

You Accidentally Entered Into an Automated Contract – Are You Legally Bound?

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I. Introduction

1 According to Artificial Intelligence expert Kai-Fu Lee, automation could displace 40% of the world’s jobs in the next 15 years.¹ Processes that are repetitive and routine are increasingly being replaced by technology.² The process of contract formation is no exception.

2 In recent years, software programmers have developed computer programs that can automatically draft contractual terms and enter into a contract without human intervention.³ For instance, financial firms often use computer programs to trade securities automatically.⁴ These computer programs utilise a trading algorithm to automatically purchase securities when specified market conditions are met.⁵

3 However, the lack of human oversight means that users of automated methods of contracting may sometimes make a mistake and inadvertently enter into a contract. Against this backdrop, this article seeks to inform users of automated means of contracting on: (a) the validity of such contracts; and (b) whether they are legally bound if they inadvertently enter into such contracts.

II. Discussion

4 This section will begin by examining the validity of contracts concluded by automated means. Next, it will explore whether a party who inadvertently entered into an automated contract is legally bound. Finally, it will consider how other countries are dealing with automated contracts.

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¹ Scott Pelley, “Facial and Emotional Recognition; How One Man is Advancing Artificial Intelligence” *CBS News* (13 January 2019) <<https://www.cbsnews.com/news/60-minutes-ai-facial-and-emotional-recognition-how-one-man-is-advancing-artificial-intelligence/>> (accessed 18 October 2021).

² *Ibid.*

³ Stuart D Levi, “An Introduction to Smart Contracts and Their Potential and Inherent Limitations” *Harvard Law School Forum on Corporate Governance and Financial Regulation* (26 May 2018).

⁴ Harry Surden, “Computable Contracts” *UC Davis Law Review* 2012; 46: 629–700, at 695.

⁵ *Ibid.*

A. *Are contracts concluded by automated means valid?*

5 As automated contracts become increasingly ubiquitous, it comes as no surprise that they are valid in the eyes of the law. This position is expressly stated in s 15 of the Electronic Transactions Act (ETA).⁶ Section 15 classifies contracts that are concluded autonomously into two categories: (1) those between an automated message system and a human; and (2) those between two automated message systems.

6 For both categories, s 15 provides that they are not invalid solely because no human reviewed the actions of the automated message systems or the resulting contract. Here, “automated message system” is defined as any type of computer program that can automatically initiate an action or respond to data transmissions.⁷ Examples of each category of contract will be illustrated below.

(1) *Contracts between an automated message system and a human*

7 The first category of contracts is one that many will encounter when doing online shopping. Suppose Thomas wants to buy a thermal flask on Shopee’s e-commerce platform. After some browsing, he found a branded thermal flask retailing at a discount and places an order. Almost instantaneously, Thomas receives an autogenerated confirmation e-mail stating “Thank you for your purchase! Your order #121121 is confirmed”.

8 Here, Shopee’s automated order system is an “automated message system” as it is a computer program that can automatically process orders and send confirmation e-mails. Following s 15, the contract between Thomas and Shopee is valid even though no human was involved on Shopee’s part.

(2) *Contracts between two automated message systems*

9 The second category of contracts is one that is often formed between two companies, like the scenario described in the introduction. In that scenario, the contract for the sale and purchase of securities was formed automatically between two financial firms through their trading algorithms.⁸

⁶ (Cap 88, 2011 Rev Ed).

⁷ *Id.*, at s 2.

⁸ See n 5 of the main text above.

10 These trading algorithms are “automated message systems” as they can initiate trades without human review when price conditions are favourable. Following s 15, the contract formed between the financial firms is also valid.

B. Can a party who inadvertently entered into an automated contract escape contractual liability?

11 As seen from the two categories of contracts, a party to an automated contract can either be a human or a computer program. Accordingly, this part will consider how each party can escape contractual liability if they inadvertently enter into an automated contract.

(1) Where a computer program malfunctions

12 Where a computer program malfunctions and inadvertently enters into a contract, a common defence raised is “unilateral mistake”. In *Quoine Pte Ltd v B2C2 Ltd*,⁹ the court helpfully summarised the requirements for this defence. In essence, where one party enters into a contract under a mistake as to a fundamental term such as the price of the contract,¹⁰ this mistaken party may escape contractual liability if the other party (the non-mistaken party):

- (1) knew of the mistaken party’s mistake; or
- (2) ought to know of the mistake and acted unethically or dishonestly in relation to the mistake.¹¹

13 Two local cases are worth further discussion here. In *Chwee Kin Keong v Digilandmall.com Pte Ltd*,¹² a company sold laser printers on its website for \$3,854. However, due to an internal error, the price was altered to \$66.¹³ A group of friends seized this opportunity and placed orders for 1,606 units. Their orders were processed by the website’s automated order system and confirmation e-mails were automatically sent.¹⁴

14 The court accepted the company’s defence of unilateral mistake. The group of friends, who were well-educated professionals, did look up the actual price of the printers.¹⁵ Their correspondence also showed that they suspected a pricing error.¹⁶ In these circumstances, the

⁹ [2020] 2 SLR 20 (“*Quoine*”).

¹⁰ *Chwee Kin Keong v Digilandmall.com Pte Ltd* [2005] 1 SLR(R) 502 at [34].

