastle 2002), and unreasonable rejection of contractors’ claims by clients (Yates 2003). Yates and Hardcastle (2002) added that if “*there were no gaps in the contract document and no subsequent changes in client requirements and design, there would be no requirement for ex post adjustment and consequently no room for the contractor to behave opportunistically*”. Yates (2003) added that opportunism is pre-empted by “*incomplete or distorted disclosure of information, especially to calculated efforts to mislead*”.

### 2.3.1.2 Opportunism at Work

John (1984) also advocated that unrestrained self-interest maximising behaviour best illustrates opportunism. Mitropoulos and Howell (2001) advocated that construction projects are transactions of long duration and exposed to high degree of uncertainty and complexity; it is impossible to foresee every contingency and indicate the respective contract provisions ex ante. Bounded rationality refers to the fact that “*decision makers have constraints on their cognitive capabilities and limits on their rationality*” (Rindfleisch and Heide 1997). Wathne and Heide (2000) summarised the idea of bounded rationality as human’s physical limitation to process information. Bac (2001) stated that one or both contracting parties may behave opportunistically to seek for their own interest. Opportunism arises when the principal contracts are vague and incomplete (Williamson 1985). Muris (1981) suggested that opportunism occurs when either contracting party “*retaliates against post contractual manipulation of the terms of trade ... in order to effect an unexpected transfer of wealth from the other party*”. Luo (2007) advocates that party who sustained or prolonged uncertainty of gains may behave opportunistically.

Construction works are exposed to weather conditions and unforeseen ground conditions that are beyond the control of contracting parties. The unique design coupled with complex production processes prohibits complete contracts. Under these situations construction contracts can never provide exhaustive detailing of the rights and obligations of the contracting parties. Ayres and Gertner (1992) described this type of incompleteness as “*obligationally incomplete*”. Contract is also incomplete when it does not include the necessary instruction for some eventualities. Therefore, contracts are viewed as incomplete when they are (i)



**Table 2.4** Minefields of opportunism in construction contracting

Code	Descriptions	Occurrence rankings
<i>Ambiguity</i>		
A1	The scope of work is unclear	2
A2	The specification is unclear	4
A3	The rules to evaluate star rate is unclear	6
A4	Work activities are unclear	10
A5	Completion milestones are unclear	17
<i>Deficiency</i>		
B1	The rules to evaluate substantial change in quantity of works are not addressed	8
B2	There is no provision to deal with re-nomination of the nominated sub-contractor	12
B3	There is no provision to deal with the consequence of re-nomination of the nominated sub-contractor	12
B4	There is no obligation to report inconsistency of contract documents	19
B5	The specification of material is inadequate	15
B6	The performance specification is inadequate	17
B7	The drawings provide insufficient details	1
B8	The guidelines for the preparation and submission of work schedule is inadequate	23
B9	There is no statement of resources in the work schedule	19
<i>Inconsistency</i>		
C1	The specification of material is contradictory	22
C2	The performance specification is contradictory	19
C3	The drawings contradict with the specification	6
C4	The details in the drawings are inconsistent	3
C5	The specified design standard is different from statutory requirement	10
<i>Defectiveness</i>		
D1	Items in the contract bills of quantity are being omitted	5
D2	Abundant items are found in the contract bills of quantity	12
D3	Over measured items are found in the contract bills of quantities	15
D4	Some items are missing from the contract bills	8

ambiguous on the statement of obligations and responsibilities; and (ii) do not fully specify the contingencies and risk allocation in contract clauses. Embedded in the concept of bounded rationality, minefields of opportunism are arranged in four major categories: ambiguity, deficiency, inconsistency and defectiveness, are listed in Table 2.4.

While contract incompleteness cultivates the minefields, opportunism may manifest through violation of commitment, forced renegotiation, evasion of obligation and refusal to adapt (Wathne and Heide 2000). In addition, party may not honestly oblige to their agreements as in the case of inflation of Contractor's claims (violation of commitment), exploiting one's advantage and forcing renegotiation of unfavourable original contract terms (forced renegotiation). Contracting parties

