

# Satirical Figure of Speech on the TikTok Account @chikakiku and Its Implications in Senior High School Learning

Fajar Marentino and Markhamah<sup>(⊠)</sup>

Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

mar274@ums.ac.id

Abstract. This article aims to (1) describe the satire figure of speech found on the TikTok account @chikakiku (2) explain the function of satire figure of speech and its implications for learning in high school. This research was conducted with a qualitative descriptive method. The research object is the comment on the TikTok account owned by @chikakiku. The research data is in the form of commentary excerpts which contain innuendo. Data collection techniques using observation and note-taking techniques. The results of this study indicate that there are four types of satirical figures of speech used which are cynicism, sarcasm, irony, and satire. The number of allusive figures of speech found in akuTikTok @chikakiku's comments is 29 data. The most dominant style of satire is cynicism with a total of 11 data.

Keywords: Satire · TikTok · @Chikakiku

# **1** Introduction

Language is the ability that every human has to communicate with other humans as a form of social being. The role of language itself is to know the behavior and actions of other people. Language also shapes human character [1]. Through the use of language as a speech act, it is expected to be able to know the intent and purpose of the speech partner. Science and technology in the 4.0 industrial era Liffler, M., & Tschiesner [2] added, the basic principle of 4.0 industrial era is the merging of machines, workflows, and systems by implementing intelligent networks along the production chain and processes with the aim of controlling each other independently. This has become a very rapid development from various aspects, one of which is social media. Social media is one of the internet services and means to interact, participate, share or engage with one another virtually.

Social media is one of the facilities of internet services that is most favored by the public. In Indonesia, social media has become a primary necessity of life [3]. Social media provides a variety of applications that can be accessed, including Instagram, Facebook, TikTok, Twitter, Google, Line, YouTube, WhatsApp, Telegram, and others. One of the social media platforms that is often used now is TikTok. TikTok is a social

media that makes it easy for its users to share videos and communicate with each other. The form of communication in it is in the form of private chat, comments and a feature to reply to comments with videos. TikTok is an application that is popular with various age groups because it is very easy to access and there is a feature that can filter video themes that will appear on the application's homepage. In the TikTok application, users are given the freedom to make videos and socialize with other users. Users can comment on each other and give likes in each video. TikTok is also equipped with a private chat feature so that its users can talk more freely one-on-one.

In a pandemic era like this, people tend to prefer to remain silent and divert their habits of working, playing, or even going to school at home. They tend to limit themselves from leaving the house if there are no urgent needs. This makes people surf the internet more often to just get rid of boredom. One of the activities is accessing social media. This is a place where a lot of people access the virtual world. People who like to surf the internet and explore cyberspace are commonly referred to as netizens. Through social media, netizens always try to show their identity and their existence in cyberspace. In this modern world, humans cannot be separated from the internet. Almost all aspects of life require the internet as a support. With the internet, humans can access things easily and quickly. All humans who use the internet are called netizens.

People who use social media or commonly referred to as netizens have a big influence on social media, especially in communicating. Various groups of people have their own characteristics in delivering speech. This makes social media in Indonesia have diversity in language use. Even so, this diversity can actually be a double-edged sword. A speech which is normal according to the speaker is considered violating the use of the politeness principle for others. This phenomenon eliminates boundaries or separators in the use of language on social media.

On social media TikTok, interactions occur from various groups, such as the common people in general, public figures, government officials, athletes, and artists. Almost all public figures have TikTok account as one of their promotional media. Many public figures accounts have received satirical comments and bullying (disrespectful treatment) [4]. Swear words and hate speech often appear in their TikTok comments column. Comments in the form of satire written by netizens are sometimes very frontal and sometimes can be considered very impolite. If the artist is caught in a problem, a lot of satirical comments will appear on their account.

One of the TikTok public figures accounts that authors find containing many satirical comments belongs to Chandrika Chika, a public figure on TikTok who currently has 8.4 million followers with the account name @chikakiku. Comments written by netizens usually highlight the personal life of the public figure that is not in accordance with their mindset. These satiric comments reduce the level of language politeness among the public and teenagers [5].