¹¹ *Id.*, at [80].

¹² [2004] 2 SLR(R) 594 (“*Digilandmall.com*”).

¹³ *Id.*, at [4]–[8].

¹⁴ *Id.*, at [72].

¹⁵ *Id.*, at [142].

¹⁶ *Id.*, at [148].

court found that they in fact knew that the company's website made a mistake as to the price.¹⁷ Thus, the contracts were set aside.

15 Separately, in *Quoine*, a cryptocurrency exchange platform, Quoine, inadvertently carried out Bitcoin to Ethereum trades at 250 times above the market rate in favour of B2C2, a trading company.¹⁸ This was due to Quoine's failure to make certain critical changes to its platform operating system.¹⁹ Quoine argued that unilateral mistake applied to set aside the trades.

16 However, the court rejected Quoine's defence of unilateral mistake for two reasons. First, Quoine in carrying out the trades did not make any mistake as to the trade price. This was because Quoine's software algorithms operated exactly as they were programmed to in arriving at the excessive trade price.²⁰

17 Second, even if Quoine did make a mistake as to the trade price, B2C2 had no knowledge of Quoine's mistake.²¹ B2C2 contracted through its automated trading algorithms and was unaware of these trades when they were entered into. The court was thus faced with a novel issue of how to ascertain B2C2's knowledge of Quoine's mistake.

18 The court concluded that B2C2's knowledge would be ascertained by reference to the knowledge of B2C2's software programmer at the time of programming.²² Here, when B2C2's software programmer programmed the algorithm, he did not and could not have known that Quoine would one day fail to maintain its platform operating system, resulting in the excessive trade price.²³ Thus, Quoine could not set aside the trades.

19 As observed, the test for ascertaining knowledge of the non-mistaken party is different in *Digilandmall.com* and *Quoine*. Where the non-mistaken parties are humans as in *Digilandmall.com*, knowledge could be inferred ordinarily from the circumstances. However, where the non-mistaken party is a computer program as in *Quoine*, knowledge would be ascertained by reference to the programmer's knowledge.

¹⁷ *Id.*, at [140].

¹⁸ *Quoine*, *supra* n 9, at [1]–[2].

¹⁹ *Id.*, at [27]–[30].

²⁰ *Id.*, at [114]–[115].

²¹ *Id.*, at [126].

²² *Id.*, at [98]–[99].

²³ *Id.*, at [119]–[126].

(2) *Where a human makes a mistake*

20 Turning to situations where a human makes a mistake and inadvertently contracts with a computer program (as in the first category of contracts),²⁴ s 16 of the ETA provides a useful remedy. Section 16 states that where a natural person makes an error when contracting with a computer program, that person will not be bound by the error if:

- (1) he notifies the other party of the error as soon as possible; and
- (2) he has not received any material benefit from the error.

This means that online shoppers can shop with a peace of mind, as they can rely on this remedy should they accidentally enter a contract with a click of a button.

C. Insights from other jurisdictions

21 The position that automated contracts are valid is generally accepted globally. Section 15 of the ETA,²⁵ which provides for this position, was mirrored after a United Nations Convention.²⁶ This Convention has since been adopted in 15 states including Singapore.²⁷

22 On the defence of unilateral mistake, *Quoine* is unique as it is the first of its kind, both in and outside of Singapore, where the non-mistaken party was a computer program. Given its novelty, *Quoine* was hotly debated by academics worldwide. For instance, some commentators found the court's approach of using the programmer's knowledge to be impractical where multiple programmers' knowledge are involved.²⁸ Others have lamented that the court's approach makes the defence of unilateral mistake harder to succeed, since the programmer must have had prophetic knowledge of the specific mistake in question.²⁹

23 Despite the dearth of similar cases, the approach taken in *Quoine* will no doubt come under the spotlight again and be tested further as automated contracts continue to gain traction.

²⁴ See p 3 above.

²⁵ See n 6 of the main text above.

²⁶ United Nations Convention on the Use of Electronic Communications in International Contracts (New York, 2005) ("Convention") Art 12.

²⁷ United Nations website <https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications/status> (accessed 1 November 2021).

²⁸ Mary Young and Luke Gregory, "Do androids dream of electric sheep? Mistaken computers and relevant minds" *Lexology* (19 June 2019) <<https://www.kingsleynapley.co.uk/insights/blogs/dispute-resolution-law-blog/do-androids-dream-of-electric-sheep-mistaken-computers-and-relevant-minds9>> (accessed 1 November 2021).

²⁹ Kelvin Low and Eliza Mik, "Lost in Transmission: Unilateral Mistakes in Automated Contracts" (2020) 136 *Law Quarterly Review* 563.

III. Conclusion

24 In summary, contracts concluded by automated means are valid and fall into two categories.³⁰

25 For the first category, where a human mistakenly enters a contract, he may rely on the remedy afforded by s 16 of the ETA. However, where it is a computer program that mistakenly enters a contract, unilateral mistake may be raised instead.

26 As for the second category, given the apparently harsh application of unilateral mistake in *Quoine*,³¹ it may be prudent for parties to include an express contractual term to set aside transactions concluded due to a software error.

³⁰ See p 3 above.

³¹ See n 29 of the main text above.