**Table 2.5** Manifestations of opportunism in construction contracting

Code	Descriptions	Occurrence rankings
<i>Violation of commitments</i>		
E1	The Contractor over-claims her cost entitlement	1
E2	The Contractor over-claims her time entitlement	2
E3	The Contractor over-claims her costs for progress acceleration	3
<i>Forced renegotiation</i>		
F1	The Client attempts to renegotiate the terms of signed contract	15
<i>Evasion of obligations</i>		
G1	The Contractor purposely fails to disclose the specifications of the materials used	17
G2	The Contractor purposely fails to notify potential implication arising from changes orders	20
G3	The Contractor purposely fails to notify over measured items in the contract BQ	12
G4	The Contractor purposely fails to notify under measured items in the contract BQ	12
G5	The Contractor purposely fails to notify omission of items in the contract BQ	7
G6	The Contractor purposely fails to notify abundant items in the contract BQ	17
G7	The Contractor purposely works below the specified standard	10
G8	The Contractor purposely fails to provide material of the required standard	12
G9	The Contractor purposely not provides invoice for the material used	21
G10	The Client orders extra without providing proper cost reimbursement	5
G11	The Client orders extra without granting justifiable extension of time	7
G12	The Client rejects Contractor's claims for variation outright without providing reasons	9
G13	The Client rejects outright extension of time claim submitted by the Contractor	6
G14	The Client rejects outright monetary claim submitted by the Contractor	4
<i>Refusal to adapt change</i>		
H1	The Contractor refuses to agree the valuation methods proposed/used by the Consultant QS according to the contract	11
H2	The Contractor refuses to respond to late design change requested by the Client	15
H3	The Contractor refuses to accelerate work progress requested by the Client	17

may ignore contractual requirements like late payment and late information (evasion of obligation). Furthermore, they may not be willing to respond to frequent design change (refusal to adapt change). In this regard, contracting behaviours manifesting opportunism have been long-listed and summarised in Table 2.5. These behaviours are arranged in four groups: violation of commitment, forced renegotiation, evasion of obligation and refusal to adapt change.

**Table 2.6** Respondents' characteristics

Respondents' characteristics	Number of respondents	Percentage (%)
<i>(i) Company</i>		
Law firm	10	10.53
Client's group	56	58.95
Contractor's group	29	30.53
<i>(ii) Profession</i>		
Construction lawyer	12	12.63
Architect/Engineer	27	28.42
Project manager	18	18.95
Surveyor	38	40.00
<i>(iii) Working experience</i>		
Less than 10 years	43	45.26
10–20 years	13	13.68
More than 20 years	39	41.05

## 2.4 Data Collection and Analysis

A questionnaire was designed and used to collect occurrence likelihood assessments of the minefields and manifestations. Over 300 sets of questionnaire were issued to construction professionals in Hong Kong. 100 professionals returned the questionnaire representing a response rate is 33 %. 95 of them were valid and used in the data analysis. The questionnaire has two sections. The first section includes questions on demographic characteristics of the respondents that are summarised in Table 2.6. Over 58 % of the respondents are working in developer companies, and 30 % of the respondents are working in property developers. 10 % of the respondents are working in law firms. Besides, the majority of the respondents have more than 10 years of experience in administering construction contracts. In the second section, the respondents were asked to assess the occurrence likelihood of the artifacts.

Based on respondents' subjective judgment of occurrence, the relative occurrence rankings of the minefield and manifestations of opportunism are given in Tables 2.4 and 2.5 respectively.

## 2.5 Towards an Anatomy of Construction Disputes

The happening of the highly ranked minefields will amount to changes that trigger the variation clause. Many of these changes are either not preferred or not expected or both. Classic examples include blatant omissions that disturb planned construction activity. Other causes of change include unclear scope, inconsistency/contradiction between contract documents and missing items in bills of quantities. The relatively high occurrence likelihood suggests some hidden causes that go

beyond bounded rationality. For example, contract documents are prepared in a hasty manner. Notably this has been a major concern (CIRC 2001).

Resolving construction disputes is time consuming and costly. Yates and Epstein (2006) suggested that understanding the provisions and disruptive issues at the earliest possible time could mitigate claims and disputes. Disputes would arise from a process involving conflict (Fenn et al. 1997). In addition, conflict can also stem from cognition, behaviour and emotion (Garcia-Prieto et al. 2003; Jehn 1997).

Cognitive conflict refers to the collaboration problems encountered during the construction stage. The bottlenecks so resulted negatively influence project implementation and thus project success. For instance, the consultants fail to provide adequate drawings; the client make changes frequently and the contractors delays in work. These problems may become disputes if not addressed appropriately and timely. Behavioural conflict describes the opportunistic strategies in construction claims. The contractor may bid opportunistically in non-competitive tendering (Ho and Liu 2004). The client may handle contractors' claims sinuously. Williamson (1975) described such behaviour as opportunistic. Opportunism is defined as "*self-interest seeking with guile*" or "*calculated efforts to mislead, distort, disguise, obfuscate or otherwise confuse*" (Williamson 1985). Contracting parties behave opportunistically by seeking own interests and benefits under the conditions of asymmetrical information and uncertainty. Emotional conflict delineates the personal and interpersonal affective conflict among project team members. It often escalates arguments and impedes seeking of win-win solutions.