Language style is the arrangement of words in the form of speech or writing with the aim of influencing the reader or listener. Language style is the utilization of one's richness of language in speaking or writing, more specifically the use of certain varieties of language to obtain certain effects. The effect in question is an aesthetic effect that produces the value of an art [6]. Language style is also an interesting element in a reading [7]. It is stated that language style is often referred to as figure of speech. Figure of speech is the way the speaker expresses the meaning of his speech [8].

One of the figures of speech that we can find on the TikTok @chikakiku account is satire. Satirical figure of speech is a language style that is used to satirize the other person with the aim of increasing the impression and meaning of the word on the reader. In satirical figure of speech there are five aspects, which are sarcasm, irony, antiphrasis, innuendo, and cynicism. Satire is always used to deliver meaning without having to directly state the matter of the subject [9].

The author found a lot of satire distributed on the @chikakiku account. One of them is a dance video that was uploaded on her TikTok account and received sarcasm comments from the account @fujiann62 by saying that *Chika is similar to the widow of a dozen children*. The comments made by this netizen show a lack of politeness in language among the public and teenagers. Even though there are no boundaries or separators in the use of language on social media, we must still use social media properly and wisely. All forms of hate speech in the form of provocation, insult or incitement will be subject to sanctions and penalties [10]. A public figure should also be good examples for their followers and society, considering that not a few people make them role models in any field.

This research discusses the forms of satire in the comment column of the @chikakiku TikTok account. The author sets the title as "Satire Figure of Speech on the @chikakiku TikTok Account".

#### 2 Research method

This study applied qualitative descriptive research method. This method is used by the author to explain the data with an analysis system and explain all forms of research results clearly considering that the data presented in the research is in the form of writing in the netizens comments in the @chikakiku TikTok account.

The data in this research are forms of satiric figure of speeches in the @chikakiku TikTok account. This research applied content analysis techniques. Data collection technique uses purposive sampling by taking samples based on certain considerations. The reason for using this technique is because of quantitative research, or research that do not carry out generalizations [11].

The focus of this research is the satirical figure of speech contained in the @Chikakiku TikTok account. The sub-focus in this study is the types of satire in the account. This study uses the comments column of the TikTok account @chikakiku as an object in data collection and analysis.

## **3** Result and Discussion

On the @chikakiku TikTok account, the author found 29 data in the form of satire. The figure of speech that was identified was in the form of sarcasm, cynicism, and irony. The results and discussion of the research will be fully presented in the following.

#### 3.1 Sarcasm

Sarcasm is the use of harsh and rude words to satirize or criticize [12]. The findings regarding the sarcasm that the author has collected are presented below.

- (1) Gda yg mau bersaing sm modalan *cafer* kek u. (N, 21/08/02, DN/1)
- (1) No one wants to compete with attention seeker like you. (N, 21/08/02, DN/1)

In the data above, netizens satirized Chika by calling her a *cafer*. *Cafer* is a slang word that means seeking attention. Slang is often used by the younger generation now, both in social media and in everyday use [13].

- (2) Semua berawal dari menggatal (A, 21/12/01, DN/2)
- (2) It all started with seducing (A, 21/12/01, DN/2)
- (3) Ga perlu cantik yang penting gatel wkwk (P, 21-11-12, DN/3)
- (3) You don't need to be pretty, the important thing is seductive, lol (P, 21–11-12, DN/3)
- (4) Masih cantikan dan lebih natural fuji sih tpi klo masalah *gatal* ya *gatalan* kamu hhhhhhhhhhhhhhhhhh. (I, 21/12/23, DN/4)
- (4) Fuji is prettier and more natural, but if it's come to a *seduction*, *you are more seductive* hhhhhhhhhhhhhhhhhhhhhhh. (I, 21/12/23, DN/4)
- (5) gw pikir<sup>2</sup> ckepan fuji,ga gatel lg fuji sm thoriq,dan smsm suka,ga sm ini menggatal (F, 21/12/26, DN/5)
- (5) I think Fuji is more good looking, she is also not seductive with Thoriq, and they both like each other, not with this seductive (F, 21/12/26, DN/5)

The data also stated that netizens also insinuated Chika with the word *gatel*. *Gatel* which a slang, is a harsh word that means as an allusion to a man or woman who often seduces other people's lovers.

