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Emotional contagion in consecutive interpreting

An empirical study with novice interpreters

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English abstract

Emotions are a fundamental component of interpreting. While working, interpreters not only have to process and face their own emotions, but they also tend to converge with their speakers' emotional states under a process known as *emotional contagion*. Do interpreters tend to imitate the speaker's emotional states by feeling what the speaker feels? Emotional contagion still represents an underinvestigated aspect of interpreting and the few studies on this topic have tended to focus more on simultaneous interpreting rather than consecutive interpreting. This is also because in simultaneous interpreting interpreters have less time to think and gain distance from the speaker's emotions than in consecutive interpreting. Korpal & Jasielska (2019) compared the emotional effects of one emotional and one neutral text on interpreters in simultaneous interpreting and found that interpreters tended to converge emotionally with the speaker more when interpreting the emotional text.

This exploratory study follows their procedures to study the emotional contagion potentially caused by two texts among interpreters in consecutive interpreting: one emotionally neutral text and one negatively-valenced text, this last containing 44 negative words as *triggers*. Several measures were triangulated to determine whether the presence of the triggers in the negatively-valenced text could prompt a stronger emotional contagion in the consecutive interpreting of that text as compared to the consecutive interpreting of the emotionally neutral text, which contained no triggers—namely, the quality of the interpreters' delivery; their *heart rate variability* values as collected with EMPATICA E4 wristbands; the analysis of their acoustic variations (i.e., disfluencies and rhetorical strategies); their linguistic and emotional management of the triggers; and their answers to the Italian version of the *Positive and Negative Affect Schedule* (PANAS) questionnaire about their self-perceived emotions during the consecutive interpreting of the two texts.

Results showed no statistically significant evidence of an emotional contagion evoked by the triggers in the consecutive interpreting of the negative text as opposed to the consecutive interpreting of the neutral text. On the contrary, interpreters seemed to be more at ease while interpreting the negative text. This is a surprising result that, together with other results of this project, suggests venues for further research.

Keywords: emotions; interpreting; emotional contagion; consecutive interpreting; EMPATICA E4 wristbands.

Abstract in italiano

Le emozioni rappresentano una componente fondamentale dell'interpretazione. Le interpreti, mentre lavorano, non solamente si trovano a dover elaborare le proprie emozioni e farvi fronte, bensì tendono anche a convergere emotivamente con i loro oratori per via di un fenomeno conosciuto come *contagio emotivo*. Le interpreti tendono veramente ad imitare lo stato d'animo dei loro oratori arrivando addirittura a provarne le emozioni? Il contagio emotivo rappresenta ancora oggi un aspetto dell'interpretazione poco indagato e i pochi studi su questo argomento si sono incentrati maggiormente sull'interpretazione simultanea invece che sull'interpretazione consecutiva, anche per via del fatto che, in interpretazione simultanea, le interpreti dispongono di meno tempo per poter riflettere e prendere le distanze dalle emozioni dei loro oratori rispetto, invece, a quanto accade nell'interpretazione consecutiva. Korpal e Jasielska (2019) hanno paragonato gli effetti emotivi di due testi, l'uno neutro e l'altro emotivo, su un gruppo di interpreti in interpretazione simultanea, giungendo alla conclusione che le interpreti tendevano a convergere emotivamente con il proprio oratore maggiormente durante l'esecuzione dell'interpretazione simultanea del testo emotivo.

Il presente studio esplorativo ripropone la procedura da loro adottata al fine di paragonare il contagio emotivo causato tra le interpreti durante l'interpretazione consecutiva di due testi, l'uno neutro e l'altro con una valenza emotiva negativa e contenente 44 parole negative utilizzate come trigger. Al fine di comprendere se i trigger fossero in grado di causare un contagio emotivo maggiore nelle interpreti nell'interpretazione consecutiva del testo negativo rispetto all'interpretazione consecutiva di quello neutro, sono stati combinati i seguenti parametri di analisi: la qualità della prestazione delle interpreti; i dati relativi alla loro *variabilità della frequenza cardiaca* tramite l'utilizzo dei braccialetti EMPATICA E4 forniti dal MC2 Lab di Forlì; l'analisi delle loro variazioni acustiche (i.e., disfluenze e strategie retoriche); la loro gestione linguistica ed emotiva dei trigger; e le loro risposte alla versione italiana del questionario PANAS (Positive and Negative Affect Schedule) riguardo alle emozioni da loro percepite durante l'esecuzione dell'interpretazione consecutiva dei due testi.

I risultati di questo progetto non hanno riportato alcuna significatività statistica a riprova di un contagio emotivo nell'interpretazione consecutiva del testo negativo causato dai trigger rispetto all'interpretazione consecutiva del testo neutro. Al contrario, le interpreti hanno trasmesso l'impressione di trovarsi più a proprio agio nell'interpretare il testo negativo rispetto a quello neutro. Questo soprendente risultato, a fianco di altri esiti del presente progetto, apre la strada a possibili ricerche future.

Parole chiave: emozioni; interpretazione; contagio emotivo; interpretazione consecutiva; braccialetti EMPATICA E4.

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Introduction

The aim of this exploratory research project is to better understand the role of emotional contagion in Consecutive Interpreting (CI). Emotional contagion has been defined as "the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently, to converge emotionally" (Hatfield et al. 1994: 5). Emotional contagion can also affect interpreters. Hence, it has been observed that interpreters tend to experience and mimic the exact emotional state of their speakers (Hsieh & Nicodemus 2015: 1477). It comes therefore as no surprise that professional interpreters explain that they often unconsciously mimic their speakers' emotional display also during simultaneous interpreting (SI), where they must sit in their booths and no one is watching them. For example, if speakers smile on stage in a happy voice, the interpreters will not only translate the speakers' words but also automatically tend to smile and speak with a happy voice while also subconsciously mimicking the speakers' emotional state. The role of emotional contagion in interpreting still represents a relatively underinvestigated field of research and so far, the few studies on this topic were devoted to investigating emotional contagion in SI. To the best of my knowledge, however, no study has yet ever been conducted in order to investigate the role of emotional contagion in CI.

Korpal & Jasielska (2019) conducted a study on emotional contagion in SI, showing that interpreters tend to converge emotionally with the original speaker's emotions. They came to this result after making a group of interpreters conduct a SI of two texts, a neutral speech and an emotional speech, showing that the interpreters tended to converge emotionally with the speaker when interpreting the emotional speech. For their analysis, they chose two parameters: the interpreters' physiological reactions in terms of number of Galvanic Skin Responses (GSR) as a marker of emotional arousal, and a self-report questionnaire (see § 1.3.3 and § 1.4 for further details).

This research project aims at contributing to our knowledge on emotional contagion by following Korpal & Jasielska's (2019) guidelines for SI and applying them to the study of emotional contagion in CI. Hence, the main goal of this project was to conduct a similar study with two texts with a different emotional load in CI in order to try to infer general aspects and tendencies in the informants' emotional reactions potentially associated to the emotional contagion induced by the negative emotional content of the emotional text. To this aim, a series of observations was conducted and a set of parameters was used, including a physiological parameter and a self-report questionnaire, in line with the structure of the study by Korpal & Jasielska (2019). As opposed to Korpal & Jasielska (2019), however, this study used Heart Rate Variability (HRV) as a physiological marker of emotional arousal instead of GSR, and the Italian version of the PANAS questionnaire by Terracciano et al. (2003).

Before moving to the content and results of this research project, a mention to the research conducted in the field of emotions and emotion processing in interpreting is in order. It

is an important step so as to understand how this study can contribute to expanding the knowledge about this topic, in particular the way in which interpreters face difficult emotional and cognitive circumstances and can be affected by the emotions involved in their work while delivering their interpretation.

Starting with cognitive difficulties, it has been shown that interpreting can be considered to be a particularly stressful and taxing activity (Korpal 2016b: 15–16). Thus, interpreters must coordinate many tasks while working, which include managing their cognitive resources in order to carry out several linguistic and attention-related tasks simultaneously (Korpal 2016b: 15–16). In his famous *Effort Model,* Gile (1999: 154) stated that interpreters must be able to face a series of cognitive *Efforts* while delivering their interpretation. For instance, Gile postulated that the *Efforts* interpreters must manage in SI and in CI can respectively be summarized as follows (Gile 2021):

> **SI** = L + M + P + C
> **CI** =
> comprehension phase: L + M + Pnotes + C
> reformulation phase: NR + RM + P + C

In both cases, L stands for the *Listening Effort*, M for the *Memory Effort*, P for the *Production Effort* (production of speech in SI and production of notes in the first phase of CI), and C for the *Coordination Effort*. In the reformulation phase of CI, NR stands for *Note Reading* and RM for "the mental reconstruction of the speech from memory" (Gile 2021). To summarize the *Efforts* involved in CI, the following definition can be of help, whereby CI is

> [...] a mode of interpreting in which the speaker makes a speech (or says a few sentences) whilst the interpreter takes notes. The interpreter then reproduces what the speaker has said for the audience. He is normally standing or sitting close to the speaker, uses a pad and pen to take notes and uses the microphone (if there is one) only once the speaker has finished and it is his turn to speak. In order to be a good consecutive interpreter you must be able to listen very actively, analyse what the speaker is saying, make useful notes which will jog your memory of the speech as you give it back, and then be able to make the speech as if it were your own in your active language.[1]

Since this research project is dedicated to the observation of emotional contagion in CI, it is also worth noticing that the amount of emotions—also and especially including stress (see § 1.2.2)—involved in CI is greater than in SI since in CI "[...] accuracy errors may be identified by the part of the audience which has a sufficient command of both the source and target language" (Korpal 2016a: 309). Additionally, whereas in SI interpreters are isolated in their booths, in CI they must perform on stage and are exposed to the audience. Interpreters per-

ceive being under the spotlight and public speaking as some of the main obstacles to overcome in CI (Korpal 2016a: 309).

CI involves strong emotions, such as anxiety. Jiménez & Pinazo (2001: 105) showed that anxiety emerges in the early stages of interpreters' training programs—even when students "only" have to hold monolingual presentations in front of their colleagues and teachers in their mother tongue (L1) or L2 (Jiménez & Pinazo 2001: 105). This emotional condition does not decrease easily when monolingual presentations become real CI involving very complex cognitive processes of language and cultural transfer (Jiménez & Pinazo 2001: 105). CI therefore may often entail greater emotionality for interpreters than SI.

To sum up, interpreters must be able to manage their pool of cognitive resources in order to face several efforts at the same time while also controlling their emotions, in CI even more so than in SI. It can therefore be stated that interpreting highly depends on finding a balance between the available cognitive resources on the one hand and the emotions involved in the interpreting task on the other, to the point that Gile compared the interpreter to a tightrope walker in his *tightrope hypothesis* (Gile 1999). According to Gile's tightrope hypothesis, if interpreters mismanage their cognitive resources and/ or don't find a balance between the efforts, then cognitive overload or attentional deficits will occur by deteriorating the interpreters' output (Gile 1999: 159). This explains why it sometimes happens that interpreters commit a high number of errors or omissions even if the source text is not particularly technical or difficult (Gile 1989, in Gile 1999: 159). This happens because interpreters work above the saturation level of their cognitive resources. Otherwise, mistakes and omissions occur when the source text contains objective difficulties, meaning "problem triggers such as numbers or proper names" (Gieshoff 2021: 177). In order to see if this is the case, observing a group of interpreters can be of help: if all subjects in the group fail to translate a same sentence or idea, then this probably indicates that the text contains an objective difficulty (e.g., the text is too specialized, the speaker speaks too fast, etc.). On the other hand, if only one subject fails to translate that piece of information, then it is probably because they did not manage their cognitive resources properly and slipped into overload (Gile 1999: 160).

Alongside these high cognitive efforts involved in interpreting, interpreters must also face a high emotional load, as it has already been mentioned when examining the emotional obstacles linked to CI. This means that cognitive and emotional efforts together make interpreting a very difficult and taxing activity. Speaking of emotional efforts, it can be stated that "[t]he interpreted encounter overflows with emotions, both at the level of the parties' interest and the feelings rising in the interpreter who strives to reconcile and select the meaning to be conveyed" (Furmanek 2006: 60). Interpreting is an emotionally-laden activity, impacted by both external and internal psychological factors (Furmanek 2006: 60), such as, respectively, interpreting a very fast speaker or dealing with strong emotions while performing the interpretation.

In healthcare, in particular, interpreters are "a unique type of [...] professionals" (Hsieh & Nicodemus 2015: 1475): they must do their job but also understand the emotional state of both patients and healthcare professionals, and show empathy. Often, interpreters find themselves working in very sensitive and emotive situations (Hetherington 2011: 140). For instance, they may need to offer both linguistic and psychological support to patients when translating sensitive information or negative diagnoses (Hsieh & Nicodemus 2015: 1477) or accounts of "traumatic events including death, violence, child abuse and neglect" (Hetherington 2011: 140). In brief, in healthcare settings interpreters are exposed to considerable emotional pressure. In particular, they must be able to manage others' emotions as well as their own (Hsieh & Nicodemus 2015: 1475–77). This *emotion work* (Hsieh & Nicodemus 2015) has several impacts on interpreters, which have only started to be taken into closer consideration from the early 2000s, because "interpreters have traditionally been trained to adopt an emotion-less, passive, and robot-like style of interpreting; as a result, researchers overlooked issues related to interpreters' emotion work as well as its corresponding impacts" (Hsieh & Nicodemus 2015: 1477).

Recently, both speakers' emotions and their interpreters' own emotions have been investigated. It started to be noticed that interpreters working in emotionally-laden settings tend to mimic or recreate, whether intentionally or not, speakers' emotions and emotional expressions. This is exactly where *emotional contagion* (also *emotion contagion*), the main focus of this research project, comes into play. One of the first things which stand out when examining emotional contagion is that it can cause a wide range of effects on interpreters. For instance, emotional contagion could potentially help interpreters to better understand the speakers' intentions and emotions by strengthening their empathy (Korpal & Jasielska 2019: 16). However, it could also have negative repercussions on them by increasing their stress levels. Hence, "because interpreters adopt a first-person speech style (i.e., talking or signing as if they were the original speaker) during interpreter-mediated interactions, they can be particularly vulnerable to emotion contagion (e.g., experiencing the exact emotion of others) and vicarious trauma", both of which can also relate to a possible burnout among them (Miller et al. 1988 and Figley 1995, quoted in Hsieh & Nicodemus 2015: 1477; Bontempo & Malcolm 2012).

Starting from here, this research project aims at investingating more deeply the functioning of emotional contagion among interpreters in CI by carrying out a series of observations. The method and results of this project are offered and discussed in the next pages.

This research project is structured as follows. Chapter 1 offers an overview of the role of emotions and emotional contagion in conference interpreting, with special attention to a series of metrics to measure them, including physiological and behavioural markers of emotions (e.g., Heart Rate Variability and acoustic variations, respectively) and psychometric tools such as self-report questionnaires used for measuring emotions. After that, the latest research on the impact of emotions on interpreting and, in particular, on emotional contagion in interpreting up to

now will be discussed—in so doing, special attention will be devoted to Korpal & Jasielska's (2019) contribution. Such contribution will be the main starting point for this research project with the aim of extending this line of research by investigating the role of emotions, in particular of emotional contagion, in CI, which is a topic which has not been studied in the field yet.

Chapter 2 summarizes the research methods adopted in this thesis, based on previous research. A pilot test was conducted which involved two students who had completed their final year of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus by the time the experiments were carried out. The pilot test was conducted to check the research apparatus before proceeding with the actual study. Once the data from the pilot test was collected, the actual study was conducted, which involved seven students who had also completed their final year of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus by the time the study was conducted.

Chapter 3 offers the results of this study and chapter 4 discusses its findings. An attempt was made to observe whether a list of emotional triggers in a speech in the informants' L2 or L3 (English), may relate to effects in the informants' CIs into their L1 (Italian) as compared to another speech which contained no such triggers. In order to see whether this was the case, various parameters for both CIs were analysed:

1. the quality of the informants' CIs;
2. their number of acoustic variations (i.e., disfluencies and rhetorical strategies);
3. their physiological response in terms of their HRV values;
4. their linguistic and emotional management of the triggers, that is to say, for instance, how well the informants translated them into Italian and how much the emotional load of their translations differed from that of the original triggers;
5. their answers to the Italian PANAS questionnaire about the two CIs.

Chapter 5 offers the conclusions of this research project, based on the analysis of data in statistically descriptive terms, bearing in mind that the sample is small. The conclusions also point out limitations and possible implications of this research project. Additionally, superscript numbers will appear throughout the text. These refer to the website list which can be found in the References section of this thesis.

Please note that the names of the informants have been switched to fictive ones, for privacy purposes. Throughout the text, either the full fictive names or their initials (mainly, at tables and graphics) will be used: A, *Anna*; B, *Benedetta*; C, *Chiara*; D, *Debora*; F, *Francesca*; G, *Giovanni*; and I, *Ilaria.*

1. Literature review

1.1. *Interpreting: a highly emotional and stressful task*

Psychological factors play a major role in interpreting. Both professional interpreters and interpreting trainees often perceive interpreting as a particularly taxing activity. Interpreters are exposed to a high degree of job stress, that is to say "harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker" (Kurz 2003: 51).

In order to accomplish their work, interpreters can never lose their attention and concentration and must be ready to face many difficulties, such as technical subjects, very fast speakers and the audience's judgement (Kurz 2003: 52). Interpreters must be able to work under time pressure, offer good quality to their clients, speak in public, show self-control and keep a cool head, among other things, and these tasks can, more or less depending on each interpreter's personality, become relevant causes of task-related stress. Depending on situational and individual differences (Kurz 2003: 51), stress can either induce positive or negative emotions (e.g., enthusiasm or upsetness, respectively) in the interpreters experiencing it. To sum up, interpreting involves a high number of challenges, both cognitive and emotional. Interpreters must therefore rely on their coping strategies, their clarity of mind and their steady nerves to overcome such obstacles.

> It is striking that virtually no other profession undergoes a similar cognitive load: no physical activity is involved or need be accomplished, no instruments can be of help, everything goes on in the mind. The technical equipment is used to carry the acoustic signal directly to the ears and not to help the interpreter in difficult circumstances. The interpreter is in a position where any decision taken is the consequence of what somebody else does or says. […] The more unknown factors the interpreter is confronted with, the higher the mental load and stress will be.
>
> (Riccardi et al. 1998: 97)

Stress in interpreting and interpreters' ways to cope with it represent a topic which attracted the attention of many researchers in the field of Cognitive Translation and Interpreting Studies, short CTIS (e.g., Klonowicz 1994; Moser-Mercer et al. 1998; AIIC 2002; Kurz 2003; Moser-Mercer 2005; Roziner & Shlesinger 2010 quoted in Korpal & Jasielska 2019: 4; Hetherington 2011; Korpal 2016b). Such studies often showed that interpreting entails higher stress levels than most other language-related activities and that stress coping is a particularly important quality for interpreters, which should be taught to novices from the very beginning of their studies (Korpal 2016b: 113). For instance, Jiménez & Pinazo (2001: 113) investigated the role of fear of public speaking and anxiety in interpreting novices in consecutive interpreting exams. In their study, they found that "the measure of confidence [of participants] in public speaking is significantly related to anxiety showing that low confidence in public speaking

is related to high scores in state anxiety", meaning that "the higher the fear of public speaking, the higher the anxiety" interpreters will experience (Jiménez & Pinazo 2001: 113). The results of their study find support in the cognitive assessment model developed by Lazarus & Folkman (1984), which is further discussed in section 1.2.2. According to this model, anxiety occurs when the subject interpretes a cirmustance as a possible threat and thinks he/ she does not have access to the resources to cope with that threat. In interpreting, this means that "a public speaking situation may give rise to anxiety feelings if it is interpreted as threatening and consequently is experienced with fear" (Jiménez & Pinazo 2001: 107).

Both professional interpreters and novices are exposed to public scrutiny and this means that their audience—whether employers in real life settings or trainers at exams—will be felt as demanding. In interpreting "[t] here are no second chances, the first time is the last time, with little or no option to repeat anything" (Jiménez & Pinazo 2001: 111). This means that interpreters must be fast in choosing the best possible solutions in the shortest fraction of time, and this alone requires self-confidence and audacity on the part of interpreters. Furthermore, an interpreter must carry out "also an internal dialogue with his own inner self about the interpreted event that can lead to feelings of suppression, excitement, guilt, trauma, or which in turn can result in manipulation" (Furmanek 2006: 58).

Various researchers (e.g., Stamm 1995; Doherty et al. 2010; Hetherington 2011; Hsieh & Nicodemus 2015; Mehus & Becher 2016) have tried to shed some light on the psychological repercussions for interpreters working in difficult contexts, such as public service interpreters (including healthcare interpreters) and interpreters in war zones and post-conflict areas, in contact with migrants and refugees, and in "highly sensitive and emotive situations, directly witnessing traumatic events or interpreting […] in the telling of traumatic events including death, violence, child abuse and neglect" (Hetherington 2011: 140). Doherty et al. (2010) interviewed a group of interpreters working in mental health services for refugees and migrants at the Glasgow Translating and Interpreting Service (GTIS). They studied the impact of work on interpreters' well-being—still an under-researched topic—and found that interpreters seem to be emotionally affected by mental health interpreting, with 56% of the participants in a semi-structured questionnaire reporting thinking about the clients and their problems for up to 30 minutes after the session had ended (Doherty et al 2010: 33). Interestingly, interpreters may be prone to become traumatised after working with traumatised clients and they may re-experience previous personal trauma through their work. This is especially true, for example, for interpreters who once were refugees and who, later on in their life, found themselves offering an interpreting service to refugees and by doing so relived the sufferings and the traumatic experience they went through in the past when they had to flee their country (Hsieh & Nicodemus 2015: 1477).

Hetherington (2011: 139) showed that, even if interpreters are very often perceived as figures providing a technical service, there is much more to this job. This view of interpreters as

"translating machines" has resulted in "anxiety and confusion on the part of interpreters" (Hetherington 2011: 140). This anxiety and confusion are in turn aggravated by the very scarce public knowledge about this profession. Interpreters often become invisible to the eyes of other professionals, even if they often help their clients overcome misunderstandings showing empathy and compassion and even if, in order to accomplish that, they may have to go beyond ethical boundaries (Hetherington 2011: 140). Mehus & Becher (2016: 249) have conducted a research study on Secondary Traumatic Stress, burnout and compassion fatigue in spoken-language interpreters and have found that interpreters, especially those with traumatic experiences similar to those of their clients, are at high risk of developing these conditions. *Compassion fatigue* can be defined as the burnout and stress experienced by caregivers and other helping professionals as a reaction of working with traumatized people over a long period of time.[2]

In light of these considerations, it appears evident that interpreters are usually exposed to a certain amount of psychological pressure and to a high degree of emotionality. However, the main focus of this research project will be how interpreters respond to the pressure and strong emotions they are exposed to while interpreting, in order to see "whether it is indeed possible for interpreters to bracket their own emotions, and if so what effect does this have on interpreters and what they do with these feelings on completion of an assignment" (Hetherington 2011: 149) and to find out more about interpreters' response to emotions, emotional contents and emotional contagion.

1.2. *Stress: an overview*

It is overall known that interpreting is a stressful activity, to the point that several researchers have used interpreting as a way of observing the effects of stress, trauma and emotions on human beings and the possible coping strategies to manage them (Hsieh & Nicodemus 2015; Mehus & Becher 2016). To date, however, empirical research on the role of stress in interpreting is still scarce (Rojo et al. 2021: 1). Studies on the impact of stress and emotions had already gathered momentum by the end of the 20th century (Rojo et al. 2021: 2). Thus, for many years, CTIS researchers had devoted their attention primarily to observing cognitive functions behind translating and interpreting, such as attention management, memory, problem solving strategies and decision-making processes, leaving aside the emotional aspects. The turning point was at the start of the 21st century, when attention shifted from the "cognitive or thinking brain" to the "emotional brain" and to the importance of emotional factors for translators and interpreters (Rojo 2017: 369–370).

1.2.1. Systemic stress

Many attempts to define stress focus on the relationship between *external demands (stressors)* and *bodily processes (stress)*. Stress theories can be divided into two different groups (Krohne 2002): (a) systemic stress theories, from physiology and psychobiology, and (b) psychological

stress theories, within cognitive psychology. Hans Selye was the main representative of systemic stress theories. He observed that patients suffering from chronic illnesses such as cancer showed symptoms of what today is known as stress. Selye identified a similar condition in laboratory animals: when exposed to stimulus events such as heat, cold or toxic agents intensely and for long time spans, they seemed to experience typical and common effects (Krohne 2001: 2). Selye postulated that stress was a reaction of individuals while exposed to nonspecific demands *(stressors)* and observed the individuals' reaction to the stressors (i.e. the *stress response*). Selye called the reaction to stress the *general adaptation syndrome (*GAS), since he had noticed that both humans and animals experienced a "general syndrom of sickness" when exposed to an illness or a disturbing agent, independently from the specific condition they were going through (Selye 1976: 138). Selye described the GAS in the following way:

> The keynote of this unification was the tenet that all living organisms can respond to stress as such, and that in this respect the basic reaction pattern is always the same, irrespective of the agent used to produce stress. We called this response the general adaptation syndrome, and its derailments the diseases of adaptation.
>
> (Selye 1950: 4667)

As shown in **Figure 1**, the GAS constitutes a triphasic response, which articulates as follows: (1) alarm reaction (AR); (2) stage of resistance; and (3) and stage of exhaustion.

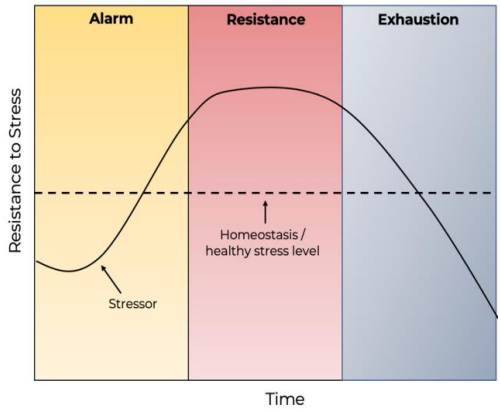


Figure 1. A graphic illustration of GAS.[3]

Alarm reaction corresponds to the fight-or-flight response, that is, the "response to an acute threat to survival that is marked by physical changes, including nervous and endocrine changes, that prepare a human or an animal to react or to retreat".[4] In other words, it is a primitive reaction which activates the body to fight against or flee from a threat, in the exact same way in which a gazelle starts running after seeing a lion in nature. *Resistance* and *exhaustion* are, respectively, the time span in which the organism adapts after a prolonged exposure to stress, and a relapse of symptoms that occurs if the exposure is too long (Fink 2016: 1). The main

symptoms of AR disappear or are reversed in the stage of resistance and are reactivated in the stage of exhaustion. This shows the genetic adaptability of living organisms to their surrounding environment (Selye 1950: 1383).

According to Selye's GAS theory, biological stress is an "encounter" between *damage* and *defence* similar to the encounter between force and resistance in physics. This interplay leads to the GAS, a *general* reaction to a stressor, independent of the individual experiencing it. But the *eliciting stressor* causes *specific actions* that are different and unique. The presence of specific actions and of factors external to the stressor (e.g., the individual's diet, hereditary factors, prior exposure to other stressors, etc.) will likely alter the GAS pathway, causing its "polymorphism" and "diseases of adaptation", elicited not by the systemic stress (GAS), but by the specific conditions in which the individuals are at the moment they are exposed to an eliciting stressor (Selye 1950: 1387). Selye also distinguished between *distress* and *eustress* in the early 1970s, to separate the stress response initiated by negative, unpleasant stressors, from that prompted by positive emotions (Szabo et al. 2017: 4031–32). While *distress* fosters bad feelings and is commonly referred to as simply *stress*—which can be *acute* or *chronic,* according to its duration—, *eustress* evokes positive, motivating and inspiring feelings, such as the excitement induced by kissing someone you like (Seward 2015: 7).

Selye's critics have highlighted some weaknesses in his theory. One of these weaknesses was the general nature of stress, which became synonymous with other conditions such as anxiety and the feeling of being threatened and the fact that this conceptualization of stress neglects the psychological individual processes underpinning stress perception (Krohne 2001: 2; Korpal 2016a: 302), which are instead later to be found in Lazarus & Folkam's theory of stress, which I address below.

1.2.2. The transactional model of stress and coping

The concept of stress represents a highly complicated area of research and escapes an easy definition. After sketching Selye's GAS theory as an example of the systemic strain of stress research, let us now summarize Lazarus & Folkam's (1984) *transactional theory of stress* as representative of its psychological conceptualization. Lazarus (1993: 2) approaches stress from a mechanical perspective. He wrote that Robert Hooke—one of the greatest scientists of the 16th century and one of the leading voices in the Scientific Revolution—postulated that man-made structures, such as bridges, must be designed in order to resist external pressures. Hooke referred to the resistance of a bridge to a *load,* a weight, and to the surface over which that load impinged, and to the *deformation* of the bridge caused by the interplay of both load and stress (Lazarus 1993: 2, emphasis mine).

Hooke's definition of *resistance* is used as a metaphor of *resilience*—in physical science, "the capability of a strained body to recover its size and shape after deformation caused especially by compressive stress".[5] In psychology, *resilience* is defined as the process and outcome

of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands."[6] Additionally, resilience appears to be a particularly important trait also for interpreters.[7]

According to Lazarus & Folkman's model, a psychological stress is a "transaction between the individual and the environment, where stress will arise when the demands encountered by an individual are appraised or perceived as exceeding the resources available to them [coping resources], threatening their well-being" (Lazarus, 1966, 1990; Lazarus & Launier, 1978, all quoted in Gardner 2005: 6). Lazarus & Folkman (1984) distinguish three main stages of stress perception. First, the subjects experience a causal external or internal agent, called *stress* or *stressor*. Second, they carry out a cognitive *appraisal* or evaluation of the stressing agent in order to establish if this is threatening and noxious or benign for them, meaning "categorizing an encounter, and its various facets, with respect to its significance for well-being" (Lazarus & Folkman 1984: 46). Third, they activate their own individual coping strategies in order to manage stress and they react to it and its psychological and physical effects (Lazarus 1993: 3).

As illustrated in **Figure 2**, appraisal, as the *mediator* (Lazarus 1993: 7) between load, coping resources, and individual benefits and goals, can be divided into *primary* and *secondary* appraisal. Lazarus & Folkman warn that the choice of the terms *primary* and *secondary* is inappropriate, since it may erroneously induce people to think that the former is more important or comes earlier in time than the latter, while this is not the case (Lazarus & Folkman 1984: 31). Let us address them in order.

Primary appraisal is the evaluation of a situation: "Am I in trouble or being benefited, now or in the future, and in what way?" (Lazarus & Folkman 1984: 31–32)—in other words, whether an event is appraised as irrelevant, benign-positive or stressful. Appraisals *arouse* emotions, they cause emotional *arousal,* which can be defined as

> [...] a state of physiological activation or cortical responsiveness, associated with sensory stimulation and activation of fibers from the reticular activating system" and "a state of excitement or energy expenditure linked to an emotion. Usually, arousal is closely related to a person's appraisal of the significance of an event or to the physical intensity of a stimulus. Arousal can either facilitate or debilitate performance.[8]

Stress appraisals include *harm/loss, threat* or *challenge*. *Harm/loss* is a form of psychological damage experienced by the subject, such as an irrevocable loss of a loved one. *Threat* entails the act of anticipating harm that has not yet been inferred but may be imminent; *challenge* results from an obstacle that we feel confident about overcoming thanks to our coping resources (Lazaurs 1993: 5). Hence, threats permit anticipatory copying (Lazarus & Folkman 1984: 33). Finally, *challenge* is similar to *threat* in that it too leads to the activation of coping mechanisms; challenge is positive, and aimed at a possible gain or growth of an encounter. It *arous-*

es positive emotions such as eagerness, excitement, and exhilaration. In contrast, threat aims at anticipating and avoiding potential harm and elicits negative emotions such as fear, anxiety, and anger (Lazarus & Folkman 1984: 33). Lazarus & Folkman (1984: 33) also point out that *threat* and *challenge* can occur simultaneously if, for instance, an individual feels both motivated and scared by a situation. They studied the emotional state of a group of students before their midterm examination and found that 94% of them felt both challenge emotions (hopefulness, eagerness and confidence) and threat emotions (fear, worry and anxiety). We may assume a similar setting in interpreting, which may for some novices and professionals trigger both positive (e.g., motivation, willingness to grow and acquire new skills etc.) and negative emotions (e.g., fear of making mistakes, anxiety before performing on stage, etc.).

Secondary appraisal instead refers to evaluating the coping strategies individuals have at their disposal: "What if anything can be done about it?" (1984: 31).

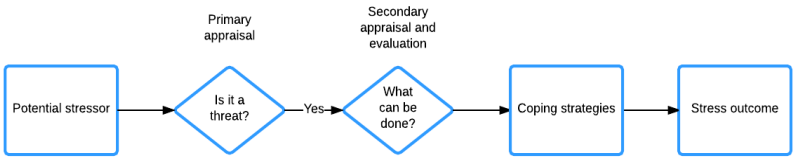


Figure 2. Graphic illustration of Lazarus & Folkman's Transactional Model of Stress (from Nagy 2015: 21).

The innovative point in the transactional model is the *relational meaning* of emotions, i.e., a highly personal relationship that each individual has with the environment which shapes the whole process of both perceiving and coping with external and internal factors (Lazaurs 1993: 13–16). For instance, anger is seen as a product of an individual's appraisal of injury to their self-esteem, meaning that emotions are shaped by this "person-environment relationship" (Lazaurs 1993: 13–16).

The concept of *appraisal* is strongly related to that of *coping*. Charles Darwin thought that, in order to survive, animal species had to assess what was predictable and controllable in order to avoid, escape or overcome a noxious event or a predator (Lazarus & Folkman 1984: 118). The transactional model of stress adds a cognitive-emotional flavour by focusing on the *coping styles* and *coping resources* individuals have at their disposal in order to face a situation. Lazarus & Folkman (1984: 141) define *coping* as the act of "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person." *Coping* is seen as a dynamic process, where the ever-changing person-environment relationship also changes the coping tactics selected by the individual.

Lazarus & Folkman (1984) differentiate *emotion-focused* coping from *problem-focused* coping. *Emotion-focused* coping only changes the way we interpret a situation; for example,

we may avoid thinking about something threatening or worrying us by re-*appraising* it and make it look more benign, denying its existence or taking distance from it. *Problem-focused* coping entails that the person changes their relationship with the environment by coping with stress and changing a problem for the better (Lazarus 1993: 8). Folkman & Lazarus (1980, quoted in Carver et al. 1989: 267) observed such coping strategies by developing a self-report psychometric questionnaire called *Ways of coping* (see § 1.3.3), whereby subjects are asked to describe their own coping choices in a certain stressful situation.

Of course, the ability to cope in one or the other way highly depends on the individual coping resources (for example, health and energy), positive beliefs (e.g., optimism and hope), problem-solving skills, social skills, social support, and material resources. In turn, individuals could see their coping ability hindered by some factors such as personal constraints (what they call *personal agendas*) or environmental constraints, level of threat (the greater the threat the more emotion-focused the coping will be), the ability to control the course of a situation, and the changes in coping styles during lifetime (Lazarus & Folkman 1984).

1.3. *Emotions and how to measure them in interpreting*

So far special attention was devoted to stress and the possible ways to cope with it. In this section, the relation between stress and emotions will be discussed—then a series of methods which can be used for measuring emotions and investigating their role in interpreting will be mentioned.

When examining the relationship between stress and emotions, Lazarus (1993: 10) argues that stress should be studied as part of a broader area, that is that of emotions, even if traditionally studies on the former or the latter have been kept separate from each other. According to Lazarus (1993: 10), one single emotion theory could and should include both stress and emotions, since the two concepts show several overlapping elements. Lazarus (1993: 10) goes on to explain that the concept of stress shifted from a unidimensional idea of stress (i.e., one stressor inducing one reaction) to a multi-dimensional idea of stress (i.e., *threat*, *challenge* and *harm/loss*). He therefore argues that the natural third step would and should be to conceive of a stressful situation as a circumstance which can potentially involve a much broader set of emotions than just the three reactions taken as benchmarks for the individual's adaptability to the external environment in the *transactional model* by Lazarus & Folkman (1984). In light of Lazarus' (1993) suggestion, in the next pages I will refer to emotions rather than stress since the former can be seen as a broader dimension also including the latter. Additionally, stress should not be perceived as synonymous of anxiety. Hence, even if there is a really fine line between the two emotions,

> [...] stress is typically caused by an external trigger. The trigger can be short-term, such as a work deadline or a fight with a loved one or long-term, such as being unable to work, discrimination, or chronic illness. People under stress experience mental and physical

> symptoms, such as irritability, anger, fatigue, muscle pain, digestive troubles, and difficulty sleeping.
>
> Anxiety, on the other hand, is defined by persistent, excessive worries that don't go away even in the absence of a stressor. Anxiety leads to a nearly identical set of symptoms as stress: insomnia, difficulty concentrating, fatigue, muscle tension, and irritability.[9]

This disambiguation was important since anxiety is one of the 15 different emotions identified by Lazarus (1993: 12) after starting to conceive of emotions in a broader way. The 15 different emotions identified by Lazarus (1993:12) are: 9 negative emotions (anger, fright, anxiety, guilt, shame, sadness, envy, jealousy, and disgust)—deriving from troubled living conditions; 4 positive emotions (happiness, pride, relief and love); and 3 additional emotions whose *valence* is equivocal or mixed (hope, compassion and gratitude).

The concept of *valence* needs a proper explanation, since it is a key concept in the field of emotions. But first of all, a general consideration on the nature of emotions is needed. Intuitively, we all are able to recognize that emotions are part of our daily life: we all feel joy, anger, sadness, hunger, fear, and many other emotions every single day. And yet, "[e]motions are a multi-componential phenomenon that escapes an easy definition" (Rojo et al. 2014: 33) and "[p]art of the complexity in studying emotion is defining it" (Bradley & Lang 2007: 581).

For this reason, many attempts have been made to define emotions and two main approaches to the topic emerged. Emotions can indeed be analysed from two different perspectives: one *dimensional* and the other *discrete* (Mauss & Robinson 2009: 210). Under a dimensional perspective, emotional response is usually divided into fundamental dimensions as follows (Mauss & Robinson 2009: 210):

1. *valence*: divided in turn in states of pleasure (e.g., happiness) and states of displeasure (sad);
2. *arousal* (also activation): divided in turn in states of low arousal (e.g., calm) and high arousal (e.g., surprise);
3. *approach motivation*: tendency to approach a given stimulus (e.g., excitement);
4. *avoidance-approach*: tendency to avoid a given stimulus (e.g., anxiety).

From this perspective, the importance of *valence* in the study of emotions which I mentioned earlier in this section appears clear. *Emotional valence* is defined as

> [...] the value associated with a stimulus as expressed on a continuum from pleasant to unpleasant or from attractive to aversive. In factor analysis and multidimensional scaling studies, emotional valence is one of two axes (or dimensions) on which an emotion can be located, the other axis being arousal (expressed as a continuum from high to low). For example, happiness is typically characterized by pleasant valence and relatively high arousal, whereas sadness or depression is typically characterized by unpleasant valence and relatively low arousal.[10]

According to the dimensional perspective of emotions, even simple organisms such as worms can show basic approach/avoidance responses and more complex organisms, such as human beings, use discrete emotions such as anger and fear resulting from basic emotive processes coupled with cognitive appraisals of the self and the environment (Harmon-Jones et al. 2017: 1). Bradley & Lang (2007: 582) posit that in nature, even in the simplest of organisms, two types of stimuli can be found: stimuli promoting survival (e.g., food)—leading the subject towards the eliciting stimulus—and stimuli threatening the subject and prompting withdrawal, escape, or avoidance. Under a discrete perspective of emotions, on the other hand, each emotion is correlated to a unique experience, physiological reaction and behaviour (Mauss & Robinson 2009: 211).

Due to the complexity of providing a standardized and universal subset of emotions, lists of basic emotions have often varied from theorist to theorist (Bradley & Lang 2007: 582). However, a solution to this problem can be found in that each discrete emotion can be seen as representing a combination of several dimensions. For example, fear is characterized by negative valence, high arousal and avoidance motivation (Mauss & Robinson 2009: 211).

In light of these considerations, it is of great interest for the present study to analyse the possible ways in which *affective* experience in humans can be measured, in particular in the field of Interpreting Studies. Here it must be pointed out that the adjective *affective* refers to the complex concept of *affect,* that is "any experience of feeling or emotion, ranging from suffering to elation, from the simplest to the most complex sensations of feeling, and from the most normal to the most pathological emotional reactions" be it positive or negative affect, and both referable to mood and emotions.[11]

As previously discussed in section 1.1, interpreting is a highly demanding and taxing activity, both in terms of cognitive and emotional load involved. For this reason, for many years, interpreting researchers have tried to shed some light on the functioning of the interpreters' mind. In particular, a first strain of research started to focus mainly on the structure and functioning of the interpreters' brain in order to understand their management of cognitive efforts. Later on a shift in research occurred whereby more attention was devoted to emotions in interpreting. Let us address these two phases in order.

When examining the first phase, devoted to the cognitive processes involved in interpreting, it can be seen that several attempts have been made to investigate the interpreters' cerebral functioning. For instance, research has been carried out on cerebral hemispheric lateralization (Fabbro et al. 1990) and the role of working memory in SI (Timarová 2008), on the interpreters' frontal lobe hyperconnectivity during rest from interpreting (Klein et al. 2018) and on cerebral activation patterns during SI (Tommola et al. 2000), just to name a few examples.

Moving on to the second phase, it can be observed that in the past few years the attention of Interpreting researchers has shifted from the interpreters' cognitive functioning to their emotional profile and reactions, in line with the idea that cognitive functions could no longer be conceived as separate from emotions (Rojo 2017: 369–370). Hence, empirical research on

psycho-affective factors in CTIS has greatly benefitted from researchers' interest in other disciplines such as psychology and other areas of cognitive science (Rojo & Korpal 2020: 191) and has recently begun to increasingly pick up pace. For example, as explained by Korpal (2016b: 95–96), some attention has been devoted to the under-investigated role of the interpreters' psychological and personality traits in Interpreting Studies and admission tests for Interpreting Programs and to the importance of including courses aimed at teaching soft skills such as motivation and emotional stability in interpreting curricula (Bontempo & Napier 2011) in order to train future interpreters.

The methods employed in order to measure emotions in interpreting are diverse and are based on possible ways to describe and analyse manifestations of emotions. First of all, it is necessary to understand how emotions manifest themselves in us and others. Intuitively, we all think we can recognize emotions in other persons: we may see them smile, cry, startle and instinctively think they are, respectively, feeling happy, sad or scared, in what James (1890, quoted in Mauss & Robinson 2009: 209) called "organic reverberation". However, scientific evidence shows that measuring emotions in human beings is one of the most complicated endeavours in affective science (Mauss & Robinson 2009: 209). In order to measure emotions, it is helpful to start from the consideration that, when someone experiences a stimulus, something occurs in them.

> An aspect of emotion upon which most agree, however, is that in emotional situations, the body acts. The heart pounds, flutters, stops and drops; palms sweat; muscles tense and relax; blood boils; faces blush, flush, frown, and smile. We note these reactions in ourselves, and make inferences about the emotional life of others based on visible bodily responses. [...]
>
> [T]he word emotion stems from the Latin *movere*, meaning to move. When emotions are intense, people move: they act, they react, sometimes dramatically, as in crimes of passion. It is instructive that the word 'motivation' stems from the same verb; a motive is, literally, 'something that moves one'.
>
> (Bradley & Lang 2007: 581)

Emotions *move* human beings, leading to some reactions measurable from different perspectives. Emotions can be described as "an episode of interrelated, synchronized changes in the states of all or most of the five organismic subsystems in response to the evaluation of an external or internal stimulus event as relevant to major concerns of the organism" (Scherer 2005: 697). The five subsystems mentioned by Scherer are the following: neurophysiological, motivational, motor (also behavioural) expression, cognitive, and subjective feeling components (Rojo et al. 2014: 33). Depending on each subsystem, as I will explain in further detail in the next pages and also show during the exploratory study of this research project, emotions produce different impacts in human beings and can therefore be measured in several ways accordingly (Rojo et al. 2014: 33):

1. neuro-physiological responses caused by an emotional experience can be measured by observing changes at the level of the autonomic nervous system (ANS) in the human body (e.g., acceleration in heart rate and sweating);
2. motor expression as correlates of emotions can be measured by observing body movements or other behavioural parameters (e.g., facial expressions and acoustic speech variations);
3. cognitive and subjective feelings can be measured by using psychometric tools such as self-report questionnaires whereby informants are asked to provide an evaluation of their own self-perceived emotional states before, during and after the experiment.

I will now go on to discuss these three affective measurement methods in detail. After that, I will show some examples of past applications of the three methods in Interpreting Studies.