Uncertainty and contract incompleteness are the triggering factors of construction dispute. Risk allocation of construction contract is pivotal. Construction clients generally opt to shift unanticipated risks to the contractors. While some of these risks are beyond the controllability and foreseeability of the contractors, many are even beyond their manageability if they materialise. In addition, clients or consultants are boundedly rational in foreseeing the extent of uncertainty and risk involved (Simon 1961). The behaviours of decision makers are confined to their rationality boundary (Simon 1961). Rationality reaches its limits under the conditions of uncertainty and complex circumstance, as decision makers do not and are not able to possess perfect information (Masters et al. 2004). In these contexts, construction contracts are incomplete. As illustrated in previous section, most claims are somehow related to ambiguous general terms for which contracting parties are having different views on the rights and responsibilities arising therefrom (Jergeas 2001). Review of literature suggests that construction disputes could be attributed to (1) poor collaboration (Bristow and Vasilopoulos 1995; Conlin et al. 1996b), (2) opportunistic behaviours (Mitropoulos and Howell 2001; Yates 2003), (3) affective conflicts (Diekmann et al. 1994; Mitropoulos and Howell 2001), (4) high risks and uncertainties (Diekmann and Girard 1995; Kumaraswamy 1997) and (5) contract incompleteness (Heath et al. 1994; Yates 1998). Table 2.7 summarises the manifestations of construction disputes according to the above categorisation.

Incomplete contracts are springboards of construction claims and the key elements leading to both contractual and speculative disputes. Ambiguities of

Table 2.7 Manifestation of construction disputes

Category	Source	Description/attributes	References
Cognitive manifestation	Poor collaboration	Poor collaboration in construction represents any direct or indirect action, neglect or default of contracting parties influencing the cooperation of construction project	Bristow and Vasilopoulos (1995), Conlin et al. (1996b), Heath et al. (1994), Diekmann et al. (1994)
		Delays	Conlin et al. (1996b), Hewit (1991), Acharya et al. (2006)
		Incomplete information Change	Heath et al. (1994), Kumaraswamy (1997) Conlin et al. (1996); Hewit (1991), Semple et al. (1994), Acharya et al. (2006)
Behavioural manifestation	Opportunistic behaviour	Opportunism delineates the self-interest seeking behaviour in construction project	Mitropoulos and Howell (2001), Rooke et al. (2003), Yates (2003)
		Violation of commitment	Beach et al. (2005), Chen and Chen (2007)
		Evasion of obligation	Chen and Chen (2007)
		Refusal to adapt change	Rameezdeen and Gunarathna (2003)
		Forced renegotiation	Acharya et al. (2006)
Emotional manifestation	Affective conflict	Affective conflict illustrates the negative emotion among construction project team members	Diekmann et al. (1994), Mitropoulos and Howell (2001)
		Personality clash	Belout and Gauvreau (2004)
		Interpersonal emotional conflict	Sommerville and Langford (1994), Acharya et al. (2006)

(continued)

Table 2.7 (continued)