- (6) Pura-pura nangisss banggssstttt (R, 21/11/20, DN/6)
- (6) Pretending to cry you bastard (R, 21/11/20, DN/6)
- (7) Melet mulu kek lon (C, 22/01/03, DN/7)
- (7) sticking out your tongue like a bitch (R, 21/11/20, DN/6)

The data above shows that netizens call Chika a *bangsat* and *lon* which is shortened from *lonte*. Both of these words are very rude and harsh swear words. This is relevant to research [14] regarding illocutionary speech acts of hate speech. The word *lonte* comes from the Javanese language which means bitch, whore, and prostitute.

## 3.2 Cynicism

Cynicism is a satirical figure of speech with a form of doubt that contains sincere mockery from the heart [15]. In line with that, it is stated that cynicism is a style of satire in which the way of expression is made bigger or sharper than the meaning to be given [16]. Cynicism is not as harsh as sarcasm and is realistic. The satire that is expressed is to make aware of something and does not only contain ridicule. The data below shows cynicism because the satire that is directed at the person contains doubts and ridicule of

something [17]. The findings regarding the cynic satirical figure of speech are presented below.

- (8) bukan era lo lagi (S, 21/07/13, DN/8)
- (8) not your era anymore (S, 21/07/13, DN/8)
- (9) hrsnya jgn kasi panggung ni org hasil prestasi jga bukan (A, 21/11/12, DN/9)
- (9) shouldn't give this person a stage, it is not an achievement either (A, 21/11/12, DN/9)

The data above shows comments from netizens who insinuated that Chika got the fame not because of an achievement, but because she used to go viral because of a dance video and the video was shared by more than four hundred thousand times.

- (10) ohh gini cwek matre liat duit aja aku gk mau pacaran tapi klo berduit gas wkkw (K, 21/11/12, DN/10)
- (10) ohh this is a material girl just looks at money, I don't want to date, but if you have money let's go wkwk (K, 21/11/12, DN/10)
- (11) Di TikTok nyindir netizen, di podcast nangis hahaha cari muka, segitunya ya cari harta (N, 21/11/19, DN/11)
- (11) On TikTok satirizes netizens, on podcast you cry hahaha looking for attention, that much effort to look for money (N, 21/11/19, DN/11)
- (12) cwe kyk gni biasanya ngancer yg berduit @thariqhalilintar jd hati" yh bang (L, 21/12/28, DN/12)
- (12) girl like this usually date those with money @thariqhalilintar so be careful bro (L, 21/12/28, DN/12)

The satire on the data above shows sarcasm by netizens stated that Chika approached Thariq only because of material things. The satire does not use harsh and rude language, as cynic satire, but it is harsher than irony.

- (13) ih warna rambut nya ngikutin Fuji sengaja ato gmn nii (X, 21/12/24, DN/13)
- (13) ugh, the hair color follows Fuji on purpose or what (X, 21/12/24, DN/13)
- (14) Uhhh kaciann tipe thoriq bukan lu hahaha.tipe thoriq fuji AWOKAWOK (B, 21/12/22, DN/14)
- (14) Uhhh sorry Thoriq's type isn't you hahaha. Thoriq's type is Fuji AWOKAWOK (B, 21/12/22, DN/14)
- (15) B ajah, Muka nya ngebosanin ah, cantikan Fuji (A, 22/02/07, DN/15)
- (15) It's ordinary, her face is boring ah, Fuji is more beautiful (A, 22/02/07, DN/15)

The data above shows a satire of comparing Fuji and Chika. In the utterances, the average netizen said that Chika was nothing more than Fuji in all aspects. The attitude of netizens who still compare herself to Fuji is still widely distributed in the comment column of her TikTok and Instagram.

- (16) viral modal tampang wkwkw (P, 21/12/20, DN/16)
- (16) viral only with looks wkwk P, 21/12/20, DN/16)
- (17) ekspresi nya sangat menyebalkan (O, 22/01/03, DN/17)

(17) her expression is so annoying (O, 22/01/03, DN/17)

The data above shows that there is an insinuation that Chika can go viral only because of her looks. The findings below also insinuate Chika by saying that Chika's expression is very annoying.