1.3.1. Physiological indicators of emotions

One of the ways of analysing the processing of and the response to emotions in the human body is by observing autonomic changes and reactions, that is to say changes in the *autonomic nervous system (ANS)*. Before discussing the functioning of the ANS and its correlation to emotions, it is important to understand that one of the ways of looking at emotions is by describing them as a set of neural and hormonal interactions (Sorinas et al. 2020: 1). Such interactions can cause a certain affective experience, that is to say bodily sensations which activate physiological reactions in order for the organism to adapt to them and prepare for coping (Sorinas et al. 2020: 1). For example, when the fight-or-flight response is activated, the heart starts beating fast in order to pump enough oxygen into our limbs so that we can run away from a threat eliciting fear in us (Rojo & Korpal 2020: 195).

The way in which organisms experience and process emotions in the brain and in the body can be investigated following three distinct models developed throughout history (Scherer 2009: 3460). The first model is based on a classical view of emotion. Scherer (2009: 3460) states that the main representatives of this school of thought are, among others, Ekman (1992) and Izard (2007). According to this line of research, a limited number of emotions (anger, sadness, fear, disgust, happiness, surprise) are managed by separate neural systems and have their own physiological "fingerprints"—a specific and unique combination of facial expressions, bodily reactions and other physiological correlates that enable us to recognize emotions in others and ourselves (Rojo & Korpal 2020: 194). Moreover, according to Lindquist et al.'s (2012: 162) radical locationism theory, "discrete emotions consistently and specifically correspond to distinct brain regions." The second model is based on the so-called constructivist emotion theories or theories of constructed emotion. As stated by Scherer (2009: 3460), this school of thought is based on James (1884), Schachter & Singer (1962) and Barrett (2006), according to whom emotions are not innate or genetic, but they are constructed by multiple neural systems working together and in a holistic way. In particular, Schachter & Singer's two factor theory of emotion posits that "experiencing and identifying emotional states are functions of both physiological arousal and

cognitive interpretations of the physical state."[12] The third and last model lies on the appraisal theories of emotion, based on Aristotle, Descartes, Spinoza and Hume, Arnold (1960, quoted in Scherer 2009: 3460) and Lazarus & Folkman (1984) and on the understanding of emotions as a person-environment relationship dictated by the individual's cognitive appraisal of a certain stimulus also observable through recordings of autonomic nervous system activity (Lazarus 1993: 6) as already described in section 1.2.2.

Even if these views hold different perspectives on the way emotions are processed and constructed in the brain, they coincide with the physiological indicators of emotional experience or arousal (Rojo & Korpal 2020: 193), which can be measured using different parameters. When examining the array of measuring methods used for the analysis of emotional processing and responding, the observation of the functioning of the nervous system, especially the ANS—which is seen as a major component of affective response (Kreibig 2009: 394)—undoubtedly stands out.

The ANS is one of the components of the nervous system. The nervous system can be divided into the *central nervous system* (CNS), which includes the brain and the spinal cord, and the *peripheral nervous system,* which is made up of the nerves branching from the CNS, that is to say the nerves that the CNS needs in order to interact with the rest of the body (Hewstone et al. 2005: 44–45). The peripheral system is itself divided into the *somatic nervous system*—which deals with sensory organs and voluntary organs such as muscles, enabling the organism to interact with the external environment—and the ANS, which controls the internal environment of the organism.

Specifically, the ANS controls the activity of organs such as the heart and endocrine glands secreting regulatory hormones, also governing sweating and the distribution of blood flow (Hewstone et al. 2005: 47). The hypothalamus, the brain region which controls information processing, sends signals to the rest of the body through the ANS either to stimulate or to relax bodily functions, in response to all kinds of stimuli (for example, it may react because the subject did not get enough sleep or because it felt angry or excited). Nevertheless, if the body is constantly exposed to a stimulus, such as stress, poor sleep, unhealthy diet, dysfunctional relationships, isolation or solitude, and lack of physical exercise, it will lose its balance and slip into a constant fight-or-flight response.[13]

The ANS is itself divided into two parts: the *sympathetic nervous system* (SNS) and the *parasympathetic nervous system* (PNS), which carry out opposite functions (Hewstone et al. 2005 ibid). The SNS prepares the body to cope with an emergency situation by redirecting blood from the skin and the digestive system to the muscles, raising heart rate, causing the dilatation of the air passages to the lungs and increasing sweating. These physiological reactions activate the body for the fight-or-flight response (Hewstone et al. 2005: 47). The SNS sends a signal to the adrenal glands in order for them to release adrenaline and cortisol, which, as

mentioned, make the heart beat faster, raise blood pressure, alter the digestive process and boost glucose levels in the bloodstream (Korpal 2016b: 76).

The PNS does the opposite, by slowing heart rate, increasing blood flow to the digestive system in order to facilitate digestion (Hewstone et al. 2005: 47). These two systems act as "acceleration and braking systems", which means that the SNS increases physiological arousal when it is active, while the PNS slows it down when it is active: for example, if we are stressed the SNS is activated and the PNS is inhibited, while if we are relaxed, the PNS is activated and the SNS is inhibited (Rojo & Korpal 2020: 193). Every single day, the SNS and the PNS interact with each other, causing reactions such as beads of sweat, which can be a physiological reaction caused by the peripheral system, but can also occur when we cannot remember the right answer to a test, which is a cognitive function controlled by the CNS (Rojo & Korpal 2020: 193).

Initially, many researchers believed that different emotional states (e.g., fear or happiness) elicited specific patterns of ANS activation (e.g., the presumed correlation between anxiety and increased heart rate). James was one of the first researchers to focus on specific emotions, "those that have a distinct bodily expression", whereby, he writes

> [...] a wave of bodily disturbance of some kind accompanies the perception of the interesting sights or sounds, or the passage of the exciting train of ideas. Surprise, curiosity, rapture, fear, anger, lust, greed, and the like, become then the names of the mental states with which the person is possessed. The bodily disturbances are said to be the "manifestation" of these several emotions, their "expression" or "natural language"; and these emotions themselves, being so strongly characterised both from within and without, may be called the standard emotions.
>
> (James 1884: 189)

Nevertheless, the paucity and inconsistency of experimental results have led researchers to view ANS activation as an index of broader dimensions such as arousal and valence rather than discrete emotions (Mauss & Robinson 2009: 214). However, it has been shown that by jointly using multiple ANS measures, it may be possible to find a greater degree of autonomic specificity, that is of discrete emotional states (Cacioppo et al. 2000 & Stemmler 2004, quoted in Mauss & Robinson 2009: 215). Nevertheless, ANS measures fulfil other functions such as actual task demands, coping appraisals, and motor behaviour, and it may therefore be problematic to view ANS activity as an exclusive indicator of physiological response to emotions (Mauss & Robinson 2009: 215).

In order to measure such physiological responses to emotions in terms of ANS activation, various indexes can be used. These indexes are normally based either on cardiovascular activity (to be found in the blood circulatory system, such as heart rate) and on electrodermal activity (e.g., sweat glands). It is easy to understand why this is the case. At least once in our lifetime, we have all felt our heart beat fast or our hands sweating while feeling nervous or anx-

ious or scared, maybe waiting for a job interview or for an important exam to start. This is the reason why changes in heart rate or in sweating can be used as an index that a subject is experiencing certain emotions. More specifically, these indexes vary in terms of whether they signal SNS or PNS activation or both (Mauss & Robinson 2009: 213). Some examples are:

- heart rate (HR): (also called *pulse*), it is, "[i]n medicine, the number of times the heart beats within a certain time period, usually a minute. The heart rate can be felt at the wrist, side of the neck, back of the knees, top of the foot, groin, and other places in the body where an artery is close to the skin. The resting heart rate is normally between 60 and 100 beats a minute in a healthy adult who is at rest. Measuring the heart rate gives important information about a person's health."[14] It reflects a combination of SNS and PNS activity (Mauss & Robinson 2009: 213).
- heart rate variability (HRV): it mostly reflects PNS activation and can be defined as "a measure of the variation in time between each heartbeat."[15] That is, the "changes in the time intervals between consecutive heartbeats called interbeat intervals (IBIs)" (Schaffer & Ginsberg 2017).
- galvanic skin response (GSR): it is a physiological manifestation of electrodermal activity (EDA). It particularly reflects SNS activation and stands for "the electrical properties of the skin as determined by sweat gland activity." (Vahey & Becerra 2015: 275) In other words, and at the risk of oversimplifying, GSR stands for sweating. GSR is considered to be one of the most sensitive and reliable physiological markers of emotional arousal (Korpal 2016b: 79; Kyriakou et al. 2019: 3).
- blood pressure (BP): it is the pressure against the walls of blood vessels (arteries) caused by the blood pumped by the heart. The higher the BP, the harder the heart has to pump. When BP is too low, a condition called hypotension is caused, when it is too high, hypertension is the result.[16] As with HR, BP reflects a combination of SNS and PNS activity (Mauss & Robinson 2009: 213).
- cardiac output (CO): **"**the volume of blood ejected from the left side of the heart in one minute", also *minute volume* and particularly reflects SNS activation.[17]
- total peripheral resistance (TPR); also *systemic vascular resistance* (SVR), it "refers to the resistance to blood flow offered by *all* of the systemic vasculature, excluding the pulmonary vasculature" and "is therefore determined by factors that influence vascular resistance in individual vascular beds. Mechanisms that cause vasoconstriction increase SVR, and those mechanisms that cause vasodilation decrease SVR."[18]
- pre-ejection period (PEP): "the time from the onset of ventricular depolarization to the beginning of left ventricular ejection, [it] is a systolic time interval that allows assessment of ventricular function." (Bendjelid et al. 2004: 337);
- concentration of cortisol, which is "considered the primary stress hormone: [i]n response to stress or injury, blood cortisol levels, and therefore glucose levels, increase, as does blood pressure, whereas activity of the immune system decreases and release of inflammatory substances in the body is contained. Cortisol thus improves the body's ability to manage stress and to repair itself".[19] It is usually measured using blood or saliva samples (Korpal 2016b: 81) and is particularly indicative of SNS activity.

For the purpose of this research project, I will only focus on two of these physiological measurements, namely HR and HRV.

1.3.1.1. HR

One of the bodily functions controlled by the ANS is HR, which is a measure of the number of heartbeats per minute used to monitor cardiovascular activity (Taj-Eldin et al. 2018: 3). As a reminder, the ANS is made up of the SNS and the PNS. The SNS activation accelerates HR as a reaction to a potential stress. This is the reason why HR has already been taken as an index of ANS activation induced by stress and "as an operational definition of the experience of stress" and emotions (Rojo & Korpal 2020: 77). The idea behind taking heart rate (HR) as a physiological indicator of stress is that the higher the HR of a subject is, the greater the stress experienced by him/her (Korpal 2016b: 129). One possible method to measure HR is by using wearable heart monitors, such as wristbands and chest belts. With the rapid development of Information and Communication Technologies, such devices have become increasingly popular and have come to represent an affordable and simple way to keep track of personal physiological wellbeing and emotional states for the general population (Taj-Eldin et al. 2018: 1).

These devices have many advantages: (1) they do not require medical expertise (and are, for this reason, easier to use); (2) they are less costly as compared to much more expensive measurements such as electrocardiographic (ECG) observations; (3) they have been proved to be an effective way to measure HR in situations of physical and mental stress also in order to obtain information about different levels of intensity of emotions in psychological studies (Rojo et al. 2014: 33–34; Korpal 2016b: 78). Additionally, wearable HR monitors are assumed to be an unobtrusive method because they must be put on the informants' body before the experiment begins until it ends and data provided by these devices is not particularly distorted by speech production and neither by interpreting, which is an activity mainly based on speaking, which means that this method can be quite helpful for studying emotions in interpreting as well (Korpal 2016b: 78).

Some disadvantages are, though, that these monitors must be fastened to the informants' body and this could increase the level of stress and anxiety perceived by them (Korpal 2016b: 78). Also, their HR could already be elevated due to a chronic cardio-vascular disease, which makes it necessary for researchers to measure the subjects' baseline HR in experimental studies using HR as a stress marker, in order to compare baseline values with values collected during the experiment (Korpal 2016b: 78). Another problem connected to HR is that it is not a very accurate measure and it can only provide information about the number of beats in a given period of time, but not on the regularity of the rhythm between single heartbeats (Rojo & Korpal 2020: 196). This means that "an HR of 60 beats per minute could mean a regular rhythm of 1 beat per second or it could mean a 60-beat count whose interspersed lapses lasted, say, 0.5 s, 1.5 s, 0.5 s, 1.5 s" (Rojo & Korpal 2020: 196). Furthermore, it works well for indi-

cating cardiovascular activity during physical exercise, much less so for signaling internal activity and emotional regulation (Rojo & Korpal 2020: 196). A possible solution to these problems could be to measure HRV instead of HR, which I address below.

1.3.1.2. HRV

It is an index of changes in heartbeat intervals elicited by autonomic neural regulation, that is to say by the interaction and balance between the SNS and the PNS (Trimmel et al. 2015: 2). This balance starts with HR, which is dictated by the rate of the depolarization of the sinus node, a bundle of special cells in the heart (Peltola 2012: 30; Pham et al. 2021: 1). The job of the sinus node is to regulate the rhythm of heart contractions, which are controlled by the interactions between regulatory systems and mechanical processes such as respiration (Peltola 2012: 30; Pham et al. 2021: 1). The rhythm of the sinus node fluctuates around the mean HR, which is strictly linked to a constant regulation by the SNS and the PNS (Peltola 2012: 30). The SNS and the PNS respectively accelerate and decelerate the HR making it constantly fluctuate (Peltola 2012: 30). This fluctuation produces what is known as HRV (Peltola 2012: 30). This is the reason why HRV can be used as an index of the role played in various circumstances by the SNS and PNS, which varies according to the measuring method selected (Peltola 2012: 30). More specifically, HRV is a marker of PNS activation. The main nerve of the PNS is the so-called *vagus nerve*, which is why we can refer to PNS activity also as *vagal tone*, *cardiac vagal tone* or *cardiac vagal control* (Laborde et al. 2017: 2).

HRV is considered to be a particularly useful physiological parameter since it "is acknowledged to be linked with many phenomena relevant for psychophysiological research, including self-regulation at the cognitive, emotional, social, and health levels" (Laborde et al. 2017: 2). Historically, the importance of HRV was already noticed back in 1965. At that time, it was hence noticed that fetal distress was preceded by changes in the interbeat intervals before any consistent alteration in HR (Hon & Lee 1965, quoted in Task Force of The European Society of Cardiology and The North American Society of Pacing and Electrophysiology 1996: 354).

In general, the rate of heartbeats (HR) changes constantly. This signals that the heart is healthy and can adapt to unexpected environmental and psychological changes and challenges (e.g., stress). It is also the reason why reduced HRV has been observed to be a signal of poor cardiovascular health, cardiovascular diseases and also mental disorders and cognitive impairments (Pham et al. 2021: 1). For example, a deceleration in HRV can often indicate that the body is perceiving stress because of exercise or due to psychological events such as stress. In contrast, an acceleration in HRV normally indicates a higher resistance or recovery from stress (Rojo & Korpal 2020: 196).

HRV has become a widespread clinical and investigational tool especially for investigating cardiological issues, monitoring post-myocardial infarction patients and assessing and predicting potential future cardiac death (Billman 2011: 9; Billman et al. 2015: 8; Trimmel et al. 2015:

2). The reason for the popularity of HRV measurements is that they provide easily accessible data (e.g., with Bluetooth HR monitors and mobile applications), they are assumed to be a non-invasive, pain-free method which is also easy to use, rather economical and reproducible under standardized methods (Trimmel et al. 2015: 2; Rojo & Korpal 2020: 197). Additionally, many techniques have been developed in order to measure HRV that researchers can today choose from for assessing cardiac autonomic regulation in both healthy and ill patients (Billman 2011: 13).

HRV measurements are usually carried out using ECG recordings. In order to obtain reliable data, researchers repeat the recordings over and over again for a certain amount of time using portable ambulatory ECG devices such as Holter monitors, which provide data that is later uploaded to a computer for processing and analysis (Peltola 2012: 30). ECG recordings are then analysed to identify electrical stimuli from the heart in the form of QRS complexes. QRS complexes constitute the three main deflections seen on an ECG recording (Billman 2011: 13). QRS can be defined as "the graphical depiction of ventricular depolarization, i.e., a heartbeat" (Laborde et al. 2017: 7). An R wave in the ECG is the "initial upward deflection" of the QRS complex, following the Q wave, and is the electrical index of ventricular depolarization (activation), which is graphically indicated by the "main spike seen on an ECG line" (Rojo & Korpal 2020: 198). Since the R waves or R-peaks are easily recognizable, they are used as a starting point for measuring HRV (Peltola 2012: 30). Hence, HRV can be measured by observing the "beat-to-beat variation in either heart rate or the duration of the R-R interval", that is the interval between consecutive R waves (Billman et al. 2015: 8). Generally, a reduced HRV as assessed through R-R intervals is an index for poor health while robust periodic changes in R-R intervals are normally a marker for good health (Billman 2011: 9). There are various methods to measure HRV. Initially, HRV was first assessed to be a potential indicator of ANS abnormalities (Pham et al. 2021: 2). At that point, the method selected was the measurement of the inter-beat interval (IBI), i.e., "the time intervals between successive heartbeats" (Pham et al. 2021: 2). Starting from the 1980s, three more methods were introduced (Laborde et al. 2017; Pham et al. 2021; Rojo & Korpal 2020): (1) time-domain measures, (2) frequency-domain measures, and (3) non-linear measures.

Time-domain measures are perhaps the simplest of these three methods in terms of calculations, but normally generate less detailed data than frequency-domain measures (Task Force of The European Society of Cardiology and The North American Society of Pacing and Electrophysiology 1996: 355; Billman 2011: 13;). The most common examples of time-domain HRV measurements are:

- the standard deviation of N-N beats (SDNN), which "reflects all the cyclic components responsible for variability in the period of recording" (Laborde et al. 2017: 4) and encompasses short-term high frequency variation and long-term low frequency components of the HR signals (Pham et al. 2021: 3).

- the root mean square of successive differences, i.e., successive N-N intervals (RMSSD), which reflects vagal tone and is strongly linked to high-frequency (HF) HRV and relatively free from respiratory influences, as opposed to high-frequency parameters (Laborde et al. 2017: 4).
- the percentage of differences between adjacent N-N intervals that are by more than 50 ms (pNN50), "which is more influenced by the PNS activity and hence is often used to estimate the vagally mediated fluctuations in HR" (Peltola 2012: 30; Pham et al. 2021: 4) and is correlated with RMSSD and HF power and thus assumed to be also an index of vagal tone (Laborde et al. 2017: 4).

The higher the stress perceived by the subjects, the lower the values associated with these three time-domain measures (Castaldo et al. 2015: 373). Additionally, a series of N-N intervals can also be made into a geometric shape, such as histograms and scatter plots, in order to gain access to a visual representation of HRV. One example of such graphic measurements is the peak-valley analysis or peak-to-through analysis, "which acts as a time-domain filter dynamically centered at the exact ongoing respiratory frequency" (Laborde et al. 2017: 4). Time-domain measures can provide data about changes in the overall HRV but not about the single components of the variability itself (Billman 2011: 14).

For this reason, since the late 1960s, researchers began to divide HRV into its single frequency components, hence starting to use frequency-domain measures of HRV (Billman 2011: 14). Frequency-domain measures of HRV provide spectral estimates of HRV (Peltola 2012: 30; Laborde et al. 2017: 4). They can be obtained by decomposing the spectrum of R-R interval time series into frequency components or by integrating the signals over a frequency band (Peltola 2012: 30; Laborde et al. 2017: 4). This means dividing shorter duration recordings of HRV into three main peaks (Billman 2011: 14):

- very low frequency (VLF),<0.04 Hz, which reflects long-term mechanisms, thermoregulation and hormonal mechanisms, and is obtained through 24h recording periods (Laborde et al. 2017: 4);
- low frequency (LF), 0.04-0.15 Hz, which reflects a mix of SNS and PNS activity (Laborde et al. 2017: 4);
- high frequency (HF), 0.15-0.4 Hz, which reflects vagal tone, also known as respiratory band because it reflects HRVs related to respiratory cycle (Laborde et al. 2017: 4).

In addition, the ratio between LF and HF (also LF/HF ratio) has been taken as an index of the balance between SNS and PNS activity, even if no consensus around this assumption has yet been achieved (Billman 2011: 14). Generally the PNS influence on HR is faster than that of the SNS and research suggests that HF and LF are markers of mostly PNS and SNS activity, respectively (Pham et al. 2021: 4).

Finally, also non-linear indices can be used as a measure of HRV. They can be obtained through interbeat interval (IBI) using monitors such as chest belts (Laborde et al. 2017: 5–7). However, the IBI only collects the time between heartbeats and can create more artifacts than electrodes used for ECG recordings due to the friction of the wearable monitors against the subjects' skin. Another possible way to measure IBI is by using photoplethysmography, a method whereby a small light is shined on an area where capillaries are easy to access (e.g., finger or earlobe) with the help of a sensor (Laborde et al. 2017: 6–7). In photoplethysmography, the light reflects back to the sensor and shows blood volume in the vessel and forms the grounds of a heartbeat (Laborde et al. 2017: 6–7). This method allows researchers to measure pulse-to-pulse interval data, which is a mix of IBI and pulse transit time, thus creating an accurate approximation of IBI, which can only be used, however, during resting state but not during stress (Laborde et al. 2017: 7). An example of a non-linear index is the Poincaré plot, that can be described as follows:

> [A] scatterplot of each NN interval plotted against its corresponding preceding interval, which approximates the cardiac system's evolution. The points are dispersed around the identity line and converge into an ellipsoid configuration [...]. Points above the line represent HR decelerations (NN intervals that are longer than preceding ones) and points below the line of identity indicate HR accelerations. [...]
>
> (Pham et al. 2021: 5)

Figure 3 summarizes possible methods for measuring HRV, including the Poincaré plot.

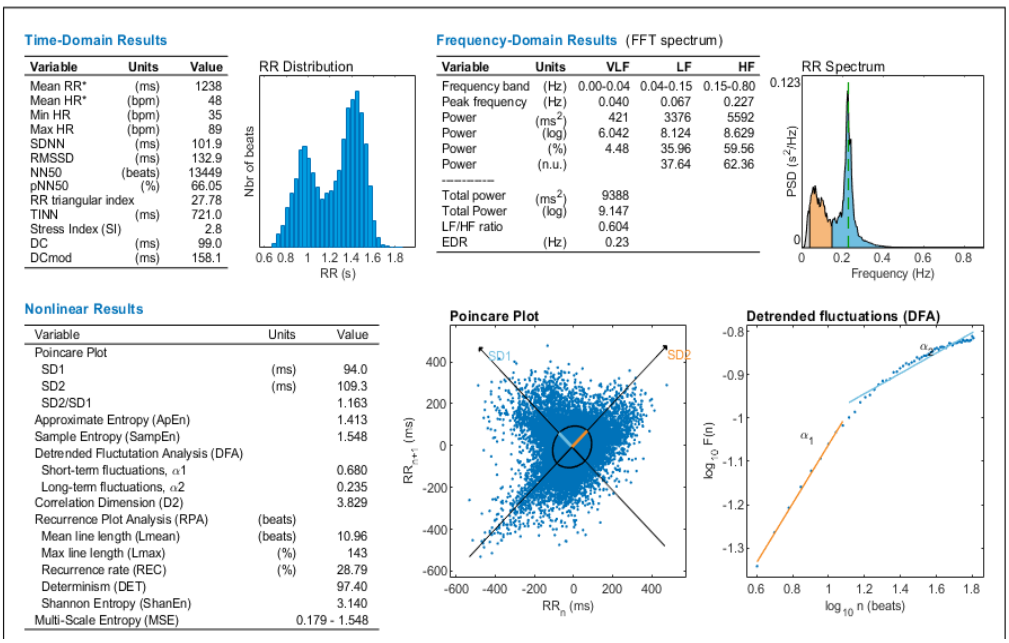


Figure 3. HRV measurements (from Kubios). [20]

Rojo & Korpal (2020: 197) explain that CTIS researchers have seemed to prefer using HR as a measure of physiological manifestation of stress in combination with other physiological parameters. Examples specific to the field of Interpreting Studies are the combination of BP and HR (e.g., Klonowicz 1991, quoted in Kurz 2003: 56; Klonowicz 1994; Korpal 2016a); of HR and GSR (Kurz 2003); and of HR, BP and cortisol levels (AIIC 2002). This may be due to the higher complexity of HRV measurements as opposed to HR measurements. Thus, HRV assessments need much more accuracy and must be carried out with the help of ECG tools or more sophisticated wearable monitors than those involved in HR assessments (Rojo & Korpal 2020: 196). Moreover, HRV reflects the activity of SNS and PNS and this means that when subjects move, this affects HRV because both systems are involved in physical functions and this could potentially cloud the physiological regulation dictated by cognitive, emotional, social and health processes (Laborde et al. 2017: 10). Thus, HRV is best captured during resting state, which makes the use of wrist monitors for both translators and interpreters problematic, since they both carry out repetitive actions such as keyboarding or taking notes on a notepad in case of consecutive interpreting (Rojo & Korpal 2020: 196). At rest, high HRV is seen as a favourable index and low HRV as an unfavourable index, while, if the subjects are moving, the opposite is true (Rojo & Korpal 2020: 196). The most common solution to prevent artifacts from movement in HRV measurements is either to collect accelerometer data together with HRV data and then to delete the sections where the subjects were moving too much, or to measure HRV before a task involving movement (Laborde et al. 2017: 10).

Moving to methodological considerations, Rojo & Korpal (2020: 209) underline that in CTIS studies, HRV is generally treated as a dependent variable (e.g., as a way to measure the physiological effects of emotions in translators and interpreters). Laborde et al. (2017) made an important contribution to HRV research by providing a list of methodological recommendations. For example, they pointed out that there are approximately 70 parameters of HRV which can be considered and that HRV measurements are very sensitive to various methodological factors, which makes it really difficult to compare studies in this field. Also, HRV measurements are not always perfect, since they can be disturbed by technical or physiological artifacts (Peltola 2012: 29). For instance, poorly fastened electrodes or movements done by the subjects might lead to missing beats or beats with an unclear onset, which researchers should pay particular attention to (Peltola 2012: 29). It is also important to consider confounding variables which can be controlled, such as gender, age or drug assumption (Laborde et al. 2017: 6). Also, Rojo & Korpal (2020: 199) point out that researchers should bear in mind that HRV frequency bands may have to be adjusted to the sample population. For example, children and infants breathe faster than adults and therefore their frequency range should be adapted for baseline HRV measurements (Rojo & Korpal 2020: 199). In the same page, they also stress the importance of taking previous research measures as reference or to measure the respiratory rate of the sample, and to use frequency analysis parallel to time-domain parameters since these are

indicative of vagal tone and are less affected by breathing (e.g., RMSSD). Laborde et al. (2017: 6) also provide other useful recommendations. For instance, they state that a possible way to measure HRV is to make a distinction between tonic and phasic HRV. The former is the resting or baseline HRV (generally beneficial if higher), the latter is the HRV indicating the reaction of the organism to a stressor, its reactivity and response to stimuli (Laborde et al. 2017: 6). Starting from this distinction, Laborde et al. (2017: 6) suggest measuring HRV following the three Rs rule: *resting*, *reactivity*, *recovery*. This means that researchers should measure HRV at rest and use that measurement as *baseline value (resting)*; then phasic HRV in order to identify changes *between baseline and event (reactivity)*, *between task and post-event (recovery)* and *between baseline and post-event* according to the research aim. Finally, they also underline the importance of collecting a good baseline value in order to compare results across samples, experiments and laboratories, and to make sure that the subjects:

- follow a normal sleep routine the day before the experiment, tracking their habitual bed and waking time;
- avoid intense physical training the day before the experiment;
- avoid eating and drinking coffee or caffeinated drinks such as energizing drinks or tea in the 2 hours before the experiment or drinking alcohol in the 24 hours prior to the experiment;
- use the bathroom before the experiment, if they need to.

Ideal sample size depends on the experimental design chosen for HRV measurement, for example if researchers wish to measure within-subject or between-subject differences in HRV (Rojo & Korpal 2020: 202). Laborde et al. (2017) recommend the former, as it makes experimental control and access to respiratory rates easier, has greater statistical power, requires fewer participants and minimizes artifacts caused by external factors (e.g., smoking). Within-subject design is also generally the best solution in CTIS studies since the population of translators and interpreters—and consequently the samples of informants who can be selected from it—is relatively small. (Rojo & Korpal 2020: 211). Nevertheless, in longitudinal studies it is necessary for researchers to record data at the same time of the day and change the stimuli presented to the subjects to avoid habituation to experimental conditions (Rojo & Korpal 2020: 203). When examining the recommended recording methods, short-term HRV recordings should have a length of at least five minutes for researchers to be able to compare studies (Rojo & Korpal 2020: 204). On the other hand, longer recordings (24h) require controlling physical activity and also whether respiration frequency remains between nine and 24 cycles per minute (Rojo & Korpal 2020: 204). Also the position of the body during baseline HRV recording is as crucial as recording a good baseline HRV value: subjects should normally have their baseline value recorded while sitting with knees at a 90° angle, with both feet flat on the floor, hands on their thighs and eyes closed (Laborde et al. 2017: 9). Additionally, the most popular software used for analysing and processing HRV to date is *Kubios* (Rojo & Korpal 2020: 204).

Finally, a couple of ethical considerations and recommended practices to bear in mind when conducting physiological measurements such as HRV are in order. Rojo & Korpal (2020: 212) point out that in these kinds of measurements, informants might not feel at ease with the idea of having their emotions recorded or with the idea of researchers touching them while helping them wear the devices used for the physiological recordings (e.g., chestbelts). For this reason, Rojo & Korpal (2020: 212) suggest researchers follow ethical rules such as:

- giving informants enough time to relax and learn about the experimental set-up while recording baseline values in this preparation stage at rest;
- giving them the possibility to choose the gender of the person providing them assistance with fastening the devices, informing them that the measuring procedure is by no means detrimental to their health;
- explaining to them that they can decide at any point during the course of the study to withdraw their consent to participate in the experiment or to let their data be processed by the researchers;
- reassuring them that their personal data and privacy will be protected.

Following these instructions is of the utmost importance. If informants are intimidated by the experimental setup, data ecological validity might be compromised. For instance, their physiological arousal during the experiment might be elicited by the anxiety induced in them by the experimental procedure and not by emotional excitement in response to an affect-laden stimulus (Rojo & Korpal 2020: 209). Also, physiological indexes such as HRV can indicate physiological arousal but not necessarily the emotions causing that arousal or the valence of a given emotion (Rojo & Korpal 2020: 209). Due to these limitations, physiological measurements should be triangulated with other methods in a multimodal approach. With triangulation it is possible to use multiple measurements, theories, analyses, methodologies of research designs in order to investigate a certain topic from different perspectives and obtain cross-validation of a set of observations (Rojo & Korpal 2020: 212). For example, data about the impact of emotions in CTIS in terms of HRV as a physiological marker of emotional arousal could be triangulated with psychometric tools such as self-report questionnaires (Rojo & Korpal 2020: 212) and with behavioural parameters such as acoustic variations. As I will discuss below, this exploratory research project is primarly based on a triangulation of these three parameters. But before moving to the actual study, I will first address the topic of acoustic variations and psychometric tools as the two other possible methods for measuring emotions alongside physiological parameters.

1.3.2. Acoustic markers of emotions

Historically, voice use has always been a really important communicative tool in nature. Thus, many animal species use affective vocalization for communicative purposes, for example to

signal a potential threat (Scherer 1995: 236). Intuitively, it is easy to identify such affective vocalizations also in humans. For example, if we hear someone holding a speech in front of an audience, we are able to notice whether they are experiencing stress and tension: they may jitter, their voice may start trembling, they might show disfluencies and hesitations (Korpal 2016b: 81–82). This occurs because, under a stress condition, the ANS increases the speaker's respiration rate and fundamental frequency (F0), which in turn increases pitch, by making his/her voice sound tense and hindering his/her phonetic articulation (Kirchhübel et al. 2011: 81).[21]

Public speaking is one of the core aspects of interpreting. This makes it reasonable to expect that such affective acoustic variations can be identified and used in Interpreting Studies as well. These acoustic cues can hence be taken as a possible marker of emotions experienced by interpreters. This is especially relevant when analyzing interpreters' acoustic variations in CI, whereby interpreters must stand on a stage in front of many people while delivering the translation of a speech, as opposed to SI, where they sit in their booths, not directly exposed to the audience. The role of acoustic variations in interpreting has attracted the attention of many researchers in the field of Interpreting Studies (Tissi 2000; Mead 2000; Yin 2011; Gieshoff 2021). Such studies are primarly based on prosodic variations in interpreting. Prosody can be defined as the study of "the rhythm, stress, and intonation of speech" which also provides important cues about the extralinguistic meaning of an utterance and "about the speaker's attitude or affective state."[22]

Prosody plays a pivotal role in all activities involving public speaking abilities just like interpreting, especially CI. In particular, prosody plays a double role in interpreting (Tissi 2000: 104). Let us take the example of CI. On the one hand, a good use of prosody by the original speaker in the source text (ST) is a very useful tool for the interpreter who listens to it and then translates it in front of the audience. If, for instance, the speaker keeps a stable speaking tempo, makes a good use of silences and rhetorical pauses to stress the meaning of certain words or sentences, then the interpreter will understand the linguistic and extralinguistic content of the ST much better. If instead the speaker constantly changes his/her rhythm of speech, pauses too often and produces several hesitations, then the interpreter will likely have more difficulties in rendereing the ST. The same thing applies to the target text (TT), that is the interpreter's translation of the ST. If the interpreter is fluent and shows a good command of prosody, then the audience will understand his/her CI much better. If this is not the case, then the overall quality of the interpreter's CI will likely decrease.

A correct use of prosody and consequently fluency also constitute one essential criterion for assessing the quality of the interpreting delivery produced by both novices and professionals (e.g., Viezzi 1996; Yin 2011). During interpreting examinations, for instance, my fellow students and I were also evaluated on the basis of our prosody management. This is especially true in the assessment of CI, whereby fluency plays a major role, since this mode of interpreting involves producing a possibly convincing, natural and spontaneous speech (Yin 2011:

459). Mead (2000: 96-97-98) investigated fluency in CI among novice interpreters and found that fluency can be impaired by various obstacles such as difficulties of both linguistic and extra-linguistic nature such as, respectively, a lack of proficiency in the source or target language or an overall difficulty in re-reading the notes and resolving logical inconsistencies.

Now that the importance of prosody in interpreting, especially in CI, has been mentioned, let us look at some examples of a possible positive and negative management of prosody in interpreting. If well managed, prosody can be a very useful tool for understanding the meaning of an utterance. Let us take the example of pauses. Pauses can be physiological (breathing), or they can be used intentionally by the speaker for several purposes (Mead 2000: 92). For example, the speaker, and also the interpreter translating him/her, may use pauses to disambiguate the syntax of a text, segment the discourse, emphasize certain words or text samples, draw the audience's attention to a relevant part of the discourse, and to produce stylistic and rhetorical pauses (Duez 1982: 12; Tissi 2000: 107). If poorly managed, though, prosody can backfire and this will result in the production of disfluencies. In interpreting, this could happen for many reasons, including the emotions possibly experienced by the interpreter (e.g., before starting his/her delivery on stage during CI). Speech disfluencies, as the name suggests, are all those cases where fluency is absent or impared. This occurs when the speaker makes an excessive or erroneous use of prosodic elements such as pauses, fillers and repetitions (Yin 2011: 464).

Many attempts have been made to find a unified classification of speech disfluencies, also in order to study them in interpreting. However, the diverse and subjective nature of prosody and its analysis and the lack of generally accepted convetions of transcriptions have lead to a series of parallel classifications of disfluencies (Maclay & Osgood 1959; Hieke 1981: 148, quoted in Tissi 2000: 108-109; Duez 1982; Tissi 2000). However, some of them tend to recur more often than others, that is to say:

- Silent Pauses (SP), also called *unfilled pauses*: "abnormal hesitation in speech" which can take "two major forms: silence of unsual length and non-phonemic lengthening of phonemes" (Maclay & Osgood 1959: 24);
- Filled Pauses (FP): in English, hesitation devices such as [ɛ, æ, r, ə, m], with [ə] being the most frequent (Maclay & Osgood 1959: 24);
- False Starts (FS): "all incomplete or self-interrupted utterances" like for example *I saw a very big // a very small boy* (Maclay & Osgood 1959: 24);
- repeats: "any unintended repetition of a sequence of phonetic segments that is subsequently produced in its complete intended form" (Duez 1982: 13-14);
- syllable lengthening
- repetitions.

Tissi (2000: 107) explains that some of these disfluecies are used to take time before an increase in information in the text (e.g., SP and FP), while others to temporise before making a

correction (e.g., FS and repeats). Also, Mead (2000: 92-93) points out that while SP are not always disfluencies and can also fulfil other functions (e.g. breathing, emphasis, etc.), FP are almost always disfluencies.

Acoustic variations as the disfluencies which I just mentioned can be a particularly useful parameter in experiments involving interpreting since they are easy to abstract and do not need advanced phonetic analysis (Korpal 2016b: 85). For example, softwares like Audacity and Praat (developed by Boersa & Weenik) can be used for conducting such analyses.[23-24] However, researchers interested in using these acoustic parameters in interpreting should take some practical considerations into account. First, it is necessary to select a threshold above which a SP can be considered an SP produced because of a hesitation. For instance, pauses shorter than 250 ms are normally considered pauses of an articulatory nature (Goldman-Eisler 1968, quoted in Gieshoff 2021: 7). Also, since short pauses are normal in speech when used for signaling word or sentence boundaries, only silences longer than 500-600 ms should be considered as hesitation pauses and as noticeable flow breaks for the listeners of a speech (e.g., Ho 2017: 130; Gieshoff 2021: 180).

1.3.3. Psychometric measurements of emotions

So far, physiological and behavioural (more specifically, acoustic) parameters for measuring emotions in interpreting were discussed. The third and last parameter is the one based on cognitive and subjective feelings (Rojo et al. 2014: 33). In order to measure such feelings, psychometric tools can be used. As the name already suggests, psychometric tools are based on psychometry. Psychometry (also psychometrics) can be described as "the branch of psychology concerned with the design and use of psychological tests" which also includes "the application of statistical and mathematical techniques to psychological testing."[25] Psychometrics enables researchers to measure theoretical concepts such as personality traits, cognitive skills, attitudes and behaviour in an objective way (Korpal 2016b: 68).

An example of psychometric testing tools is self-report questionnaires. There are many types of self-report questionnaires which researchers can chose from. One type is self-report questionnaires based on *retrospection*, an introspective method used in cognitive psychology and CTIS. Thanks to retrospection, researchers can gather the subjects' own self-reports on their emotions during a certain situation. This method is generally more reliable if the event or task to recall is recent and short (Englund-Dimitrova & Tiselius 2014: 179). For example, a group of interpreters could be asked to fill in a self-report questionnaire based on retrospection right after completing the SI or the CI of a text.

CTIS researchers have often used retrospective self-report questionnaires for measuring self-perceived emotions among interpreters and translators. For instance, these tools were frequently used to investigate the role of emotions, such as anxiety, on novices' interpreting performance (Rojo et al. 2021: 2). Two examples of psychometric tools specifically used for

measuring anxiety are the State-Trait Anxiety Inventory, short STAI (Spielberger et al. 1968, 1977) and the Foreign Language Classroom Anxiety Scale, short FLCAS (Horwitz et al. 1986). For instance, the STAI questionnaire was used by many researchers for investigating the impact of anxiety on interpreters' public speaking abilities (Jiménez & Pinazo 2001), on conference interpreters' proficiency (Kurz 1997, quoted in Kurz 2003: 55), or as a means of triangulation with physiological (HR) and acoustic measures of stress and axiety in interpreting (Korpal 2016b; Rojo et al. 2021).

As already discussed in section 1.3.1, self-report questionnaires can also be a useful tool for data triangulation in studies involving the investigation of emotions in interpreting. For instance, data from interpreters' physiological reactions (e.g., HRV) could be triangulated with self-report questionnaires as a second measure of emotions (Rojo & Korpal 2020: 212). This is particularly useful, since physiological measures can be a useful marker of emotional arousal, less so for emotional valence (Rojo & Korpal 2020: 212). A useful self-report questionnaire in this respect is the *Positive and Negative Affect Schedule* (PANAS) by Watson et al. (1988).

The PANAS questionnaire by Watson et al. (1988) is a self-report questionnaire which can be used for measuring positive and negative affect as a state (e.g., present moment), moods (e.g., past week) or traits (e.g., last month). *Positive Affect* (PA) refers to the extent to which subjects experience positive emotions, that is to say "feelings of enthusiasm, alertness, and activity" (Ebesutani et al. 2012: 191–192; Cavagnis et al. 2018: 134). High PA levels signal "high energy, full concentration, and pleasurable engagement" with the surrounding environment (Ebesutani et al. 2012: 191). *Negative Affect* (NA) stands for negative emotions and "emotionally distressing experiences, such as feelings of sadness, fear, guilt and anger" (Ebesutani et al. 2012: 191–192; Cavagnis et al. 2018: 134). More specifically, the PANAS consists of 20 items: 10 of them label *positive emotions* (PA), and the remaining 10 label *negative emotions* (NA). In order to measure PA and NA, the informants' scores need to be added on the positive items and on the negative items, respectively, with higher scores representing higher levels of PA or NA.

The PANAS shows excellent psychometric properties and has been translated in many languages including Italian (Terracciano et al. 2003: 2). The Italian translation of the PANAS questionnaire was developed by Terracciano et al. (2003), who validated it by using an Italian sample of 600 informants and by confirming a high replicability of the American PANAS.

1.4. *Previous applications in interpreting studies*

Now that the triangulation between physiological, behavioural and cognitive subjective parameters for measuring emotions in interpreting has been discussed, I will now move on to some practical examples to be found in CTIS. The study of interpreters' emotional responses to emotionally-laden stimuli and of their emotion processing represents a relatively under-investigated field of research.

One important study in this field was conducted by Korpal & Jankowiak (2021), who conducted a pilot study aimed at investigating how interpreting directionality influences interpreters' emotional response to affect-laden stimuli. To this end, five professional interpreters were asked to interpret negatively-valenced as well as neutral sentences, both from Polish (L1) into English (L2), and in the opposite direction. To measure interpreters' emotional response, GSR measurements were triangulated with the SUPIN-S30 questionnaire, the Polish adaptation of the PANAS questionnaire. The initial hypothesis was that the highest emotional responding values would be found in L1→L2 interpreting of negatively-valenced sentences (due to a psychological distance when processing the non-native as opposed to the native tongue), followed by L2→L1 interpreting of negatively-valenced sentences, and finally by both L1→L2 and L2→L1 interpreting of neutral sentences. In the course of the experiment, informants were presented with 30 sentences in Polish and 30 sentences in English, in turn subdivided into 15 negatively-valenced sentences and 15 neutral sentences. The results obtained from the experiment showed that higher numbers of GSRs were found in the interpretation of negatively-valenced than of neutral sentences. Even if no statistical significance was observed in the effect of valence in both directions, participants seemed to be more affected by experimental stimuli in L2→L1 direction, which may indicate "that emotional responding in interpreting as an inter-lingual process is modulated by output production", meaning that interpreters could not only be impacted by the emotional content of the speeches they must translate from the source language, but also by their own translation of affect-laden contents in the target language (Korpal & Jankowiak 2021: 9). The elevated emotional responses found in the study could be motivated by the fact that in L2→L1 direction, interpreters must speak in their native tongue, even if such data was not corroborated by the SUPIN-S30 scores obtained.

Similar to what was observed by Korpal & Jankowiak (2021), in another study, Korpal & Jasielska (2019) decided to investigate the role of emotional contagion in SI. In their study, Korpal & Jasielska (2019) started from the assumption that emotional contagion can be seen as the most basic component of empathy. Empathy not only involves the tendency to automatically mimic other people's emotions but also comprises a much broader set of voluntary, cognitive, emotional and social abilities such as taking other people's perspective in order to understand them (Davis 1994, quoted in Korpal & Jasielska 2019: 5). More specifically, the study by Korpal & Jasielska (2019) was aimed at understanding if interpreters could be affected by their speaker's emotions. They based their study on two hypotheses. First, interpreters would be affected by their speakers' emotions while interpreting an emotional recording. This would be reflected in physiological arousal (a higher number of GSRs). On the other hand, they would show no emotional response while interpreting a neutral recording. Secondly, emotional contagion experienced by interpreters for the emotional recording would also be reflected in self-reported emotional states congruent with their speakers' emotions as revealed by the results of

the SUPIN-S30 questionnaire. On the other hand, interpreters would perceive them to be less emotionally engaged for the neutral recording as revealed by their answers to SUPIN-S30.