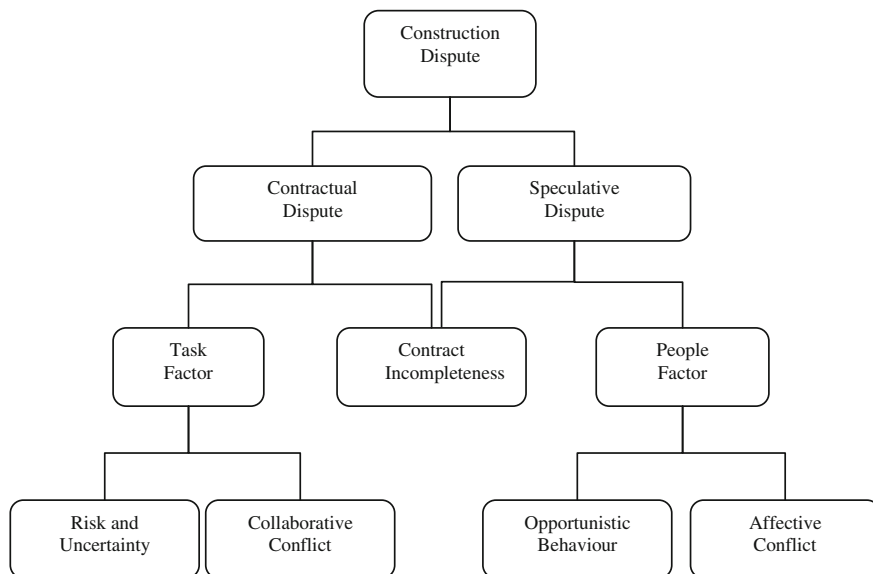
Category	Source	Description/attributes	References
Structural problem	Risk and uncertainty	Risk and uncertainty in construction includes unpredictable events caused from construction environment, natural disaster and social interventions	Bristow and Vasilopoulos (1995), Diekmann and Girard (1995), Kumaraswamy (1997), Mitropoulos and Howell (2001)
		Natural cause	Semple et al. (1994), Diekmann and Girard (1995), Acharya et al. (2006)
	Intervention	Construction contract is incomplete when it does not fully address the contingents and provide accurate and adequate information	Rhys Jones (1994), Diekmann and Girard (1995), Acharya et al. (2006)
			Bristow and Vasilopoulos (1995), Heath et al. (1994), Kumaraswamy (1997), Yates (1998), Mitropoulos and Howell (2001)
	Contract incompleteness	Ambiguity	Kumaraswamy (1997), Yates (1998), Acharya et al. (2006)
		Deficiency	Kumaraswamy (1997), Yates (1998)
		Inconsistency	Acharya et al. (2006)
		Defectiveness	Kumaraswamy (1997), Yates (1998)

contractual agreements may cause differing interpretations of performance requirements among the contracting parties. Contract agreements address the monetary and time entitlements due to natural disasters, unpredictable environmental issues (i.e. risk and uncertainty), and delay and disruption (i.e. collaborative conflict). Hence, contractual disputes are triggered by task factors that include risk and uncertainty and collaborative conflict of construction project. To develop an anatomy of construction disputes, non-contractual disputes take into account of people factors that fully demonstrate the drivers of speculation. Speculative disputes are result of personal interest seeking behaviour (i.e. opportunistic behaviour) and personal emotion (i.e. affective conflict). In addition, an incomplete contract limits the contractual governance of the contracting parties and boosts the formation of speculative disputes.

Figure 2.1 gives the proposed anatomy of construction disputes. Construction disputes can be contractual or speculative. Risks and uncertainties and collaborative conflicts would evoke contractual disputes with an incomplete contract. Likewise, opportunistic behaviour of contracting parties and affective conflict of project team members would induce speculative disputes. Further elaboration of the proposed anatomy is given in Chap. 3. Furthermore, the proposed anatomy enables an empirical test on the occurrence likelihood of construction disputes.

## 2.6 Chapter Summary

This chapter discusses the subject matter and diagnostic approaches to identify construction disputes. The subject matter approach is the most commonly used and is useful in relating a dispute to the relevant contract provisions. However, it does not capture the contextual factors of the disputes. The diagnostic approach aims to fill this gap. An anatomy of construction dispute is proposed by integrating these two approaches. Construction disputes can be either contractual or speculative. Contract incompleteness is the common factor for the two types of construction disputes. Task and people factors are the other contributing drivers of contractual and speculative disputes respectively. This conceptualisation of construction disputes founds on the theoretical constructs of bounded rationality and opportunism offered by transaction cost economics. Bounded rationality restrains the ability to write a complete contract. As such an incomplete contract provides the window for practice of opportunism. Opportunism in construction is studied in detail. First, minefields and manifestations of opportunism are identified. Second, their respective occurrence likelihoods are assessed. Furthermore, while efforts can be directed at the pre-contract stage to minimise contract incompleteness, post-contract changes remain inevitable for various reasons. Thus adjustment mechanisms such as variation, extension of time and loss & expense provisions are included to deal with such changes while maintaining the validity of the contract. Moreover, opportunists take advantage of these changes. The management implications are two folded. To mitigate opportunism, the best strategy is to clear the minefields;



**Fig. 2.1** Anatomy of construction disputes

this requires conscious effort at the pre-contract stage. For example, more time should be allowed for the preparation of contract documentation. Notwithstanding, contracts remain largely incomplete and laid the ground for opportunistic behaviours. Self-interest-seeking contracting behaviours can be opportunistic. Contractors may therefore raise inflated claim and clients may outright reject any claims from contractors. At post-contract stage, a trusting contracting environment would suppress many of the problematic opportunistic manifestations. Notwithstanding the efforts in enhancing cooperation in contracting, perhaps there is no replacement for the basics of avoiding excessive risk taking, having clear documentation and keeping changes to the minimum.

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