- (18) wah gawat suda masuk circle daraarafah dan owner msglow sukses jg menggatalnya ya (E, 22/01/01, DN/18)
- (18) Wow, that's bad, already entered the Dararafah circle and the owner of MSGlow, already succeeded in seducing too (E, 22/01/01, DN/18)

The data reveals a cynicism that offends Chika for making a dance video with *Dara Arafah and Ms Glow owner circle*, and is accused of being seductive. Most of the satire made by netizens is in the form of accusations that have no evidence.

#### 3.3 Irony

Irony is a sarcasm that says the opposite and contradicts its true meaning. Irony is a language style that contains a hidden meaning in an explicit way [18]. It means that the hidden meaning is delivered through something that is clearly different or even the opposite of the actual meaning. Satire usually begins by complimenting the speech partner, then ends up with bringing the speech partner down. One of the functions of irony is to strengthen and emphasize [19]. The findings regarding the irony figure of speech that the author has collected are presented below.

- (19) Njir 8,5M belum verified #BUKANMAEN (Y, 21/08/04, DN/19)
- (19) Wow 8.5M and still not verified yet #SOMETHING

Pada data (19), terlihat netizen menyindir Chika karena *followers* TikToknya yang mencapai 8,5 tapi belum mendapatkan *verified*. Apabila sebuah akun sudah memiliki *verified*, artinya akun sudah dikonfirmasi oleh pihak TikTok bahwa itu akun asli pengguna, mengingat banyak sekali akun palsu yang bertebaran.

- (20) cewekmu cantik? pandai ngechat cowok duluan ga? pandai ngejar cowok dapat sampe ga jadian ga? (C, 21/12/18, DN/20)
- (20) your girl is pretty? Is she good at chatting with guys first? Is she good at chasing guys and successful or not? (C, 21/12/18, DN/20)

Netizens' comments on data (20) show satire stating that it was Chika who approached men in matters of love, but always failed. Most netizens in Indonesia think that if a woman approaches a man first, she is considered a cheap woman. That's why Chika got the satire.

- (21) gimana rasanya d hujat 1 Indonesia seneng ya (M, 21/12/20, DN/21)
- (21) How does it feel to be insulted all over Indonesia, are you happy? (M, 21/12/20, DN/21)
- (22) Pura pura bahagia itu menyakitkan neng (T, 21/12/22, DN/22)
- (21) Pretending to be happy is painful girl (T, 21/12/22, DN/22)

Two data (21) show netizens utterances who made sarcasm asking how it felt to be insulted by Indonesian netizens since almost all videos or content that Chika uploads always get negative comments. The negative comments made by netizens are the impact of a lack of digital literacy which will have a negative effect on psychology [20]. In data (22), it can be seen that netizens made fun of Chika, who always appeared fine on social media.

- (22) umur 18 uda kayak punya anak 3 (B, 21/12/27, DN/23)
- (22) age 18 and already look like having 3 children (B, 21/12/27, DN/23)

Data (23) intends to make fun of Chika because her face does not match her age and claims that Chika is like a woman who already has three children. The utterance includes irony because it states excessive things.

#### 3.4 Satire

Satire is a figurative language or figure of speech that is used to express insinuation at someone or a situation. It is usually delivered in the form of sarcasm, parody, and irony. Satire contains expressions that laugh at or reject something. In contrast to sarcasm, satire is more subtle and sometimes has elements of comedy in it. Satire is often used to insinuate, criticize, and ridicule. The findings regarding the satirical insinuation that the author has collected are presented below.

- (23) ga ketat ga makan ya Cik? (P, 21/07/13, DN/24)
- (23) If its not tight, you can't eat right Miss? (P, 21/07/13, DN/24)
- (24) dari sini kita tau bahwa terkadang perempuan lebih malu mempunyai jerawat daripada membuka aurat (M, 21/09/01, DN/25)
- (24) from this we know that sometimes women are more embarrassed to have pimples than to open their genitals (M, 21/09/01, DN/25)

From the data above, it can be seen that netizens made fun of Chika by saying that Chika doesn't eat if she isn't tight. The meaning of this sentence is that Chika, according to netizens, often creates content using tight clothes so that her videos are trending. Data (25) shows women who are more embarrassed to have pimples than to open their genitals. The insinuation meant to offend Chika who was wearing tight clothing.