For the study, two authentic recordings in Polish (the participants' L1) were selected after having three conference interpreters select three emotional topics (war, illness, and death) and three neutral topics (business, communication, and finance) and after having five final-year psychology students rate three emotional and three neutral videos on these topics on a 7-point Likert scale (1: "not emotional at all"; 7: "very emotional"), out of which the saddest (the loss of a child) and the most neutral (*savoir vivre* in telephone communication) were selected. After that, the authors adopted the Nencki Affective Word List, a database of 2.902 Polish emotionally-laden words developed by Riegel et al. (2015, quoted in Korpal & Jasielska 2019: 8). This list was used in order to check the number of emotionally-laden words with a mean sadness ratings of two points or more in the emotional text and in the neutral text (respectively 19 and two). In spite of being aware of the limitations implied by making the participants interpret recordings and not in-situ real-life speakers, the authors assumed that emotional contagion could also be observed in this artificial setting, for two reasons. First, a number of studies showed that people also tend to converge emotionally while watching emotionally-laden video clips, looking at pictures or listening to audio recordings (e.g., Doherty 1998, in Korpal & Jasielska, 2019: 5). Secondly, conference interpreters don't always meet the speaker in person since they offer remote interpreting services. The 20 interpreters (10 female and 10 male) who took part in the study were asked to interpret the texts from Polish (their L1) into English (their L2). They were all native speakers of Polish with at least two years of professional experience in SI prior to the experiment and had completed training at a university level.

GSR measurements were conducted using re-usable eight mm diameter silver chloride electrodes attached to the medial phalanx of the index and middle finger of the non-dominant hand of each interpreter. They were carried out three times: (1) before the experiment (baseline value), (2) during the entire interpretation of the neutral recording, (3) during the entire interpretation of the emotional recording. Physiological measurements were triangulated with the SUPIN-S30 questionnaire, which contains 30 adjectives, 15 of them labeling negative emotions, 15 positive. Participants were asked to evaluate the emotions they experienced at a given point in time during the experiment on a 5-point Likert scale, where 1 indicated lack of emotions, and 5—significant intensity of emotions. The SUPIN-S30 was administered three times: before the first interpretation (baseline), immediately after the interpretation of the neutral recording, immediately after the interpretation of the emotional recording.

A repeated measures ANOVA was conducted in order to verify the authors' hypotheses. The results showed statistically significant changes in GSR in the experiment during the interpretation of the emotional as compared to the neutral speech with the lowest values being observed for the baseline condition. The same was also found for the answers given by participants in the SUPIN-S30 questionnaire. In order to also measure the cognitive labelling of

negative emotions, two individual items of the SUPIN-S30 questionnaire (*przygnębiony*: sad and *zmartwiony*: upset) were selected and the results showed that there was a main effect of the recording type on self-reported sadness and "upsettness". Pairwise comparisons confirmed that the difference between the emotional speech and the neutral speech was statistically significant, while the lowest scores were observed in the baseline condition. In general, a positive correlation was found between GSR values and SUPIN-S30 scores for negative emotions, possibly showing congruence between interpreters' physiological reactions and their self-reported emotional states.

According to the results obtained by the authors, it is therefore possible to infer that interpreters are indeed affected by their speakers' emotions and tend to converge emotionally with their speakers in SI. This "might potentially help them to understand the intentions and emotions involved in the source language input", not only by mimicking their speakers, but also by sympathising with them, which is a topic that could be further investigated in future research projects using post-interviews with participants (Korpal & Jasielska 2019: 16).

When examining the limitations and possible implications for future research of their study, Korpal & Jasielska (2019: 16) point out that stress related to high cognitive load could have elicited physiological responses (GSRs) and they therefore triangulated physiological measurements with SUPIN-S30 in order to mitigate this effect. Positive correlations found between SUPIN-S30 scores and GSR might suggest that GSR was indeed a marker of emotional responding. Also, controlled experiments were used for the study, which are generally criticised for their limited ecological validity and they therefore state that it would be interesting to test emotional contagion in a natural working environment involving SI whereby interpreters are physically in the same room as their speakers and have direct access to them in-situ. The ecological validity was also hindered by the use of GSR measurement devices which limited interpreters' movements. Additionally, they also suggest expanding this line of research by carrying out a comparison between emotional contagion in SI and in CI. The aim of this research project is to give a contribution to Korpal & Jasielska's (2019) observations by conducting precisely such comparison.

2. Materials and methods

The following sections describe the informants (§ 2.1) and the materials used for the tasks (§ 2.2) of this study; it also explains the data collection procedure (§ 2.3), and the way collected data was processed (§ 2.4). Two speeches in the informants' L2 or L3 were used for this study. The one was negatively-valenced, since it contained a list of emotional triggers (i.e., negatively-valenced words), the other was non-emotionally laden (i.e., emotionally neutral), since it contained no such triggers. The goal was to observe whether the informants' Consecutive Interpretation (CI) of the negatively-valenced speech could relate to a stronger emotional contagion among them than their CI of the non-emotionally laden speech due to the fact that the former included the emotional triggers and the latter did not. To this aim, the informants' physiological reactions in terms of HRV were collected using the MC2Lab's EMPATICA E4 wristbands which they were asked to wear during the CI of the two speeches.[26-27] This physiological set of data was later triangulated with the quality of the informants' interpreting performances, their acoustic variations, their management of the emotional triggers, and with their answers to the Italian version of the self-report questionnaire PANAS (Watson et al. 1988; Terracciano et al. 2003).

2.1. *Informants*

Before carrying out the actual study, a pilot study was conducted in order to check the optimality of the research apparatus. Two informants took part in the pilot study. Both of them had completed their final year of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus by the time they took part in the experiments. Both were speakers of Italian L1. The former had English as professional L2 and German as professional L3, the latter had French as professional L2 and English as professional L3. Their average age was 24.5, one male and one female. They both had satisfied the EMCI (European Masters in Conference Interpreting) curriculum criteria and for this reason they could take part in the EMCI Final exams of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus, which took place on November 19, 2021.[28]

The informants of the actual study were originally seven students who also had completed their final year of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus by the time they took part in the experiments. They were all speakers of Italian as L1, two of them with English as professional L2 and five of them with English as professional L3. The two informants with English as professional L2 had French and Russian as their professional L3. The five informants with English as professional L3 had Russian (one), French (one), Spanish (two) and German (one) as their professional L2. All informants had a bachelor degree in Intercultural and Linguistic Mediation. The average age of the informants was 24.5, six females and one male.

The criterion behind the selection of the informants needs further explanation. The informants were selected among the students who had completed their second year of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus, but who had not satisfied the EMCI curriculum criteria and therefore could not take part in the EMCI Final exams. The reason why such selection was carried out is that the original idea for this study was to conduct the experiments during the EMCI Final exams but, since I myself took part in this exam and since the obvious impossibility of having EMCI candidates wear wristbands during the exam, an attempt was made to replicate the Final exam condition, only in a controlled setting. For this reason, the same topic as the one chosen for the Final exams was selected as the object of the two source texts of my study. Also, both the Final exams and this study took place at the DIT Lab of the University of Bologna, Forlì Campus. In both cases, interpreters were physically sitting in one of the interpreting booths of the DIT Lab in Forlì but were asked to interpret video recordings remotely via Zoom. However, as opposed to the Final exams, the present study was conducted without an audience listening to the interpreting booths and also without any evaluation by interpreting trainers. This means that the informants of this study were much less emotionally involved than the EMCI candidates who took part in the Final exams. In spite of such limitations, as already discussed in section 1.4 of chapter 2, it is reasonable to expect that emotional contagion can also occur in remote interpreting, since this reaction can also emerge while watching emotionally-laden digital contents and since conference interpreters often offer remote interpreting services without meeting their speakers in person (Korpal & Jasielska 2019: 5). Finally, both the informants of the pilot and the actual study filled and signed an informed consent form before starting with the experiments.

2.2. *Materials*

The informants were asked to deliver a CI of two speeches from English (their L2 or L3) into Italian (their L1). Both speeches were recorded as short videos. They were performed by an English native speaker, a teaching assistant of the DIT Lab of the University of Bologna, Forlì Campus. I wrote the texts of the two speeches, which were therefore not authentic. This was also the case for the EMCI Final exams, whereby exam texts were written, performed and recorded by one of the professors of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus, who had English as his/her mother tongue. The topic of the texts of the experiments of this study was the same topic chosen for the EMCI Final exams, that is to say electronic money and cryptocurrencies. Since the complexity of this topic, the two source texts used for this study only dealt with one aspect of it, that is to say *Bitcoin*. The two source texts differed in their emotional valence: one contained emotional triggers, while the other did not.

The triggerless text, here referred to as Baseline Text (BT), was used as a non-emotionally laden (i.e., emotionally neutral) text. The title of the BT was *Bitcoin*. The number

of words of the BT was 837 and its length 7'12'', after having been slowed down by 82% in VLC Media Player. The BT was compared to a negatively-valenced text, here referred to as Negative Text (NT).

The title of the NT was *Bitcoin: the pest of our century*. The number of words of the NT was 829 W, for a length of 07'20'', at original speed. The NT contained 44 negatively-valenced words, which were called *triggers*, since this research project aimed at observing whether they could trigger an emotional response, or better to say a stronger emotional contagion among the informants. Of the 44 triggers, eight occurred twice and one occured thrice, for a total of 54 occurrences in the NT. In order to select the outstanding triggers for the NT, the database of English EMOtional TErms (EMOTE) by Grühn (2016) was used. EMOTE "provides subjective ratings for 1287 nouns and 985 adjectives. Nouns and adjectives were rated on valence, arousal, emotionality, concreteness, imagery, familiarity, and clarity of meaning" (Grühn 2016: 290). The emotional dimension chosen for the selection of the triggers was valence (Grühn 2016: 291). As a reminder, valence is one of the two dimensions on which an emotion can be located, the other dimension being arousal (going on a continuum from high to low).[29] In this research project, arousal was analyzed by collecting data from HRV by having the informants wear the MC2Lab's EMPATICA E4 wristbands during the course of the experiments of this study. In order to maintain data consistency, the valence chosen for all triggers was below 3 points on the Likert scale used for EMOTE, with 1 meaning "very negative" as answer to the question "How positive or negative is the feeling elicited by each word?" (Grühn 2016: 295). In addition, Grühn (2016: 304) points out that in EMOTE a strong negative association was to be found between valence and arousal ratings, meaning that negative words were rated high in arousal and positive words were rated low in arousal. **Table 1** provides a list of the selected triggers.

Right after the end of each CI, the PANAS questionnaire by Watson et al. (1988) in the Italian version by Terracciano et al. (2003) was administered to the informants to collect their self-perceived emotional states during the CI. The reason why the PANAS was chosen for this study is because it is one of the most widely used self-report questionnaires used for measuring the intensity of emotions (Korpal & Jasielska 2019: 6). Specifically, its Italian translation was selected for the experiments since, after developing it, Terracciano et al. (2003) also validated it by confirming its high replicability of the American PANAS with solid results. In the questionnaire, the informants were asked to provide answers on a 5-point Likert scale, where 1 stood for lack of emotions, and 5 stood for a high intensity of emotions experienced during the CI rendering. To sum up, informants were provided with the following texts:

- BT (**Appendix 3**)
- NT (**Appendix 3**)
- Italian PANAS, administered twice

Table 1. Triggers selected from EMOTE and contained in the NT.

	triggers selected from EMOTE	EMOTE valence	n° of occurrences in NT
	pest	1.93	2
	hate	1.38	2
	crisis	2.3	1
	reckless	1.91	1
	gloomy	2.13	1
	suicide	1.33	2
	poison	1.69	1
	tragic	1.79	1
	death	1.47	1
	lose	2.46	3
	kill	1.69	1
	failure	1.45	2
	insane	1.49	1
	gamble	2.8	2
	unreliable	1.18	1
	bankrupt	1.94	1
	threat	1.54	1
	toxic	1.5	1
	danger	2.21	1
	attack	2.2	1
	stolen	1.54	2
	blackmail	1.82	1
	illegal	1.78	1
	crime	1.47	2
	fraud	1.75	1
	dark	2.17	1
	hell	1.47	1
	criminal	1.9	2
	dirty	1.3	1
	heroin	2.72	1
	weapon	2.12	1
	bomb	1.81	1
	rifle	2.8	1
	knife	2.96	1
	explosive	2.21	1
	violent	1.8	1
	assassin	1.76	1
	addict	1.56	1
	corrupt	1.34	1
	terrorist	1.24	1
	cruel	1.46	1
	tumor	1.38	1
	venom	1.96	1
	war	1.62	1
tot.	44		54

2.3. *Procedure*

The informants were invited to wear the MC2Lab's EMPATICA E4 wristbands while carrying out the CI of the source texts (BT and NT). The wristbands were used to collect data from the informants' HRV values in order to observe if the presence of the triggers in the NT could evoke a stronger emotional arousal in them—possibly induced by emotional contagion—during their interpretation of the NT as compared to their interpretation of the BT. The informants were allowed to take notes during the two CIs and they were asked to interpret each text in one go. Right after each CI, the Italian PANAS by Terracciano et al. (2003) was administered to the informants. This questionnaire was used to collect the informants' impressions about their self-perceived emotional states during each of the two CIs. The PANAS results were triangulated with the informants' HRV, with an evaluation of the quality of their interpreting performance, and with an analysis of their acoustic variations both for the BT and the NT.

Both the pilot and the actual study of this research project were carried out in November 2021, after the EMCI Final exams, which took place on November 19. The pilot took place on November 25. It was carried out to check the optimality of the research apparatus and also for me to familiarize with the use of wristbands, since this was my very first experience with thistool. The actual study took place on November 26. Both the pilot and the study took place at the DIT Lab of the University of Bologna, Forlì Campus, since it would have been impossible to have informants wear the wristbands if they had interpreted from home and, also, in order to reproduce the setting of the EMCI Final exams as much as possible. To this aim, in both the pilot and the study, the informants interpreted remotely. Each one of them sat in one of the interpreting booths of the DIT Lab in Forlì and was asked to interpret the video recordings of the BT and the NT while participating in a Zoom call as interpreters inside a Zoom interpreting booth. Another reason why Zoom was used was to make a video- and audio-recording of the informants' CIs. The informants were also asked to record themselves with an external device in order to have backup files. Video recordings were carried out in order to collect the informants' facial expressions while interpreting the texts. To this aim, they were asked to look in front of them while interpreting the source texts. Video recordings were carried out by using one Zoom call for each informant, since, if the informants had been invited to one single Zoom call, it would have been impossible to make a video recording of all of them at the same time. In the end, only audio recordings and their transcripts were used for this study while video recordings were not. Nonetheless, they were carried out anyway in order to have access to them for a possible continuation of this research project in the future. The transcriptions of the source texts and the CIs produced by the informants are available in **Appendices 3** and **4**.

The study had four tasks: (1) interpretation of the BT, (2) PANAS after the interpretation of the BT, (3) interpretation of the NT, and (4) PANAS after the interpretation of the NT. The informants were first asked to wear the MC2Lab's EMPATICA E4 wristbands on their non-

dominant hand. In accordance with Laborde et al.'s guidelines (2017: 6), the three Rs rule was used in order to measure informants' physiological reactions using EMPATICA E4 wristbands. As a reminder, the three Rs stand for: (1) *resting*, (2) *reactivity*, (3) *recovery*. *Resting* stands for the *baseline* value; *reactivity* for the HRV values during the task (to be later compared to the baseline value); and *recovery* for the difference between task and post-event. For the sick of clarity, in the course of this project I will always refer to *resting* as *baseline*. Additionally, following Korpal & Rojo's (2020: 204) recommendations, one recording of at least five minutes was carried out for each task. For this reason, a record of the following steps was kept: (1) the switch-on time of the wristbands, starting from which eight minutes were counted in order to collect the central five minutes containing the *baseline* values; (2) the starting time of the first source text in order to know when the first *reactivity phase* started; (3) starting and ending time of the first CI delivery in order to collect physiological parameters during the *reactivity* phase while carrying out the first task; (4) starting time of the second source text in order to know when the second *reactivity phase* started; (5) starting and ending time of the second CI delivery in order to collect physiological parameters during the *reactivity* phase while carrying out the second task; (6) ending time of the second CI delivery, starting from which eight minutes were counted in order to collect the central five minutes of the *recovery* phase. Also, in accordance with Laborde et al.'s recommendations (2017: 6), the informants were asked the following questions during the *resting* phase:

Do you smoke?
Do you have any heart condition?
Did you drink any alcohol last night?
When did you last have a caffeinated drink?
What time did you eat last time?
Do you need to go to the bathroom?

According to the answers given by the informants to these questions, no informant had to be excluded from the experiments. The available EMPATICA E4 wristbands were three. For this reason, the informants had to be divided into different groups, in order to have three informants at a time wearing the wristbands and carrying out the two CIs at the same time. The order in which the informants interpreted the BT and the NT and in which they filled in the PANAS questionnaire about the CI of each of the two texts was alternated in order to avoid distortions. **Table 2** provides an overview of the turns in which the informants carried out their CIs.

Before each CI, the informants were given a short briefing (**Appendix 2**) with some terms contained in the BT and in the NT. Due to an oversight, the informants of turn 2 did not receive the briefing. Nonetheless, the informants had been told to prepare for the topic of the two source texts some days before the experiments and therefore already knew the majority of the terms contained in the briefing. Additionally, as soon as this oversight was noticed, it was decided that the informants of turn 2 would not receive the briefing both of the BT and the

NT. This way, the within-subject design of this project was respected. For these reasons, it can be assumed that this accident did not compromise the validity of the results of the study. In any case, this is a precious lesson for me as a novice researcher: write down every single step you need to follow while carrying out your experiments in order to remember every single detail about what you need to do, otherwise you are going to forget something.

Table 2. A time schedule reporting the turns in which informants carried out the tasks. A, *Anna*; B, *Benedetta*; C, *Chiara*; D, *Debora*; F, *Francesca*; G, *Giovanni*; I, *Ilaria*.

mm/dd	turn	task	A	B	C	D	F	G	I
11/26	1	**BT**	✓	✓		✓			
11/26	1	**PANAS after BT**	✓	✓		✓			
11/26	1	**NT**	✓	✓		✓			
11/26	1	**PANAS after NT**	✓	✓		✓			
11/26	2	**NT**			✓		✓	✓	
11/26	2	**PANAS after NT**			✓		✓	✓	
11/26	2	**BT**			✓		✓	✓	
11/26	2	**PANAS after BT**			✓		✓	✓	
11/26	3	**BT**							✓
11/26	3	**PANAS after BT**							✓
11/26	3	**NT**							✓
11/26	3	**PANAS after NT**							✓

After each CI, the Italian PANAS was administered to the informants. In order not to bias the informants, the names used to refer to the BT and the NT were, respectively, *Text 1* and *Text 2*. For the same reason, no previous information was given to them about the PANAS and they were simply asked to fill in the questionnaire by following the written instructions.

2.4. *Data processing*

Various sources of data were triangulated for analysing emotional contagion in the CIs:

1. quality of the informant's interpretation of the BT and the NT;
2. number of acoustic variations (i.e., disfluencies and rhetorical strategies) in the informants' CIs as compared to the acoustic variations in the two source texts;
3. the informants' linguistic and emotional management of the triggers of the NT;
4. the informants' HRV values during their interpretation of the BT and during their interpretation of the NT as a physiological marker of emotional arousal;
5. the informants' PANAS values after interpreting the BT and the NT.

The idea behind such triangulation and also behind the present study was that the triggers of the NT may potentially cause a stronger emotional contagion among the informants while interpreting the NT than while interpreting the BT, which contained no triggers. Such emotional contagion might induce an emotional arousal among the informants by also *triggering* negative emotions in them, such as stress. The stressful and taxing nature of interpreting (Korpal 2016b: 15–16) might this way be exacerbated by such emotional arousal caused by the triggers. This might in turn impair the informants' ability to manage their cognitive resources and

find a balance between the cognitive *Efforts* in order to overcome task-related stress by making them slip into a cognitive overload and experience attentional deficits (Gile 1999: 159). This could mean that the informants most emotionally affected by the triggers might show more difficulties while interpreting the NT than the BT, as opposed to the informants less affected by them, as explained in further detail below.

2.4.1. Quality assessment

The assessment of the informants' CIs was carried out by four students of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus, who had just started their final year by the time they were invited to carry out this task. They were speakers of Italian as L1 and had English as their professional L2. Their average age was 22.7. In order to avoid distortions and have them evaluate intuitively, without clear categories, the evaluators were given no instructions and the order of the source texts and of the informants' CIs that they were asked to follow for their assessment was alternated. The evaluators were simply provided with the audio recordings and the transcriptions of both the source texts and the informants' CIs. They were then asked to listen to the two source texts and to the informants' CIs and then to rank the quality of the informants' CIs into one of the following four groups: (1) *very good,* (2) *good,* (3) *bad,* (4) *very bad.* In order not to bias the evaluators, the transcriptions administered to them contained only words (i.e., silences and fillers were removed from the transcription), and the titles *baseline text* and *negative text* were changed into *Text 1* and *Text 2* as had also been the case when the source texts were administered to the informants.

The idea behind the quality assessment was the following. Starting from the considerations mentioned in section 2.4, an attempt was made to observe whether the triggers of the NT might induce an emotional contagion and arousal among the informants strong enough to make them experience cognitive overload and attentional deficits, which would in turn deteriorate their output in the interpretation of the NT (Gile 1999: 159). If this was the case, then the informants' interpretation of the BT would be better than their interpretation of the NT. This would in turn reflect in the quality assessment conducted by the evaluators, with the former obtaining higher scores than the latter.

2.4.2. Acoustic analysis

The audio-recordings of the source texts and the informants' CIs were transcribed on Word files (.doc) by previously importing them into Audacity. The Audacity Waveform view was used at this stage of the study in order to identify acoustic variations. **Figure 4** provides an example of one of the informants' CIs analysed through Audacity Waveform view. This functionality was used to analyse the audio-recordings of the BT, the NT and of the CIs of the two texts.

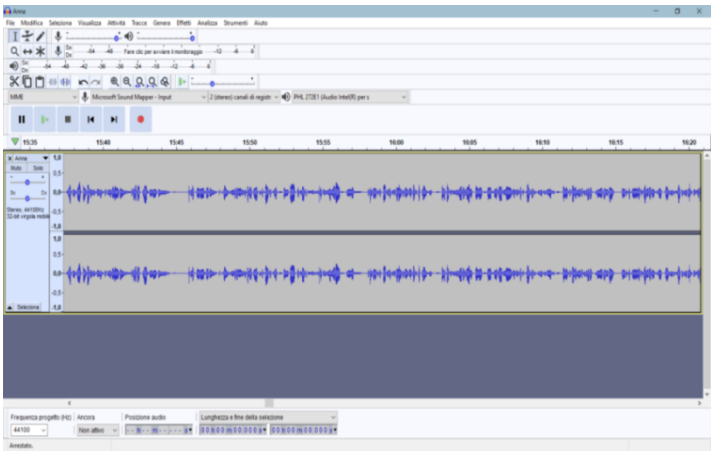


Figure 4. An outlook of a stretch of Anna's interpretation of the BT analysed using Audacity Waveform view.

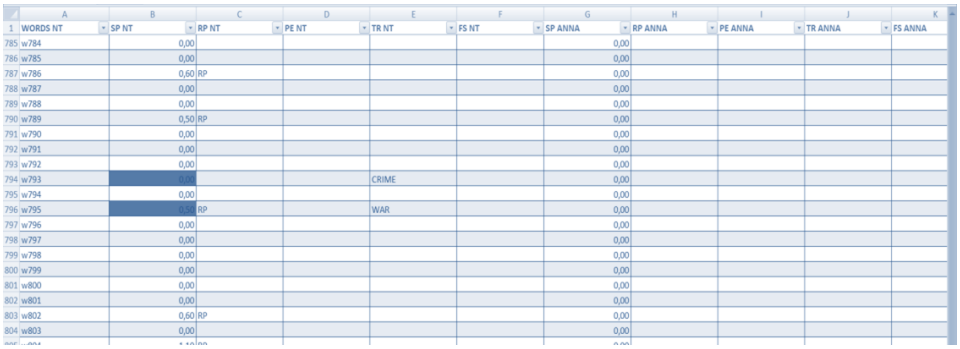
The acoustic analysis was divided in two parts. The first part studied whether the emotional contagion possibly induced by the triggers of the NT could impact the informants' correct management of prosody. If this was the case, the number of disfluencies produced by the informants might be higher in their interpretation of the NT than in their interpretation of the BT. To this aim, the following disfluencies were targeted in the analysis of the transcriptions of the audio-recordings of the source texts and of the CIs: Silent Pauses (SP) longer than 500 milliseconds; False Starts (FS); and Filled Pauses (FP), which were marked as *uh*, *uhm*, and *hm* in the transcription. Silences shorter than 500 ms were not taken into account for the analysis since they have been shown to be minor disfluencies of articulatory nature (Goldman-Eisler 1968, quoted in Gieshoff 2021: 7; Ho 2017: 130; Gieshoff 2021: 180).

The second part of the acoustic analysis studied whether the emotional contagion possibly induced by the triggers of the NT would impair the informants' ability to imitate the speaker' rhetorical strategies while interpreting the NT. To this aim, I identified the SP that I thought that were used for producing RP both in the source texts and in the CIs. In order to reduce bias and distortions, I asked a student of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus—who had just started her final year at that time—to do the same on her own. She had English as professional L2 and her age was 24. Later on, I compared our results and analysed the matching RP. To distinguish SP produced due to hesitations and those used to produce RP, I removed the RP from the total number of SP and I obtained the number of SP produced as disfluencies (referred to as SP–RP henceforth) and the number of RP, that is, SP purposedly used by the informants in order to stress the meaning of a certain text sample. Also, I counted the percentage of RP on total of SP in order to see how many of the SP were used for rhetorical purposes by the original speaker and the informants.

The next step was counting how many of the RP in the NT and in the interpretations of the NT were adjacent to a trigger. This was done with the aim of observing if the emotional contagion possibly induced by the triggers could influence the informants' tendency to rhetor-

ically stress the triggers. Later, the number of RP in the BT and in the NT was counted. Then a second count was conducted in order to see how many of these RP the informants reproduced in their interpretations of the one and the other source text. I called these reproduced RP *Coinciding Rhetorical Pauses (CRP)*. The aim there was to observe whether the emotional contagion possibly induced by the triggers of the NT could impact the informants's tendency to imitate the speaker's rhetorical strategies in the NT more than in the BT. Finally, the number of CRP also adjacent to a trigger in the informants' interpretations of the NT was counted. The aim there was to observe whether the presence of the triggers in the NT might be part of the reason why the informants reproduced some of the speaker's RP. **Appendix 1** provides a table with all transcription conventions used for the analysis.

Such acoustic data was manually calculated by importing them into spreadsheet (MS Excel). There, the NT and the BT (including the source text and the CIs) were divided into respectively nine and eight paragraphs and all words were translated into zeros, by adding all SP, FS, FP and RP where they fell in the written texts. **Figure 5** shows a segment of the spreadsheet used for the analysis.



	A	B	C	D	E	F	G	H	I	J	K
1	WORDS NT	SP NT	RP NT	PE NT	TR NT	FS NT	SP ANNA	RP ANNA	PE ANNA	TR ANNA	FS ANNA
785	w784	0,00					0,00				
786	w785	0,00					0,00				
787	w786	0,60	RP				0,00				
788	w787	0,00					0,00				
789	w788	0,00					0,00				
790	w789	0,50	RP				0,00				
791	w790	0,00					0,00				
792	w791	0,00					0,00				
793	w792	0,00					0,00				
794	w793	0,70			CRIME		0,00				
795	w794	0,00					0,00				
796	w795	0,50	RP		WAR		0,00				
797	w796	0,00					0,00				
798	w797	0,00					0,00				
799	w798	0,00					0,00				
800	w799	0,00					0,00				
801	w800	0,00					0,00				
802	w801	0,00					0,00				
803	w802	0,60	RP				0,00				
804	w803	0,00					0,00				

Figure 5. Excerpt of the acoustic analysis on Excel taken from the NT and Anna's interpretation of the NT.

To sum up, an analysis was conducted in order to observe whether the informants more emotionally affected by the triggers of the NT would show the following acoustic variations:

- a higher number of SP—RP, FS and FP for the NT then the BT;
- a stronger difficulty to imitate the speaker's rhetorical strategies for the NT and consequently a lower number of CRP in the interpretation of the NT than the BT;
- a lower number of RP and CRP adjacent to triggers in the interpretation of the NT.

On the other hand, it was also observed whether those informants less emotionally affected by the triggers of the NT would show the following acoustic variations:

- a smaller difference between the number of SP—RP, FS and FP for the NT than the BT;
- a stronger ability to control their own emotions, which would lead to a higher number of CRP in the interpretation of both source texts, especially of the NT;

- a higher number of RP and CRP adjacent to triggers in the interpretation of the NT.

2.4.3. Informants' management of triggers

Another approach adopted to observe the possible emotional contagion induced by the triggers of the NT was that of conducting an analysis of the informants' management of such triggers. The aim of this analysis was to see whether the informants most affected by the emotional contagion possibly caused by the triggers of the NT might have more difficulties in focusing on translating a high number of triggers and/or in translating them well into Italian than those informants less emotionally affected by them. An attempt was also made to observe whether the most emotionally affected informants would also tend to alter the emotional load of the original triggers in their interpretation of the NT. This would entail that their translations of the triggers would have a different emotional load than the original triggers. The analysis of the triggers was conducted as follows:

a. the number of triggers translated by each informant, indicating where these were omitted or repeated was counted and their EMOTE valence was analysed;
b. the number of translations of the triggers which were among the triggers with the lowest EMOTE valence was counted;
c. the percentage of informants who translated each trigger was calculated in order to see which triggers had the highest total number of translations in Italian. An analysis was conducted to observe whether the triggers' EMOTE valence could influence the frequency with which the triggers were translated by the informants;
d. a list of the array of translations produced by all informants for each trigger was made;
e. the number of the following elements in the NT and in each interpretation of the NT was counted:
    I. total number of words
    II. total number of triggers
    III. total number of non-triggers
    IV. percentage of triggers on total of words used
    V. percentage of non-triggers on total of words used
    VI. number and percentage of original triggers translated by the informants
    VII. number and percentage of triggers which—according to my perception—were weakened in their meaning by the informants (e.g., *threat* translated as *problem*);
    VIII. number and percentage of triggers mistranslated by the informants;
    IX. number and percentage of triggers altered by the informants (weakened + mistranslated);
    X. number and percentage of unaltered triggers (i.e., good translations);
    XI. number of triggers repeated by the informants in those cases where the informants repeated a sentence of the NT which contained a trigger;
    XII. number of negative words (i.e., words with a negative connotation) and/or triggers added by the informants by adding a sentence which was not in the NT.
f. By using the ItEM—Italian Emotive lexicon by Passaro et al. (2015)[30]
    I. the emotional load of the translations of each trigger delivered by the informants was evaluated;

II. the number of translations of the triggers which the majority of the informants opted for and their ItEM scores were analysed;
III. the number of times when each informant chose a translation of a trigger that also the majority of informants opted for was counted;
IV. the number of each informant's *good translations (GTs)* and *bad translations (BTs)* of the triggers was counted and the ItEM scores of such translations were analysed. The labels GTs and BTs were created for practical reasons. GTs stand for those cases where the informants provided a faithful translation of the triggers into Italian by maintaining their original meaning (e.g., *unreliable* translated as *inaffidabile*). BTs stand instead for those cases where the informants provided an unfaithful translation of the triggers into Italian by changing their original meaning (e.g., *pest* translated as *problema*). All translations of the triggers provided by the informants are offered in **Appendices 5** and **7**.

The ItEM lexicon by Passaro et al. (2015: 216) was used for the analysis because it is a high-coverage and constanstly uptdating emotive lexicon for Italian. In the ItEM, each term has an association score obtained from the basic emotions defined in the Plutchik (1980)'s taxonomy, shown in **Figure 6**.

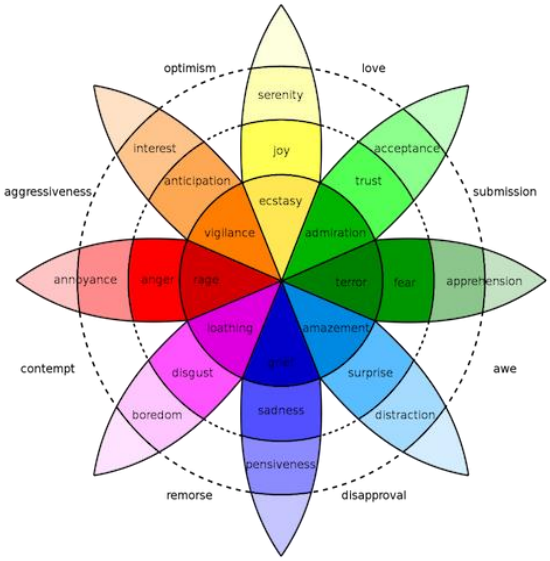


Figure 6. Plutchik's wheel.[31]

Bondielli et al. (2017) explain that the ItEM has been proven to be quite robust and that it can be easily expanded and used in various contexts and also for hate and violence detection in texts. In the ItEM, each word is provided with an emotive score for eight emotions taken from Plutchik's model, namely: (1) *joy,* (2) *sadness,* (3) *anger,* (4) *fear,* (5) *trust,* (6) *disgust,* (7) *surprise,* (8) *anticipation*, which in Italian were respectively translated as (1) *gioia,* (2) *tristezza,* (3) *rabbia,* (4) *paura,* (5) *fiducia,* (6) *disgusto,* (7) *sorpresa,* (8) *attese* (Pollacci 2014: 25).

2.4.4. HRV

The informants' physiological data from HRV was collected using the MC2Lab's EMPATICA E4 wristbands. Right after the end of the experiments, HRV data was upoloaded to *E4 man-*

ager from EMPATICA for the analysis.[32] After identifying the central five minutes for the baseline, the reactivity (CI) and the recovery condition for the informants' interpretations of the NT and the BT, data was uploaded to Kubios HRV Premium.[33] For the HRV analysis, the following variables were taken into account:

1. Mean RR (mean R-R interval);
2. Mean HR (Heart Rate);
3. RMSSD (root mean square of successive differences between normal heartbeats);
4. LF/HF ratio (Low Frequency/ High Frequency ratio).

As a reminder, the first three variables are time-domain measurements and the fourth one—frequency domain. Data was then uploaded to Jamovi for statistical analysis.[34] The aim of such analysis was to observe whether (1) during the interpretation of the two source texts (reactivity phase), the informants would be more emotionally aroused than during the baseline and the recovery condition; and whether (2) they would be more emotionally aroused when interpreting the NT than when interpreting the BT. At this stage, it was only possible to compare the baseline values with the reactivity values, since Ilaria's recovery phase was shorter than five minutes and therefore no central five minutes could be extracted from her EMPATICA data. This may be due to a malfunction or the informants' movements of the arm wearing the wristband during the experiments. In any case, in order to see if the baseline values could be used as single benchmark to measure the informants' physiological reactions, a Paired Samples T-Test was performed, whereby the baseline HR, RR, RMSSD and LF/HF ratio were compared to the recovery HR, RR, RMSSD and LF/HF ratio. The test did not show any statistically significant difference between the baseline and recovery values ($p.> 0.2$). For this reason, only baseline values were taken as a benchmark for the analysis and the problem with Ilaria's missing recovery values was overcome in this way.

For the analysis, two Paired Samples T-Tests were conducted. In the first Test, the informants' baseline and reactivity values for the interpretation of the BT and for the interpretation of the NT were compared. In the second Test, the informants' reactivity values during the interpretation of the BT and during the interpretation of the NT were compared.

2.4.5. Italian PANAS

The informants' PANAS scores were calculated twice, once from the PANAS the informants were asked to fill in right after concluding their interpretation of the BT, and once again right after they concluded their interpretation of the NT. The following procedure was therefore carried out twice for calculating the PANAS scores:

- Positive Affect Score: the scores given by the informants to the emotional states number 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19 using the Likert scale of the PANAS were added. The result could range from 10 to 50.
- Negative Affect Score: the scores given by the informants to the emotional states number 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20 using the Likert scale of the PANASwere added. The result could range from 10 to 50.

3. Results

Results are based on the two CIs produced by the seven informants who took part in the experiments of this research project. They will be mentioned using gender-correct fake names with alphabetically correlative initials, namely Anna, Benedetta, Chiara, Debora, Francesca, Giovanni and Ilaria. The order in which the informants will appear in the analysis and discussion of the results will however follow the turns in which the informants took part in the experiments (see also **Table 2** in § 2.3), namely: Anna (turn 1), Benedetta (turn 1), Debora (turn 1), Chiara (turn 2), Francesca (turn 2), Giovanni (turn 2) and Ilaria (turn 3). As a reminder, the informants of turn 1 interpreted the *baseline text* (BT) and then the *negative text* (NT), those of turn 2 interpreted the NT and then the BT and the last informant in turn 3 interpreted the BT and then the NT.

Readers are reminded that the aim of this study was to observe whether the presence of a list of negatively-valenced words (triggers) contained in one source text (NT) could lead to a stronger emotional contagion to be observed in the informants' CI of that text as opposed to their CI of another source text which contained no such words (BT). In order to observe whether this was the case, several sets of data were triangulated. Section 3.1 offers the results of the quality assessment of the informants' interpretation of the BT and the NT conducted by four MA interpreting students. Section 3.2 addresses the acoustic analysis of the BT, the NT and the informants' interpretations of the BT and the NT. Section 3.3 presents the informants' linguistic and emotional management of the triggers of the NT. The following section (§ 3.4) is devoted to the informants' physiological reactions to the tasks involved in the experiments of this study in terms of their HRV values. The last section (§ 3.5) is devoted to the informants' PANAS scores for the two CIs.

3.1. *Quality assessment*

The assessment of the informants' interpretation of the BT and the NT provides first cues about emotional contagion. For the analysis, each of the four assessment grades was assigned a different number: very bad= –1; bad= 0; good= +1; very good= +2. As a reminder, the aim there was to observe whether the emotional contagion possibly induced by the triggers in the NT would impair the quality of the informants' interpretation of the NT as compared to the BT, which contained no triggers.

To this aim, the results of a quality assessment of the informants' CIs carried out by four MA interpreting students were compared. Results showed that in four out of 14 cases, two evaluators disagreed with a divergence (*div.* in **Table 3**) of two points in their assessment and that in ten out of 14 cases, the majority of evaluators agreed on the assessment. According to the assessment, six out of seven informants scored better for the NT than for the BT and only one of them (Ilaria) obtained the same assessment for the two CIs. Benedetta and Giovanni

showed the greatest divergence between the BT and the NT. Additionally, Benedetta was the informant who obtained the highest scores for both her CIs and also the only informant who obtained only positive scores for one CI. On the other hand, Chiara's interpreting performance was the worst together with Francesca's. Chiara's score for the BT was worse than her score for the NT and in general she only obtained negative scores. The results of the quality assessment are offered in **Table 3** and **Figure 7**.

Table 3. Quality assessment of the informants' interpretations of the BT and the NT conducted by four Evaluators (**E1**, **E2**, **E3** and **E4** in the table).

Informants		E 1	div.	E 2	div.	E 3	div.	E 4	tot.
Anna	BT	bad	0	bad	0	bad	0	bad	**0**
	NT	good	+1	bad	0	bad	0	bad	**+1**
Benedetta	BT	very good	+2	bad	0	bad	0	bad	**2**
	NT	very good	+1	good	0	good	0	good	**+5**
Debora	BT	very good	+1	good	+2	very bad	-1	bad	**+1**
	NT	good	0	good	+1	bad	0	bad	**+2**
Chiara	BT	very bad	-1	bad	0	bad	0	bad	**-1**
	NT	bad	0	bad	0	bad	0	bad	**0**
Francesca	BT	bad	+1	very bad	-1	bad	0	bad	**-1**
	NT	good	+2	very bad	-1	bad	-1	good	**0**
Giovanni	BT	bad	-1	good	+1	bad	0	bad	**+1**
	NT	good	-1	very good	+2	bad	-1	good	**+4**
Ilaria	BT	bad	-1	good	+1	bad	0	bad	**+1**
	NT	bad	0	bad	0	bad	-1	good	**+1**

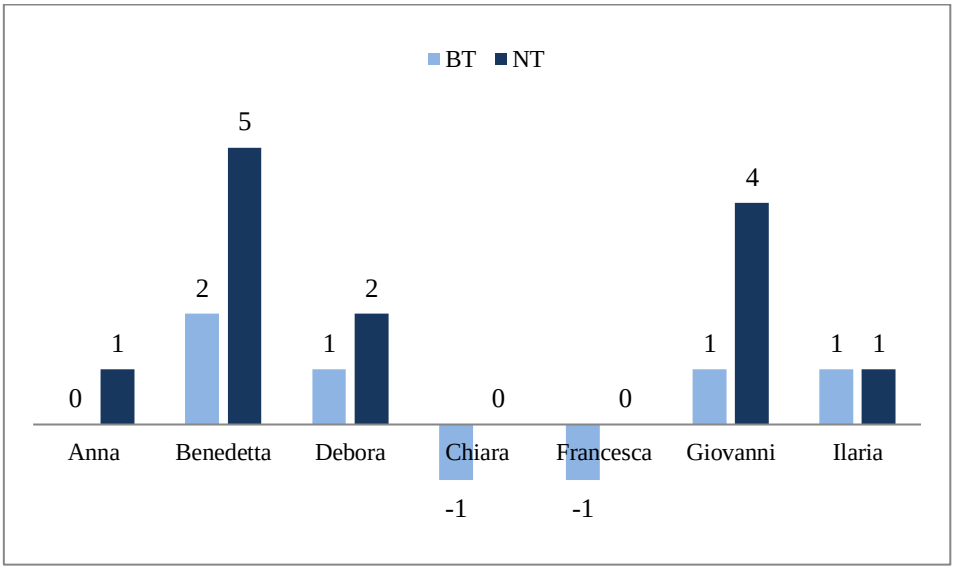


Figure 7. Quality assessment summary.

3.2. *Acoustic analysis*

The following sections present the results of the analysis of the acoustic variations produced by the informants in their interpretation of the BT and the NT, meaning disfluencies and rhetorical strategies. The disfluencies considered for the analysis were Silent Pauses (SP), Silent Pauses without Rhetorical Pauses (SP—RP), Filled Pauses (FP) and False Starts (FS). The observation of such disfluencies produced by the informants provides hints about whether their fluency in the interpretation of the NT was impaired by the emotional contagion possibly induced by the triggers of the NT. Separately, the number of the following prosodic strategies was taken into account in order to observe whether the triggers could impair or boost the informants' ability to imitate the speakers' rhetorical strategies: Rhetorical Pauses (RP); rhetorical pauses of the source texts reproduced by the informants, that is to say Coinciding Rhetorical Pauses (CRP); and RP and CRP adjacent to triggers (these last only for the interpretation of the NT).Three Paired Sample T-Tests were conducted to compare the informants' disfluencies for the BT and the NT in terms of (1) number of SP—RP (2) number of FP (3) number of FS. Test (1) about SP—RP revealed no statistical significance (p.=0.180), Test (2) about FP revealed a statistically significant difference between the two CIs (p.=0.042), and Test (3) about FS revealed no statistical significance (p.=0.762). The highest number of disfluencies produced by the informants was that of SP—RP for the BT (56.6), whereas the number of FS for the BT was the lowest (29.3). In general, two out of three disfluencies (SP—RP and FP) were more frequent for the BT than the NT. Results are summarized in **Table 4** and **Figure 8**.

Table 4. Summary of disfluencies.

mean number of disfluencies	SP—RP	*SD*	FP	*SD*	FS	*SD*
BT	56.6	***26.2***	59	***20.4***	29.3	***14***
NT	50	***23.9***	44	***25.5***	30.7	***23.4***

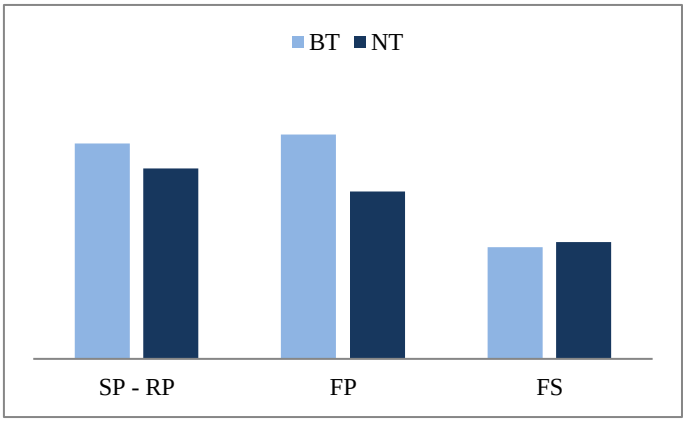


Figure 8. Mean number of disfluencies for the BT and the NT.

As shown in **Table 5**, four out of seven informants produced more SP—RP for the BT than the NT. Six out of seven informants produced more FP for the BT than the NT, while the number of FS in the two CIs was equally distributed among the informants. When examining the source texts, it stands out that the number of SP—RP was higher in the BT than in the NT and the number of FS in the BT and in the NT was practically the same and both events occurred also in the informants' CIs of the two source texts.

Some behaviours tended to recur: Anna and Debora produced the shortest CIs of both source texts. In particular, Anna was abundantly below the mean for all three disfluences, which means that she tended to not hesitate. On the other hand, Debora was the informant who produced the lowest number of SP—RP in both her CIs. However, it can be noticed that her numer of disfluencies was overall higher for the NT than the BT. Interestingly, Ilaria produced the longest interpretation of the BT which also was the longest CI produced during the experiment. She also produced one of the two longest interpretations of the NT, but she produced the lowest number of FP for the NT in spite of the high number of words that she used to interpret that text. Chiara was the informant with the highest number of disfluencies, followed by Francesca. Chiara was also the informant with the highest number of all three disfluencies for the BT. Also, she had the highest number of FS for the NT. Francesca had the highest number of SP—RP and FP for the NT. Informants' individual results are offered below.

Table 5. Summary of disfluencies in the informants' interpretations and in the source texts.

	A	B	D	C	F	G	I	source texts
words BT	642	790	812	834	841	857	1042	837
words NT	724	855	810	836	974	803	868	829
SP-RP BT	43	37	17	89	73	82	55	83
SP-RP NT	33	40	20	73	82	68	34	50
FP BT	24	63	63	85	78	46	54	0
FP NT	23	46	59	63	82	20	15	0
FS BT	19	30	17	53	43	17	26	3
FS NT	19	20	25	74	52	11	14	3

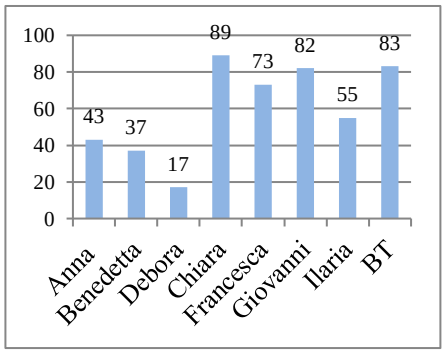


Figure 9. Number of SP—RP for the BT.

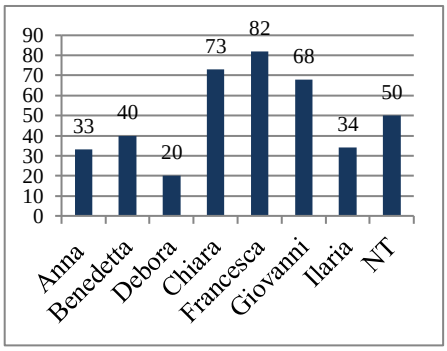


Figure 10. Number of SP—RP for the NT.

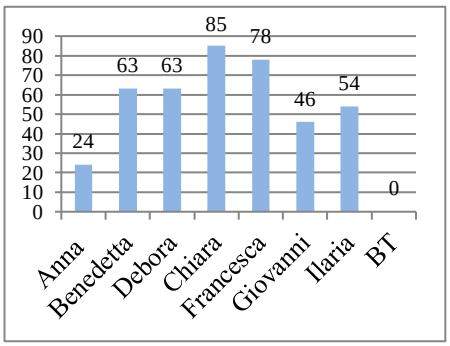


Figure 11. Number of FP for the BT.

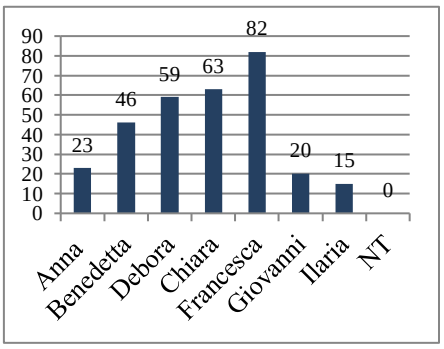


Figure 12. Number of FP for the NT.

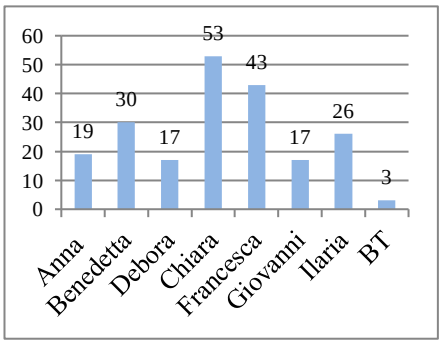


Figure 13. Number of FS for the BT.

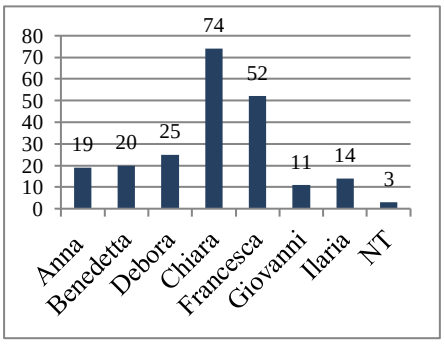


Figure 14. Number of FS for the NT.

When observing the informants' rhetorical strategies, Two Paired Sample T-Tests were conducted to compare the number of RP produced by the informants for the BT and the NT on the one hand and the number of their CRP for the BT and the NT on the other. Results showed a statistical significance (p.=0.025 for RP; p.=0.010 for CRP), pointing to a stronger tendency among informants to use RP for the NT than the BT and also to imitate the RP of the source text more when interpreting the NT than the BT, since six out of seven informants had a higher number of CRP for the NT than the BT. Results are summarized in **Table 6** and **Figures 15** and **16**.

Table 6. Summary of informants' rhetorical strategies.
(*RP/CRP adj.: RP/CRP adjacent to a trigger)

	A	B	D	C	F	G	I	Tot.	mean	*SD*	source texts
SP BT	44	38	17	92	74	84	55	404	57.7	***27***	96
SP NT	36	46	20	81	85	83	45	396	56.6	***26.2***	104
SP–RP BT	43	37	17	89	73	82	55	396	56.6	***26.2***	83
SP–RP NT	33	40	20	73	82	68	34	350	50	***23.9***	50
RP BT	1	1	0	3	1	2	0	8	1.14	***1.07***	13
RP on total of SP for BT %	2.2	2.6	0	3.2	1.3	2.3	0		1.66	***1.26***	13.5
CRP BT	0	0	0	2	0	1	0	3	0.4	***0.7***	
RP NT	3	6	0	8	3	15	11	46	6.5	***5.1***	54
RP on total of SP for NT %	8.3	13	0	9.8	3.5	18	24.4		*10.9*	***8.25***	51.9
CRP NT	1	1	0	3	2	4	3	14	2	***1.41***	
RP adj.*	2	4	0	2	2	5	5	20	2.86	***1.86***	17
RP adj. %	66.6	66.6	0	25	66.6	33.3	45.4		*43.4*	***25.6***	31.4
CRP adj.	1	0	0	0	1	2	1	5	0.7	***0.7***	
CRP adj. %	100	0	0	0	50	50	33.3	35.7	*33.3*	***37.3***	

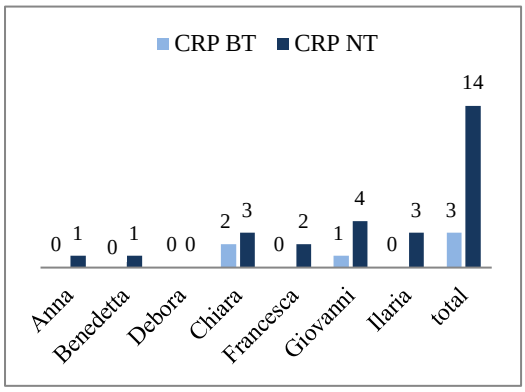


Figure 15. CRP for BT and the NT.

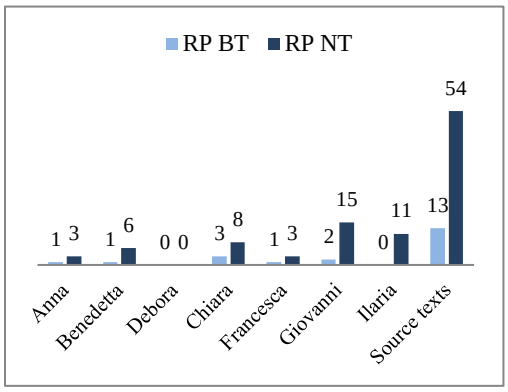


Figure 16. Informants' RP for the BT and the NT.

When examining the interpretations of the NT, results also showed that for three out of seven informants (six if Debora is not taken into account since she had no RP at all in both her CIs), the percentage of RP adjacent to a trigger was the majority of RP used by the informants. Also, in three out of these six cases, at least the half of CRP for the NT was adjacent to a trigger. When observing recurring tendencies among informants, it can be pointed out that Giovanni and Ilaria produced the highest number of RP and RP adjacent to triggers in the NT. Chiara had the highest number of CRP in the BT and Giovanni in the NT.

Additionally, when examining the percentage of RP on the total number of SP (see **Figures 19** and **20**), it can be seen that Chiara had the highest percentage in the BT and Ilaria in the NT. As shown in **Figures 17** and **18**, Ilaria produced no RP in the BT but she produced 11 RP (the second-highest number of RP after Giovanni) in the NT. Also, five of these 11 RP were adjacent to a trigger, three were CRP and one of her three CRP was adjacent to a trigger.

These are all indicators of the fact that Ilaria tended to be a quite emphatic informant. Indeed, when I listened to the informants interpreting the NT, I noticed a difference between the emphasis and the passion conveyed by Ilaria and the rest of the group. She seemed to be particularly involved in the source text and in its emotional content. Her prosody was strong, maybe overly strong at times, and this is confirmed by her high number of RP. Another result which stands out is that Anna's number of RP in the NT was one of the lowest and was below the mean. However, she was able to use two out of her three RP in the NT at the right spots, that is to say adjacent to a trigger. Finally, one of her three RP was also a CRP.

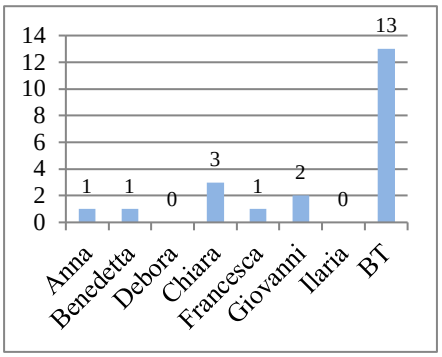


Figure 17. Number of RP for the BT.

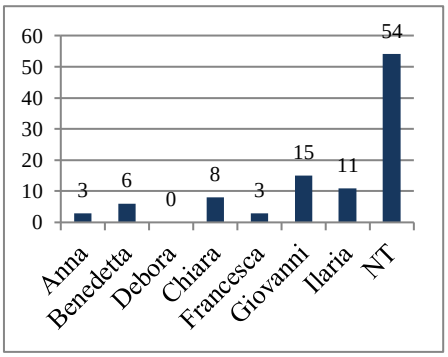


Figure 18. Number of RP for the NT.

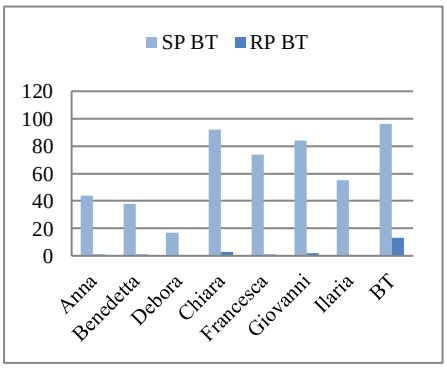


Figure 19. RP on total of SP for the BT.

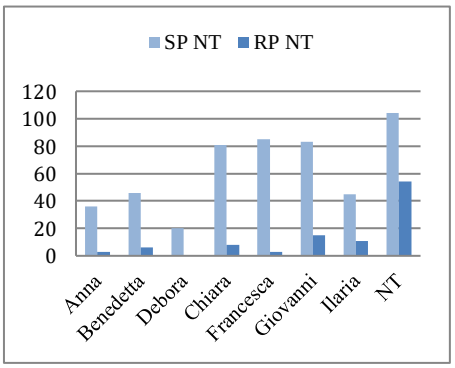


Figure 20. RP on total of SP for the NT.

The following two RP (in light blue in the transcription) of the original NT were reproduced by three out of seven informants (see **Table 7**):

- "[...] in April (0.5) two thousand twenty-one, (0.5) Susheela (.) committed (...) suicide (0.6) by consuming rat poison! [...]"
- "[...] By now, maybe you're wondering (.) what her tragic (.) death (0.6) has to do with Bitcoin. (1) Well, it turns out that Susheela used to inve- (..) vest in Bitcoins. (0.6) [...]"

Table 7. CRP in the transcription of the source texts and in the informants' CIs
(CRP and triggers are indicated in light blue and red, respectively).

NT	**Anna**
[...] in April (0.5) two thousand twenty-one, (0.5) Susheela (.) committed (...) suicide (0.6) by consuming rat poison! [...]	[...] Nell'aprile del duemila e ventuno Susheela si è tolta la vita (0.6) con- uh utilizzando del veleno per (.) ratti. [...]
NT	**Benedetta**
[...] By now, maybe you're wondering (.) what her tragic (.) death (0.6) has to do with Bitcoin. (1) Well, it turns out that Susheela used to inve- (..) vest in Bitcoins. (0.6) [...]	[...] E (..) però hm (...) cos'ha a che fare con uh i Bitcoin? (0.6) Bene, Susheela investiva uh tramite Bit- (.) investiva nei Bitcoin, (0.6) […]
BT	**Chiara**
[...] Finally, (..) the icing on the cake: (0.8) El Salvador (...) made Bitcoin its legal tender on June ninth, (0.8) the year twenty twenty-one, (1.8) becoming the first country to have ever taken this decision. (1.7) [...]	[...] E, infine, (..) la ciliegina sulla torta, (0.5) a uh El Salvador, il nove giugno del duemila e ventuno, (0.6) la criptovaluta del Bitcoin è stata uhm uh legalizzata, e questo è il primo paese a fare questo. (0.6) [...]
[...] it's only a matter of time (0.6) before Bitcoin will increase (.) the profits for all Bitcoin investors. (1) [...]	[...] Quindi è solo una questione di tempo (1) che il Bitcoin aumenterà i profitti per tutti gli inve- gli investitori in Bitcoin, […]
NT	**Chiara**
[...] It's not uncommon for its value to change (0.8) with an insane (0.5) fluctuations over the short term, [...]	[...] Mi dispiace (.) iniziare questo discorso in chiave così negativa. (1) Gli investimenti nel- nel Bitcoin sono un fallimento, (0.6) perché sono una valuta instabile e molto volatile, (1.6) a causa delle grandi fluttuazioni. (0.9) [...]
[...] To sum up, (0.6) investing (...) in Bitcoin amounts to a one way ticket (0.5) to total (0.5) economic (..) and personal (0.5) [...]	[...] Riassumendo, (..) investire quindi nei Bitcoin (...) è un- uhm (0.6) un- un- è come ac- acquistare un- uhm (0.9) un biglietto di sola andata (0.5) che porta a un uh fallimento totale economico. (0.8) [...]
[...] (0.6) a venom for our pockets, (0.6) for our lives, (0.5) our security from crime and war (0.5) and for the safety of our planet, (0.6) our home. (1.1) I actually think I am not going too far [...]	[...] È una specie di (.) veleno per i nostri- per le nostre tasche, per le nostre vite, per la sicurezza del nostro pianeta. (1.4) Quindi non è esagerato dire che il Bitcoin sia (..) la peste del nostro secolo. [...]
NT	**Francesca**
[...] in April (0.5) two thousand twenty-one, (0.5) Susheela (.) committed (...) suicide(0.6) by consuming rat poison! [...]	[…] nelle aprile duemilaed- e ventuno ha commesso (0.5) suicidio(0.9) bevendo (...) e ingerendo (..) del veleno per ratti. (0.9) [...]
[...] And, when I say a lot of electricity, (0.9) I mean that Bitcoin consumes about seventy-nine (0.6) terawatt-hours [...]	[…] e quando dico tantissima energia, (0.5) intendo settantanove (...) uh (.) terawatt all'ora (0.8), [...]
BT	**Giovanni**
[...] Bitcoin (.) will ultimately become (0.6) the world's most powerful currency (..) quite soon [...]	[...] dunque, il Bitcoin, (0.5) anche (.) prima (..) uh di quanto ci possiamo aspettare, diventerà (0.6) la valuta preferita del mondo. [...]
NT	**Giovanni**
[...] Nevertheless, (.) I personally find it (.) a reckless (...) investment. (0.7) And I'll tell you why. (1.6) [...]	[...] Tuttavia, (.) io penso che in- investimenti in Bitcoin (..) siano decisamente sconsiderati,(0.6) e vi spiegherò il motivo per cui penso ciò. (1.1) [...]
[...] By now, maybe you're wondering (.) what her tragic (.) death (0.6) has to do with Bitcoin. (1) Well, it turns out that Susheela used to inve- (..) vest in Bitcoins. (0.6) [...]	[...] Forse vi starete chiedendo perché la morte di Sishila sia legata al Bitcoin. (1.5) Semplicemente perché (..) investiva (.) proprio in questa criptovaluta (.) di tipo speculativo. (1) [...]
[...] Not to mention, of course, that Bitcoin also lends itself to illegal uses (0.7) and therefore, (.) it supports (..)crime (0.6) and fraud. [...]	[...] Inoltre, il Bitcoin favorisce l'illegalità.(0.6) Sappiamo bene che uhm (1) favorisce (0.5) la criminalità (0.5) [...]
[...] And, when I say a lot of electricity, (0.9) I mean that Bitcoin consumes about seventy-nine (0.6) terawatt-hours [...]	[...] E quando dico una grandissima quantità mi riferisco a settantanove (0.6) terawatt ora (0.7) di elettricità (0.5) all'anno, [...]

(continued) Table 7. CRP in the transcription of the source texts and in the informants' CIs (CRP and triggers are indicated in light blue and red, respectively).

NT	**Ilaria NT**
[...] in April (0.5) two thousand twenty-one, (0.5) Susheela (.) committed (...) suicide(0.6) by consuming rat poison! [...]	Si uccise, avvelenandosi.(0.5) E voi vi starete chiedendo:
[...] By now, maybe you're wondering (.) what her tragic (.) death (0.6) has to do with Bitcoin. (1) Well, it turns out that Susheela used to inve- (..) vest in Bitcoins. (0.6) [...]	[...] E voi vi starete chiedendo: ma, cosa ha questa storia a che fare con il Bitcoin?! (0.5) Beh, Susheela (0.5) investiva proprio in questa- in- in Bitcoin [...]
NT	**Ilaria NT**
[...] like bombs and rifles and knives and explosivesand (0.5) forged ID cards, stolen credit cards! (0.5) […]	[...] eroina, armi, come per esempio bombe, (...) coltelli, di tutto! (0.5) Molto spesso il Bitcoin viene utilizzato [...]

3.3. *Informants' management of triggers*

The analysis of the triggers of the NT can give some hints about a possible emotional contagion induced among the informants by the presence of the triggers in the NT. This analysis was based on the assumption that the emotional contagion possibly induced by the triggers might make it more difficult for the informants to focus on the management of the triggers. Such emotional contagion may thus impair the informants' overall ability to translate a high number of triggers by also maintaining their original linguistic meaning and emotional load. This analysis showed that the informants did not seem to be particularly affected by the emotional contagion of the triggers.

Table 8. Informants' management of the triggers of the NT. *triggers

	NT	**A**	**B**	**D**	**C**	**F**	**G**	**I**	**mean**	***SD***
words	829	724	855	810	836	974	803	868	839	***76.0***
trig.*	54	37	42	40	43	38	37	35	38.9	***2.91***
non-trig.	775	687	813	770	793	936	766	833	800	***76.0***
% of trig. on total of words	6.5	5.1	4.9	4.9	5.1	3.9	4.6	4.03	4.65	***0.497***
% of non-trig on total of words	93.5	94.8	95	95	94.8	96	95.3	95.9	95.3	***0.503***
% of trig. translated		68.5	77.7	74	79.6	70.3	68.5	64.8	71.9	***5.38***
weakened trig.		3	1	1	1	3	3	0	1.71	***1.25***
% of weakened trig.		8.1	2.3	2.5	2.3	7.8	8.1	0	4.44	***3.43***
mistranslated trig.		2	2	4	2	3	2	2	2.43	***0.787***
% of mistranslated trig.		5.4	4.7	10	4.6	7.8	5.4	5.7	6.23	***1.97***
altered trig. (weakened + mistranslated)		5	3	5	3	6	5	2	4.14	***1.46***
% of altered trig.		13.5	7.1	12.5	6.9	15.7	13.5	5,7	10.7	***4.01***
unaltered trig.		32	39	35	40	32	32	33	34.7	***3.45***
% of unaltered trig.		86.4	92.8	87.5	93	84.2	86.4	94.2	89.2	***4.00***
repeated trig.		4	2	2	4	9	3	5	4.14	***2.41***
added negative words and/or triggers		0	0	2	4	2	4	4	2.29	***1.80***

As shown in **Table 8**, the first result standing out from this analysis is that Anna produced the shortest interpretation of the NT (724 words) and also the only interpretation shorter than the

original NT. Also, her interpretation of the NT, together with Chiara's, contained the highest percentage of triggers on the total of words used in the text (5.1%). As shown in **Figures 21** and **22**, Anna and Chiara were able to produce the most effective interpretations of the NT, in terms of triggers out of total of words used.

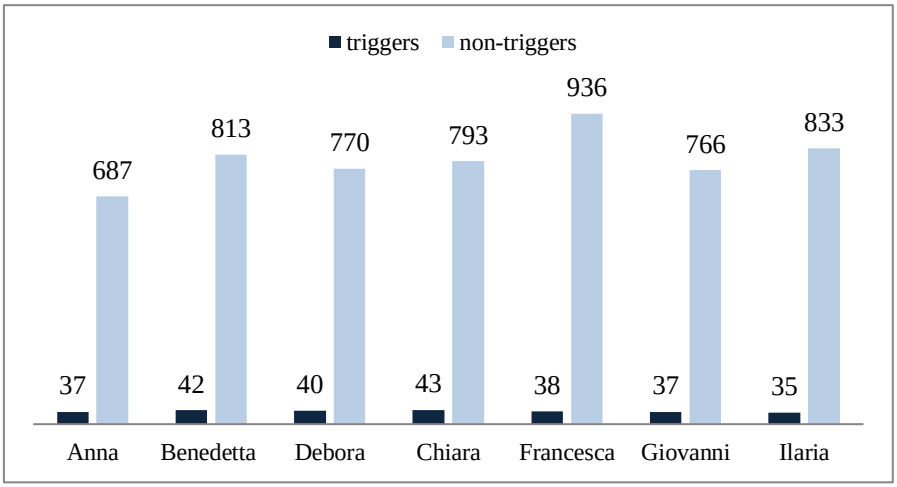


Figure 21. Triggers and non-triggers in the informants' interpretations of the NT.

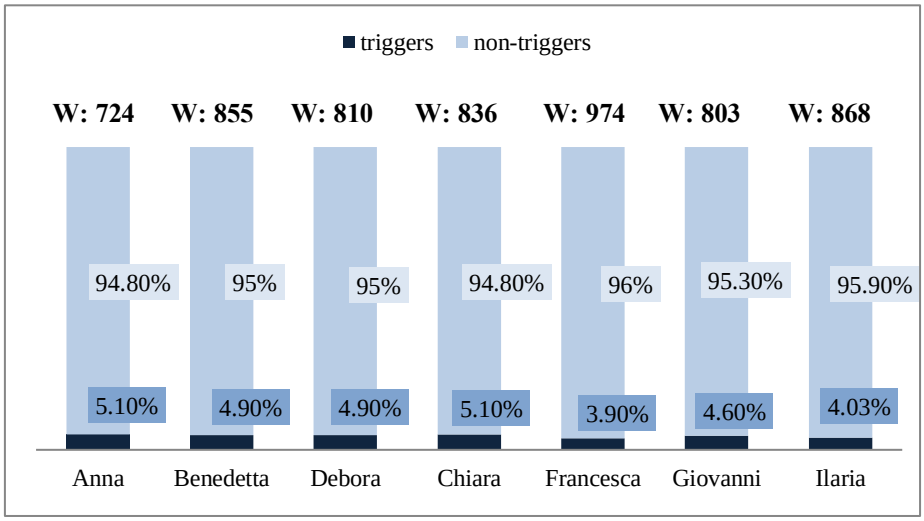


Figure 22. Percentage of triggers and non-triggers on total of words.

Anna and Chiara also had the lowest percentage of words which were not triggers (non-triggers) in their CI. Anna had however the second-lowest percentage of original triggers translated, the second-highest percentage of altered triggers and the highest percentage of weakened triggers (together with Giovanni). Speaking of weakened triggers (see **Figure 23**), Anna seemed to have a tendency to use the word *problema* (*problem* in English) for translating emotionally strong triggers such as *pest* or *threat* (see **Appendices 5, 6** and **7**). Chiara

translated the highest percentage of original triggers (79.6%) and also produced the highest number of unaltered triggers (40).

On the other hand, Francesca produced the longest interpretation of the NT with the lowest percentage of triggers on total of words used and also had the highest number of altered triggers and repeated triggers, which is also in line with the high number of words used in her interpretation. Ilaria produced the second-longest interpretation of the NT, translated the lowest percentage of original triggers (64.8%) and also had the second-lowest percentage of triggers on total of words used, but she produced the highest percentage of unaltered triggers on the total of triggers that she translated, which means that she translated the triggers well. Ilaria also had the second-highest number of repeated triggers or added negative words. Additionally, four out of seven informants repeated the trigger *suicide* and out of these four, two (Francesca and Ilaria) repeated this trigger twice (see **Table 11**). Four out of seven informants repeated the trigger *to steal* (*rubare* in Italian) and the trigger *to lose (perdere)*. Additionally, three out of seven informants (Francesca, Giovanni and Ilaria) added the phrase *molto pericoloso* or *rischioso* when referring to investing in Bitcoin, described in the NT with the trigger *reckless*.

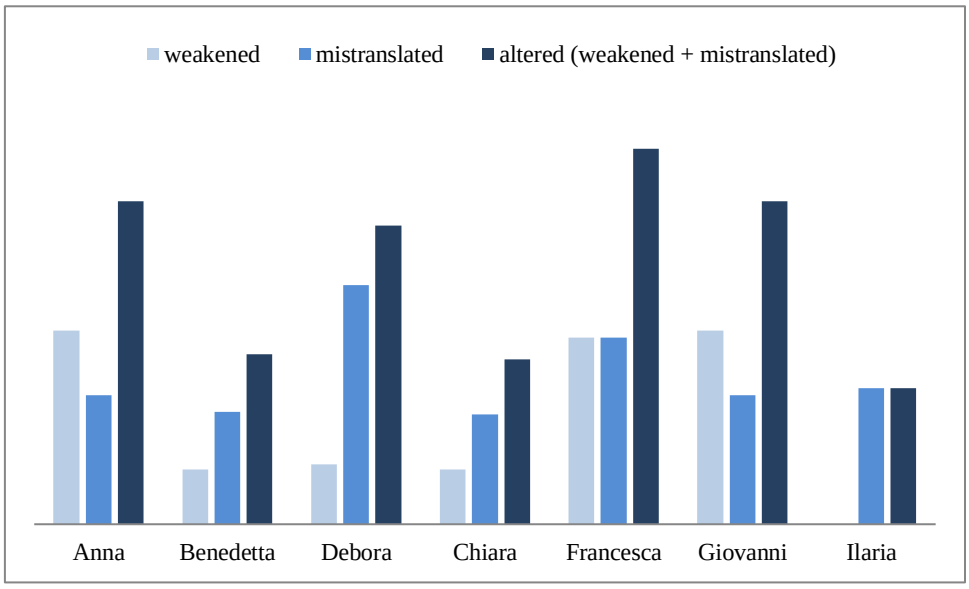


Figure 23. Informants' alterations of triggers in the interpretation of the NT (in %).

Analyzing translation frequency (see **Figure 24**) for each trigger, the triggers *hate* (in its first occurrence in the NT), *reckless, suicide, (commited) suicide, poison, lost, lose, gambling, bankrupt, cyberattacks, stolen, illegal, crime, terrorists, tumour, failure* and *pest* (in its second occurrence in the NT) were translated by all seven informants—considering both altered or unaltered translations—while *toxic, hell, dirty, crime* (in its second occurrence in the NT) and *war* were never translated by any of the informants.

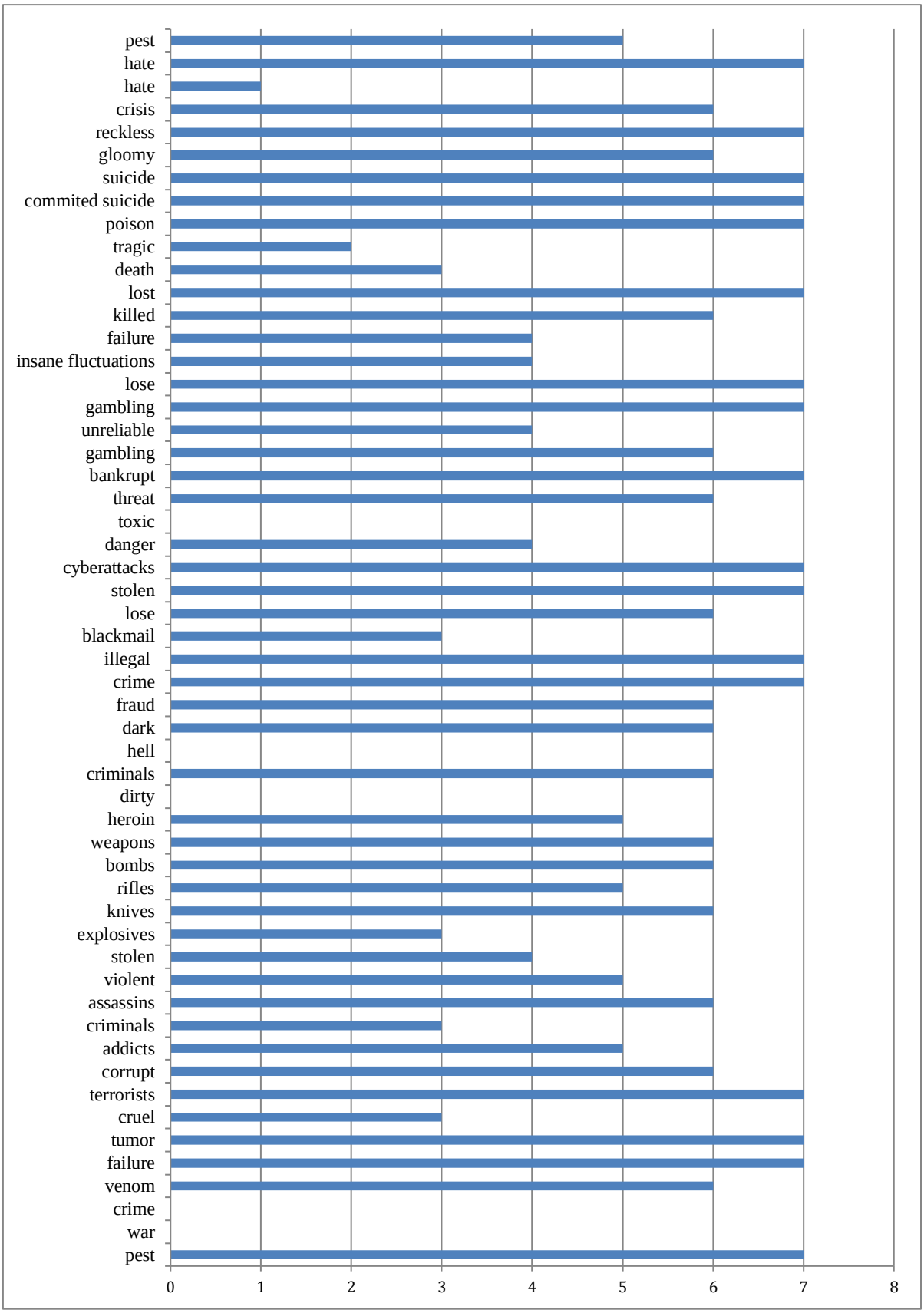


Figure 24. Translation frequency for each trigger.

One particular behaviour in the informants' translations of the triggers is worth noticing. Let us observe the following two sentences, the one appearing in Paragraph 4 and the other in Paragraph 5 of the original NT:

- "[…] I'll start by telling you a story, (0.9) a very ***gloomy*** one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide […]"
- "[…] I am really sorry to have started my talk on such a ***negative*** note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]"

When examining the informants' interpretation of these two text samples, I had the impression—which could also be wrong—that five out of the six informants who translated the trigger *gloomy* decided to translate it but in the following paragraph in order to offer a translation of the word *negative* (see **Table 9**). On the other hand, Francesca was instead the only informant who translated the trigger *gloomy* in the same paragraph where it originally appeared.

Table 9. Informants' translation of the trigger *gloomy* (triggers are indicated in red).

Anna	
Paragraph 4: […] I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, […]	**P4**: […] Beh, innanzitutto vorrei iniziare con una storia, (0.5) uh la storia di (.) una persona che uhm si chiama (...) uh Susheela, (0.7) uhm questo per mostrare che investire nei Bitcoin è un suicidio […]
Paragraph 5: […] I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]	**P5**: […]Mi dispiace iniziare da una storia **COSÌ TRISTE E TRAGICA**, però è proprio per dimostrare che (...) uh l'invest- investire sui Bitcoin è una scelta veramente azzardata negativa […]
Benedetta	
P4: […] I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, […]	**P4**: […]Vorrei spiegarvi perché investire nei Bitcoin sia un vero e proprio suicidio, (...) […]
P5: […] I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]	**P5**: […]Mi dispiace iniziare il mio discorso con questi toni **COSÌ FUNEREI,**(0.6) però voglio farvi capire (..) che investire nei Bitcoin è un fallimento, […]
Debora	
P4: […] I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, […]	**P4**: […] Partiremo da una storia, (..) che ci fa capire come il Bitcoin sia un suicidio […]
P5: […] I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]	**P5**: […] E, mi dispiace aver iniziato il mio discorso con questa storia **COSÌ TRISTE**, ma (..) uh tutto questo per farvi capire quanto i Bitcoin portino ad un fallimento i tu- in tutti i sensi […]

(continued) Table 9. Informants' translation of the trigger *gloomy* (triggers are indicated in red).

Giovanni	
P4: […] I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, […]	**P4**: […] Vorrei partire da una breve storia, (1) una storia che dimostra come investire nel Bitcoin sia un vero e proprio suicidio, (0.7) […]
P5: […] I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]	**P5**: […]Mi dispiace (..) offrirvi questo quadro **COSÌ SCURO** (0.6) ma uh è questo che significa investire in Bitcoin. […]
Ilaria	
P4: […] I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, […]	**P4**: […] Vorrei cominciare la mia storia raccontando la storia di una giovane ragazza indiana dal nome di Susheela (...) e vorrei raccontarvi questa storia per spiegarv- (0.5) per spiegarvi il motivo per cui il Bitcoin (0.5) non è un suicidio solo in senso figurato ma anche in senso letterale. […]
P5: […] I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]	**P5**: […] E mi dispiace molto di iniziare il mio discorso con questa nota **COSÌ DRAMMATICA, COSÌ TRAGICA,** (0.5) però uhm (..) io lo faccio perché voglio spiegarvi perché investire in Bitcoin (.) e- (.) equivale a fallire, equivale a un totale fallimento. (0.5) […]
Francesca	
P4: […] I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, […]	**P4**: […] Permettetemi di raccontarvi una storia uh abbastanza cupa (1.4) un- uh un suicidio, (...) perché il Bi- il Bitcoin porta al suicidio, […]
P5: […] I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) […]	**P5**: […] Mi dispiace avervi raccontato questa storia così (...) cruda (..) e dura, […]

Additionally, an analysis of the valence and of the emotional load of the English triggers and their Italian translations offered by the informants, respectively, was conducted. The valence of the triggers in the original NT was investigated in order to see whether this could explain the informants' tendency to translate some triggers more frequently than others. On the other hand, the emotional load of the Italian translations of the triggers provided by the informants was also observed. Both analyses were performed in order to investigate whether the emotional contagion possibly induced by the triggers of the NT could impair the informants' ability to translate them by maintaining their linguistic meaning and also their original emotional load. To this aim, the EMOTE database was used for the analysis of the valence of the English triggers and the ItEM database was used for the analysis of the emotional load of the Italian translations of the triggers. At this stage, readers should be cautioned that this was only an attempt to conduct two parallel analyses of the English triggers and of their translations into Italian, but it was already expected from the beginning that no 1:1 comparison would have been possible, since two different scales for two different languages based on two separate sets of criteria were used. When analysing the valence of the English triggers with EMOTE (see **Table 1** in § 2.2), it appeared that five out of the 17 triggers translated by all informants

were among the triggers with the lowest EMOTE valence (see **Table 10**). All four triggers which were translated by none of the informants had also such a valence, more precisely below 1.50. *Gloomy*, which lead to the peculiar behaviour just mentioned, had a slightly higher valence (2.13). Additionally, nine out of the 29 repeated triggers (see **Table 11**) were among the 12 triggers with the lowest valence according to EMOTE in the list of triggers selected for the NT. Their valence was below 1.5.

Table 10. Triggers with the lowest valence among triggers selected from EMOTE for the NT.

trigger	valence
terrorist	1.24
dirty	1.30
suicide	1.33
corrupt	1.34
hate	1.38
tumor	1.38
failure	1.45
cruel	1.46
death	1.47
crime	1.47
hell	1.47
insane	1.49

Table 11. Repeated triggers and added negative words and/or triggers.
(*triggers among the list of triggers with lowest EMOTE valence)

informants	repeated triggers	added negative words and/or triggers (these last are indicated in bold)
Anna	***committed suicide**:* *si è suicidata* ***stolen:*** *rubato* ***venom:*** *veleno* ***reckless:*** *scelta veramente azzardata*	
Benedetta	***lost:*** *perso* ***stolen:*** *rubato*	
Debora	***stolen:*** *rubati* ***illegal:*** *illegali*	*scommessa* *pistole*
Chiara	***reckless:*** *rischioso* ***death:*** *morte* ***tragic:*** *tragica* ***commited suicide:*** *suicidata*	*perdite* ***threat:*** *minaccia* *droghe* *hacker*
Francesca	***hate:*** *odio* ***reckless:*** *pericoloso* ***suicide:*** *suicidio* ***commited suicide:*** *suicidarsi* ***killed:*** *uccide* ***unreliable:*** *non si possono affidare* ***attacks:*** *attacchi* ***lost:*** *perso* ***attacks:*** *attacco (cibernetico)*	*molto* ***pericoloso:*** *reckless* *battaglie*
Giovanni	***lost:*** *perso* ***attacks:*** *attacchi (hacker)* ***threat:*** *minacce*	*molto* ***pericolosi:*** *reckless* *colpiti* *droghe* ***danger:*** *pericolo*
Ilaria	***commited suicide:*** *si uccise* ***commited suicide:*** *uccidersi* ***steal:*** *rubare* ***lose:*** *perderete* ***tumour:*** *tumore*	***reckless:*** *rischioso* *drammatica* *loschi* *loschi*

Moving to the ItEM scores for the Italian translations of the triggers, only the negative emotions of the Plutchik's wheel were taken into account, that is to say *rabbia, disgusto, paura* and *tristezza,* which in English translate as, respectively, *anger, disgust, fear* and *sadness*. First of all, the ItEM scores for various Italian translations could not be found and for this reason, the following translations had to be discarded: *si è tolta la vita* for (committed) *suicide; sostanza nociva* for *poison; gioco d'azzardo* for *gambling; non è affidabile* for *unreliable; hackerati* for *blackmail; scopi di distruzione* for *cruel*. For the adverbs, only the root was used, that is to say *veloce* and *continuo* for *velocemente* and *continuamente* in the CIs. The analysis could therefore only be based on a limited number of Italian translations. No comparison was made between the 17 English triggers translated by all seven informants to the rest of the triggers and their translation, since, as mentioned, a 1:1 comparison between EMOTE and ItEM would have been impossible for linguistic, cultural and methodological reasons. Instead, the ItEM scores were analysed in those cases where the informants provided different translations in Italian for one trigger in English. Let us take the example of the trigger *reckless*. This trigger was translated in six different ways by seven informants: *azzardato* (Anna and Chiara), *spericolato* (Benedetta), *folle* (Debora), *spaventoso* (Francesca), *sconsiderato* (Giovanni) and *assurdo* (Ilaria). When analysing the ItEM scores for all the translations provided by the informants for this trigger, it appeared that the word *folle* had the highest *rabbia* score (0.47), *spaventoso* the highest *paura* score (0.57) and *assurdo* the highest *disgusto* and *tristezza* scores (resp. 0.42 and 0.36). The word with the lowest *rabbia* (0.19), *disgusto* (0.22) and *paura* (0.23) scores was *spericolato*, while *assurdo* had the lowest *tristezza* score (0.36). This means that Benedetta offered the translation with the majority of the lowest emotional scores while Ilaria the one with the majority of the highest. Another example is *pest*, which was translated as *problema* (Anna), *male* (Francesca) and *peste* (Benedetta, Chiara, Debora, Giovanni and Ilaria). Out of the three, *problema* had the lowest *disgusto* score, while *pest* had the lowest *rabbia, paura* and *tristezza* scores. This means that in this case Francesca opted for the translation with the majority of the highest emotional scores. All the cases where there was more than one translation for one single trigger were analysed by following this procedure. **Appendices 5**–**9** provide a list of the tables created for the analysis of the triggers.

When analysing all ItEM scores for all alternative translations (see **Appendices 8** and **9**), a series of observations were produced in order to investigate whether recurring tendencies were to be found among the informants. First of all, the number of translations with a *rabbia, disgusto, paura* and *tristezza* score below 0.2 (< 0.2) and above 0.5 (> 0.5) was calculated. The two thresholds were chosen since they were at the opposite ends of the continuum of the ItEM scores for the translations of the triggers. Results are summarized in **Table 12** and **Figure 25**. It appeared that Anna had the lowest number of scores above 0.5 for all negative emotions of the Plutchik's wheel, followed by Ilaria (for *rabbia, disgusto* and *paura*), suggesting that their translations were not particularly emotional. On the other hand, Francesca had the

highest number of scores above 0.5 for *disgusto* (2), *paura* (7) and *tristezza* (4), followed by Giovanni, with the highest number of *rabbia* (3) and *paura* (7) above 0.5. This means that Francesca's translations were the most emotional. Also, Chiara had the second-highest number of translations with a *paura* score above 0.5.

Table 12. Low and high ItEM scores for the informants' translations.

emotion		A	B	D	C	F	G	I
rabbia	< 0.2	6	7	5	6	7	5	4
	> 0.5	1	3	3	2	2	3	1
disgusto	< 0.2	9	11	7	10	10	8	7
	> 0.5	1	1	1	1	2	1	1
paura	< 0.2	1	1	1	2	1	2	0
	> 0.5	3	4	5	5	7	7	3
tristezza	< 0.2	9	10	8	11	10	8	8
	> 0.5	0	2	2	2	4	3	1

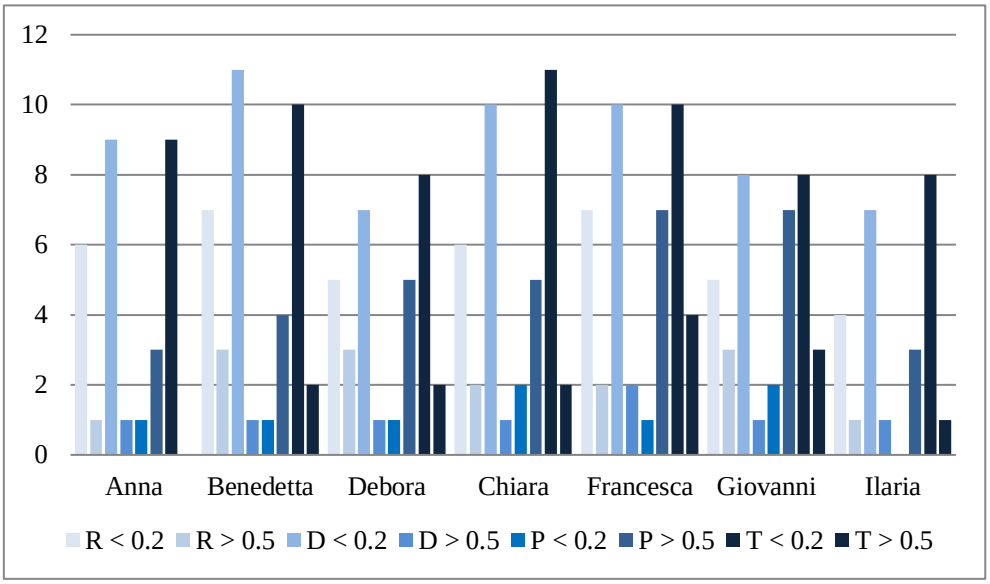


Figure 25. ItEM scores for the informants' translations of the triggers.