- (25) kemaren Dimas, sekarang Thoriq, besok Nino Kuya wkwkwk (G, 21/11/09, DN/26)
- (25) yesterday Dimas, now Thoriq, tomorrow Nino Kuya wkwkwk (G, 21/11/09, DN/26)
- (26) gak mau pacaran dulu ingin menikmati masa muda KATANYA (S, 21/11/07, DN/27)
- (26) don't want to date first, want to enjoy the youth, SHE SAID (S, 21/11/07, DN/27)

The two data above show comments from netizens who insinuated Chika by accusing her of approaching Nino Kuya, because she had failed with Dimas and Thariq regarding romance. Chika used to also say that she was reluctant to have an relationship for a while, but some time later she had a relationship with Thariq, thus getting satire on data (27).

(27) Jangan merasa tersakiti ketika diri sendiri tau bahwa ini bukan apa apa, tidak perlu membuat apapun yang akan membuat mu jelek dimata orang lain (L, 21/12/27, DN/28)

- (27) Don't feel hurt when you know that this is nothing, you don't need to make anything that will make you look ugly in the eyes of others (L, 21/12/27, DN/28)
- (28) Netizen menghujat bukan tanpa alasan, introspeksi diri aja biar ga terus di hujat (R, 22/14/04, DN/29)
- (28) Netizens insult not without reason, just introspect yourself so you don't continue to be blasphemed (R, 22/14/04, DN/29)

Data (8) states that there is satire that has the intention of advising Chika to reduce all actions that make her name bad in the eyes of other people. Satire that tries to advise Chika are also found in data (29), by saying that Chika must self-reflect, occurs because netizens blaspheme for a reason. Blasphemy is also categorized as cyberbullying phenomenon which has a negative impact on social media users [21].

#### **Implications in Senior High School Learning**

The implications of research results in learning will make the use of language styles in schools more widespread and more developed. It can enrich students' language styles. In the satirical figure of speech on TikTok account @chikakiku, many comments from netizens are trying to bring Chika down, from subtle satire to swearing that are distributed in the comment section of her personal TikTok account. Those who commented were not only adults, but lots of students who also enlivened it in the comments. Variations of comments can be found easily.

Seeing the enthusiasm of students in commenting on social media, if the teacher does not show the positive and negative, it can be a backfire for the educators. There are positive and negative sides that can be taken from this event. The positive side is that it can be shown to students that rude satire is using impolite language. By getting this explanation students can understand language variations in commenting so that the comments made must be in the form of subtle satire. The negative side is that if the teacher does not explain to the students that insinuating a public figure is considered normal or even normal use of language, students can forget the importance of the principle of language politeness and speech acts. [22].

## 4 Conclusion

Based on the results of the research that has been done, it can be concluded that there are four satire figures of speech contained in the comments on @Chikakiku TikTok account with a total of 29 utterances. The types of figure of speech found include cynicism, sarcasm, irony, and satire. Cynic satire is the figure of speech that dominates its frequency in this study. The utterances analyzed show that many netizens use satire as a means to advise and blaspheme the person addressed as in its function of satire which is to indirectly express certain feelings or intentions to make someone aware of something.

## References

 Devianty, R. (2017). "The Role of Indonesian and Local Languages in Character Education". Ijtimiyah Jurnal Ilmu Sosial dan Budaya, 1(2). http://jurnal.uinsu.ac.id/index.php/ijtimaiyah/ article/view/1400, pp. 154–169. DOI: https://doi.org/10.1007/10722167\_15

- Liffler, M., & Tschiesner, A. (2013). "The Internet of Things and the FuturE of Manufacturing". McKinsey & Company. McKinsey. Com.
- Ainiyah, N. (2018). "Millennial Youth and Social Media: Social Media as an Educational Information Media for Millennial Youth". Jurnal Pendidikan Islam Indonesia, 2(2), 221–236. https://doi.org/10.35316/jpii.v2i2.76
- Hamzah, R. H. B., Said, M. Z. B., & Supriadi, U. DYNAMIC ANALYSIS STUDY: IMPACT OF TIKTOK APPLICATIONS ON CHARACTER EDUCATION IN COVID-19 PAN-DEMIC. *Religio Education*, 1(2), 117–124. https://ejournal.upi.edu/index.php/religio/article/ view/41347
- Inderasari, E., Achsani, F., & Lestari, B. (2019). "Sarcasm Language of Netizens in Instagram Account Comments "Lambe Turah". Semantik, 8(1), 37–49. https://doi.org/10.22460/sem antik.v8i1.p37-49
- 6. Pradopo, Rahmat Djoko. 1995. Several Literary Theories, Methods, and Their Uses. Yogyakarta: Pustaka Pelajar.
- Halimah, S. N., & Hilaliyah, H. (2019). "Najwa Shihab's satirical language style in the book Catatan Najwa". Deiksis, 11(02), 157–165. https://doi.org/10.30998/deiksis.v11i02.3648
- 8. Kridalaksana, H. mukti. (2008). Linguistic Dictionary Fourth Edition. Jakarta: Gramedia Pustaka Utama.
- 9. Waridah, E. (2016). EYD and Indonesian Language. Jakarta: Kawan Pustaka.
- Pratiwi, N. K., & Hilaliyah, H. (2018). SATIRICAL FIGURE OF SPEECH ON INSTAGRAM ACCOUNTS @ AYUTINGTING92. PROCEEDINGS UNIVERSITAS PAMULANG .1(1). http://openjournal.unpam.ac.id/index.php/Proceedings/article/view/2144
- 11. Sugiyono. (2016). Quantitative Qualitative Research Methods and R&D. Bandung: PT. Alfabet.
- 12. Waluyo, Herman J. 2002. Design Literary Studies. Salatiga: Widyasari Press.
- Prasasti, R. (2016). "The Influence of Slang on the Use of Indonesian by Unswagati Students". Logika Jurnal Ilmiah Lemlit Unswagati Cirebon, 18(3), 114–119. http://jurnal.ugj.ac.id/index. php/logika/article/view/422
- Ardiansyah, Y. M. (2022). "Netizens Hate Speech Illocutionary Acts in Social Media Comment Column (Instagram and TikTok) on Denise Chariesta Account". Jurnal Penelitian, Pendidikan, dan Pembelajaran, 17(2). http://riset.unisma.ac.id/index.php/jp3/article/view/ 14843
- 15. Keraf, Gorys. (2010). Diction and Language Style. Jakarta: PT Gramedia Pustaka Utama.
- 16. Nurdin, A. D. (2004). The Digest of Indonesian Language and Literature for Senior High School. *Bandung: CV Pustaka Setia*.
- Azura, Y., Faizah, H., & Auzar, A. "Satirical Figure of Speech in Sby-jk (Susah Bensin Ya Jalan Kaki) By Wahyu Untara" (Doctoral dissertation, Riau University). https://jom.unri.ac. id/index.php/JOMFKIP/article/view/10157
- 18. Aminudin, (2013). Introduction to Literary Appreciation. Bandung: Sinar Baru Algensindo.
- Zahara, E., Yakob, M., & Hidayat, M. T. (2021). ANALYSIS OF IRONIC FIGURE OF SPEECH IN THE PROHABA NEWSPAPER. *Jurnal Samudra Bahasa*, 4(1), 23–30. https:// ejurnalunsam.id/index.php/JSB/article/view/3330
- Pratiwi, N., & Pritanova, N. (2017). The effect of digital literacy on the psychology of children and teenager. *Semantik*, 6(1), 11–24. http://e-journal.stkipsiliwangi.ac.id/index.php/sem antik/article/view/250

- Uswatun, A. T., Wijayanti, C. P., & Puspitasari, M. (2020, January). Language Politeness Crisis on Instagram Social Media Causes Cyberbullying Phenomenon. In *Seminar Nasional SAGA# 3 (Sastra, Pedagogik, dan Bahasa)* (Vol. 2, No. 2, pp. 67–73). http://seminar.uad.ac. id/index.php/saga/article/view/3306
- Waljinah, S., Prayitno, H. J., Purnomo, E., Rufiah, A., & Kustanti, E. W. (2019). Online News Discourse Directive Speech Actions: A Study of Digital Technology-Based Learning Media. *SeBaSa*, 2(2), 118–129. https://e-journal.hamzanwadi.ac.id/index.php/sbs/article/ view/1590

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (http://creativecommons.org/licenses/by-nc/4.0/), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