The next step was to analyse the ItEM scores for the array of translations provided by the informants for one single trigger. The number of *good translations* (GTs) of the triggers was manually counted. The same procedure was repeated for the *bad translations* (BTs). When analysing GTs, it appeared that 16 out of 32 GTs had the majority of lowest emotive scores, that is to say, lower emotive scores than the BTs provided for the same trigger. Ten of the 32 GTs had higher emotive scores than the BTs and six GTs had neither the highest nor the lowest emotive scores as compared to the BTs of the same trigger. When analysing BTs, it could be seen that 16 out of the 39 BTs had a higher number of high emotive scores than GTs, nine of them had less, 13 had neither. This means that in a majority of cases, the BTs overtook the GTs in terms

of number of high emotive scores, which means that the former were more emotional than the latter. In particular, in 15 out of the 26 cases in which the informants provided both GTs and BTs, the BTs had the highest number of high emotive scores, in ten cases the GTs did, and in one case the GTs and the BTs had the same number of high and low scores. Giovanni's number of BTs was above the mean and he also produced the highest number of translations who had the majority of highest emotive scores. These observations suggest that his translations tended to be quite emotional. Ilaria's number of BTs was the second-lowest and also below the mean. Additionally, she had the lowest number of translations with the majority of highest scores and the second-highest number of translations with the majority of lowest scores, thus entailing that her translations were also not particularly emotional. Results are offered in **Table 13**.

Table 13. Comparison of ItEM scores for the informants' translations of the triggers.

trigger	translation	GT	majority of highest emotive scores	majority of lowest emotive scores	informants
pest	*peste*	✓		✓	**B; C; G; I**
	male		✓		**F**
reckless	*azzardato*	✓			**A; C**
	spericolato	✓		✓	**B**
	folle				**D**
	spaventoso				**F**
	sconsiderato	✓			**G**
	assurdo		✓		**I**
gloomy	*tragico*				**A; I**
	funerei				**B**
	triste	✓	✓		**D**
	scuro	✓		✓	**G**
	cupa	✓			**F**
(commited) ***suicide***	*si è suicidata*	✓		✓	**B; D; C; I**
	(ha commesso) *suicidio*		✓		**F**
poison	*veleno*	✓	✓		**A; B; F; G**
	avvelenandosi			✓	**C; I**
tragic	*tragico*	✓	✓		**C**
	immane			✓	**B**
death	*morte*	✓		✓	**C; G**
	tragedia		✓		**B**
killed	*ucciso*	✓		✓	**A; B; D; C; F**
	(ha causato la sua) *morte*		✓		**G**
insane	*veloce*			✓	**A**
	rapido				**B**
	grandi		✓		**C**
	continuo				**F**
unreliable	*inaffidabile*	✓	✓		**F**
	bugia			✓	**A**
bankrupt	*bancarotta*	✓		✓	**A; B; C; F; G; I**

(continued) Table 13. Comparison of ItEM scores for the informants' translations of the triggers.

trigger	translation	GT	majority of highest emotive scores	majority of lowest emotive scores	informants
	fallimento		✓		**D**
threat	*problema*			✓	**A**
	minaccia	✓	✓		**B; D; C; G**
	crisi				**F**
danger	*minaccia*		✓		**B; D**
	rischi	✓		✓	**G; I**
stolen	*rubati*	✓		✓	**A; B; D; C; G; I**
	persi		✓		**F**
lose	*perdere*	✓		✓	**A; D; C; G; I**
	perdita		✓		**F**
illegal	*illegale*	✓		✓	**A; B; D; C; F; I**
	illegalità		✓		**G**
crime	*crimine*	✓	✓		**A; C; I**
	criminalità				**B; G**
	reati			✓	**D**
	criminale (adj)				**F**
fraud	*frode*	✓	✓		**A; B; D; C; G; I**
	fraudolenta			✓	**F**
rifles	*fucili*	✓		✓	**A; D; C; F**
	armi		✓		**G**
knives	*coltelli*	✓	=	=	**A; B; C; F; I**
	armi		=	=	**G**
stolen	*false*		✓		**A**
	rubate	✓		✓	**B; C; G**
violent	*violente*	✓	✓		**A; B; D; C**
	spietati			✓	**I**
addicts	*tossicodi-pendenti*	✓	✓		**B**
	spacciatori				**D**
	narcotrafficanti			✓	**C**
	dipendenti				**F**
	drogati	✓			**I**
cruel	*crudeli*	✓	✓		**C**
	terribili			✓	**F**
tumour	*tumore*	✓		✓	**A; B; C; F; I**
	cancro	✓			**D**
	minaccia		✓		**G**
venom	*veleno*	✓		✓	**A; B; D; C; I**
	insicurezza		✓		**G**
pest	*problema*				**A**
	male		✓		**F**
	peste	✓		✓	**B; D; C; G; I**

Finally, in 20 out of the 21 cases where the was a majority of informants who opted for a certain translation, the majority of informants offered a GT. Out of these 20 GTs, 13 had the majority of lowest scores and only five the majority of the highest (see **Table 14**). When examining the informants' divergence from the translations chosen by the majority, it can be observed that Chiara was the informant who was the most frequently in the majority of informants who opted for a translation of a trigger (19), thus entailing that she diverged the least from the majority. On the other hand, Francesca was the informant who was the least frequently in the majority of in-

formants who opted for a translation of a trigger, meaning that she was the informant who diverged the most from the rest of the group (see **Tables 14–16** and **Figure 26**).

Table 14. ItEM scores for the GTs and BTs chosen by the majority of informants.

translations the majority opted for (out of the translations where a majority was to be found)	**GTs**	**BTs**	**majority of highest scores**	**majority of lowest scores**	**informants in the majority who opted for the translation**
peste	✓			✓	**B; C; G; I**
azzardato	✓				**A; C**
tragico		✓			**A;I**
si è suicidata	✓			✓	**B; D; C; I**
veleno	✓		✓		**A; B; F; G**
morte	✓			✓	**C; G**
ucciso	✓			✓	**A; B; D; C; F**
bancarotta	✓			✓	**A; B; C; F; G; I**
minaccia	✓		✓		**B; D; C; G**
rubati	✓			✓	**A; B; D; C; G; I**
perdere	✓			✓	**A; D; C; G; I**
illegale	✓			✓	**A; B; D; C; F; I**
crimine	✓		✓		**A; C; I**
frode	✓		✓		**A; B; D; C; G; I**
fucili	✓			✓	**A; D; C; F**
coltelli	✓				**A; B; C; F; I**
rubate	✓			✓	**B; C; G**
violente	✓		✓		**A; B; D; C**
tumore	✓			✓	**A; B; C; F; I**
veleno	✓			✓	**A; B; D; C**
peste	✓			✓	**B; C; D; G; I**

Table 15. Informants' divergence from the translations of the triggers chosen by the majority.

informant	n° of times
Anna	15
Benedetta	15
Debora	11
Chiara	19
Francesca	7
Giovanni	10
Ilaria	11

Chiara and Francesca showed also recurring tendencies in their ways and in their emotive scores: Chiara had the highest number of GTs (21) and Francesca the lowest (9), while Chiara had lowest number of BTs (3) and Francesca the highest (12). Also, Chiara had the highest number of translations with the lowest emotive scores (15), while Francesca the lowest number of translations with the lowest emotive scores (7).

Table 16. Summary of the informants' GTs, BTs and emotive scores.

			n° of times in which the informant had themajority of	
informants	**GTs**	**BTs**	**highest emotive scores**	**lowest emotive scores**
Anna	14	6	5	11
Benedetta	17	6	7	12
Debora	13	5	6	9
Chiara	***21***	***3***	7	***15***
Francesca	***9***	***12***	7	***7***
Giovanni	13	7	***8***	9
Ilaria	14	4	***3***	12
mean	**14.4**	**6.14**	**6.14**	**10.7**
SD	***3.74***	***2.91***	***1.68***	***2.63***

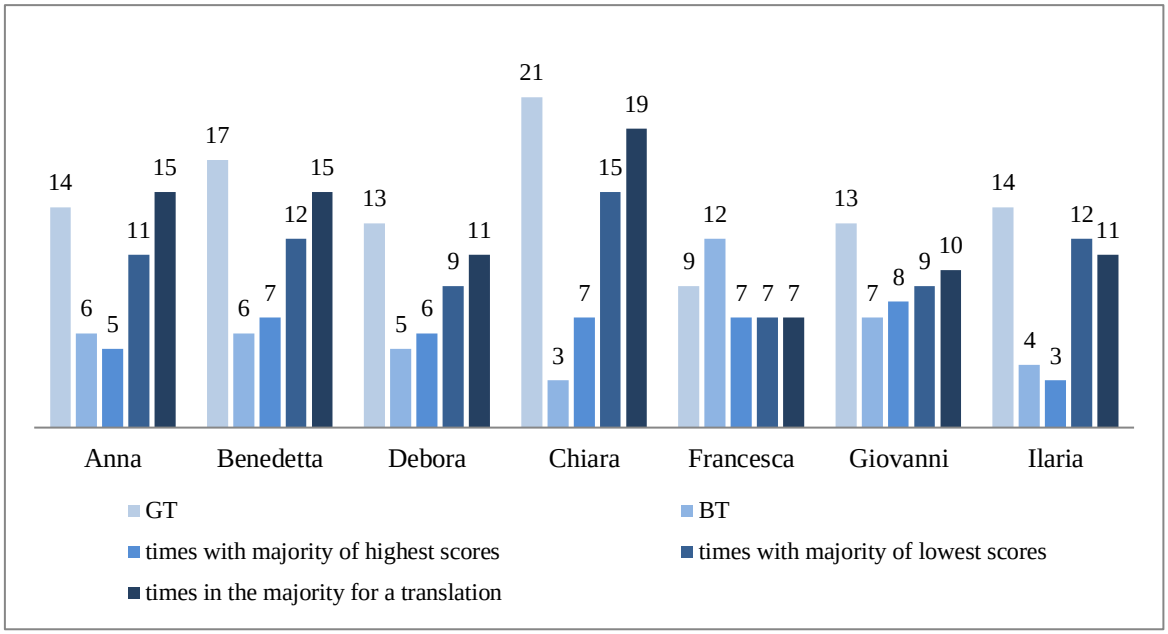


Figure 26. Summary of the informants' translations of the triggers of the NT.

3.4. HRV

Two sets of Paired Samples T-Tests were performed on *Jamovi*. First, the informants' HRV values during the baseline condition were compared with their values during the two reactivity phases (i.e., during the interpretation of the BT and the NT) in order to see whether the informants were more emotionally aroused while interpreting than while resting. Second, their HRV values during the two reactivity phases were compared in order to observe whether the possible emotional contagion induced by the triggers in the NT could evoke a stronger emotional arousal in the informants' interpretation of the NT as opposed to the BT, which contained no triggers. Readers are reminded that the variables considered for the physiological analysis were (1) mean HR, (2) mean RR, (3) mean RMSSD and (4) LF/HF ratio. Results

showed no statistical significance between the baseline and the reactivity phase of the BT (p.>0.2). The same goes for the comparison between the baseline and the reactivity phase of the NT, where no statistical significance was found (p.>0.2). Additionally, no statistical significance was found between the reactivity phase of the BT and that of the NT (p.>0.5). Results are graphically reported in the figures below.

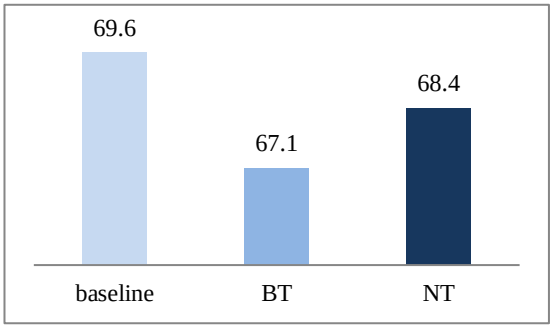


Figure 27. Informants' mean HR.

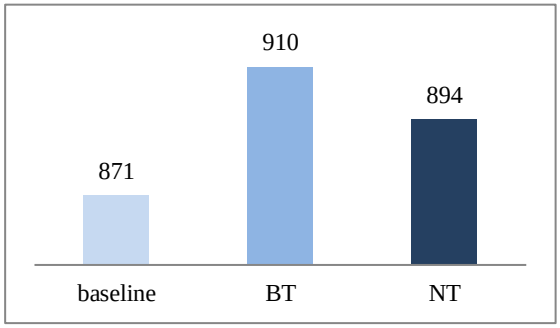


Figure 28. Informants' mean RR.

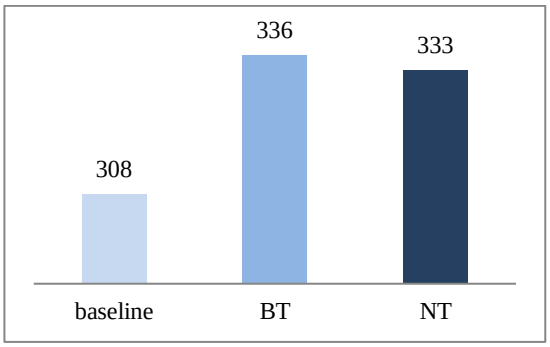


Figure 29. Informants' mean RMSSD.

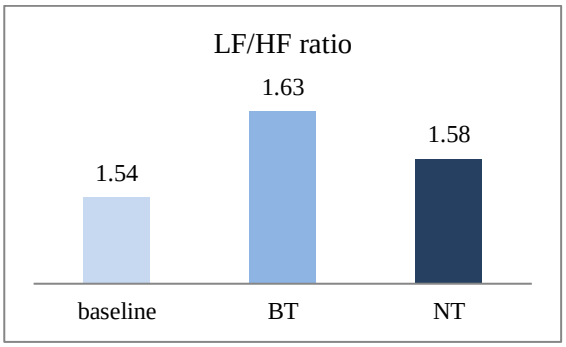


Figure 30. Informants' mean LF/HF ratio.

3.5. Italian PANAS

The analysis of the informants' answers to the Italian PANAS was conducted to observe whether the triggers in the NT could evoke an emotional contagion among the informants. If this was the case, then their positive scores and negative scores in the PANAS would likely be respectively lower and higher for the NT than the BT. In other words, the informants would describe their own emotions during the interpretation of the NT as more negative than those emotions they felt while interpreting the BT as a possible result of the emotional contagion caused by the triggers of the NT. A Paired Samples T-Test was conducted on *Jamovi* to compare the positive and negative PANAS scores for the BT and the NT. First, the informants' positive scores for the BT were compared to their positive scores for the NT. Results showed no statistical significance between the two sets of data (p.>0.8). The same procedure was repeated for the negative scores for the BT and the NT and even in this case no statistical significance was found (p.>0.9). To sum up, the mean positive score was higher for the NT than for

the BT and the positive score for the NT was higher than the negative score for the NT, (see **Table 17** and **Figure 31**).

Table 17. Informants' mean positive and negative scores for the BT and the NT.

	positive score		negative score	
source text	mean	*SD*	mean	*SD*
BT	26.7	*8.32*	21.3	*6.63*
NT	31.3	*3.82*	17.7	*5.53*

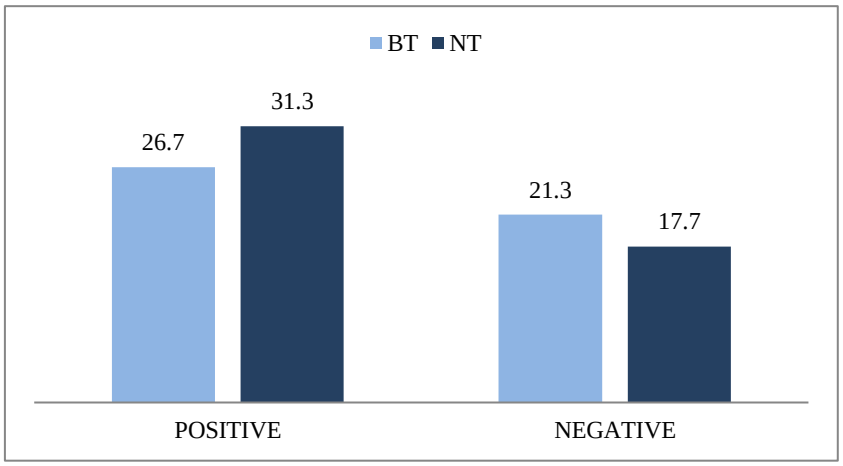


Figure 31. Mean PANAS scores for the BT and the NT.

As shown in **Table 18**, results also revealed that Anna had the highest positive score (35) for the BT and the lowest negative score for the NT, while Francesca had the highest negative score (29) for the BT. Francesca had also the lowest positive score and the highest negative score for the NT, this last together with Benedetta. For the NT, Giovanni had the highest positive score (36). Informants' PANAS scores are graphically reported in **Figures 32** and **33**.

Table 18. Informants' PANAS scores for the BT and the NT.

		Anna	**B**enedetta	**D**ebora	**C**hiara	**F**rancesca	**G**iovanni	**I**laria
BT	**positive**	35	32	34	30	15	25	16
	negative	*15*	*22*	*10*	*26*	*29*	*22*	*25*
NT	**positive**	32	33	32	33	24	36	29
	negative	*11*	*24*	*21*	*16*	*24*	*17*	*11*

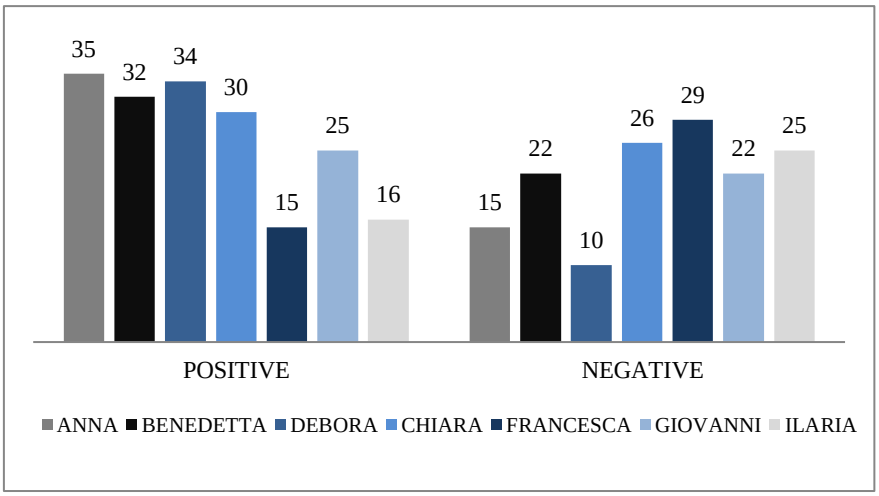


Figure 32. Informants' PANAS scores for the BT.

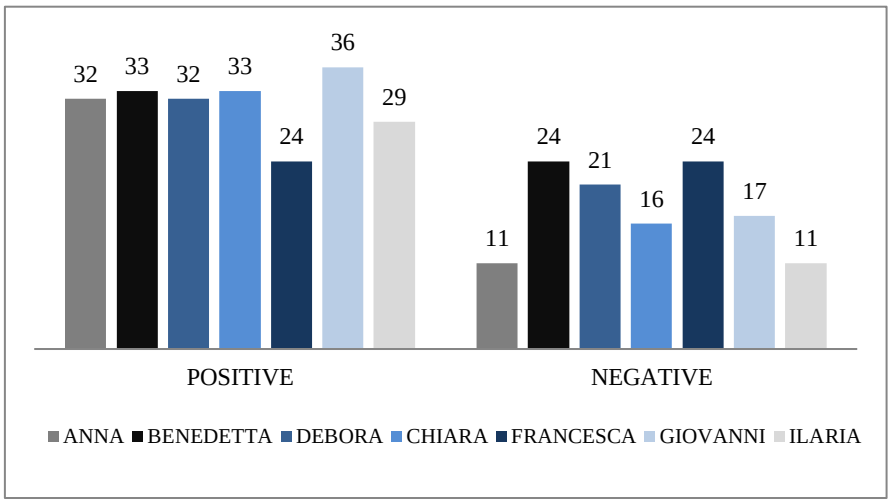


Figure 33. Informants' PANAS scores for the NT.

4. Discussion

Before moving to the discussion of the results, it must be mentioned that it will only be possible to offer general considerations on emotional contagion in CI based on the data collected in this exploratory research project. However, several alternative explanations for the results obtained in the present study are possible which may not necessarily and directly be related to emotional contagion. In accordance with Rojo & Korpal's (2020: 212) suggestions, several methods were triangulated for measuring emotional contagion in CI. Such triangulation comprises of an analysis of the quality of the informants' interpreting performance, of their physiological arousal (HRV values), of the number of their speech disfluencies and rhetorical strategies, and of their answers to the Italian version of the PANAS self-report questionnaire (Terracciano et al. 2003) for the BT and the NT. This methodological procedure was adopted with the aim of investigating the emotional contagion possibly caused by a different emotional valence of two dinstict source texts as a result of the triggers contained in one of the two (NT). However, given the small sample of informants used for this research project, results cannot be generalized. Nonetheless, data can provide interesting insights into the informants' emotional reactions to the BT and the NT and this alone can show recurring or surprising tendencies about emotional contagion in CI and therefore offer inputs for further research. The following sections offer a possible interpretation of the results. Section 4.1 is devoted to the quality assessment of the informants' interpretations of the BT and the NT. In section 4.2, results regarding the acoustic analysis of the informants' interpretations of the BT and the NT will be discussed. This analysis revealed no statistically significant differences between the number of disfluencies for the BT and the NT. However, the analysis of the informants' rhetorical prosodic strategies revealed interesting results, showing that the informants replicated more *rhetorical pauses* of the NT than of the BT. Section 4.3 focuses on the analysis of the informants' linguistic and emotional management of the translation of the triggers of the NT. At this stage the informants' trigger management revealed that the majority of the informants was able to translate a high percentage of triggers, to keep a cool head and adjust their consecutive notes to the triggers. Also, the informants managed to deliver, in the majority of cases, *good translations (GTs)* of the triggers, which appeared to tend to be less negatively valenced than the *bad translations (BTs)* chosen by a minority of informants. Sections 4.4 is devoted to the discussion of the informants' physiological reactions to the BT and the NT in terms of HRV changes which revealed no statistical significance between the two texts. Finally, the results of the analysis of the informants' PANAS positive and negative scores for the BT and the NT are discussed in section 4.5. Again, no statistical significance was found between the two texts.

4.1. *Quality assessment*

The results of the quality assessment of the informants' interpretations of the BT and the NT showed that Anna, Benedetta, Debora, Chiara, Francesca and Giovanni scored better for the NT than the BT. Such result might suggest that the triggers of the NT did not compromise the informants' interpreting performance for the NT. Also, these results give first hints of the fact that the informants had more difficulties in interpreting the BT than the NT. For instance, the BT might have been perceived by the informants as being more technical and difficult to interpret than the NT, because the BT was an objective and methodological description of Bitcoin and of the blockchain technology, while the NT was a list of heart-fealt complaints by the speaker about Bitcoin, which she described as a pest for our century and a tumour for our mother Earth, contributing to crime and climate change. In line with Gile's (1999: 159-160) suggestions, the fact that the majority of informants scored worse for the BT than the NT might thus confirm that the objective difficulty of the former induced a cognitive overload and a stronger task-related stress among the informants. On the contrary, the fact that the NT dealt with easier and more popular ideas (e.g., the dark web and climate change) might have reduced the informants' cognitive load while interpreting the NT by leaving them more room to focus on the emotional content of that source text. The informants might have even felt more involved in the topics of the NT by identifying more with the speaker's feelings (Hetherington 2011; Mehus & Becher 2016). After all, we all heard a lot about the fact that climate change is destroying our planet and we know what risks this entails for our own survival and this makes empathising with these topics quite natural.

4.2. Acoustic analysis

The first part of the acoustic analysis was devoted to disfluencies. It revealed that the number of *silent pauses without rhetorical pauses* (SP–RP) and of *Filled Pauses* (FP) was higher for the BT than the NT (in the second case also with a statistically significant difference), while only the number of *false starts* (FS) was slightly higher for the NT than the BT. These results might suggest that the triggers in the NT did not cause an emotional contagion strong enough to impair the informants' fluency in the interpretation of the NT. Additionally, such results might confirm the cognitive overload and consequently the task-related stress possibly induced by the technical difficulties of the BT, bearing in mind that fluency can be impaired by many linguistic and extra-linguistic obstacles, including for example the objective difficulty of a source text and in turn a general diffulty in re-reading the notes and resolving logical inconsistencies in CI (Mead 2000: 96–98). Additionally, the number of SP–RP was higher for the BT than the NT and the number of FS for the BT and the NT was practically the same and this occurred both in the source texts as well as in the informants' interpretations. This might point to a poorer prosodic management of silences from the part of the speaker while reading the BT which might in turn have reflected in the interpreters' overall difficulty to manage

prosody in their interpretation of that speech (Tissi 2000: 104). When examining individual differences among the informants, it can be observed that Anna was the informant who hesitated the least, while Chiara and Francesca the most. This last result is in line with Chiara and Francesca's quality scores, which were the worst. Francesca also had the highest number of SP–RP and FP for the NT. Francesca seemed to be a peculiar case since her results for the majority of parameters considered for this research project tended to diverge from the rest of the group. The fact that she was the only informant showing certain behaviours and difficulties might indicate that she mismanaged her cognitive resources by slipping into cognitive overload (Gile 1999: 160) or instead confirm that she was more emotionally affected by the triggers, as will be discussed in the next pages.

The second part of the acoustic analysis focused on the informants' prosodic strategies and their imitation of the rhetorical prosodic strategies of the original speaker in the BT and the NT. First, a statistically significant difference was found between the number of RP and that of *Coinciding Rhetorical Pauses (CPR)*, which were both higher for the NT than the BT. This indicates that the informants tended to imitate the speaker's rhetorical strategies more while interpreting the NT than the BT. This data is also reinforced by the fact that in a majority of cases, the percentage of RP adjacent to a trigger was the majority of RP used by the informants while interpreting the NT. These results showed that the informants' ability to imitate the speaker's rhetorical strategies while interpreting the NT does not seem to have been impaired by an emotional contagion caused by the presence of the triggers in the NT. On the contrary, they were more able to do it in the NT than in the BT. Interestingly, Giovanni and Ilaria were the informants who produced the highest number of RP and of RP adjacent to a trigger for the NT. Giovanni also produced the highest number of CRP and CRP adjacent to a trigger while interpreting the NT. This might suggest that Giovanni and Ilaria did not experience nor a strong cognitive task-related stress neither the emotional contagion possibly induced by the triggers of the NT while interpreting that source text. Therefore, they might have had more room to focus on the rhetorical content of the NT to reproduce it in their interpretation. Also, at least one third of the CRP used by four informants out of the six informants who used RP while interpreting the NT was adjacent to a trigger. This might suggest that the triggers contained in the NT might have induced the informants to reproduce some RP of the original speaker. In particular, it is worth noticing that five informants reproduced two specific RP of the NT.

- [...] in April (0.5) two thousand twenty-one, (0.5) Susheela (.) committed (...) suicide (0.6) by consuming rat poison! [...] (Anna, Francesca and Ilaria)

- [...] By now, maybe you're wondering (.) what her tragic (.) death (0.6) has to do with Bitcoin. (1) Well, it turns out that Susheela used to inve- (..) vest in Bitcoins. (0.6) [...] (Benedetta, Giovanni and Ilaria)

In the first of these two sentences, the CRP is adjacent to the trigger *suicide* which—as will be shown in the next section—was one of the triggers with the lowest valence among the triggers selected from EMOTE for the NT. The low valence of this trigger might have induced the informants to reproduce the RP of the speaker by perceiving the emotional content of the trigger preceding it. However, this example is not enough to determine whether this was the actual cause or a random effect.

4.3. Informants' management of triggers

The analysis of the informants' linguistic and emotional management of the triggers of the NT revealed that the informants did not seem to be significantly affected by a possible emotional contagion induced by the triggers of the NT to the point of having their ability to render their linguistic meaning and emotional load compromised. In fact, all informants managed to translate at least 64% of the original triggers into Italian. Results showed that Anna and Chiara produced the most effective interpretation of the NT since they managed to translate a high number of triggers in relation to the total of words they used for producing their target text. Chiara's example gives the opportunity to make interesting considerations.

Chiara scored worse and produced more disfluencies for the BT than the NT and she was efficient in her translation of the triggers while interpreting the NT. This might confirm that the BT involved a higher cognitive load than the NT. Also, since the NT was cognitively easier, Chiara could have been able to devote more of her resources to rendering the emotional content of the NT by translating more triggers. This is an important reminder of the fact that emotions in interpreting are best captured if researchers use easier and thus less cognitively demanding source texts for their experiments. After all, interpreters are "tightrope walkers" (Gile 1999) who must coordinate many tasks while working (Korpal 2016b: 15–16). These tasks are both cognitive and emotional and cannot be treated as separate from each other (Rojo 2017: 369–370). Everything goes on in the interpreters' mind, or better to say in the interpreters' "emotional brain": the more cognitively demanding a source text is for the interpreters, the higher their cognitive load and stress levels and the poorer their balance and their ability to allocate both their cognitive and emotional resources (Riccardi et al. 1998: 97; Rojo 2017: 369).

Another informant worth mentioning is Debora. She had the highest percentage of mistranslated triggers, which might suggest a difficulty in managing the translation of the triggers of the NT. Debora's disfluencies was also overall higher for the NT than the BT and she was also the only informant who produced no RP in both her CIs. It is not possible to determine whether this was because she was emotionally affected by the triggers of the NT. However, it is rather unlikely, since Debora scored slightly better for the NT than the BT and also produced relatively concise deliveries, which might suggest that maybe her higher number of dis-

fluencies in the NT was random and that she normally does not tend to focus on the rhetorical content of source texts nor to be particularly emphatic.

Conversely, Francesca produced a quite inefficient delivery of the NT given that she had the lowest percentage of triggers on total of words used and also the highest number of altered and repeated triggers (followed by Ilaria). For example, Francesca (together with Ilaria) repeated the trigger *suicide* twice, which was among the triggers with the lowest valence among those selected from EMOTE for the NT and also the most frequently repeated trigger. Also, the fact that *suicide*—together with other eight triggers out of the 29 triggers repeated by the informants—was among the triggers with the lowest EMOTE valence might indicate that the particularly negative emotional valence of some triggers might have induced some informants to repeat them.

Hypothetically speaking, the informants might have repeated these triggers because they might have perceived them to be more emotional and therefore more important to stress. Otherwise, they might have been emotionally affected by their low valence and this might have impaired their linguistic management of the triggers by inducing them to say more words than necessary, as might have been the case for Francesca. However, the probability that the valence of the triggers might have influenced the informants' tendency to translate them seems to be quite low. For example, when examining the frequency with which the informants translated each trigger, it appears that five triggers were translated by none of the informants even if three of such triggers were among the triggers with the lowest valence and that seven out of the 15 triggers translated by all informants were among the triggers with the lowest valence. It therefore remains unclear what the link between the valence and the translation frequency of the triggers might be. In the case of the triggers translated by none of the informants, for instance, it seems more plausible that, at least for two of them (*crime* and *war*), these were left out maybe because they were at the end of the NT and the informants might have been tired by the end of their CI of that text. Again, cognitive load seems to play a particularly important role to the point of influencing interpreters' emotion processing.

The trigger *gloomy* also gives food for thought. As a reminder (see **Table 9** in § 3.3.), five informants apparently translated the trigger *gloomy* but by relocating it to the following paragraph to the one where it originally appeared in the NT in order to offer a translation of the more general word *negative*. This may suggest that they managed the *Efforts* of the *reformulation phase* of the CI—i.e., note reading, "mental reconstruction of the speech from memory", production of speech and coordination—by effectively balancing their pool of cognitive resources (Gile 2021). This might in turn give us a clue of the fact that the informants who opted for this presumed strategy were not emotionally affected by the triggers of the NT—such as *gloomy*—to the point of not being able to think about their interpreting choices.

Moving to the ItEM scores for the Italian translations of the triggers, interesting results emerged. The first result worth mentioning is that the GTs which the majority of the informants

opted for tended to be less emotional than the BTs according to ItEM. It appears difficult to explain why this is the case. It may be that the majority of the informants were not affected by the emotional contagion possibly induced by the triggers of the NT and therefore managed to offer GTs of the triggers. The reason why the GTs that they produced were less emotional than the BTs produced by a minority of the informants still remains unclear. This might also be due to the fact that—in line with what already expected—a 1:1 comparison between EMOTE and ItEM would be problematic since the two sets of words are based on different parameters. However, the analysis of the ItEM scores of the informants' translations of the triggers remains interesting in that it can show the tendency by some informants to diverge from the rest of the group.

Here, the peculiar case of Francesca comes in again, in particular when comparing Francesca and Chiara's translations of the triggers. Chiara diverged the least from the majority's translations, while Francesca the most. Chiara offered the highest number of GTs and Francesca the lowest, Chiara had the lowest number of BTs and Francesca the highest. Chiara offered the highest number of translations with the lowest emotive scores, Francesca the lowest number of translations with the highest emotive scores. However, they have something in common: both produced the worst interpretations of the BT and the NT. Both of them also produced many disfluencies, but Chiara produced more disfluencies for the BT while Francesca for the NT. Also, while Chiara's interpretation of the NT was one of the most efficient in terms of number of triggers translated on total of words used and of original triggers translated, Francesca's was one of the least efficient. Also, Francesca was the only informant out of the six informants who translated the trigger *gloomy* who did not adopted the presumed strategy of translating it in the following paragraph. All these considerations might suggest that Francesca might have indeed been emotionally affected by the triggers, also considering that the NT contained fewer objective difficulties than the BT, which was more technical. However, Gile (1989, quoted in Gile 1999: 159) showed that it can sometimes happen for interpreters to have more difficulties and commit more mistakes and omissions even if the source text is not particularly technical or difficult when they do not manage to find a balance between their cognitive *Efforts*.

4.4. HRV

The statistical analysis of the HRV changes revelaed what follows. First, the informants were not more emotionally aroused during the reactivity phase (both while interpreting the BT and the NT) than during the baseline phase. Second, they were not more emotionally aroused while interpreting the NT than while interpreting the BT. This confirms that the triggers of the NT did not lead to an emotional contagion among the informants in terms of physiological arousal.

4.5. Italian PANAS

The statistical analysis of the informants' PANAS positive and negative affect scores for the BT and the NT revealed no statistical significance between the self-perceived emotional states of the informants for the two texts. Additionally, the mean positive score was higher for the NT than for the BT, while the positive score for the NT was higher than the negative score for the NT. Overall, these results were quite surprising and showed that the informants—according to their self-perceived emotional states—did not seem to feel more emotionally affected while interpreting the NT than the BT as a result of a possible emotional contagion induced by the presence of the triggers in the former. However, when examining the informants' PANAS scores, some results stood out.

First, the order in which the BT and the NT were administered to the informants was alternated so as to avoid distortions caused for example by the fact that interpreters tend to be more stressed at the beginning of an interpreting task. Since the order of the BT and the NT was alternated in order to avoid such effects, it is surprising that the informants nonetheless tended to perceive less negative emotions while interpreting the NT than while interpreting the BT, as shown by the mean positive scores for the two texts. However, it is also true that the quality of the informants' interpretation of the NT was overall better than the quality of their interpretation of the BT. Also, as mentioned, the BT seemed to have been perceived by the informants as a more cognitively demanding text and therefore to have exposed them to a higher task-related stress than the NT. The cognitive overload induced by the BT might have clouded the impact of a possible emotional contagion among the informants when interpreting the NT as a result of the triggers. If this was the case, then the informants might have felt happier about their interpretation of the NT than their interpretation of the BT, since the former was easier than the latter. This in turn might have induced the informants to label their own emotions as more positive after interpreting the NT and as more negative after interpreting the BT. Additionally, in the PANAS the informants were asked to indicate the extent to which they felt a list of emotional states while interpreting and not while listening the BT and the NT. This was done because it was assumed that the informants would have more likely been able to recall the emotions they felt more recently than those they felt less recently (Englund-Dimitrova & Tiselius 2014: 179). This however entails that the informants' very last memory of their emotional states when the PANAS was administered to them was the one of their interpreting performance of the BT and the NT. This might have exacerbated what just mentioned, that is to say that the informants might have filled in the PANAS by thinking more about the quality of their interpretations rather than the content of the two source texts. This effect might have also been magnified by the fact that the experiments of this research project aimed at replicating an exam condition—the EMCI Final exams. This condition alone already induces strong emotions such as stress among the examined subjects. Therefore, it is plausible to think that this recreated exam setting might have lead the informants of this study to focus

primarily on the thought of being judged and therefore on the quality of their delivery and this might have been reflected in their PANAS scores.

5. Limitations, conclusions and implications

This thesis aimed at better understanding the role of emotional contagion in consecutive interpreting. Following Korpal & Jasielska (2019) as a guideline, the seven informants of this study were asked to deliver a consecutive interpreting of two source texts, an emotionally neutral text (the *baseline text*) and a negatively-valenced text (the *negative text*). The negative text contained 44 negatively valenced words (triggers). The triggers were selected from the EMOTE database by Grühn (2016), based on their particularly low emotional valence. An attempt was made to observe whether the presence of the triggers in the negative text may be related to a stronger emotional contagion among the informants while interpreting the negative text than while interpreting the baseline text, which contained no such triggers.

Several parameters were triangulated to compare the emotional contagion among the informants while interpreting the baseline text and the negative text: (1) the informants' interpreting quality; (2) their number of acoustic variations, namely disfluencies—hesitations such as silent pauses, filled pauses, and false starts—and rhetorical strategies—e.g., rhetorical pauses; (3) their physiological arousal in terms of heart rate variability; (4) their linguistic and emotional management of the triggers of the negative text; (5) their answers to the Italian version of the PANAS self-report questionnaire which they were asked to fill in after interpreting each of the two source texts.

For the measurements (a) four students of the Master's in Conference Interpreting at the University of Bologna, Forlì Campus (DIT Lab) were asked to assess the quality of the informants' consecutive interpretings; (b) the software Audacity was used to measure the informants' acoustic variations and one student of the Master's in Conference Interpreting at the University of Bologna was asked to indicate the rhetorical pauses contained in the source texts and in the consecutive interpretings to compare the rhetorical pauses that I had marked with the ones that she had marked in order to keep the matching rhetorical pauses; (c) the MC2Lab's EMPATICA E4 wristbands were used to measure the informants' changes in their heart rate variability scores; (d) the ItEM lexicon by Passaro et al. (2015) was used to carry out an analysis of the informants' emotional management of the triggers alongside an analysis of their linguistic management of the triggers; (e) the Italian version of the PANAS questionnaire by Terracciano et al. (2003) was used for collecting the informants' self-reported emotional states while carrying out the two consecutive interpretings.

The informants were (1) asked to wear EMPATICA E4 wristbands for the entire duration of the experiments; (2) interpret the baseline text and the negative text; (3) fill in the PANAS questionnaire twice, once right after completing the first consecutive interpreting and once right after completing the second consecutive interpreting. The baseline text and the negative text were not authentic since I wrote them. The reason why this was done is that the experiments should have originally been conducted during the EMCI Final exams of the Master's in

Conference Interpreting at the University of Bologna, Forlì Campus, which took place on November 19, 2021. However, an attempt was made to replicate the Finals. For this reason, the informants carried out their consecutive interpretings in their booths at the DIT Lab of the Forlì Campus, via Zoom, and interpreted two non-authentic video recordings. The texts were read out by a native English speaker, a MA teaching assistant. In contrast to the Finals, however, the informants did not interpret with an audience listening to them and were not evaluated by their interpreting professors.

The analysis of the results of the experiments showed that the informants did not tend to converge emotionally with the speaker while interpreting the negative text more than while interpreting the baseline text as a result of the presence of the triggers in the negative text. First, the overall quality of the informants' interpretation of the negative text was higher than the quality of their interpretation of the baseline text. Second, the number of their disfluencies was overall higher for the baseline text than for the negative text. Their number of RP was instead higher for the negative text than the baseline text. This suggested that the informants tended to imitate the original speaker's rhetorical strategies more in the negative text than in the baseline text, which in turn might confirm that they were not emotionally affected by the triggers of the negative text. Third, the majority of the informants did not appear to have great difficulties in managing the triggers of the negative text and in translating them well. An interesting result which stood out is that the good translations of the triggers tended to be less emotional based on the four negative emotions of the ItEM lexicon considered for the analysis, while the bad translations tended to be more emotional. Fourth, no statistical significance was found between the informants' heart rate variability values for the baseline text and the negative text. Fifth, their mean PANAS positive score was higher for the negative text than for the baseline text and their mean negative score was lower for the negative text than for the baseline text.

This research project had several limitations. First, it used a small sample of informants and results cannot be generalized. Second, due to an oversight, three informants did not receive their briefing before starting their consecutive interpretings, which might have compromised or altered data validity. Third, the informants delivered their consecutive interpretings in a non-realistic environment. They were not carrying out an exam, they were not being judged. And, most importantly, even if this was also the case during the Finals, the informants were not interpreting before an audience, which is the most essential and stressful component of consecutive interpreting. Studying emotions such as stress in consecutive interpreting without having access to these possible stress factors therefore entails consistent limitations.

This leads us to the fourth limitation of this study. The original aim of this research project was to investigate emotional contagion in consecutive interpreting. However, it was difficult to make a distinction between the emotional arousal resulting from an actual emotional contagion induced by the triggers of the negative text, and the emotional arousal induced by

the stress-related task possibly experienced by the informants. Hence, the baseline text appeared to contain more objective difficulties and thus to be more cognitively demanding for the informants than the negative text. The stress-related task induced by the high cognitive load caused by the baseline text might have left the informants less room for emotion processing. After all, interpreters are "tightrope walkers" and must allocate a finite number of resources to cope with the cognitive and emotional tasks involved in interpreting (Gile 1999).

This study suggests that researchers interested in studying emotions and emotion processing among interpreters should administer relatively easy source texts to their informants. Thus, the informants will be able to better manage their cognitive efforts (Gile 1999) by also having room for perceiving and processing the emotional content of such texts. This possibility is also reinforced by the fact that consecutive interpreting is generally considered to be more stressful than simultaneous interpreting mainly due to the public speaking effort involved in the former. However, the experiments of this study did not take place in a realistic environment nor did they contain this essential stress factor. This makes it even more plausible that the results of this study might refer more to cognitive effort, task-related stress and objective difficulties associated to the baseline text as opposed to the negative text than to the emotional contagion possibly induced by the triggers of the negative text.

Fifth, this lack of authenticity is also exacerbated by the source texts used for the experiments, which were not authentic and were recorded. Furthermore, the baseline text had to be slowed down, which might have compromised the speaker's and the informants' spontaneity. Therefore, results might have possibly been much different if the experiments had been conducted in a more realistic environment with a real audience and an in-situ authentic speaker next to the informants. This might have also induced a greater emotional contagion as a result of having the interpreters looking directly at the speaker's facial expressions and emotional display.

Sixth, results obtained with acoustic analyses such as the one conducted in this research project are always very personal and highly depend on the researchers' personal perceptions of prosodic elements such as silences and hesitations (Maclay & Osgood 1959: 24). This means that the acoustic analysis offered in this thesis might have been much more robust if a higher number of analyses conducted by many evaluators separately alongside myself had been compared. Also, interpunction was included in the transcriptions of the source texts and the informants' consecutive interpretings. However, Ahrens (2005: 4) suggests avoiding this, since interpunction could lead to a misleading prosodic impression and also because she noticed "that prosodic phenomena do not necessarily follow syntactically defined boundaries." Seventh, the ecological validity of this study was not only hindered by the fact that controlled experiments instead of a realistic interpreting setting were used, but also by the fact that wristbands were used for measuring the informants' heart rate variability values and these might have limited their movements and made them behave less spontaneously (Korpal &

Jasieska 2019). Also, the use of wristbands for both translators and interpreters has been proved to be problematic since they both carry out repetitive actions such as, in the case of this research project, taking notes in consecutive interpreting (Rojo & Korpal 2020: 196).

Also in light of these considerations, the main results that emerged are: first, the informants were not affected by a stronger emotional contagion while interpreting the negative text than while interpreting the baseline text as a result of an emotional contagion possibly induced by the triggers contained in the negative text. Second, the majority of the informants gave the impression of having more difficulties in interpreting the baseline text than the negative text. This effect is likely to have been caused by a higher cognitive load induced by the fact that the baseline text contained more objective difficulties than the negative text. In contrast with Korpal & Jasielska's (2019) results, the informants of this study did not seem to converge emotionally with the original speaker's emotions in the interpretation of the emotional text. This might also be due to the fact that in consecutive interpreting interpreters have more time to adjust their notes, think about their output and control their emotions than in simultaneous interpreting, where the reduced time span between the source text and the target text might induce interpreters to converge emotionally with the speaker more. This might entail that interpreters might have more difficulties in remembering, reproducing and describing their own emotions during consecutive interpreting than during simultaneous interpreting. This could in turn make the use of self-report questionnaires such as PANAS less useful in consecutive interpreting than in simultaneous interpreting. Additionally, this study originally aimed at contributing to expand the knowledge about emotional contagion in consecutive interpreting but, as mentioned, the informants often appeared to have difficulties that might have been related to task-related stress rather than to emotional contagion. This consideration represents a relevant contribution to the field of emotions and emotion processing in interpreting, which is still a new and constantly evolving research topic. This research project shows and confirms that interpreters must face many cognitive and emotional obstacles while working and that a cognitive overload in the interpreters' mind has the power of overshadowing their processing of the emotions involved in their work, be it their own emotions or their speakers' emotional display.

Finally, several results obtained in this research project suggest venues for further research. As mentioned, this project aimed at investigating the role of emotional contagion in consecutive interpreting with the idea of giving a contribution to Korpal & Jasielska's (2019) work on emotional contagion in simultaneous interpreting. The fact that interpreters seem to tend to imitate the original speaker's emotions in simultaneous interpreting more than in consecutive interpreting might deserve further research and new future contributions might this way be included in CTIS. For example, an attempt might be made to extend the sample of informants and repeat the same experiments of this research project. Or the sample of informants might be expanded and one group of informants might be made to deliver two simultaneous interpretings, one neutral and one negatively valenced, and two consecutive interpretings,

one neutral and one negatively valenced, in order to see if emotional contagion keeps being stronger for simultaneous interpreting than for consecutive interpreting. Another possible further contribution to this line of research might be to repeat the experiments of this study, but this time in a realistic setting, with an audience and a live in-situ speaker, also adding the analysis of the informants' facial expressions while interpreting in order to see whether these combine with the speakers' facial expressions while reading out the source text. Another point that would deserve further research is the briefing.

The fact that I forgot to give the briefing of the baseline text and the negative text to three informants made me also think that this might be taken into consideration for further research. For instance, an experiment could be conducted whereby, with a larger sample of informants than the one used for this research project, one group of informants would receive the briefing and the other would not. In this case, the briefing for the negatively valenced text would contain a list of emotional triggers and observations could be made in order to see if previous knowledge about important emotional contents of the source text can change emotional contagion among interpreters.

To conclude, the aim of this exploratory research project was to study emotional contagion in interpreting, an underinvestigated field of research. This project resulted in a MA thesis offering general observations on emotional contagion in consecutive interpreting for the first time. The results raised several questions and suggested ideas for future research.

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Appendix 1. Transcription conventions chart

acoustic variation			transcript symbol
Pauses	silent	200 ms-299 ms	(.)
		300-399 ms	(..)
		400 ms-499 ms	(...)
		>500 ms	(0.5); (0.6); (0.7); etc.
	rhetorical (RP)		e.g., /*Then, (0.5) and only then,*/
	rhetorical pauses reproduced by the informants in their CIs (**CRP**)		e.g., /*cos'ha a che fare con uh i Bitcoin? (0.6) Bene, Susheela investiva*/
	filled (FP):	vowel sound	*/uh/*
		vowel sound + consonant sound	*/uhm/*
		consonant sound	*/hm/*
False Starts (FS)			e.g., */la - uhm (.) è la- il Bitcoin/*

Appendix 2. Briefing of source texts

Briefing BT	Briefing NT
Bitcoin Satoshi Nakamoto blockchain cryptocurrency miners/ mining “nodes” Fiat currency/ legal tender	Bitcoin Satoshi Nakamoto blockchain Susheela miners /mining cryptocurrency

Appendix 3. Transcription of source texts

BASELINE TEXT (BT)

"Bitcoin"

837 words, 07:12 minutes

SLOWED DOWN BY 82% ON VLC

Hello everyone. (0.8) When I found out the topic for today's event, (0.5) I must admit that I was rather intrigued. (0.7) I'd like to say upfront that I have always found Bitcoins very fascinating, (0.7) but I never really had the opportunity to explore this topic. (0.9) So, (0.6) preparing this speech was certainly a good opportunity to dive (...) deep into this world. (0.9) So, let's kick off with some basics. (1.5)

A cryptocurrency is a medium of exchange, (0.5) such as the US dollar, (0.8) but it s- it is digital and en- (..) uses encryption techniques to control the creation of monetary units (0.5) and to verify the transfer of funds. (1.1) In a way, (0.6) everything starts with the so-called (..)*Blockchain*. (1.3) This is the technology that enables the existence of cryptocurrencies. (1.5) *Bitcoin* is the name of the best-known cryptocurrency in the world, (1.5) the first cryptocurrency ever invented and the one for which (..) block- (..)-chain technology was developed. (1.9)

Bitcoin was created in two thousand and nine (0.5) by an unknown person or group of people (0.7) under the pseudonym of (.) *Satoshi Nakamoto.* (1.2) Bitcoin transactions are anonymous and take place (..) in a distributed electronic payment system. (1.1) This system is totally decentralized, (0.9) which means that no financial intermediaries such as banks or governments are involved. (1.3) When you invest in Bitcoins, the details of your investment are stored in a blockchain, (0.9) which acts as a distributed (...) digital (.) ledger. (1.4) The ledger contains all Bitcoin transactions in chronological order (0.7) and can be seen by all users of this network, (0.6) also called (0.5) "nodes". (1.4)

Please keep in mind that every new transaction in Bitcoin is complete (..) only after some so-called (...) "miners" (...) have verified it as legitimate. (1.1) In order to verify the transaction, the miners must solve complex (.) mathematical equations (0.7) and this can only be done with the help of machines (0.5) with an incredibly high computational power. (1) Then, (0.5) and only then, (0.6) the transation is locked (0.6) in the form of a block into the blockchain. (1.2) The new block is then broadcast to the network and verified by the nodes. (1.1) Each block contains a cryptographic hash of the previous block, (1) in such a way that all blocks are linked together, (1) that's why it is called *blockchain*. (1.3) The successful miner finding the new block (..) first is rewarded with the newly created Bitcoins. (0.9)

The Bitcoin protocol by Satoshi Nakamoto (0.5) specifies (0.5) that the reward for adding a block will be reduced (.) by half (.) every (0.5) two hundred and ten thousand blocks, (0.6), approximately every four years. (1.2) Eventually, the reward will round down to zero, (0.7) and the limit of twenty-one million bitcoins will be reached. (1.3) Because of this maximum supply of twenty-one million bitcoins, (0.7) the cryptocurrency is defined as a (0.6) deflationary currency, (1.5) as opposed to the (...) inflationary nature of the Fiat currencies. (1.4)

Bitcoin is a really innovative idea (0.8) and it is being increasingly adopted by our society. (1) Just to give you some examples, (0.5) there are over one hundred Bitcoin ATMs in Toronto (0.9) where you can easily exchange bitcoins for cash (..) and vice versa. (1.7) Or again, you can find many shops, restaurants and pubs in Berlin (0.7) where you can buy whatever you want using your Bitcoin wallet. (1.1) Finally, (..) the icing on the cake: (0.8) El Salvador (...) made Bitcoin its legal tender on June ninth, (0.8) the year twenty twenty-one, (1.8) becoming the first country to have ever taken this decision. (1.7)

Bitcoin is a public currency, (.) it belongs to no government. (0.8) This is one of the best reasons for its popularity. (1.1) However, it must be approved by your government in order for you to use it in your country. (1.2) Even if no single government has control over Bitcoin, (0.9) almost all governments in the world have allowed people to deal in Bitcoins. (1.4) This means that it is legally verified to be used in transactions and storing assets. (1.5) Bitcoin has won the trust of governments worldwide (0.9) because of its high security features and honesty. (1.1) Everything is green on the legal aspect (.) of Bitcoin usage. (1.2)

In general, there are many reasons why people prefer Bitcoin over government fiat money. (0.7) For example, (0.7) while transactions with fiat currencies can take days, (0.6) Bitcoin offers real time payment solutions for everyone, (0.7) everywhere, (0.5) and at any point in time. (0.9) In a word, (0.6) Bitcoin will (.) democratize the world of finance (0.6) and will be the future of money (0.6) by bringing the most useful solutions (...) that everyone needs (...) with fast and affordable transactions. (0.8) Seeing the benefits of Bitcoin investment, (...) more and more people will be ready to invest in this cryptocurrency (0.7) and this will be a great advantage for Bitcoin investors. (0.8) As the demand for the value of Bitcoin increases, (0.5) with more people than ever using

Bitcoin (...) as their primary currency, (0.7) the price of Bitcoin will eventually increase. (0.8) This will attract both small and large businesses to choose this currency. (1) And the more people love Bitcoin, (..) the higher its price in the market. (1.2) Keeping this in mind, (0.7) it's only a matter of time (0.6) before Bitcoin will increase (.) the profits for all Bitcoin investors. (1) For all these reasons, it is likely that Bitcoin (.) will ultimately become (0.6) the world's most powerful currency (..) quite soon, (0.5) sooner than what we might even expect. (0.7)

Thank you very much.

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NEGATIVE TXT (NT)

"Bitcoin: the pest of our century."

829 words, 07:20 minutes

"Bitcoin: (...) the pest of our century." (0.9) So (.) hi everyone. (0.5) The topic of my speech today (0.6) is quite controversial, (...) to the point that some may even (.) hate it. (0.9) I'm afraid I belong to those (..) who hate it. And I'm talking about (0.5) Bitcoins. (0.9)

Bitcoin is the first cryptocurrency ever concocted. It was created back in two thousand and nine during the (...) great financial crisis(0.6) by an unknown person or (.) group of people under the pseudonym (...) *Satoshi Nakamoto.* (0.8) Bitcoin transactions are anonymous and totally decentralized, (0.7) which means that no financial intermediaries, such as banks or- or even governments, are involved. (0.9) All Bitcoin transactions are stored (..) in a distributed digital ledger, called the blockchain. (1.2) Before being added to the ledger, every transaction must be verified (0.5) by so-called "miners," (0.5) that is, by solving complex mathematical equations (...) with the help of supercomputers. (1)

In uncertain times like these, especially due to the Coronavirus pandemic, (0.9) Bitcoin, with its incredible volatility (0.5) and its promise of high returns, (0.6) is attracting the attention (0.7) of an ungranted euphoria (.) in many people around the world. (0.8) Nevertheless, (.) I personally find it (.) a reckless (...) investment. (0.7) And I'll tell you why. (1.6)

I'll start by telling you a story, (0.9) a very gloomy one, (0.8) indeed—in order to show you that investing in Bitcoin is a real suicide, (...) both in a figurative and even a literal sense, (0.9), this is the story of Susheela. (0.7) She was a thirty-nine-year-old woman from India, (0.7) in April (0.5) two thousand twenty-one, (0.5) Susheela (.) committed (...) suicide(0.6) by consuming rat poison!(1.4) By now, maybe you're wondering (.) what her tragic (.) death(0.6) has to do with Bitcoin. (1) Well, it turns out that Susheela used to inve- (..) vest in Bitcoins. (0.6) Because of her investments in this highly speculative (0.6) currency, (..) cryptocurrency, (0.6) she lost (..) a considerable amount (.) of money (...) and investors started to demand (0.5) that she give the money back. (0.6) In a way, (0.6) in a nutshell, (...) Bitcoin(0.5)killed Susheela. (1.2)

I am really sorry to have started my talk on such a negative note, (0.6) but I only meant to make you understand that (..) investing in Bitcoin (.) is a sure (.) failure! (0.6) This is because Bitcoin is a really unstable and volatile currency. (0.9) It's not uncommon for its value to change (0.8) with an insane(0.5) fluctuations over the short term, (0.9) which means that you could (.) lose (.) all your money (.) very (.) quickly, (0.6) sometimes in a matter of seconds. (0.8) In other words, (...) investing in Bitcoin is no different than (.) gambling.(0.9) Also, the cost of Bitcoin transactions (0.5) is skyrocketing! (0.6)It's also causing significant delays. (0.9) The cost of send-

ing Bitcoin is also increasing, (0.6) since the price is fluctuating (...) so wildly and its value could be significantly higher (0.5) or lower (..) than when you sent the money. (0.9) Most people aren't buying into the value of the technology, they're buying into an (.) un (.) reliable (.) hype. (0.9) And as I've just said, this is gambling,(0.7) my friends, (.) not investing, (0.8) and it's also a very fast way (.) to go (..) bankrupt, (0.5) since Bitcoin investments are (..) irreversible. (1.3)

Another threat (.) linked to this toxic investment is the danger of cyberattacks!(0.7) You might think that digital wallets are secure, (0.5) but crypto-(..)-currency exchanges (...) and wallets continue to get hacked (..) regularly. (0.6) For example, just last week, (...) more than seventy (.) million (.) dollars in Bitcoin (.) were stolen(0.5)from a Bitcoin mining marketplace. (...) And because there is no central governing body (...) to guarantee your Bitcoins, (0.5) if you lose them (...) or if a hacker (.) blackmails you (...) after encrypting your digital wallet, (0.5) it can be difficult to get your money back. (1.4)

Not to mention, of course, that Bitcoin also lends itself to illegal uses (0.7) and therefore, (.) it supports (..)crime(0.6)andfraud.(0.6) It is no secret really that Bitcoin is a popular (..) payment method on (0.5) online black markets (0.5) and in the dark web! (1.3) There, in that (0.6) digital hell,(0.5)criminals use their bitcoins to buy (0.5) all sorts of (..) dirty items (...) such as drugs, like coke or heroin, or- (..) or weapons, (...) like bombs and rifles and knives and explosives and (0.5) forged ID cards, stolen credit cards! (0.5) Just to name a few. (2) It should come as no surprise (..) that bitcoins have frequently been used by violent people: assassins, (...) criminals, (...) drug addicts,(0.5) web hackers, (...) corrupt politicians and (..) terrorists (.) use Bitcoins to finance their cruel activities. (2.2)

Finally, Bitcoin acts also like a tumour on our mother Earth, (0.6) contributing to climate change and global warming. (0.9) This is because the supercomputers doing the mining procedures (0.5) require a lot (..) of electricity to run (..) twenty-four seven. And, when I say a lot of electricity, (0.9) I mean that Bitcoin consumes about seventy-nine (0.6) terawatt-hours (...) of electricity on a yearly basis, (0.8) which is roughly equivalent to the yearly electricity consumption of (0.5) Belgium, (0.6) a developed country with a population of (..) eleven (.) million (.) people. (1.2)

To sum up, (0.6) investing (...) in Bitcoin amounts to a one way ticket (0.5) to total (0.5) economic (..) and personal (0.5)failure, (0.6)a venom for our pockets, (0.6) for our lives, (0.5) our security from crime and war (0.5) and for the safety of our planet, (0.6) our home. (1.1) I actually think I am not going too far if I say that (0.5) Bitcoin (..) truly is: (0.5) the pest (0.5) of our century. (1.2)

Thank you very much.

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Appendix 4. Informants' CIs

Anna	BT	641 words, 05:12 minutes

Salve. (0.7) Quando (.) ho scoperto l'argomento (.) per oggi, (...) sono rimasta subito intig- in- (...) trigata, (0.5) in quanto uhm penso che i Bitcoin siano veramente affascinanti, ma prima di questo momento non avevo mai avuto (..) l'opportunità (.) per scoprire di più. (0.9) Partiamo infatti dalle basi. (0.8)

Le (0.7) criptovalute sono un modo (0.5) per- uh di scambio (0.5) digitale, (0.7) come può essere la- uh il dollaro americano, (...) quindi un modo per verificare la transazione (.) di denaro. (1.1) Tutto inizia dal blockchain. Il blockchain permette (..) appunto (...) uhm (0.5) l'esistenza delle criptovalute e il Bitcoin è (0.5) la migliore criptovaluta che ci sia, è la prima (..) inventata ed è la ragione per cui appunto è stato creato anche il blockchain. (0.9)

Il Bitcoin (.) è- è stato creato nel duemila e nove (.) da (.) una persona o un gruppo di persone anonime, (...) sotto il nome di Satoshi Nakamoto. (1.4) Sono delle transazioni anonime, il sistema è decentralizzato, (...) e non vengono utilizzati degli intermediari come ad esempio le banche. (1) Quando si investe nel Bitcoin, (...) tutti i dettagli vengono inseriti (.) nel blockchain, in un ledger, ovvero in un libro mastro. (0.9) Questo ledger quindi contiene tutte le transazioni in ordine cronologico (...) e devono essere poi verificati da delle persone, chiamati (0.5) uh n- nodes. (0.8)

E s- (..) uhm (..) poi quando uhm appunto (..) questa verifica viene (..) fatta, (...) uhm (0.7) e (.) questo si fa soltanto attraverso dei calcoli molto complessi grazie a delle- all'aiuto delle (.) macchine- di attrezzature, allora solo in questo momento la transazione viene inserita nel blockchain, (0.8) quindi (.) quando viene verificata. (1.4) Tutti questi blocchi, una volta che vengono inseriti, sono legati l'uno all'altro, ed è per questo che prende il nome di blockchain, quindi questa catena. (1.2)

Uh (..) chi appunto ha aiutato nell'inserimento di una nuova- uhm di un nuovo blocco viene- uhm (1.3) appunto ottiene uh dei (.) Bitcoin e Satoshi Nakamoto appunto afferma che (0.5) uh però ogni volta che si aggiunge una nuova, (0.5) uhm (0.6) diciamo viene dimezzato ciò che si guadagna, ovvero circa ogni quattro anni. (0.7) Prima o poi quindi il numero arriverà a zero. (...) Uhm inoltre il- uh c'è un limite al Bitcoin, che è ventuno milioni. (0.6) Uh il Bitcoin vengono definiti una val- (.) una valuta (0.6) uh deflazionaria, al contrario della fiat, moneta Fiat o moneta a corso legale, che è inflazionaria. (1.2)

Il Bitcoin è dunque un'idea innovativa (..) ed è stata adottata da diversi paesi. (0.6) Uhm (0.5) ad esempio a Toronto è possibile scambiare la valuta nazionale per il Bitcoin (..) in cento luoghi diversi, oppure a Berlino si possono trovare dei negozi, dei pub dove è possibile proprio pagare con i Bitcoin. (1.7) Ma (0.5) c'è ancora di meglio, ovvero a El Salvador dal nove giugno duemila e ventuno, la valuta ufficiale è proprio il Bitcoin. (0.7)

Il Bitcoin non appartiene a nessun paese ed è per questo che (.) ha riscosso così tanta (0.9) fama, (0.7) ma uh deve essere approvata (..) dai vari paesi, (0.8) anche se appunto non esiste quindi un organo di controllo, (..) uh un paese che la controlli, tutti i paesi hanno permesso l'utilizzo del Bitcoin (...) e qual- può essere quindi utilizzata nelle transazioni. (1.8) La- il motivo per cui è stata approvata è principalmente il livello di sicurezza che garantisce (.) e quindi l'onestà. (0.5)

In generale, (..) molte sono le persone che preferiscono il Bitcoin a una moneta Fiat. (0.6) Le transazioni Fiat infac- infatti impiegano un lungo periodo di tempo, mentre il Bitcoin permette una transazione molto più veloce. (0.8) Il Bitcoin permetterà di democratizzare (.) il mondo della finanza, (...) e sarà una soluzione a- quindi per transazioni più veloci (..) e anche con costi minori. (1.4) Più persone investiranno sicuramente nelle criptovalute e questo (..) è un elemento molto positivo. Se la domanda cresce, (...) in quanto più persone quindi utilizzano i Bitcoin, (..) il prezzo aumentera'. (0.6) Sia aziende grandi e piccole inizieranno a utilizzare il Bitcoin e quindi nel- (.) in- nel tempo il Bitcoin (..) uh permetterà (.) profitti maggiori per gli investitori, (0.9) e sono sicura che, (...) prima o poi, anzi prima di quanto ci aspetteremmo, il Bitcoin diventerà (..) la (.) più importante valuta, per appunto tutti questi motivi.

Anna	NT	724 words, 05:28 minutes

Salve. (0.5) Oggi parlerò di Bitcoin e ci sono idee molto differenti su questo argomento. Alcune persone potrebbero odiarli e io sono tra queste, devo essere sincera.

Oggi parlerò proprio di Bitcoin, la prima (0.5) criptovaluta mai inventata, (..) inventata nel duemila e nove da una persona o un gruppo di persone, durante quindi la crisi finanziaria, (0.8) che uhm ha uh ps- lo pseudonimo di Satoshi Nakamoto. (1.1) Le transazioni sono anonime e decentralizzate, quindi non ci sono intermediari come (...) i governi o ad esempio le banche. (0.9) Le transazioni vengono inserite nella blockchain, ovvero in un ledger, in un libro mastro, (0.6) e uh, prima che questo accada, un minor li deve verificare, quindi deve controllare (0.6) che vada tutto bene. E per fare questo, risolve delle equazioni matematiche molto difficili. (0.9)

Durante il- (...) la pandemia da Covid diciannove, il Bitcoin, con la sua volatilità e una promessa di grandi inves- di grandi ricompense, (...) ha attratto l'attenzione di tantissime persone. (1) Penso però (..) sia uh veramente una scelta azzardata quella di investire sui Bitcoin, perché? (0.5)

Beh, innanzitutto vorrei iniziare con una storia, (0.5) uh la storia di (.) una persona che uhm si chiama (...) uh Susheela, (0.7) uhm questo per mostrare che investire nei Bitcoin è un suicidio, sia figurato, che proprio vero. (0.8) Nell'aprile del duemila e ventuno Susheela si è tolta la vita (0.6) con- uh utilizzando del veleno per (.) ratti. (0.5) E, voi vi chiederete: qual è il legame con i Bitcoin? Ebbene uh Susheela aveva investito proprio nei Bitcoin, (...) ma aveva perso il suo denario- denaro- il suo denaro. Nonostante questo gli investitori le chiedevano (0.5) i soldi che (..) lei doveva loro. (0.7) Quindi uh si è (0.5)suicidata. (0.8) Ma possiamo anche dire che i Bitcoin l'hanno uccisa.

Mi dispiace iniziare da una storia così triste e tragica, però è proprio per dimostrare che (...) uh l'invest- investire sui Bitcoin è una scelta veramente azzardata negativa a causa della voli- della volatilità di questa valuta. (1.3) I prezzi uh fluttuano, cambiano veramente velocemente e quindi, in- nel giro di qualche secondo si possono perdere veramente tantissimi (..) soldi. (1) Vestire nel- uh nei Bitcoin è un po' come giocare d'azzardo, quindi. (0.5) Le- uh i costi delle transazioni inoltre stanno aumentando, i tempi si stanno dilatando, il che significa che (0.5) uhm (..) il valore dei Bitcoin quando- a transazione finita può essere diverso da quando (...) av- è stata appunto fatta la transazione. (1.5) Le persone però vogliono credere in questa bugia (0.8) ed è per questo proprio che s- lo definisco un gioco d'azzardo. (..) Si può addirittura finire in bancarotta ed è irreversibile, perché appunto le transazioni sono irreversibili una volta fatte. (..)

Inoltre c'è sempre il problema degli attacchi cibernetici. Si può pensare che i portafogli digitali, questi scambi digitali siano sicuri, ma in realtà (...) vengono spesso hackerati. Solo la settimana scorsa settanta milioni di dollari americani sono stati rubati, (1.4) appunto in Bitcoin. (0.6) E questo anche- uhm bisogna considerare che i governi centrali non hanno un controllo su queste transazioni, il che significa che, se il denaro viene rubato, se si perde del denaro, è difficile (...) che venga poi restituito. (0.7)

I Bitcoin in- poi sono anche legati a diversi (...) uh usi illegali. (1) Si sa che ad esempio il Bitcoin (..) uh sostiene crimini e frodi. Non è un segreto che venga utilizzato nel mercato nero o nel (..) uhm web, dark web. (0.6) I criminali lo usano per comprare droghe: cocaina, eroina, per bombe, coltelli, (..) uh fucili d'assalto, per delle carte d'identità false, questi solo alcuni degli esempi. (0.6) Non è poi una sorpresa che i Bitcoin vengano utilizzati da persone violente, da assassini, da uh politici corrotti, da terroristi. (1)

Il Bitcoin è quindi anche un tumore per la nostra terra, (...) infatti contribuisce al cambiamento climatico, perché i computer utilizzati per il processo del mining (...) hanno bisogno di davvero tantissima elettricità per funzionare ventiquattr'ore su ventiquattr'ore, (.) in particolare settantanove terawatt al s- all'ora, (...) per tutto l'anno, che è la stessa produzione annuale (..) uhm (0.5) necessaria- la stessa quantità di energia necessaria al Belgio, un paese con una popolazione di undici milioni di abitanti. (0.8)

Quindi possiamo dire che investire nei Bitcoin è veramente (.) un modo (0.8) e un qualcosa che potrebbe portare a un fallimento sia finanziario che personale. (..) È un veleno, un vero e proprio veleno che va a minare la nostra sicurezza, quella del mondo e quella della nostra casa. (...) Io veramente penso che i Bitcoin siano (...) una delle- (1.1) un vero e proprio problema per il nostro secolo. (.) Grazie mille.

Benedetta	BT	791 words, 06:20 minutes

Buongiorno a tutti. (1.4) Quando stavo preparando il discorso per la giornata di oggi, mi sono ritrovata ad essere particolarmente affascinata (...) dal tema di cui vi parlerò. (..) In realtà ho sempre trovato (0.6) il tema dei Bitcoin particolarmente affascinante, (..) ma non ho mai avuto modo di esplorarlo in profondità, (0.5) e quindi preparare questo discorso è stata un'ottima opportunità per immer- immergermi, in questo mondo. (1.5)

Innanzitutto uh vorrei spiegare cos'è una uh criptovaluta. Si tratta di un mezzo utilizzato per degli scambi, (...) come è il dollaro, ad esempio, però è digitale, e sfrutta una crittografia- (...) una crittografia (..) uh che viene utilizzata per creare (.) delle unità uh monetarie. (1.2) Uh ogni unità viene poi salvata tramite la uh blockchain che è la tecnologia che permette uh la creazione di uh Bitcoin. (0.6) Uhm (1.1) è- uhm (0.5) la- uhm (.) è la- il Bitcoin è la prima uh criptovaluta che è stata mai uh utilizzata (..) e- e sv- e sviluppata ed è uh la criptovaluta per la quale anche il sistema della blockchain è stato uh sviluppato. (2)

Uh l- il- il Bitcoin è stato creato nel duemila e nove da un autore o da un gruppo di uh inventori- di autori sconosciuto, (..) uh in realtà si conosce tramite lo pseudonimo di Satoshi Nakamoto. (2) Uh le uh transazioni sono anonime (...) e uh avvengono in un sistema uh di pagamento decentralizzato, quindi nessuna banca viene coinvolta nelle transazioni. (1.9) E una volta che viene fatto l'investimento tramite i Bitcoin, i dettagli di questo investimento (.) sono salvati nella blockchain, (0.5) che uhm salva tutte le transazioni in ordine cronologico, (...) e queste informazioni possono essere viste dal- dagli- hm dagli utenti, chiamati uh nodi. (1)

Ogni nuova transazione può considerarsi completata dopo che è stata verificata dai cosiddetti miners. (0.6) Per farlo, per verificare queste transazioni, bisogna risolvere delle equazioni matematiche molto complesse. (..) Per questo possono essere (.) portate avanti- possono essere calcolate soltanto (..) da dei- uh da delle macchine (..) con dei- uh (...) una potenza computazionale (.) piuttosto alta. (1) Dopodiché, uh tramite la blockchain, questo blocco- que- questa transazione viene (..) uhm (0.6) portata su una rete (..) uh che deve poi- uh (..) sulla quale poi viene (...) ulteriormente uh (0.5) verificata. (2.1) Uh si può considerare uh che (..) un minatore sia stato- uh (0.5) abbia avuto successo nella verifica (...) uh (1.8) quando uh riesce a risolvere questa uh equazione e (..) in seguito (.) gli viene uh garantito un premio, ovvero un Bitcoin. (0.5)

Il protocollo di Satoshi Nakamoto specifica che il valore (..) uh viene ridotto di circa la metà (..) ogni duecentodiecimila uh blocchi, quindi circa ogni quattro anni. (1.4) Si raggiungerà un punto nel quale il uh uh premio per i mina- (..) per questi miner sarà pari a zero (...) alla creazione di venti milioni di Bitcoin. (1) Per questo motivo viene- il Bitcoin viene definita una uh valuta deflazionaria, in uh (0.5) uh contrapposizione alla moneta a corso legale che è inflazionaria. (0.7)

Uh (.) i Bitcoin sono sempre più diffusi nella società, ad esempio ci sono più di cento Bitcoin a Toronto, (..) uh dove possono avvenire degli scambi, delle transazioni tanto con i Bitcoin quanto con il denaro (..) uh a corso legale, (..) e si possono trovare anche a Berlino molti negozi e pub, dove utilizzare (.) i Bitcoin come metodo di pagamento. (...) E poi la ciliegina sulla torta, (...) uh il- El Salvador (..) che uh nel duemila e ventuno ha approvato uh il Bitcoin come una moneta (0.6) al pari delle monete a corso legale. (...) È il primo paese a prendere questa decisione (.) e- ed è un evento storico. (...)

Il Bitcoin è una valuta pubblica, quindi non è- hm (1) non è posseduta da nessun governo ed è questa anche la ragione- (.) una delle ragioni per la quale è- per le quali è così popolare. (0.7) Però (.) uh i Bitcoin devono essere approvati dal governo di ciascuno stato per essere utilizzati. (...) Anche se hm nessun governo può controllare i Bitcoin, quasi tutti i governi hanno garantito la possibilità di utilizzarli, (0.7) uhm (..) perché (0.6) le transazioni sono verificate legalmente (1.1) e hanno un livello di sicurezza piuttosto alto. (…)

In generale, (..) vi sono numerose ragioni per le quali (.) i Bitcoin sono particolarmente (0.5) u- popolari (1.3) e (0.9) le transazioni sono immediate e (..) offrono- i Bitcoin offrono delle soluzioni (...) in tempo reale per i pagamenti, mentre (..) le transazioni con monete a corso legale possono richiedere anche diversi giorni. (...) Perciò i Bitcoin stanno democratizzando il settore finanziario e saranno il futuro del denaro, (..) fornendo soluzioni uhm (0.8) più veloci. (1.5) Man mano che sempre più persone decideranno di investire nei Bitcoin, ci sarà (.) sempre più richiesta (...) e uh questo porterà numerosi vantaggi per gli investitori, poiché il prezzo dei Bitcoin aumenterà (.) e così potrà attrarre anche altre aziende. (0.6) Sa- è solo una questione di tempo prima che i Bitcoin diventeranno (..) un grande- uhm (0.9) uh che porteranno grande profitto agli investitori e diventeranno (..) presto, (.) forse prima di quanto non immaginiamo, (..) la uhm valuta più potente al mondo. (...)

Vi ringrazio.

Benedetta	NT	855 words, 07:09 minutes

I Bitcoin: (.) la peste della nos- del nostro secolo. (0.7) Buongiorno a tutti. (0.5) Il tema di cui vi parlerò oggi è piuttosto controverso, (..) anzi hm (..) penso che qualcuno possa addirittura odiarlo, (..) e temo proprio di rientrare in questa categoria anch'io. (0.5) Vi parlerò dei Bitcoin. (0.6)

I Bitcoin sono la prima criptovaluta che sia stata mai inventata. È stata inventata nel duemila e nove ne- il periodo della (..) grande crisi finanziaria (..) da un uh (..) inventore o da un gruppo di inventori anonimo uhm (..) s- conosciuto con lo pseuno- ps- pseudonimo di Satoshi Nakamoto. (..) Le transazioni tramite Bitcoin sono anonime e decentralizzate. Questo significa che non vi è nessun intermediario finanziario (...) che le regoli. (0.5) Dopo essere state avviate, le transazioni vengono (0.8) conservate (..) in- uhm (...) una blockchain, (0.7) ma prima di essere aggiunte alla blockchain, le transazioni devono essere verificate dai cosiddetti miners, (..) che devono (..) compiere delle equazioni matematiche molto uh complesse (..) con- uh servendosi dell'utilizzo dei super computer. (...)

In questi periodi di grande incertezza, come quello che stiamo vivendo per via della pandemia, (...) i Bitcoin, con la loro volatilità e con le loro però promesse (...) di un (.) grande uhm (0.5) uh ritorno, (..) in termini di uh denaro, (..) stanno attraendo l'attenzione di sempre più persone in tutto il mondo (0.6) e uh io in realtà invece penso che siano un investimento (...) uhm spericolato (1.1) e hm vorrei ini- spiegarvi perché tramite un aneddoto, raccontandovi una storia. (1.8)

Vorrei spiegarvi perché investire nei Bitcoin sia un vero e proprio suicidio, (...) sia in senso figurato, sia in senso letterale. (0.6) Vorrei parlarvi della storia di Susheela, (...) una trentanovenne indiana che nell'aprile del duemila e ventuno (..) si è suicidata, (0.7) tramite il consumo di veleno. (1) Potreste pensare: (...) quale tragedia immane! E (..) però hm (...) cos'ha a che fare con uh i Bitcoin? (0.6) Bene, Susheela investiva uh tramite Bit- (.) investiva nei Bitcoin, (0.6) ma uh per via della natura uh volatile dei- uh dell'investimento tramite Bitcoin, (..) uh Susheela ha perso una (0.7) considerevole quantità di denaro, (0.7) e (...) gli investitori hanno iniziato a chiederle di uh restituire il denaro che lei in realtà aveva perso. (1.2) Quindi, in breve, i Bitcoin hanno ucciso Susheela. (...)

Mi dispiace iniziare il mio discorso con questi toni così funerei,(0.6) però voglio farvi capire (..) che investire nei Bitcoin è un fallimento, (0.5) a causa della loro natura (.) poco stabile e volatile. (0.5) Questo significa che possono subire delle (.) oscillazioni veramente rapide, perciò si può perdere (..) tanto denaro molto velocemente, spesso è questione di pochi secondi. (0.8) In questo senso, non è diverso (..) dal uh gioco d'azzardo, (0.6) e il costo delle transazioni tramite Bitcoin sta crescendo, sta schizzando alle stelle (...) e uh il costo per inviare dei Bitcoin allo stesso modo sta crescendo, (.) per via delle oscillazioni nel prezzo dei Bitcoin. Questo significa (..) che il valore dei Bitcoin può oscillare molto, può essere molto alto, (..) come piuttosto basso (...) e uhm (..) può oscillare (0.5) hm anche (..) uhm di (0.5) molto, (1) perciò uh quando si invia denaro poi hm non si può sapere quanto effettivamente ne verrà uh inviato. (1.5) Perciò, (.) io credo che ciò (...) su cui si stanno concentrando le persone che investono nei Bitcoin è su una sorta di (...) hm entusiasmo che però non è affidabile. (0.5) E uhm (.) questo è (0.7)gioco d'azzardo, non è investimento, (0.5) ed è anche un modo parecchio veloce per uh andare in bancarotta. (0.6)

Le transazioni tramite Bitcoin (...) sono sottoposte anche a un'altra minaccia, (0.5) ovvero la- hm (0.9) la minaccia della sicurezza. (.) Potreste pensare che il mondo digitale sia sicuro, (..) ma (.) non è così. (...) Le criptovalute vengono hackerate regolarmente (...) e, (..) giusto una settimana fa settanta milioni di dollari in Bitcoin son stati rubati (0.7) da un- uhm (1) uh da un- uhm (0.9) s- uh da un sito di uh mining e, (0.5) poiché nessun governo può controllarli, non (..) c'è nessun ente (...) che possa regolarli e quindi è difficile (.) ottenere poi il denaro una volta che viene rubato. (1.1)

Inoltre i Bitcoin vengono spesso utilizzati in maniera illegale, (..) per finanziare il- (..) la criminalità e le frodi. (0.6) Non è un segreto che il Bitcoin vengano utilizzati (..) nel dark web (..) e su mercati (..) piuttosto uhm oscuri (..) uh online. (1.1) Molti criminali utilizzano i Bitcoin per comprare droga come cocaina, eroina, per utiliz- per comprare armi, come bombe, (..) coltelli, esplosivi, (...) e si possono comprare anche (..) uh carte d'identità uh rubate, (..) perciò non è una sorpresa che i Bitcoin vengano utilizzati da persone violente, da assassini, (...) da (.) uhm tossicodipendenti, (.) tra- da politici corrotti e anche da terroristi. (...)

Perciò i Bitcoin sono un tumore per il nostro mondo, anche perché (.) uh contribuiscono al cambiamento climatico e al (0.7) s- al uh surriscaldamento globale, perché i supercomputer u- (..), che vengono utilizzati, (..) richiedono un alto consumo di energia (...) per funzionare (..) uh ventiquattr'ore su ventiquattro sette giorni su sette. (...) Consumano circa trent- settantanove terawatt all'ora (...) uhm (0.6) a livello annuale, (..) che equivale al consumo annuale (..) d- di elettricità (...) del Belgio, un paese sviluppato con undici milioni di abitanti. (0.6)

Perciò i Bitcoin (..) sono semplicemente un biglietto di sola andata per un fallimento personale ed economico totale. (0.6) Sono un veleno per la nostra vita, per le nostre tasche, per la nostra sicurezza e per la sicurezza del nostro pianeta, la nostra casa. (0.5) Perciò, non penso di esagerare, quando dico che i Bitcoin siano la peste della nostra società.

Vi ringrazio per la vostra attenzione.

Debora	BT	812 words, 06:30 minutes

Buongiorno a tutti. L'ar- L'argomento di questo evento per me è molto interessante, perché quando ho saputo (0.5) uh che si parlava di Bitcoin uh beh hm sono rimasta molto contenta. Infatti, per me, i Bitcoin sono sempre stata qualcosa di interessante ma non ho ma- mai avuto l'occasione di (...) uh approfondire questo argomento. Quindi (.) uh diciamo che il discorso di oggi è un'opportunità per immergerci nel mondo dei Bitcoin. Partiamo dalle basi. (0.5)

Uhm (0.6) la criptovaluta è un metodo per scambiare m- moneta appunto in maniera digitale e uhm (...) può essere paragonata alla moneta come ap- ad esempio i dollari americani, (0.5) ma uhm le criptovalute utilizzano la tecnologia per uh far sì che le transazioni avvengono e che (...) uhm lo scambio di moneta venga verificato. (0.5) Uhm tutto inizia dalla uh blockchain, ovvero una tecnologia che poi è alla base delle criptovalute. Uh il Bitcoin è stata la prima criptovaluta ad essere sviluppata nel mondo e la prima che ha attirato i maggiori investitori. (..)

Uh è stata inventata nel duemilanove da un individuo, da un gruppo di individui che viene conosciuto con il nome di Satoshi Nakamoto. (0.6) Le (..) transazioni che avvengono uh grazie a questa tecnologia sono completamente anonime (...) e vengono uhm sistemate in un sistema elettronico decentralizzato, quindi non ci sono intermediari finanziari come ad esempio banche o (0.5) uh governi. (..) Uhm quindi (..) quando una transazione avviene, uh l'investimento va a finire nella blockchain, che può essere definita come un ledger, ovvero contiene tutte le transazioni effettuate (0.6) uhm attraverso il Bitcoin. Uhm nella blockchain vengono anche uhm contenuti uh i riferimenti dei- degli utenti che vengono chiamati (...) uh nodi. (.)

Le uh transazioni si definiscono completate dopo che i miner hanno uh dichiarato essere legittime, ovvero (...) per farlo devono risolvere una uh equazione matematica molto complessa che può essere (...) sviluppata solo attraverso computer con una potenza di calcolo elevatissima. (..) Uh dopo, la transazione viene posta uhm sotto forma di blocco nella blockchain, (...) quindi i blocchi vengono uh verificati e ciascun blocco contiene un (..) link al blocco precedente. Quindi tutti i blocchi sono collegati tra loro, ecco perché si parla di blockchain, ovvero catena di blocchi. (1.2)

Il uh uhm protocollo sui Bitcoin, sviluppato da Satoshi Nakamoto, parlava di una ricompensa per i minor che viene dimezzata ogni (0.5) uhm duemila e cento transazioni quindi (..) uh dovrebbe essere dimezzata ogni quattro anni, (...) uhm il che porterà i Bitcoin- uh la ricompensa che deriva dalle transazioni, ad essere pari a zero (0.5) quando si arriverà a ventuno milioni di uhm (0.5) valore dei Bitcoin, (...) quindi le criptovalute sono una moneta uh deflazionata a differenza delle uh monete a corso legale, che sono delle monete inflaziona (.) te. (1.1)

La- uh le criptovalute stanno- uh s- d- hm diverse società stanno sviluppando varie criptovalute (...) e uh stanno diventando sempre più popolari, ad esempio a Toronto si contano più di cento (...) bancomat di Bitcoin in cui è possibile scambiare (..) uhm Bitcoin uh con contanti e viceversa. A Berlino, poi, diversi negozi e ristoranti permettono di (..) uh pagare con le criptovalute. Per non parlare della ciliegina sulla torta, ovvero (..) uh ciò che è stato approvato a luglio duemilaventuno dallo stato El Salvador, che ha dichiarato il Bitcoin (0.5) come moneta avente corso legale. Il- El Salvador è stato il primo stato al mondo a dichiarare una cosa del genere. (0.5)

Il Bitcoin non è una moneta che è legata ad un governo, quindi i governi non la controllano, ma (...) la devono approvare affinché i uh cittadini di uno stato la possano utilizzare. (..) In realtà tutti i governi hanno già approvato (0.7) le transazioni con Bitcoin per l'acquisto di beni e servizi. (.)

Quindi il Bitcoin ha dalla sua l'essere una- (..) uh un metodo di pagamento molto sicuro uhm e ci sono varie ragioni per cui le persone tendono a preferire sempre di più il Bitcoin rispetto alle monete aventi corso legale. Infatti, (...) se le monete aventi corso leg- le- le valute avente corso legale (..) hanno bisogno di giorni per formalizzare una transazione, in- hm con il Bitcoin le transazioni avvengono in tempo reale (..) e sono accessibili a tutti da qualsiasi posto e in qualsiasi momento. Quindi diciamo che il Bitcoin rappresenta (...) una sorta di democratizzazione del mondo finanziario (..) e rappresenta anche il futuro delle valute, perché permetterà di (..) effettuare delle transazioni sempre più veloci e sempre più efficienti. Quindi sempre più persone saranno pronte ad investire in criptovalute (..) e questa è una notizia positiva per il Bitcoin perché, (..) con l'aumento della domanda uh di Bitcoin, aumenta anche il prezzo della uh criptovaluta, (0.6) quindi (...) le aziende, i cittadini utilizzeranno sempre di più questo tipo di (...) uh moneta e uh questo tipo di uh valuta verrà sempre più apprezzata (..) uh e utilizzata, (.) quindi uhm nel tempo il Bitcoin potrebbe aumentare la sua popolarità, il suo valore uh in maniera più veloce di quanto ci aspettavamo (..) e uh potrebbe diventare la- hm la forma di- (..) la moneta più potente uh del mondo.

Grazie.

Debora	NT	810 words, 06:45 minutes

Buongiorno a tutti. L'argomento del mio discorso è un po' controverso. E alcuni potrebbero trovarlo così controverso tanto da odiarlo. Beh, io sono in questo gruppo di persone. (...) Oggi parleremo di Bitcoin. (.)

Il Bitcoin è stato la prima- è stata la prima criptovaluta ad essere stata mai creata, nel duemilanove, durante la crisi finanziaria, da una persona o da un gruppo di persone che si fanno (..) uhm conoscere con il nome di Satoshi Nakamoto. (..) Uh il Bitcoin permette di effettuare transazioni a- uhm (.) uh anonime (..) uh ed è un sistema decentralizzato, quindi non ha (1.1) il controllo di banche o governi. Tutte le transazioni vengono (..) conservate in una blockchain, che uh funziona come un ledger, (..) e tutte le transazioni devono essere verificate (0.6) dai miner che (..) uh per farlo svolgono delle equazioni matematiche complessissime svolte grazie all'aiuto di supercomputer. (..)

Durante il Covid diciannove, questa moneta, che si caratterizza per essere (..) uh altamente volatile (..) e uhm (...) che hm viene conosciuta per uh essere una promessa di (..) un (1.4) ritorno facile, quindi un investimento con un ritorno facile, ha attratto uh moltissime persone in tutto il mondo. Io credo in realtà che i- i- uh investire in Bitcoin sia un investimento folle, (..) e oggi vi spiegherò perché.

Partiremo da una storia, (..) che ci fa capire come il Bitcoin sia un suicidio in tutti i sensi per le persone che decidono di investire in questa criptovaluta. (...) Uh parlire- parleremo di uh Susheela, una (0.5) donna (0.7) uhm che viveva in India e che nel duemilaventuno ha- si è suicidata, (..) bevendo un- uhm (..) un- una sostanza nociva, (..) e voi adesso vi starete chiedendo cosa c'entra tutto questo con i Bitcoin. Beh, Susheela aveva investito in Bitco- Bitcoin, aveva ive- ha fa- aveva fatto un investimento (..) in una moneta altamente uh speculativa e ha perso tutto il denaro che aveva investito, quindi (..) gli investitori uh volevano da lei soldi che non poteva garantire loro, quindi possiamo dire che i Bitcoin hanno ucciso Susheela. (...)

E, mi dispiace aver iniziato il mio discorso con questa storia così triste, ma (..) uh tutto questo per farvi capire quanto i Bitcoin portino ad un fallimento i tu- in tutti i sensi perché sono una moneta poco stabile (0.6) e molto volatile. Quindi (..) in brevissimo tempo il loro valore cambia e potreste ritrovarvi a perdere tutti i vostri risparmi (...) uh in una uh frazione di secondo. (..) Uh gli investitori in Bitcoin uhm fanno una scommessa, quindi investire equivale al gioco d'azzardo. Il costo delle transazioni inoltre, aumenta in maniera uh molto repentina, quindi uh in pochissimi secondi, (0.6) la transazione potrebbe venire a costare molto più di quanto costava quando l'avete effettuata. (...) Il valore del Bitcoin aumenta o diminuisce (..) uh quando uhm (.) è- si effettuano delle transazioni, quindi sono una moneta (..) che non è assolutamente affidabile, (..) uhm quindi io credo fermamente che i Bitcoin uh equivalgano al- investire in Bitcoin equivalga al gioco d'azzardo e che (...) non uh bisogna investire in questa moneta se non si uh vuole dichiarare fallimento in pochissimi secondi. (0.5)

Uhm (0.5) un'altra minaccia collegata al Bitcoin è la minaccia degli attacchi (..) uh digitali, di- hm (0.5) i portafogli digitali vengono continuamente hackerati o uh rubati. Ad esempio la scorsa settimana, settanta milioni di dollari in Bitcoin sono stati (..) rubati da una- uhm da un- (0.6) un marketplace quindi (..) uh (...) poiché i Bitcoin non sono regolamentati da alcun governo, (..) uhm se si perde denaro o se si viene hackerati, è difficile ottenere i soldi indietro. (..)

E inoltre i Bitcoin uh sono utilizzati per uhm (0.6) scopi illegali, quindi per- uh cri- per reati, per frodi, (..) uh sul mercato nero, sul dark web, la uh valuta digitale viene utilizzata dai criminali uh per comprare (..) sostanze sup- stupefacenti, come ad esempio la cocaina, l'eroina, per (..) comprare armi, (..) uh pistole, fucili, bombe, (0.5) giusto per citare alcuni usi illegali che si fanno della (..) uh criptovaluta. Il Bitcoin viene utilizzato da persone violente, da assassini, da criminali, da spacciatori, da terroristi, da politici corrotti per le loro attività. (...)

Il Bitcoin può essere inoltre paragonato ad un vero e proprio cancro per (...) uh la n- nostra madre terra, perché (0.5) uh il Bitcoin contribuisce largamente al cambiamento climatico, infatti sappiamo che i supercomputer che servono ai miner per svolgere (0.6) uh le loro procedure (...) richiedono uh quantità di energia, elettricità enormi. (..) Si tratta di settantanove terawatt all'anno, (0.5) una quantità di energia davvero (..) uh ingente, che può essere paragonata a quella utilizzata dal Belgio, che è un paese sviluppato (...) uh e con una popolazione di undici milioni di persone. (0.5)

Uhm quindi (.) investire in Bitcoin vuol dire (0.5) uh arrivare ad un fallimento economico e personale in uh tempi molto veloci. Il Bitcoin può essere paragonato (..) ad un veleno per la nostra vita, per la sicurezza del nostro pianeta (...) e per uhm (0.6) la- uhm il benessere della- uh della natura della- (0.6) del nostro- del nostro pianeta, della nostra casa. (..) I Bitcoin possono essere paragonati alla peste del nostro secolo.

Grazie.

Chiara	NT	836 words, 07:48 minutes

Buongiorno. (0.6) Il Bitcoin (.) è la peste del nostro secolo. (0.6) Il tema di oggio è molto controverso. (.) Alcuni odiano il tema di cui parlerò oggi, me inclusa. (0.7)

Ovvero il Bitcoin, (..) la prima criptovaluta (...) creata (0.7) nella storia, (..) creata nel duemila e nove, (..) nel pieno della crisi finanziaria, (0.7) da una fonte anonima, (0.5) uh chiamata Satoshi Nakamoto. (0.8) Le transazioni (1.1) di- uh fatte con il Bitcoin sono sempre anonime e decentralizzate. (0.8) Non ci sono banche o governi coinvolte- coinvolti in queste transazioni. (1.8) Le- queste transazioni avvengono (.) totalmente in formato digitale, (0.5) su dei uh l- uh ledger, libri mastri, in cui vengono uh elencate tutte le transazioni di Bitcoin. (1.1) Tutte le transazioni vengono verificate dai cosiddetti miners (0.7) uh che analizzano (...) uh le- delle equazioni con l'aiuto di uh supercomputer. (0.9)

Durante la pandemia del covid diciannove i Bitcoin (0.6) hanno ricevuto moltissima attenzione, (..) grazie alla loro enorme volatilità (...) e ai grandi profitti, (1.4) e quindi ci-, come dicevo, c'è stata moltissima attenzione ed euforia da parte- in tutto il mondo uhm verso i Bitcoin. (1.5) E io, personalmente, trovo i Bitcoin un investimento molto azzardato e rischioso (0.6) perché- hm e ora ve lo- v- ve lo spiego raccontandovi di una storia. (0.6)

Investire in- nei Bitcoin è veramente un suicidio. (1) La storia che voglio raccontarvi è quella di Susheela, una donna trentanovende- trentanovenne indiana, (0.7) che nell'aprile del duemila e ventuno (.) ha- si è suicidata con- avvelenandosi. (2) Uhm (1) Mi dispiace- hm (1.7) e questo scusate perché (...) uh (.) hm questa- hm (..) quindi hm questa hm morte (..) uh tragica (...) è stata- hm è connessa- ve lo racconto perché questa morte tragica è connessa al Bitcoin. (0.9) Susheela ha investito (.) in Bitcoin (0.5) uhm (1.1) e ha- (.) proprio per questo investimento ne- in questa criptovaluta ha perso moltissimo denaro. (0.9) Gli investitori- gli investo- uhm gli investitori (1) hanno- uhm le hanno (..) chiesto di (...) uhm (0.8) di ri- consegnare quel denaro (...) ed è per questo motivo (...) che uhm (..) Susheela si è (.) suicidata, (1.3) quindi il- possiamo dire che il Bitcoin ha ucciso Susheela. (0.5)

Mi dispiace (.) iniziare questo discorso in chiave così negativa. (1) Gli investimenti nel- nel Bitcoin sono un fallimento, (0.6) perché sono una valuta instabile e molto volatile, (1.6) a causa delle grandi fluttuazioni. (0.9) Si possono- si può perdere moltissimo denaro in pochissimo tenco- tempo anche in pochi secondi. (1.2) Gli- hm (0.6) l'inv- investire nei Bitcoin (...) potremmo dire che è come uh giocare- come un gioco d'azzardo. (1.7) Le- hm (2) il uhm denaro- (.) hm (0.6) i pagamenti- le transazioni in Bitcoin possono causare (0.5) uh veramente grandissime perdite. (1.2) I- hm (0.9) il valore (..) del Bitcoin (.) è (.) uh (.) in grande crescita (...) perché uhm sta- il- il suo prezzo sta f- hm (...) fluttuando. (0.7) Il valore (.) può quindi salire o scendere in pochissimo tempo (1.3) e quindi il- hm investire in Bitcoin- pagare con i Bitcoin, è veramente molto (0.8) inaffidabile, (0.6), quindi come dicevo è come un gioco d'azzardo, (.) cari amici (1.8) e (...) può portare in pochissimo tempo alla bancarotta, perché le- tutte le transizioni fatte con il Bitcoin sono irreversibili. (1.3)

La- hm (...) un'altra minaccia hm che presenta il Bitcoin (.) sono i cyberattacchi. (1.9) I- hm la- hm gli scambi in criptovalute (0.5) e uhm (0.5) gli s- sì scusate gli scambi in cripto valute (..) possono portare anche- uhm (..) un'altra minaccia in questi scambi è quello di poter essere hackerati. (1.4) Infatti, (0.8) più di settanta milioni di dollari in Bitcoin sono stati rubati (...) dal mercato uh dei Bitcoin. (1.9) Ques- quindi- uhm (..) e inoltre quando- (1.3) per- per- perché questo avviene? Perché quando noi perdiamo (...) il denaro uh o uhm o quando veniamo hackerati, (.) è veramente difficile rintracciale- (.) rintracciare quelle transazioni perché non c'è, come ho detto, di mezzo (..) una banca centrale che controlli le transazioni. (1)

Inoltre uh (.) hm (0.5) nel- uhm i- ico- il Bitcoin è legato anche all'uso (0.6) illegale (..) di denaro. Il Bitcoin infatti (.) sostiene il crimine, sostiene la frode (0.8) uhm (1.2) e gli hm (1.4) i- i- quindi i l- l- il Bitcoin sono verament- veramente un uso molto hm diffuso nel dark web e nel mercato onli- sul mercato online. (0.6) I criminali (..) acquistano oggetti come (..) uh droghe, come la cocaina o l'eroina, armi come esplosivi, fucili, coltelli, (...) o uh carte di credito rubate, (1) eccetera. (0.9) Non è quindi una sorpresa (...) che il Bitcoin venga usate- usato da uhm (0.5) persone violente, come assassini, criminali, (..) uhm narcotrafficanti, uh hacker, terroristi, (..) per finanzia- finanziare le propre- (.) le proprie attività crudeli. (1)

Il Bitcoin, (1.1) possiamo dire che è un tumore anche per il nostro pianeta, (0.5) uh è un- uhm (0.5) contribuisce al cambiamento climatico, al riscaldamento globale. (0.8) Perché i super- questi super uh computer (0.5) chiedono un enorme quanti- richiedono un'enorme quantità di energia ventiquattro ore su ventiquattro. (0.5) Il Bitcoin (...) uhm consuma ogni anno settantanove terawattore di elettricità, (.) che corrisponde alla quantità annuale (..) di elettricità- di energia consumata in Belgio, (..) dove ci sono undici milioni di (0.6) persone. (0.5)

Riassumendo, (..) investire quindi nei Bitcoin (...) è un- uhm (0.6) un- un- è come ac- acquistare un- uhm (0.9) un biglietto di sola andata (0.5) che porta a un uh fallimento totale economico. (0.8) È una specie di (.) veleno per i nostri- per le nostre tasche, per le nostre vite, per la sicurezza del nostro pianeta. (1.4) Quindi non è esagerato dire che il Bitcoin sia (..) la peste del nostro secolo.

Grazie mille.

Chiara	BT	834 words, 07:39 minutes

Buongiorno a tutti. (0.7) Il tema di oggi è un tema (.) che mi ha interessata molto, (1), un tema che ho sempre trovato affascinante, (.) ovvero quello dei (.) Bitcoin. (1) E questa uhm (0.6) quindi (.) è un- uhm (0.7) è un'opportunità per uhm (0.6) parlare meglio di questo tema (1.7), uh un tema che sta interessando tutto il mondo. Quindi parliamo delle basi della uhm (..) cr- delle criptovalute.

Le criptovalute sono un modo (0.5) di scambiare denaro (0.8) come uh (.) scambiare (0.5) uhm denaro fisico uh i dollari fisici, (0.5) ma uh appunto nel causa delle criptovalute, tutto avviene in modo digitale. (1.2) Le criptovalute utilizzano delle tecnologie di crittologia (..) per (0.5) effettuare transazioni di fondi. (1.2) Tutto inizia dai- dal Bitcoin (.) che uhm rende possibile (..) l'esistenza (.) delle criptovalute. (0.9) Il Bitcoin è la criptovaluta più conosciuta in tu- uh nel- nel- nel mondo. (0.6)

È la prima (..) uh criptovaluta che è stata inventata (0.5), ovvero nel duemila e nove, da una persona o da un gruppo di persone sconosciute (0.5) uh dal nome Satoshi Nakamoto. (1) Le transazioni (..) in Bitcoin avvengono sempre in modo anonimo, (...) ed è un sistema decentralizzato. (0.8) Le banche e hm le- i governi non sono coinvolti nella tran- nelle transazioni uh in Bitcoin. (1.7) Uh gli hm investimenti in Bitcoin avvengono grazie a dei (..) uh ledger digitali, cioè dei libri mastri in cui vengono segnate tutte le transazioni in ordine cronologico, (1) e uh ed è costitui- costituito dai cosiddetti nodi. (1)

Tutte le transazioni in Bitcoin (..) uh sono (1) considerate complete solamente dopo che i cosiddetti miners, i minatori, (0.6) hanno uhm (..) uhm (..) considerano legittime (.) le transazioni. (0.9) Per fare questo devono risolvere delle equazioni molto complesse (0.8) uhm (0.5) grazie (0.5) all'utilizzo di uh d- hm di macchine- hm di computer hm dalla- hm da la potenza- da un- con una potenza molto alta. (1.8) Successivamente, le transazioni vengono bloccate nelle cosiddette blockchain. (1.2) Ogni uhm (..) i- queste blockchain contengono tanti blocchi (0.9) e- e tutti questi blocchi sono connessi tra di loro. (0.5) I (...) miners, i minatori, devono trovare, (0.6) uh devono cercare di trovare sempre nuovi blocchi (0.5) e, uh quando ne trovano uno, vengono premiati. (1.5)

Il- uhm (1.8) I- secondo il uhm (..) protocollo Bitcoin di Satoshi (0.9), si viene (..) premiati (0.7) ogni volta che uhm si trovano- (1.1) uh (0.5) scusate il premio hm (.) che viene dato- che viene assegnato ogni volta che si ri- si risolve- si trova un blocco si riduce per metà (0.8) uh dopo (..) che sono stati individuati duecentodiecimila blocchi (..) e questo avviene approssimativamente ogni quattro anni. (1) Infine, il premio uh ra- raggiungerà uhm (..) a quota zero (0.8) uh ovvero quando si avrà raggiunto circa venti milioni di uh Bitcoin. (1.6) Questo massimo di ventu- venti- ventuno milioni di Bitcoin (1.1) uhm (0.5) si raggiungerà quando la uh criptovaluta (0.5) sarà- uhm (1.5) uhm (.) sarà diventata una- una valuta- (..) hm (1.1) hm (1) non- (2.7) hm (1.7) deflated, uh ovvero (..) non sarà più- uhm (0.7) hm non- non ci sarà più un'inflazione. (0.7)

I Bitcoin (.) sono quindi un'idea molto innovativa (...) che uh è stata uhm (1.5) uhm adottata hm da- uhm dalla nostra (.) società (1). Uhm più di- (1.6) per farvi un esempio in- a Toronto ci sono più di cento- (0.5) uhm (0.9) più di cento hm (0.6) punti dove ritirare i- i Bitcoin, ovvero dove (..) uhm scambiare- dove fare un cambio tra Bitcoin e uhm (0.6) contanti e viceversa. (1.6) A Berlino, invece per esempio, ci sono molti negozi, ristoranti o bar che accettano anche uh l'utilizzo di Bitcoin. (0.8) E, infine, (..) la ciliegina sulla torta, (0.5) a uh El Salvador, il nove giugno del duemila e ventuno, (0.6) la criptovaluta del Bitcoin è stata uhm uh legalizzata, e questo è il primo paese a fare questo. (0.6)

I uh Bitcoin sono quindi una uhm (..) uh valuta pubblica (0.8) che non (.) coinvolge i governi (0.7) e- ed è una valuta diventata ormai molto (.) popolare, (0.8) ma per essere utilizzata deve s- essere approvata dallo stato. (0.7) Nessun governo come ho detto ha il controllo sui Bitcoin, però i governi stesso possono utilizzarli, (0.5) possono essere utilizzate per le loro- per le proprie transazioni. (0.9) Il Bitcoin (0.6) uh (0.7) ha quindi ricevuto la fiducia (..) in tutto il mondo, perché si tratta di transazioni che avvengono in modo totalmente onesto. (1.5)

Ci sono vari motivi per cui i- hm si preferiscono i Bitcoin ai contanti. (1) Le- hm (0.5) i Bitcoin offrono infatti una soluzione molto rapida in qualsiasi momento, in qualsiasi parte del mondo. (1.4) Sono (0.5) po- possiam- potremmo quindi dire che democratizzeranno (..) il mondo della finanza, saranno il futuro (...) dei nostri pagamenti, del nostro denaro, (...) un modo hm dell- costituiranno delle transazioni uhm (0.8) che tutti potranno permettersi e delle transazioni molto rapide. (0.6) Quindi sempre più persone saranno pronte a investire nelle criptovalute (0.8) e questo contil- cos- costituirà un enorme vantaggio per gli investitori in Bitcoin. (1) Quando sempre più persone infatti utilizzeranno i Bitcoin, (.) il prezzo dei Bitcoin aumenterà (0.8) e quindi sia le piccole uh che le grandi imprese potranno utilizzare i Bitcoin (0.6) e sempre più persone uhm hm l- saranno- (0.5) ameranno i Bitcoin. (0.7) Quindi è solo una questione di tempo (1) che il Bitcoin aumenterà i profitti per tutti gli inve- gli investitori in Bitcoin, (1) uh e quindi per tutti questi motivi, il Bitcoin sarà- (0.5) uh la hm sarà hm la più (1) hm grande valuta mondiale (..) prima (.) che uh ce lo possiamo aspettare.

Grazie mille.

Francesca	NT	974 words, 07:52 minutes

Il Bitcoin (.) è la- il male di questo secolo. (1.2) Come avete capito, il- uh (0.8) l'argomento del mio discorso (...) è abbastanza controverso e a qualcuno potrebbe addirittura odiarlo. Bene, io sono tra le persone che lo odiano. (0.6)Odio i Bitcoin. (1.1)

Uh il Bitcoin è la prima criptovaluta (..) nata nel duemila e nove da un- uh (...) uh (.) da un- (..) un personaggio anonimo o un g- un gruppo (..) che si (...) uh fa chiamare Sash- (0.6) Satoshi Nakamoto. (1.6) È nato appunto nella- (...) uh durante uh una delle peggiori crisi uh finanziarie del- uh (..) uh del mondo. (0.8) Il problema del Bitcoin è che uh (0.5) non è uh fisico (...) e non ci sono uh strumenti e corpi gover- uh governativi o nazionali che possano controllarlo. (1.1) Infatti tutte le transazioni uh che utilizzano Bitcoin, uh si fanno attraverso quello che si chiama una blockchain. (1.3) Tutte le transazioni devono passare attraverso quello che si chiamano (...) minors, (...) uh quindi uh (...) grossissimi compu- supercomputer che fanno uh un- (...) moltissime equazioni (...) per effettuare questi transazioni. (1)

In uh c- tempi incerti quali sono quelli che viviamo adesso durante la pandevi- pandemia da covid diciannove, (0.6) uh (0.7) una valuta- (.) hm (..) una cosa come il Bitcoin, così volatile (1.4) perm- uh e che promette grandi guadagni, (...) fa molto gola a molte persone nel mondo, (0.5) però è assolutamente uh spaventoso e in realtà molto pericoloso (...) investire in bri- in Bitcoin. (0.5)

Permettetemi di raccontarvi una storia uh abbastanza cupa (1.4) un- uh un suicidio, (...) perché il Bi- il Bitcoin porta al suicidio, (...) figurativo e l- e letterale. (0.9) Vi vorrei raccontare di Susheela, (...) una ragazza di trentanove a- una signora- una donna di trentanove anni (0,5) uh che viene- indiana- (0.5) che viveva in India (...) e che nelle aprile duemilaed- e ventuno ha commesso (0.5) suicidio (0.9) bevendo (...) e ingerendo (..) del veleno per ratti. (0.9) E vi chiederete: come mai questa storia ha a che fare con i Bitcoin? (0.7) Beh, Susheela (0.6) aveva in- hm (..) investito in Bitcoin (0.7) e uh, nel- hm (..) dato che sono così altamente speculati- uh dato che è così altamente speculativo, il Bitcoin, (0.5) ha perso (..) tutti i suoi guadagni. (1.2) E quando i creditori sono venuti a battere cassa e a chiedere indietro i loro soldi, (0.6) uh (1) Susheela (..) non ha visto altra uh via d'uscita se non suicidarsi. (0.5) Per cui possiamo proprio dire che il Bitcoin uccide, (..) e ha ucciso Susheela. (1.1)

Mi dispiace avervi raccontato questa storia così (...) cruda (..) e dura, (0.9) però investire in Bitcoin è molto pericoloso, perché è una valuta volatile e molto insicura e instabile, (1.9) e fluttuacontinuamente e molte persone uh (0.7) perdono (...) hm dei soldi in uh (.) pochissimi secondi. (2.1) Invest- Investire in Bitcoin è proprio come giocare d'azza- (..) d'azzardo. (1.8) Uhm le transazioni dei Bitcon (...) uh (..) fluttuano (..) in ogni momento (0.5) ed è molto pericoloso, perché, anche solo mandare dei Bitcoin, (..) può costare moltissimo, in primo luogo, (...) e poi il valore stesso della valuta (0.7) sale e scende e cambia continuamente (...) e quindi potrebbe cambiare dal momento in cui si è mandato a quando si poi utilizza. (4) Per cui è proprio veramente uh inaffidabile (..) e le persone non si possono affidare appunto a questa (...) uh criptovaluta, (...) perché si p- rischia la bancarotta (0.5) in pochissimo tempo. (2.3) Inoltre i- uh (.) i soldi uh investiti ne- nel Bitcoin (...) uh (0.5) non tornano mai indietro perché una volta impiegati non- non si possono recuperare. (0.6)

Quindi, bisogna fare anche moltissima attenzione perché (...) si può pensare magari che uh dato che è tutto on-line e (...) hm non c'è nes- nulla di fisico sia molto difficile (...) uh essere uh (0.5) colpiti da qualche crisi, però invece bisogna fare molta attenzione agli atta- agli attacchi z- siberne- cibernetici, (0.7) perché ci sono moltissime storie invece di appunto (...) questi attacchi (0.5) uh e uh (.) persone che hanno visto hm (0.7) hanno perso tutto il loro portafoglio di- di risparmi in Bitcoin. (1.7) Uh solo uh recentemente si sono persi settanta milioni (0.5) di dollari in Bitcoin (.) in un marketplace in un- uh, (...) in uno spazio virtuale (1.1) proprio a causa di un atta- -cco cibernetico. (1.4) Proprio perché hm non c'è nessun organo go- governamentale o fisico che possa controllare (..) queste transazioni, (0.7) uh non c'è neanche una tutela per chi utilizza il Bitcoin, (0.5) e per cui uh si è molto più soggetti (...) a magari uh (1.2) una perditagrave oppure (0.5) uh u- hm (0.8) un ricatto (0.6) e tutti appunto questi soldi non torneranno indietro. (2)

Inoltre il Bitcoin viene utilizzato per uh (1) comprare e hm commerciare uh (0.9) oggetti illegali o (0.5) per qualsiasi tipo di attività criminale uh o fraudolenta. (0.7) I Bitcoin vengono utilizzati nel- nel mercato nero oppure nel dark web. (1) Ci sono persone che posso- che comprano qualsiasi tipo di droga, come la cocaina, con i Bitcoin, oppure delle- uh delle armi, dei coltelli, delle- hm (1.2) dei fucili oppure degli esplosivi, delle bombe. (0.5) Oppure ancora si possono comprare (...) uh documenti falsi, quindi carte d'identità, oppure ancora (...) informazioni quali le carte di credito. (2) Per cui uh i Bitcoin vengono utilizzati da uhm assassini, (0.6) da uh (...) dipendenti- uhm (1.2) hm da persone uhm (.) dipendenti dalle droghe, dai gh- dai politici corrotti, (..) dai terroristi che finanziano le proprie (...) uh (0.7) battaglie e i loro attacchi uh (1) hm (0.6) terribili. (1.8)

Possiamo proprio dire che il Bitcoin sia un tumore, per la nostra terra e per la nostra casa, (.) per il nostro pianeta terra, (0.7) perché contribuisce in grandissima scala al c- al riscaldamento globale (..) e al cambiamento climatico. (1.1) I computer che uh (..) effettuano queste transazioni che uh sostengono tutte le attività del Bitcoin (0.6) utilizzano tantissima energia (..) uh ventiquattr'ore su ventiquattro sette giorni su sette, (0.7) e quando dico tantissima energia, (0.5) intendo settantanove (...) uh (.) terawatt all'ora (0.8), che si conve- che per proporzione sono circa il- uh (...) il fabbisogno (..) annuale del Belgio, (0.5) e parliamo di una nazione (...) fatta e finita con undici milioni di persone- (..) di abitanti, (0.8) per dare uh un'idea. (1.4)

Per cui investire in Bitcoin (0.5) è proprio uh un- (...) un fallimento economico e personale, (...) perché va ad attaccare la nostra vita e i nostri risparmi. (0.8) Possiamo proprio dire che il Bitcoin sia il male del secolo. (0.7)

Grazie.

Francesca	BT	841 words, 06:20 minutes

Salve a tutti. (0.7) Il tema di oggi è molto intrigante e interessante. (0.5) Il Bitcoin mi ha sempre affascinato ma non sono mai riuscita ad esplorare questo mondo (0.6) e questo argomento. (0.7) Nella preparazione di questo discorso però mi sono (0.5) immersa in questo nuovo mondo. (1.2)

Bene uh l- (…) il Bitcoin è una uhm (1.2) cryptocurrency, quindi una moneta virtuale hm criptata (0.6) ed è un mezzo per uh (0.5) hm (0.5) scambiare delle- del denaro. (1) Non è fisico, anzi è molto uh (0.6) digitale (.) ed è uh s- assicurato da un sistema di uh (0.5) di uhm inscri- hm inscrizione (1.4). Uh è un nuovo sistema che non si era mai visto prima che uh (0.7) funziona attraverso quella che si chiama la blockchain (0.6) e che nasce proprio con l'esistenza del Bitcoin. (…) Il Bitcoin è la valuta virtuale più conosciuta (0.5) e la prima che è stata creata e per cui sono state crea- è stato creato anche il sistema della blockchain. (1)

Uhm (..) è stato crea- una- uh questa valuta- il Bitcoin è stata creata nel duemila e nove da una persona anonima oppure da un- (..) si presuppone anche da un gruppo di persone, (0.5) uh sempre anonime che si fanno uhm identificare come Satoshi Nakamoto. (1.6) Si tratta di un sistema che non è centralizzato, per cui nessun tipo di banca o governo (..) ha un potere sul Bitcoin (0.7) e uh la blockchain permette delle transazioni attraverso delle note. (0.6) Ogni nuova transazione uh viene verificata da color- da quelli che si chiamano minors, (…) che si uh che usano delle- hm dei macchinari molto potenti (0.5) uh che sono in grado di fare moltissime equazioni e uhm (1) operazioni matematiche (..) molto velocemente. (1)

Ogni nuova transazione si trasforma in un blocco, per cui un nuovo block, per cui- da cui viene poi il nome blockchain. (0.9) Uh inoltre questi blocchi uh hanno- uh ognuno ha una parte di una transazione precedente, per cui (..) sono tutti collegati (1.2) insieme, (..) e qua di nuovo, (..) blockchain, quindi una catena di blocchi. (1.6) Il- (0.6) [cough] scusate uh il primo uhm (1.6) uh minor che trova un nuovo blocco- che trova una nuova transazione (...) riceve un- uh un compenso- uh un bonus in Bitcoin. (0.7)

Però uh Satoshi Nakamoto (..) ha uh sviluppato un sistema per cui dopo uh (0.5) un certo numero di transazioni che ven- che equivalgono più o meno a (..) quattro anni, (0.5) uh si il- il bonus si ferma, per cui si può arrivare fino a un- (...) uh a ventun milioni di Bitcoin di bonus. (0.9) Questa caratteristica di- uhm (1.4) hm del Bitcoin di essere (...) deflazionario (...) e uh (1) così malleabile (..) uh ha- interessa molte persone e attrae molte persone. (...)

Il Bitcoin sicuramente è un'idea uh innovativa- nuova per la società (1) uh e uh sta entrando piano piano a far parte della nostra vita sempre di più. (0.5) Per esempio, a Toronto si possono trovare addirittura un centinaio di- uh (0.5) uhm (1) uhm (1) di uh (1) ATM, quindi di uh macchinette che possono convertire i Bitcoin in denaro contante. (0.5) A Berlino invece ci sono alcuni pub o negozi o ristoranti che accettano pagamenti in Bitcoin, per cui si co- si può comprare direttamente con questa valuta (0.5) digitale. (0.6) E poi c'è il caso principe uhm che- El Salvador, che è stato il primo paese (0.5) nel mondo (1) a rendere il Bitcoin uh moneta ufficiale del- uh dello stato (0.5) e questo è successo nel- al- uh il diciannove giugno del duemila e ventuno. (1.1)

Però, proprio il ch- (0.9) uh uh una delle caratteristiche del- uh del Bitcoin è proprio (..) uh il fatto che non è- non è uhm controllato da organi hm governamentali (...) o da istituzioni conosciute, (0.7) per cui c'è questa attrattiva (0.6) uhm (0.5) che appunto interessa molte persone. (1.5) Dato che però uh nessun governo (0.6) ha uh un potere (.) su questa uh valuta, (0.5) uh (1.3) co- ogni paese deve autorizzare i propri cittadini a usarla nelle transazioni quotidiane- di tutti i giorni, (0.6) altrimenti non è possibile, ovviamente. (0.5) E sembra che ci sia anche una- un alto livello di sicurezza per quanto riguarda le transazioni stesse. (1.8)

Le- uh (1.1) le persone sembrano anche preferire (0.5) la criptovaluta al- uh al- hm alla moneta (.) hm fisica, (0.6) perché per- uhm per diverse ragioni, per esempio (..) la moneta che conosciamo (.) tutti quanti, la moneta uhm statale (…) uh (…) impiega molto tempo a essere trasferita da un posto all'altro, (0.7) mentre uh per le transazioni in Bitcoin sono praticamente immediate e si possono mandare a qualsiasi persona del mondo (…) in qualsiasi momento. (0.8) Sembra quasi che il Bitcoin sia uh la porta e la chiave per la tecnocrazia finanziaria nel mondo. (0.7) È molto veloce e le transazioni sono molto economiche, (0.5) un altro (..) punto a- a favore del Bitcoin. (1.4) Per cui, (0.5) tutti questi vantaggi attraggono sempre più persone e sempre più persone vuol dire (..) sempre più il ritorno, (..) sempre più il guadagno per gli investitori del Bitcoin. (0.9) E- e uh più persone, più attività, negozi useranno il Bitcoin, più appunto ci sarà questo ricircolo (0.5) e uh più guadagneranno le persone coinvolte (1.6) e più uh guadagneranno anche gli investitori stessi. (1.6) Quindi, uh il Bitcoin è sicuramente una valuta (.) molto potente, forse la più potente (…) e (.) prenderà sempre più piede e diventerà sempre più potente, magari (..) prima di quanto ci aspettiamo. (0.7)

Grazie.

Giovanni	NT	803 words, 06:42 minutes

Il Bitcoin è (0.5) la peste del nostro secolo. (1.4) Buongiorno a tutte e a tutti. (0.6) Il- l'argomento di cui vorrei parlarvi oggi (.) è decisamente controverso. (0.5) Alcune persone addirittura lo odiano (0.5) e io (...) mi ritengo una di queste persone. (1.2) Ma (.) partiamo dall'inizio. (0.7)

Il Bitcoin (.) è (..) la prima criptovaluta che sia mai stata inventata. (0.9) La sua invenzione è avvenuta nel duemila e nove, durante una (..) gigantesca crisi finanziaria (1) ed è stato inventato (.) da un gruppo o da un individuo anonimo, sotto lo pseudonimo di Satoshi Nakamoto. (1) Tutte le transazioni di Bitcoin (0.6) sono (.) anonime (0.5) e decentralizzate, (0.6) infatti, per queste transazioni non è necessario un intermediario, come ad esempio una banca. (0.8) Tutte le transazioni avvengono all'interno della cosiddetta blockchain, (0.8) ma prima che avvengano (...) devono essere (..) verificate, affinché avvengano, (...) da dei cosiddetti miners, (..) ovvero da delle persone che utilizzano dei supercomputer per risolvere delle (..) equazioni matematiche. (1.7)

In tempi incerti come quelli che stiamo vivendo, legati alla pandemia da Covid diciannove, (0.8) il Bitcoin, (...) proprio per le sue caratteristiche intrinseche, come (...) la sua volatilità, (0.5) ha (0.9) provocato un'ondata di euforia (..) in tutto il mondo, (0.6) persone che hanno deciso di investire (.) in esso. (0.9) Tuttavia, (.) io penso che in- investimenti in Bitcoin (..) siano decisamente sconsiderati, (0.6) e vi spiegherò il motivo per cui penso ciò. (1.1)

Vorrei partire da una breve storia, (1) una storia che dimostra come investire nel Bitcoin sia un vero e proprio suicidio, (0.7) in senso (0.5) metaforico, (...) ma (.) anche in senso concreto. (1.3) Vorrei parlarvi della storia di Shishila (0.5) nata- (..) uhm una- una cittadina indiana (0.8) che, proprio in India, (.) nell'aprile del duemila e ventuno, (0.9) uh si è tolta la vita (..) con uh del veleno per topi. (2.2) Forse vi starete chiedendo perché la morte di Sishila sia legata al Bitcoin. (1.5) Semplicemente perché (..) investiva (.) proprio in questa criptovaluta (.) di tipo speculativo. (1) Uh Sishila ha perso tutto il suo denaro dopo averlo investito, (0.5) in quanto, una volta investito, le era stato chiesto di uh restituirlo, proprio dai suoi (..) uh investitori, tuttavia (0.6) uh non- lo ha perso tutto e- (.) -d è questo che ha causato la sua morte. (1)

Mi dispiace (..) offrirvi questo quadro così scuro (0.6) ma uh è questo che significa investire in Bitcoin. (0.9) Il- degli investimenti in Bitcoin (0.5) sono molto pericolosi, perché è una moneta volatile, altamente instabile. (1) Si (.) potrebbe perdere tutto il denaro che si ha investito (0.6) in pochissimo tempo, proprio a causa della sua volatilità, (...) persino in (.) una manciata di secondi. (1.1) In questo senso, per me, il Bitcoin (..) è identico al gioco d'azzardo, (0.8) e inoltre i costi delle transazioni (..) sono cresciuti enormemente (0.8) e uh il prezzo del Bitcoin, inoltre, fluttua costantemente (0.9) ed è questo che determina un aumento o una diminuzione nel suo valore, (0.8) n- rispetto anche al momento in c- al momento stesso in cui si vende (...) questa criptovaluta. (1.4) Dunque (..) uhm (..) penso che (...) tutta (..) l'eccitazione che si sia creata attorno al Bitcoin sia (0.5) un'eccitazione immotivata, perché il Bitcoin, come dicevo, (0.6)corrisponde al gioco d'azzardo (1) ed è il modo più veloce (0.5) per uh finire in bancarotta, (0.7) perché gli investimenti in Bitcoin sono irreversibili. (1.2)

Senza dimenticare, poi, un'ulteriore minaccia rappresentata dai rischi (...) di uh attacchi hacker, (..) i cyberattacchi. (1.2) Si tratta di una criptovaluta che, (.) sempre più spesso, è vittima di questi attacchi (1) e, soltanto la settimana scorsa, sono stati rubati (..) l'equivalente uh di- uh settanta miliardi di dollari (0.9) in Bitcoin. (1) E (...) dato che non c'è alcun uh ente garante come una banca, (0.9) uh se si viene colpiti da queste attacchi hacker o da delle minacce, il rischio è proprio quello di perdere tutto ciò che abbiamo investito. (1.7)

Inoltre, il Bitcoin favorisce l'illegalità. (0.6) Sappiamo bene che uhm (1) favorisce (0.5) la criminalità (0.5) e (..) delle frodi fiscali (0.6) e, inoltre, il Bitcoin viene utilizzato per delle transazioni (.) nel cosiddetto dark web. (0.5) I criminali lo utilizzano (0.5) per acquistare (...) droghe, per acquistare armi, (..) dalle bombe (.) fino alle armi uh contundenti e le armi da fuoco, (0.5) e (...) anche per comprare (...) carte di credito rubate. (1.8) E dunque, (...) non è una sorpresa, inoltre, che uh il Bitcoin venga anche utilizzato (..) da appunto criminali, (0.6) da politici corrotti, da terroristi per finanziarie- (.) per finanziare le loro attività. (1)

E (..) inoltre si tratta (0.8) anche- (.) uh il Bitcoin è anche legato a una grande minaccia (..) per il nostro pianeta, (.) perché è profondamente legato (...) al cambiamento climatico. (0.8) Infatti, affinché un computer- questi supercomputer utilizzati dai miner possano funzionare, (0.5) è necessaria una grandissima quantità di (...) elettricità (..) per ventiquattr'ore su ventiquattro. (0.5) E quando dico una grandissima quantità mi riferisco a settantanove (0.6) terawatt ora (0.7) di elettricità (0.5) all'anno, (0.7) il che corrisponde all'elettricità utilizzata dalle undici milioni di persone che vivono in Belgio. (0.9)

Per concludere, dunque, investire in Bitcoin (0.6) è un biglietto di sola andata (.) per un vero e proprio fallimento, personale ed economico, (1) una vera e propria insicurezza per se stessi, un pericolo (.) anche per gli altri (0.5) e (...) un pericolo anche (.) per la nostra terra, (.) la nostra casa. (0.9) È per questo che non penso di esagerare quando dico che il Bitcoin è la peste (.) del nostro secolo.

Giovanni	BT	857 words, 06:57 minutes

Buongiorno a tutte e a tutti. (0.8) Quando sono stata chies- quando mi è stato chiesto di parlare a questo evento (0.8) e ho scoperto l'argomento della conferenza, (0.6) ho pensato che ho sempre trovato affascinante il mondo del Bitcoin, ma non avevo mai avuto l'opportunità (..) di (...) uhm (...) documentarmi a fondo. (0.5) E dunque (.) sono lieta di aver avuto questa opportunità nella preparazione di questo discorso. (1.2) Uh partiamo dalla base.

Le criptovalute sono un mezzo di scambio, al pari (0.5) di altre monete come ad esempio il dollaro (.) statunitense, tuttavia (0.5) si tratta (..) uh di valute digitali (0.7) che uhm (...) dunque necessitano uh di (0.7) uhm avere delle transazioni (0.5) uh verificate. (1.1) Uhm (0.7) tutto ha inizio con la cosiddetta blockchain (0.8) uh all'interno (..) della quale (..) è uh possibile- (...) uh con la quale è possibile appunt- con il- uh ed è il metodo con il quale funzionano proprio le criptovalute. (0.9) Uhm il Bitcoin è la prima (.) criptovaluta che sia mai stata inventata (0.5) e (0.6) grazie alla quale è stato sviluppato proprio il sistema della blockchain. (0.8)

Il Bitcoin è stato inventato nel duemila e nove da un individuo, da un gruppo di anonimi, (.) sotto lo pseudonimo di Satoshi Nakamoto (1.3) e le transazioni di Bitcoin sono anonime (0.6) e uh il Bitcoin è un sistema di pagamento elettronico (...) decentralizzato, il che significa che non necessita (..) di una autorità, (0.5) come ad esempio uh la banca, (.) per effettuare queste transazioni. (0.8) Quando si investe in- uh nel Bit- nel Bitcoin, i dettagli dell'investimento (...) sono uhm (0.8) presenti (...) e vengono integrati dalla blockchain. (0.7) La blockchain, (.) che contiene in ordine cronologico l'elenco di tutte (...) le transazioni, (1.6) le quali possono essere viste da tutti gli utenti, (...) chiamati nodes. (0.8)

E tutte le transazioni, (.) per essere completate, devono essere verificate (...) da i cosiddetti miners, (.) che, per l'appunto, ne verificano (.) la- il carattere legittimo. (1.1) I miners- il loro compito è quello di risolvere delle equazioni matematiche molto complesse (...) attraverso dei supercomputer (0.6) e attraverso (.) dei calcoli cosiddetti computazionali. (1) I calcoli computazionali si trasformano poi in uno dei blocchi (0.5) della blockchain. (0.8) Questi blocchi, che per l'appunto compongono la blockchain, (0.6) si trovano proprio in una struttura (.) a catena, come indica il nome stesso blockchain, (0.5) in cui all'interno di ogni blocco- (...) all'inizio di ogni blocco, vengono contenute le informazioni del blocco (.) precedente al quale esso si lega. (1.2) Una volta che i miners trovano un modo per creare questi blocchi, (..) vengono ricompensati con della criptovaluta. (0.7)

Secondo il sistema, infatti (0.5) messo in piedi da Satoshi Nakamoto, (0.6) uh (..) avviene un compenso (.) ogni volta (0.5) e uhm questo compenso viene dimezzato (0.6) ogni uh duecento dieci mila blocchi (.) che un miner (..) riesce a produrre. (0.9) Uh si stima che questo numero di blocchi venga raggiunto all'incirca ogni quattro anni. (0.8) E, proprio per il modo in cui è stata concepita la blockchain, si può raggiungere un massimo di ventuno milioni (0.5) di blocchi che la compongono. (1.1) E (.) dunque questo stabilisce la natura deflazionistica (0.5) del- uh del Bitcoin, a differenza (.) invece (0.6) della natura (.) caratteristica (.) uh contraria inflazionistica invece delle altre valute che conosciamo. (1.8)

Uhm (.) per uh (0.5) dimostrarvi come il Bitcoin (..) sia oramai presente nel nostro mondo, (0.5) possiamo ricordare che ad esempio a Toronto sono presenti oltre cento (0.5) uhm ATM, (0.5) punti, in cui si possono (0.5) prelevare (..) proprio- (...) uhm (0.5) si può prelevare valuta (.) scambiando il Bitcoin con il dollaro. (0.8) E a Berlino, moltissimi pub e ristoranti accettano pagamenti tramite Bitcoin (0.5) e, inoltre, un esempio uh che va anche al di là di tutto ciò, (0.5) che ci dimostra (.) quali sono le potenzialità di questa valuta, è quello di El Salvador, (...) in cui, nel duemila e ventuno, è stata autorizzata la prima asta (.) legale (...) con Bitcoin. Si tratta del primo caso al mondo. (0.7)

Il Bitcoin, dunque (0.9) uhm è una valuta (0.5) pubblica (0.5) che uhm non ha- che ha trovato un grande successo proprio per le sue caratteristiche, perché non ha (...) un proprietario, non necessita (0.5) del- uh di intermediari, come ad esempio le banche. (0.9) Tuttavia, nonostante non ci siano governi che lo detengano, (0.7) uh molti governi del mondo ne hanno autorizzato l'utilizzo, (0.5) ed è uh per questo motivo (.) che è legale (0.5) uh fare transazioni (.) oppure detenere proprio (0.5) Bitcoin. (1.5) Uhm probabilmente la sua popolarità è anche legata (..) alle sue caratteristiche (.) che permettono un altissimo livello di sicurezza. (0.5)

Ci sono molte ragioni per cui le transaz- per cui viene preferito oggigiorno. (0.5) Ad esempio le transazioni abituali con le altre valute richiedono giorni, mentre (..) il Bitcoin è un metodo che può- una soluzione (...) uh (.) che permette (0.5) uh la sua utilizzabilità in tempo reale, (0.5) in ogni posto del mondo, in ogni momento. (0.8) Il Bitcoin in questo senso democratizzerà dunque le nostre transazioni (..) ed è, a mio avviso, il futuro (..) della valuta. (0.7) Si tratta, infatti, di transazioni (0.5) che sono veloci, (..) che sono uh abbordabili per chiunque (0.5) e, (.) con il- uh l'aumentare della domanda per il Bitcoin, aumenterà (0.5) uh sempre di più (...) anche (0.6) il uh valore di questa valuta (0.5) e (0.5) uh il prezzo del Bitcoin (..) uh a un certo punto (...) lieviterà (.) ancora di più. (0.8) E sempre più persone ameranno dunque questa valuta (0.5) e (..) questo ne determinerà un aumento del prezzo e del suo valore nel mercato. (0.5) Molto presto i (...) profitti attraverso il Bitcoin (0.5) saranno sempre

più possibili, sempre più frequenti (0.5) e, dunque, il Bitcoin, (0.5) anche (.) prima (..) uh di quanto ci possiamo aspettare, diventerà (0.6)la valuta preferita del mondo.

Ilaria	BT	1042 words, 07:33 minutes

Salve a tutti. (..) Per l'evento di oggi, ho scelto un argomento che mi ha sempre affascinato e mi ha sempre intrigato abbastanza. (.) E infatti oggi vorrei parlarvi, in particolare (0.8) uh del Bitcoin, (0.5) una criptovaluta che viene utilizzata uh sempre di più. (1.4) Infatti uh oggi uh rappresenta per me l'opportunità perfetta per trattare questo argomento visto che in passato non ne ho mai avuto l'opportunità. (1)

La criptovaluta è un mezzo di scambio (.) di uh denaro, come per esempio lo potrebbe essere il dollaro, (.) ma, a differenza delle uhm valute tradizionali, è un sistema digitale. (0.5) Infatti, si tratta di un sistema che viene utilizzato per le transazioni uh finanziarie. (1.3) Tutto è cominciato con la tecnologia del blockchain. (...) Si tratta infatti di una tecnologia che uh permette di scambiare Bitcoin attraverso di un sis- attraverso un sistema uh digitale. (0.9) Ed è stata- uh ed il Bitcoin appunto è stato in- ven- uhm è possibile utilizzare il Bretcoi- il Bitcoin proprio grazie alla blockchain. (1.4)

I Bitcoin sono stati inventati nel duemila e nove da un gruppo di persone anonime che hanno utilizzato lo pseudonimo di Satoshi uh Nakamoto. (1.2) In particolare, appunto lo scambio di Betco- di Bitcoin e delle transazioni finanziarie, viene utilizzato uh attraverso un siste- uhm viene utilizzato una sistema elettronico, (1) quindi questo vuol dire che si tratta di un sistema elettronico per transazioni finanziarie completamente decentralizzato. (0.8) Questo vuol dire che le banche o i governi (..) non intev- non intervengono uh in queste transazioni. (1) Questo vuol dire che neanche i dati di coloro che scambiano le transazioni finanziarie vengono registrati in nessun modo, (0.5) dalle banche o dai governi, (.) però vengono regis- uh registrate su un ledger, ovvero un registro elettronico apposito, (0.7) che permett- che può essere visto da (.) tutti uh gli utilizzatori della blockchain, tutti coloro che sono in possesso della blockchain. (0.8) Uh questi hm usuari della blockchain vengono chiamati (.) nodi. (1.4)

Però, è anche importante verificare queste transazioni uh finanziarie prima di emetterle, perché (..) devono appunto essere legittime. (0.8) Per verificare le transazioni finanziarie intervengono delle figure, chiamate miners, che verificano le transazioni grazie a complesse operazioni matematiche, come per esempio algoritmi. (.) Questi algoritmi però possono essere- uhm (0.5) possono essere fatti solamente grazie a delle macchine. (0.9) Non possono essere appunto fatti a mente. Quindi queste transazioni solitamente uhm (.) vengono appunto operate dai miners e poi vengono registrate come un blocco. (1.5) Successivamente appunto vengono verificate e vengono creati dei blocchi di Bitcoin che si legano l'uno con l'altro. (1.2) I miners, poi success- uh successivamente il primo miner che riesce a trovare uh un blocco di transazione di Bitcoin viene premiato hm con dei Bitcoin, quindi riceve dei Bitcoin in cambio. (1)

Satoshi Nakamoto uh però ha stabilito che uh ogni uh duecentodiecimila blocchi creati, circa, il premio per il miner che trova il primo blocco (...) uh si dimezza, diminuisce uh e quindi questo vuol dire che (0.5) hm (.) lo fa, circa, ogni quattro anni. (2) In particolare, uhm è stato stabilito inizialmente appunto dal questo gruppo di persone che ha creato i Bitcoin, che esiste un massimo di transazioni totale, (...) che corrisponde a circa uh ventuno milioni di Bitcoin. (0.8) Questo vuol dire che il Bitcoin è una criptovaluta uh deflazionaria, (0.5) in contrasto con le- quelle che sono le valute tradizionali (...) e che invece vengono chiamate valute inflazionarie. (0.6)

Si tratta di un modo assolutamente enoga- uhm innovativo di scambiare transazioni finanziarie e quindi denaro e che (0.5) viene uh sempre più utilizzato (0.5) uh nella società di oggi. (0.6) Infatti uh sono moltissime ormai le persone che decidono di investire Bitcoins e questo è testimoniato dai- dall- dalle numerose (..) uh basi exchange presente per e- presenti per esempio nella città di Toronto. (.) Inoltre a Berlino, per esempio, esistono moltissimi negozi, ristoranti o pub che permettono di comprare (0.5) svariati prodotti uhm utilizzando il proprio portafoglio elettronico di Bitcoin. (0.7) Ma, una novità ancora più uhm incredibile è il fatto che persino un paese ha deciso di adottare il Bitcoin come propria valuta nazionale. (0.5) Si tratta di El Salvador, (.) che ha preso questa decisione nel giugno del duemila e ventuno. (0.5) Si tratta del primo paese ad aver deciso di utilizzare il Bitcoin come valuta (...) nazionale, (1.1) uh mentre nessun altro paese lo ha ancora fatto. (0.5)

Si tratta di un mezzo per scambiare transazioni finanziarie pubbliche. (0.5) Questo vuol dire appunto che non diven- non dipende dal governo ed è per questo motivo che è un modo di scambiare denaro se- (.) hm sempre più popolare. (0.5) Tuttavia, (.) hm (0.5) ciò non vuol dire che la decisione- (...) uh (1.6) tuttavia ciò non vuol dire che il governo non debba mettere parola in tutto questo, perché il governo deve di fatto approvare uh l'utilizzo di Bitcoin come mezzo di scambio di denaro. (0.7) Quasi tutti i governi, però, hanno comunque permesso alle persone di investire e di scambiare denaro in Bitcoin e quindi si tratta di un mezzo assolutamente legale (0.5), sia come asset finanziario che appunto per scambiare transazioni. (1)

Si tratta di un metodo assolutamente affidabile perché viene considerato trasparente (0.5) ed onesto e ci sono moltissime ragioni per cui le persone preferiscono di fatto investire (..) e scambiare denaro in Bit- in Bitcoin rispetto alle valute tradizionali. (0.5) Una di queste ragioni è che il Bitcoin uh permette di scambiare

transazioni in denaro in tempo reale, (.) mentre le valute trazion- tradizionali solitamente hanno bisogno di giorni prima che la transazione venga portata a termine. (.) Inoltre, permette uh di scambiare denaro a (.) chiunque, (.) ovunque, ed in qualsiasi momento. (1) I Bitcoin, nel futuro, uh permetterà di demo- democratizzare completamente le transazioni in denaro e sarà un metodo uh sicuro (0.6) di scambiare denaro. Sempre più persone- hm (0.8) inoltre il sistema del Bitcoin funziona in maniera tale che, (.) più persone decidono di investire e di scambiare transazioni finanziarie in Bitcoin, (0.5) più uhm il valore del Bitcoin aumenta, (0.7) e quindi questo vuol dire che questo rappresenterà un vantaggio per coloro che decidono di invest- di investire in Bitcoin, perché appunto il valore della moneta aumenterà sempre di più al crescere degli investitori. (0.7) Questo, (.) nel futuro, non farà altro che attrarre anche le imprese e (...) facendo sì che anche quest'ultime inizino ad investire in Bitcoin. (0.5)

Quindi, sarà semplicemente una questione di tempo prima che il Bitcoin cominci a generare (...) dei profitti significativi per gli investitori. (0.7) E, nel futuro, si trasformerà (0.5) nella valuta (..) più utilizzata e questo avverrà molto prima di quanto immaginiamo. (0.7)

Grazie.

Ilaria	NT	868 words, 06:07 minutes

Il Bitcoin: (.) la peste del nostro secolo. (0.6) Salve a tutti. L'argomento di cui parlerò oggi è piuttosto uh controverso. Ci sono addirittura delle persone che odiano questo argomento (..) ed io direi che sono una di quelle. (..)

Oggi vi parlerò dei Bitcoin, (..) una criptovaluta inventata da un losco gruppo di persone, o forse da una sola persona, (...) nel duemila e nove, (.) con lo pseudonimo di Satoshi Nakamoto. (1.3) Questo gruppo di persone era anonimo e anche il Bitcoin è una criptovaluta anonima. (0.5) Inoltre è decentralizzata: (0.5) questo vuol dire che (.) non ci sono banche, non ci sono intermediari, non ci sono (.) governi coinvolti in queste transazioni finanziarie. (1) Queste transazioni vengono registrate su un registro, (0.6) chiamato blockchain. (0.6) Poi ci sono questi individui, (.) i miners, che hanno il compito di verificare se queste transazioni finanziarie (..) sono legittime, (..) e lo fanno attraverso questi strani supercomputer che (..) fanno queste strane (...) stranissime operazioni matemati- matematiche.

In quest'epoca di incertezza, dovuta alla pandemia da coronavirus, il Bitcoin, con la sua volatilità, (0.5) con uh il- uh con le- con le sue promesse di alti profitti, sta attraendo sempre più persone in tutto il mondo, (0.8) e io lo trovo un investimento assolutamente assurdo e rischioso e oggi vi spiegherò (.) perché. (0.6)

Vorrei cominciare la mia storia raccontando la storia di una giovane ragazza indiana dal nome di Susheela (...) e vorrei raccontarvi questa storia per spiegarv- (0.5) per spiegarvi il motivo per cui il Bitcoin (0.5) non è un suicidio solo in senso figurato ma anche in senso letterale. (0.8) Questa ragazza, infatti, di nome Susheela, (...) nel- uh nel duemila e ventuno, (0.5) si suicidò. (0.5) Sì, avete sentito bene. Si uccise, avvelenandosi. (0.5) E voi vi starete chiedendo: ma, cosa ha questa storia a che fare con il Bitcoin?! (0.5) Beh, Susheela (0.5)investiva proprio in questa- in- in Bitcoin e speculava uh su questa moneta (0.9) e ha perso moltissimo denaro a causa di questi investimenti. (.) Perché? (0.5) Perché gli investitori, tempo dopo, hanno cominciato a chiederle il denaro, che lei non poteva ripagare, indietro, in un- in maniera tale che Susheela fu costretta ad uccidersi. (0.7)

E mi dispiace molto di iniziare il mio discorso con questa nota così drammatica, così tragica, (0.5) però uhm (..) io lo faccio perché voglio spiegarvi perché investire in Bitcoin (.) e- (.) equivale a fallire, equivale a un totale fallimento. (0.5) Non è una moneta stabile! Il suo valore fluttua nel tempo, nel giro di pochissimi secondi. (...) Questo vuol dire che si possono perdere moltissimi soldi in un batter d'occhio. (0.6) È come un vero e proprio g- gioco d'azzardo, non c'è nessuna differenza. (...) Addirittura sta causando globalmente moltissimi disagi, moltissimi ritardi. (...) E inoltre il suo costo, il costo per scambiare transazioni finanziarie in Bitcoin, sta aumentando sempre di più, appunto perché il prezzo del Bitcoin fluttua nel giro di pochissimo tempo. (0.7) Il valore del Bitcoin può essere molto più alto o molto più basso rispetto a quando si decide di operare la propria transazione finanziaria, (0.5) quindi è per questo motivo che ripeto, si tratta di un vero pro- e proprio gioco d'azzardo, non c'è nessuna differenza: è il modo più sicuro e veloce (...) per fare bancarotta, (0.7) perché, inoltre, si tratta di una valuta irreversibile, (0.7) quindi questo vuol dire uh che non c'è modo di riavere indietro i propri soldi. (..)

C'è inoltre un altro rischio da prendere in considerazione, (..) che è quello degli attacchi uh digitali da parte di hacker, per esempio. (0.6) Forse penserete che si tratta di un metodo assolutamente sicuro ed affidabile, ma in realtà non è così! Perché gli hacker possono benissimo avere accesso (0.5) a- alla rete blockchain uh e, attraverso degli attacchi, rubare i vostri soldi. (0.6) Poco tempo fa, per esempio, sono stati rubati ben settanta uh milioni di dollari. (0.6) Inoltre, dato che i governi non sono coinvolti, le banche non sono coinvolte, non c'è nessun intermediario, questo vuol dire che se perdete i vostri soldi, non li avrete mai più indietro! (0.5) E perderetemoltissimo! (1.2)

Inoltre, molto spesso il Bitcoin, la criptovaluta, viene utilizzata per scopi assolutamente illegali, per alimentare il mercato nero. (0.5) Per esempio, uhm (0.7) aumenta sempre di più il crimine, la frode, (0.5) e questo mercato nero pullula sempre di più di investitori di Bitcoin. I criminali, addirittura, utilizzano questa criptovaluta per i loro loschi scopi, come per esempio l'acquisto di cocaina, (0.5) eroina, armi, come per esempio bombe, (...) coltelli, di tutto! (0.5) Molto spesso il Bitcoin viene utilizzato a- uh (0.5) da personaggi assolutamente loschi e spietati come drogati, (0.6)assassini, (...) politici corrotti, terroristi, che utilizzano questa valuta (0.5) per finanziare i loro scopi di distruzione. (0.5)

Inoltre lo definirei un tumore, (.) sì, un tumore della nostra Terra, perché sta contribuendo sempre di più (..) al riscaldamento globale. (...) E perché, vi chiederete? Beh, perché, per uhm tenere in vita questo sistema uh digitale elettronico della blockchain, (0.5) uh c'è bisogno di moltissima elettricità, (...) e quando dico moltisci- moltissima elettricità, intendo che vengono utilizzati ben settantanove terawatt orari (...) all'anno (..) per alimentare il sistema della blockchain. (..) Questo equivale praticamente al consumo di elettricità del Belgio, (...) oppure ad una nazione con ben undici milioni di abitanti. (0.6)

Insomma, in definitiva, si tratta di un biglietto di sola andata per il fallimento economico, (...) professionale e personale. (...) È un veleno per le nostre tasche, per il nostro mondo, (...) per le nostre case, per tutto, (.) ed è per questo che lo definisco la peste del nostro secolo.

Appendix 5. Informants' translations of triggers

triggers	Anna	Benedetta	Debora	Chiara	Francesca	Giovanni	Ilaria
pest	-	peste	-	peste	male	peste	peste
hate	odiarli	odiarlo	odiarlo	odiano	odiarlo	odiano	odiano
hate	-	-	-	-	odiano	-	-
					odio		
crisis	crisi	crisi	crisi	crisi	crisi	crisi	
reckless	azzardata	spericolato	folle	azzardato	spaventoso	sconsiderati	assurdo
				rischioso	pericoloso		rischioso
gloomy	-	-	-	-	cupa	-	
suicide	suicidio	suicidio	suicidio	suicidio	suicidio	suicidio	suicidio
					suicidio		
(commited) suicide	si è tolta la vita	si è suicidata	si è suicidata	si è suicidata	ha commesso suicidio	si è tolta la vita	si suicidò
							si uccise
poison	veleno	veleno	sostanza nociva	avvelenandosi	veleno	veleno	avvelenandosi
				morte tragica			
				morte tragica			
tragic	-	tragedia immane	-		-		
death	-	-	-		-	morte	
lost	perso	perso	perso	perso	perso	perso	perso
		perso				perso	
	si è suicidata	-	-	suicidata	suicidarsi		uccidersi
					uccide		
killed	uccisa	ucciso	ucciso	ucciso	ucciso	ha causato la sua morte	
							drammatica
(negative note)	tragica	funerei	triste	-	-	scuro	tragica
	scelta veramente azzardata	-	-		molto pericoloso	molto pericolosi	
failure	-	fallimento	fallimento	fallimento	-	-	fallimento
insane fluctuations	veramente velocemente	veramente rapide	-	grandi fluttuazioni	fluttua continuamente	-	-
lose	perdere	perdere	perdere	perdere	perdono	perdere	perdere
			scommessa				

(continued)

triggers	Anna	Benedetta	Debora	Chiara	Francesca	Giovanni	Ilaria
gambling	giocare d'azzardo	gioco d'azzardo	gioco d'azzardo	gioco d'azzardo perdite	giocare d'azzardo	gioco d'azzardo -	gioco d'azzardo
unreliable	bugia	non è affidabile	non è assolutamente affidabile	-	inaffidabile non si possono affidare	- -	
gambling	gioco d'azzardo	gioco d'azzardo	gioco d'azzardo	gioco d'azzardo	-	gioco d'azzardo	gioco d'azzardo
bankrupt	bancarotta	bancarotta	fallimento	bancarotta	bancarotta	bancarotta	bancarotta
threat	problema	minaccia	minaccia	minaccia	crisi	minaccia	
toxic	-	-	-	-	-	-	
danger	-	minaccia	minaccia	-	-	rischi attacchi hacker	rischio
cyberattacks	attacchi cibernetici	-	attacchi digitali rubati	cyberattacchi minaccia	attacchi cibernetici attacchi perso	cyberattacchi	attacchi digitali rubare
stolen	rubati rubato	rubati rubato	rubati	rubati -	persi attacco cibernetico	rubati colpiti minacce	rubati
lose	perde	-	perde	perdiamo	perdita	perdere	perdete perderete
blackmails	-	-	hackerati	hackerati	ricatto	-	
illegal	illegali	illegale	illegali	illegale	illegali	illegalità	illegali
crime	crimini	criminalità	reati	crimine	criminale	criminalità	crimine
fraud	frodi	frodi	frodi	frode	fraudolenta	frodi	frode
dark	dark	dark	dark	dark	dark	dark	
hell	-		-	-	-	-	
criminals	criminali	criminali	criminali	criminali	-	criminali	criminali loschi scopi
dirty	-	-	-	droghe	-	- droghe	
heroin	eroina	eroina	eroina	eroina	-	-	eroina
weapons	-	armi	armi	armi eplosivi	armi coltelli	armi	armi
bombs	bombe coltelli	bombe		-		bombe	bombe

(continued)

triggers	Anna	Benedetta	Debora	Chiara	Francesca	Giovanni	Ilaria
			pistole				
rifles	fucili d'assalto	-	fucili	fucili	fucili	armi da fuoco	
					esplosivi		
			bombe		bombe		
knives		coltelli	-	coltelli		armi con-tundenti	coltelli
explosives	-	esplosivi	-	-			
			illegali	-			
stolen	false	rubate	-	rubate		rubate	
							loschi
violent	violente	violente	violente	violente			spietati
							drogati
assassins	assassini	assassini	assassini	assassini	assassini		assassini
criminals	-	-	criminali	criminali	-	criminali	
addicts	-	tossicodi-pendenti	spacciatori	narcotraffi-canti	persone dipendenti dale droghe		
				hacker			
			terroristi				
corrupt	corrotti	corrotti	corrotti	-	corrotti	corrotti	corrotti
terrorists	terroristi	terroristi		terroristi	terroristi	terroristi	terroristi
					battaglie		
cruel	-	-	-	crudeli	terribili		scopi di dis-truzione
tumor	tumore	tumore	cancro	tumore	tumore	minaccia	tumore
							tumore
failure	fallimento	fallimento	fallimento	fallimento	fallimento	fallimento	fallimento
venom	veleno	veleno	veleno	veleno	-	insicurezza	veleno
	veleno		-	-	-	pericolo	
crime	-	-	-	-	-	-	-
war	-	-	-	-	-	-	-
pest	problema	peste	peste	peste	male	peste	peste

Appendix 6. Translation frequency for each trigger

trigger	valence	informants	trigger	valence	informants
pest	1.93	5	**illegal**	1.78	7
hate	1.38	7	**crime**	1.47	7
hate	1.38	1	**fraud**	1.75	7
crisis	2.3	6	**dark**	2.17	6
reckless	1.91	7	**hell**	1.47	0
gloomy	2.13	6	**criminals**	1.9	6
suicide	1.33	7	**dirty**	1.3	0
commited suicide	1.33	7	**heroin**	2.72	5
poison	1.69	7	**weapons**	2.12	6
tragic	1.79	2	**bombs**	1.81	6
death	1.47	3	**rifles**	2.8	5
lost	2.46	7	**knives**	2.96	6
killed	1.69	6	**explosives**	2.21	3
failure	1.45	4	**stolen**	1.54	4
insane fluctuations	1.49	4	**violent**	1.8	5
lose	2.46	7	**assassins**	1.76	6
gambling	2.8	7	**criminals**	1.9	3
unreliable	1.18	4	**addicts**	1.56	5
gambling	2.8	6	**corrupt**	1.34	6
bankrupt	1.94	7	**terrorists**	1.24	7
threat	1.54	6	**cruel**	1.46	3
toxic	1.5	0	**tumor**	1.38	7
danger	2.21	4	**failure**	1.45	7
cyberattacks	2.2	6	**venom**	1.96	6
stolen	1.54	7	**crime**	1.47	0
lose	2.46	6	**war**	1.62	0
blackmails	1.82	3	**pest**	1.93	7

Appendix 7. Overview of triggers' translations

triggers	EMOTE valence	# translators (total)	translation	# translators
pest	1.93	5	peste	4
			male	1
hate	1.38	7	odiarlo	7
hate	1.38	1	odiano	1
crisis	2.3	6	crisi	6
reckless	1.91	7	azzardata/-o	2
			spericolato	1
			folle	1
			spaventoso	1
			sconsiderati	1
			assurdo	1
gloomy	2.13	6	tragica	2
			funerei	1
			triste	1
			scuro	1
			cupa	1
suicide	1.33	7	suicidio	7
(commited) suicide	1.33	7	si è tolta la vita	2
			si è suicidata/ si suicidò	4
			ha commesso suicidio	1
poison	1.69	7	veleno	4
			sostanza nociva	1
			avvelenandosi	2
tragic	1.79	2	tragic	1
			tragedia immane	1
death	1.47	3	tragedia immane	1
			morte	2
lost	2.46	7	perso	7
killed	1.69	6	uccisa/ -o	5
			ha causato la sua morte	1
failure	1.45	4	fallimento	4
insane fluctuations	1.49	4	veramente velocemente	1
			veramente rapide	1
			grandi fluttuazioni	1
			fluttua continuamente	1
lose	2.46	7	perdere	7
gambling	2.8	7	gioco d'azzardo	5
			giocare d'azzardo	2
unreliable	1.18	4	bugia	1
			non è affidabile	1
			non è assolutamente affidabile	1
			inaffidabile	1

(continued) triggers	EMOTE valence	# translators (total)	translation	# translators
gambling	2.8	6	gioco d'azzardo	6
bankrupt	1.94	7	bancarotta	6
			fallimento	1
threat	1.54	6	problema	1
			minaccia	4
			crisi	1
toxic	1.5	0		
danger	2.21	4	minaccia	2
			rischi	2
cyberattacks	2.2	6	attacchi cibernetici	2
			attacchi digitali	2
			cyberattacchi	2
stolen	1.54	7	rubati	6
			persi	1
lose	2.46	6	perde/ perdiamo/ perdere/ perdete	5
			perdita	1
blackmails	1.82	3	hackerati	2
			ricatto	1
illegal	1.78	7	illegale/ -i	6
			illegalità	1
crime	1.47	7	crimine/-i	3
			criminalità	2
			reati	1
			criminale	1
fraud	1.75	7	frode/-i	6
			fraudolenta	1
dark	2.17	6	dark	6
hell	1.47	0		
criminals	1.9	6	criminali	6
dirty	1.3	0		
heroin	2.72	5	eroina	5
weapons	2.12	6	armi	6
bombs	1.81	6	bombe	6
rifles	2.8	5	fucili d'assalto	1
			fucili	3
			armi da fuoco	1
knives	2.96	6	coltelli	5
			armi contundenti	1
explosives	2.21	3	esplosivi	3
stolen	1.54	4	false	1
			rubate	3
violent	1.8	5	violente	4
			spietati	1
assassins	1.76	6	assassini	6
criminals	1.9	3	criminali	3

(continued) triggers	EMOTE valence	# translators (total)	translation	# translators
addicts	1.56	5	tossicodipendenti	1
			spacciatori	1
			narcotrafficanti	1
			persone dipendenti dale droghe	1
			drogati	1
corrupt	1.34	6	corrotti	6
terrorists	1.24	7	terroristi	7
cruel	1.46	3	crudeli	1
			terribili	1
			scopi di distruzione	1
tumor	1.38	7	tumore	5
			cancro	1
			minaccia	1
failure	1.45	7	fallimento	7
venom	1.96	6	veleno	5
			insicurezza	1
crime	1.47	0		
war	1.62	0		
pest	1.93	7	problema	1
			peste	6

Appendix 8. ItEM scores for informants' translations of triggers

trigger	translation	rabbia (fear)	disgusto (disgust)	paura (fear)	tristezza (sadness)	informants
pest	peste	0.28	0.24	0.36	0.25	**B; C; G; I**
	male	0.48	0.37	0.43	0.53	**F**
hate	odiare	0.48	0.56	0.36	0,39	**A; B; D; C; F** (x2); **G; I**
crisis	crisi	0.44	0.25	0.51	0.43	**A; B; D; C; F; G**
reckless	azzardato	0.24	0.27	0.30	0.31	**A; C**
	spericolato	0.19	0.22	0.23	0.28	**B**
	folle	0.47	0.32	0.42	0.31	**D**
	spaventoso	0.21	0.37	0.57	0.35	**F**
	sconsiderato	0.44	0.39	0.38	0.25	**G**
	assurdo	0.32	0.42	0.40	0.36	**I**
gloomy	tragica	0.24	0.39	0.41	0.46	**A; I**
	funerei	x	x	0.23	0.40	**B**
	triste	0.40	0.41	0.44	0.57	**D**
	scuro	0.17	0.19	0.15	0.24	**G**
	cupa	0.31	0.30	0.44	0.57	**F**
suicide	suicidio	0.54	0.38	0.58	0.45	**A; B; D; C; F; G; I**
commited suicide	si è tolta la vita	x	x	x	x	**A; G**
	si è suicidata	0.40	0.31	0.40	0.52	**B; D; C; I**
	(ha commesso) suicidio	0.54	0.38	0.58	0.45	**F**
poison	veleno	0.38	0.28	0.34	0.29	**A; B; F; G**
	(sostanza) nociva	x	x	x	x	**D**
	avvelenandosi	0.25	0.22	0.26	0.29	**C; I**
tragic	tragico	0.24	0.39	0.41	0.46	**C**
	immane	x	0.21	0.33	0.21	**B**
death	morte	0.42	0.33	0.43	0.57	**C; G**
	tragedia	0.49	0.37	0.49	0.57	**B**
lost	perdere	0.16	0.21	0.34	0.35	**A; B; D; C; F; G; I**
killed	ucciso/-a	0.28	0.22	0.31	0.36	**A; B; D; C; F**
	(ha causato la sua) morte	0.42	0.33	0.43	0.57	**G**
failure	fallimento	0.38	0.32	0.40	0.44	**B; D; C; I**
insane	veloce (-mente)	0.14	0.19	0.21	0.22	**A**
	rapide	0.15	0.17	0.24	0.22	**B**
	grandi	0.45	0.31	0.35	0.34	**C**
	continuo(-amente)	0.22	0.27	0.26	0.29	**F**
lose	perdere	0.16	0.21	0.34	0.35	**A; B; D; C; F; G; I**
gambling	azzardo	0.28	0.24	0.27	0.19	**A** (x2); **B** (x2); **D** (x2); **C** (x2); **F**; **G** (x2); **I** (x2)
unreliable	bugia	0.22	0.35	0.36	0.29	**A**
	non è affidabile	x	x	x	x	**B; D**
	inaffidabile	0.36	0.40	0.39	0.31	**F**
bankrupt	bancarotta	0.31	0.21	0.31	0.26	**A; B; F; G; I**
	fallimento	0.38	0.32	0.40	0.44	**D**
threat	problema	0.32	0.22	0.40	0.34	**A**
	minaccia	0.57	0.30	0.61	0.32	**B; D; C; G**
	crisi	0.44	0.25	0.51	0.43	**F**
danger	minaccia	0.57	0.30	0.61	0.32	**B: D**
	rischi	0.33	0.20	0.52	0.29	**G; I**
cyberattacks	attacchi	0.50	0.32	0.59	0.30	**A; D; C; F; G; I**
stolen	rubati	0.22	0.17	0.22	0.25	**A; B; D; C; G; I**
	persi	0.16	0.21	0.34	0.35	**F**
lose	perdere	0.16	0.21	0.34	0.35	**A; D; C; G; I**
	perdita	0.43	0.36	0.48	0.53	**F**
blackmails	(hacker) -ati	x	x	x	x	**D; C;**
	ricatto	0.49	0.33	0.47	0.28	**F**
illegal	illegale	0.15	0.26	0.25	0.25	**A; B; D; C; F; I**
	illegalità	0.37	0.40	0.38	0.31	**G**

(continued) trigger	translation	rabbia (fear)	disgusto (disgust)	paura (fear)	tristezza (sadness)	informants
crime	crimine	0.43	0.40	0.36	0.37	**A; C; I**
	criminalità	0.19	0.28	0.41	0.27	**B; G**
	reati	0.32	0.21	0.27	0.30	**D**
	criminale (adj.)	0.27	0.24	0.42	0.25	**F**
fraud	frode	0.30	0.21	0.28	0.23	**A; B; D; C; G; I**
	fraudolenta	0.14	0.24	0.25	0.22	**F**
dark	dark	0.12	0.12	0.12	0.14	**A; B; D; C; F; G**
criminals	criminali (subs.)	0.38	0.24	0.28	0.23	**A; B; D; C; G; I**
heroin	eroina	0.31	0.19	0.25	0.19	**A; B; D; C; I**
weapons	armi	0.23	0.12	0.29	0.16	**B; D; C; F; G; I**
bombs	bombe	0.27	0.09	0.31	0.18	**A; B; D; F; G; I**
rifles	fucili	0.21	0.13	0.23	0.13	**A; D; C; F**
	armi (da fuoco)	0.23	0.12	0.29	0.16	**G**
knives	coltelli	0.24	0.13	0.25	0.16	**A; B; C; F; I**
	armi (contundenti)	0.23	0.12	0.29	0.16	**G**
explosives	esplosivi	0.22	0.15	0.32	0.15	**B; C; F**
stolen	false	0.27	0.36	0.34	0.30	**A**
	rubate	0.22	0.17	0.22	0.25	**B; C; G**
violent	violente	0.45	0.39	0.44	0.34	**A; B; D; C;**
	spietati	0.30	0.32	0.42	0.43	**I**
assassins	assassini	0.37	0.22	0.24	0.24	**A; B; D; C; F; I**
criminals	criminali	0.38	0.24	0.28	0.23	**D; C; G**
addicts	tossicodipendenti	0.33	0.27	0.29	0.28	**B**
	spacciatori	0.30	0.16	0.24	0.17	**D**
	narcotrafficanti	0.16	0.21	0.19	0.16	**C**
	dipendenti	0.17	0.19	0.23	0.19	**F**
	drogati	0.41	0.21	0.23	0.21	**I**
corrupt	corrotti	0.24	0.33	0.38	0.23	**A; B; D; F; G; I**
terrorists	terroristi	0.29	0.16	0.33	0.17	**A; B; C; F; G; I**
cruel	crudeli	0.32	0.42	0.52	0.47	**C**
	terribili	0.26	0.39	0.56	0.45	**F**
	scopi di distruzione	x	x	x	x	**I**
tumour	tumore	0.21	0.16	0.27	0.19	**A; B; C; F; I**
	cancro	0.25	0.20	0.30	0.24	**D**
	minaccia	0.57	0.30	0.61	0.32	**G**
failure	fallimento	0.38	0.32	0.40	0.44	**A; B; D; C; F; G; I**
venom	veleno	0.38	0.28	0.34	0.29	**A; B; D; C; I**
	insicurezza	0.49	0.47	0.64	0.59	**G**
pest	problema	0.32	0.22	0.40	0.34	**A**
	male	0.48	0.37	0.43	0.53	**F**
	peste	0.28	0.24	0.36	0.25	**B; D; C; G; I**

Appendix 9. ItEM scores for triggers and their translations

										Informants							
		joy	anger	surprise	disgust	fear	sadness	trust	anticipation	**A**	**B**	**C**	**D**	**F**	**G**	**I**	**total**
pest	***peste***	0.26	0.28	0.24	0.24	0.36	0.25	0.22	0.24		**1**	**1**			**1**	**1**	4
	male	0.43	0.48	0.35	0.37	0.43	0.53	0.53	0.32					**1**			1
hate	***odiare***	0.39	0.4	0.31	0.56	0.36	0.39	0.4	0.37	**1**	**1**	**1**	**1**	**1**	**1**	**1**	7
hate	***odiare***	0.39	0.4	0.31	0.56	0.36	0.39	0.4	0.37					**1**			1
crisis	***crisi***	0.33	0.44	0.36	0.25	0.51	0.43	0.48	0.4	**1**	**1**	**1**	**1**	**1**	**1**		6
reckless	***azzardato***	0.28	0.24	0.32	0.27	0.3	0.31	0.32	0.43	**1**		**1**					2
	spericolato	0.34	0.19	0.34	0.22	0.23	0.28	0.28	0.35		**1**						1
	folle	0.35	0.47	0.25	0.32	0.42	0.31	0.39	0.32				**1**				1
	spaventoso	0.24	0.21	0.27	0.37	0.57	0.35	0.32	0.38					**1**			1
	sconsiderato	0.27	0.44	0.33	0.39	0.38	0.25	0.25	0.31						**1**		1
	assurdo	0.23	0.32	0.2	0.42	0.4	0.36	0.35	0.26							**1**	1
gloomy	***tragica***	0.38	0.24	0.44	0.39	0.41	0.46	0.34	0.4	**1**						**1**	2
	funerei	0.2	x	x	x	0.23	0.4	x	x		**1**						1
	triste	0.37	0.4	0.3	0.41	0.44	0.57	0.38	0.22				**1**				1
	scuro	0.19	0.17	0.14	0.19	0.15	0.24	0.2	0.36						**1**		1
	cupa	0.44	0.31	0.27	0.3	0.44	0.57	0.26	0.27					**1**			1
suicide	***suicidio***	0.41	0.54	0.44	0.38	0.58	0.45	0.52	0.52	**1**	**1**	**1**	**1**	**1**	**1**	**1**	7
(commited) **suicide**	*si è tolta la vita*	x	x	x	x	x	x	x	x	**1**					**1**		2
	si è suicidata/ si suicidò	0.28	0.4	0.31	0.31	0.4	0.52	0.42	0.34		**1**	**1**	**1**			**1**	4
	(ha commesso) ***suicidio***	0.41	0.54	0.44	0.38	0.58	0.45	0.52	0.52					**1**			1
poison	***veleno***	0.29	0.38	0.27	0.28	0.34	0.29	0.3	0.24	**1**	**1**			**1**	**1**		4
	(sostanza) ***nociva***	0.16	0.18	0.14	0.29	0.24	0.3	0.2	0.17				**1**				1
	avvelenandosi	0.18	0.25	0.21	0.22	0.26	0.29	0.25	0.24			**1**				**1**	2
tragic (death)	***tragico***	0.38	0.24	0.44	0.39	0.41	0.46	0.34	0.4			**1**					1
	immane	x	x	0.21	0.21	0.33	0.21	x	x		**1**						1

(continued)

		joy	anger	surprise	disgust	fear	sadness	trust	anticipation	Informants A	B	C	D	F	G	I	total
death	***morte***	0.42	0.42	0.4	0.33	0.43	0.57	0.4	0.34			1			1		2
	tragedia	0.46	0.49	0.44	0.37	0.49	0.57	0.41	0.23		1						1
lost	***perdere***	0.39	0.16	0.26	0.21	0.34	0.35	0.42	0.33	1	1	1	1	1	1	1	7
killed	***uccisa/ -o***	0.21	0.28	0.2	0.22	0.31	0.36	0.27	0.24	1	1	1	1	1			5
	(ha causato la sua) ***morte***	0.42	0.42	0.4	0.33	0.43	0.57	0.4	0.34						1		1
failure	***fallimento***	0.39	0.38	0.39	0.32	0.4	0.44	0.53	0.46		1	1	1			1	4
insane	***veloce (-mente)***	0.12	0.14	0.19	0.14	0.19	0.21	0.22	0.12	1							1
	rapide	0.16	0.15	0.32	0.17	0.24	0.22	0.24	0.21		1						1
	grandi	0.42	0.45	0.36	0.31	0.35	0.34	0.44	0.37			1					1
	continuo *(-amente)*	0.15	0.22	0.23	0.27	0.26	0.29	0.22	0.24					1			1
lose	*perdere*	0.29	0.16	0.26	0.21	0.34	0.35	0.42	0.33	1	1	1	1	1	1	1	7
gambling	*(gioco d')* ***azzardo***	0.23	0.28	0.23	0.24	0.27	0.19	0.41	0.35		1	1	1		1	1	5
	(giocare d') ***azzardo***	0.23	0.28	0.23	0.24	0.27	0.19	0.41	0.35	1				1			2
unreliable	***bugia***	0.24	0.22	0.17	0.35	0.36	0.29	0.37	0.29	1							1
	inaffidabile	0.27	0.36	0.17	0.4	0.39	0.31	0.34	0.2		1						1
	non è assolutamente affidabile: ***inaffidabile***	0.27	0.36	0.17	0.4	0.39	0.31	0.34	0.2				1				1
	inaffidabile	0.27	0.36	0.17	0.4	0.39	0.31	0.34	0.2					1			1
gambling	***azzardo***	0.23	0.28	0.23	0.24	0.27	0.19	0.41	0.35	1	1	1	1		1	1	6
bankrupt	***bancarotta***	0.19	0.31	0.23	0.21	0.31	0.26	0.32	0.31	1	1			1	1	1	5
	fallimento	0.39	0.38	0.39	0.32	0.4	0.44	0.53	0.46				1				1
threat	***problema***	0.23	0.32	0.23	0.22	0.4	0.34	0.42	0.24	1							1
	minaccia	0.31	0.57	0.49	0.3	0.61	0.32	0.46	0.45	1		1	1		1		4
	crisi	0.33	0.44	0.36	0.25	0.51	0.43	0.48	0.4					1			1
danger	***minaccia***	0.31	0.57	0.49	0.3	0.61	0.32	0.46	0.45		1		1				2
	rischi	0.27	0.33	0.34	0.2	0.52	0.29	0.5	0.39						1	1	2
cyberattacks	***attacchi***	0.33	0.5	0.47	0.32	0.59	0.3	0.4	0.37	1		1	1	1	1	1	6
stolen	***rubati***	0.18	0.22	0.21	0.17	0.22	0.25	0.27	0.21	1	1	1	1		1	1	6
	persi	0.29	0.16	0.26	0.21	0.34	0.35	0.42	0.33					1			1

(continued)

										Informants							
		joy	anger	surprise	disgust	fear	sadness	trust	anticipation	**A**	**B**	**C**	**D**	**F**	**G**	**I**	**total**
lose	***perde/ perdiamo/ perdere/ perdete***	0.29	0.16	0.26	0.21	0.34	0.35	0.42	0.33	**1**		**1**	**1**		**1**	**1**	5
	perdita	0.45	0.43	0.41	0.36	0.48	0.53	0.54	0.43					**1**			1
blackmails	*hackerati:* ***hacker***	0.25	0.28	0.34	0.23	0.39	0.21	0.28	0.32			**1**	**1**				2
	ricatto	0.27	0.49	0.35	0.33	0.47	0.28	0.45	0.36					**1**			1
illegal	***illegale/ -i***	0.16	0.15	0.17	0.26	0.25	0.25	0.24	0.24	**1**	**1**	**1**	**1**	**1**		**1**	6
	illegalità	0.28	0.37	0.22	0.4	0.38	0.31	0.38	0.26						**1**		1
crime	***crimine/-i***	0.24	0.43	0.24	0.4	0.36	0.37	0.4	0.27	**1**		**1**				**1**	3
	criminalità	0.23	0.19	0.25	0.28	0.41	0.27	0.21	0.27		**1**				**1**		2
	reati	0.15	0.32	0.15	0.21	0.27	0.3	0.34	0.25				**1**				1
	criminale	0.26	0.27	0.15	0.24	0.42	0.25	0.36	0.24					**1**			1
fraud	***frode/-i***	0.18	0.3	0.18	0.21	0.28	0.23	0.33	0.29	**1**	**1**	**1**	**1**		**1**	**1**	6
	fraudolenta	0.19	0.14	0.17	0.24	0.25	0.22	0.29	0.29					**1**			1
dark	***dark***	0.16	0.12	0.13	0.12	0.12	0.14	0.11	0.15	**1**	**1**	**1**	**1**	**1**	**1**		6
criminals	***criminali***	0.22	0.38	0.24	0.24	0.28	0.23	0.33	0.19	**1**	**1**	**1**	**1**		**1**	**1**	6
heroin	***eroina***	0.24	0.31	0.24	0.19	0.25	0.19	0.24	0.22	**1**	**1**	**1**	**1**			**1**	5
weapons	***armi***	0.17	0.23	0.39	0.12	0.29	0.16	0.32	0.19		**1**	**1**	**1**	**1**	**1**	**1**	6
bombs	***bombe***	0.23	0.27	0.4	0.09	0.31	0.18	0.23	0.11	**1**	**1**		**1**	**1**	**1**	**1**	6
rifles	***fucili***	0.18	0.21	0.52	0.13	0.23	0.13	0.18	0.15	**1**		**1**	**1**	**1**			4
	armi *(da fuoco)*	0.17	0.23	0.39	0.12	0.29	0.16	0.32	0.19						**1**		1
knives	***coltelli***	0.19	0.24	0.47	0.13	0.25	0.16	0.19	0.15	**1**	**1**		**1**	**1**		**1**	5
	armi *(contundenti)*	0.17	0.23	0.39	0.12	0.29	0.16	0.32	0.19						**1**		1
explosives	***esplosivi***	0.22	0.22	0.31	0.15	0.32	0.15	0.23	0.2		**1**		**1**	**1**			3
stolen	***false***	0.19	0.27	0.15	0.36	0.34	0.3	0.38	0.18	**1**							1
	rubati	0.18	0.22	0.21	0.17	0.22	0.25	0.27	0.26	**1**			**1**		**1**		3
violent	***violente***	0.3	0.45	0.25	0.39	0.44	0.34	0.33	0.2	**1**	**1**	**1**	**1**				4
	spietati	0.26	0.3	0.16	0.32	0.42	0.43	0.33	0.24							**1**	1
assassins	***assassini***	0.21	0.37	0.22	0.22	0.24	0.24	0.29	0.16	**1**	**1**	**1**	**1**	**1**		**1**	6
criminals	***criminali***	0.22	0.38	0.24	0.24	0.28	0.23	0.33	0.19			**1**	**1**		**1**		3

(continued)

										Informants							
		joy	anger	surprise	disgust	fear	sadness	trust	anticipation	**A**	**B**	**C**	**D**	**F**	**G**	**I**	**total**
addicts	***tossicodipendenti***	0.25	0.33	0.21	0.27	0.29	0.28	0.33	0.25		**1**						1
	spacciatori	0.22	0.3	0.24	0.16	0.24	0.17	0.31	0.18				**1**				1
	narcotrafficanti	0.2	0.16	0.16	0.21	0.19	0.16	0.18	0.15			**1**					1
	(persone) ***dipendenti*** *(dalle droghe)*	0.14	0.17	0.14	0.19	0.23	0.19	0.25	0.19					**1**			1
	drogati	0.24	0.41	0.23	0.21	0.23	0.21	0.3	0.19							**1**	1
corrupt	***corrotti***	0.17	0.24	0.1	0.33	0.38	0.23	0.3	0.2	**1**	**1**		**1**	**1**	**1**	**1**	6
terrorists	***terroristi***	0.21	0.29	0.28	0.16	0.33	0.17	0.27	0.2	**1**	**1**	**1**		**1**	**1**	**1**	6
cruel	***crudeli***	0.23	0.32	0.18	0.42	0.52	0.47	0.33	0.22			**1**					1
	terribili	0.24	0.26	0.37	0.39	0.56	0.45	0.32	0.31					**1**			1
	scopi di distruzione	0.3	0.37	0.3	0.33	0.39	0.33	0.36	0.31							**1**	1
tumour	***tumore***	0.18	0.21	0.21	0.16	0.27	0.19	0.27	0.23	**1**	**1**	**1**		**1**		**1**	5
	cancro	0.22	0.25	0.22	0.2	0.3	0.24	0.31	0.23				**1**				1
	minaccia	0.31	0.57	0.49	0.3	0.61	0.32	0.46	0.45						**1**		1
failure	***fallimento***	0.39	0.38	0.39	0.32	0.4	0.44	0.53	0.46	**1**	**1**	**1**	**1**	**1**	**1**	**1**	7
venom	***veleno***	0.29	0.38	0.27	0.28	0.34	0.29	0.3	0.24	**1**	**1**	**1**	**1**			**1**	5
	insicurezza	0.36	0.49	0.3	0.47	0.64	0.59	0.41	0.31						**1**		1
pest	***problema***	0.23	0.32	0.23	0.22	0.4	0.34	0.42	0.24	**1**							1
	male	0.43	0.48	0.35	0.37	0.43	0.53	0.53	0.32					**1**			1
	peste	0.26	0.28	0.24	0.24	0.36	0.25	0.22	0.24		**1**	**1**	**1**		**1**	**1**	5
										39	40	39	42	38	37	35	