

Emotion-Abstraction Patterns and Cognitive Interventions in a Single Case of Standard Cognitive-Behavioral Therapy

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Abstract. Cognitive-behavioral therapy (CBT) assumes that therapeutic change depends mainly on change of cognitive content, while, from a theoretical viewpoint, other processes are excluded. This study aims to explore standard CBT interventions using a model of therapeutic change that includes both emotional and cognitive processes, i.e., the therapeutic cycle model (TCM; Mergenthaler, 1985; 1996), which describes the processes of therapeutic change in terms of cycles involving both emotional arousal and abstract thinking activation. We classified standard CBT interventions in three main areas: assessing, disputing, and reframing biased beliefs. In 10 individual cognitive therapy sessions with a 30-year-old patient affected by a panic disorder with agoraphobia (PDA), this study aimed to explore whether cognitive interventions are not only related to abstract thinking but also to the emotional activation phases of TCM. Three independent judges assessed the presence of cognitive therapeutic interventions using the Comprehensive Psychotherapeutic Interventions Rating Scale (CPIRS; Trijsburg et al., 2002). A software program measured the TCM cognitive and emotional variables. The measures revealed significant correlations between cognitive therapeutic interventions and phases of abstract thinking activation during the therapeutic process. The results clarified the role of cognitive interventions in the therapeutic process as a useful instrument aimed to increase reality testing.

Keywords: therapeutic cycles, therapeutic moments, single case study, cognitive-behavioral therapy

Standard cognitive-behavioral therapy (CBT) is based on the assumption that there are three key steps in a clinical psychotherapeutic intervention: 1) assessment of dysfunctional cognitive beliefs: a therapeutic intervention aimed at encouraging patients to explicitly cognitively define their negative emotional states in terms of biased beliefs; 2) disputing: an intervention aimed at leading patients to

discuss and critique their dysfunctional beliefs; and 3) reframing: an intervention aimed at helping patients to develop alternative beliefs (Davidson & Davidson, 2007; Dobson, 2013; Emmelkamp, 1993; Lee & Turkel, 2013; Renaud, Dobson, & Drapeau, 2013). Empirical research supports this theory by having shown both the efficacy of CBT protocols in treating mood, anxiety, and eating disorders and the psychopathological role played by cognitive beliefs and processes in emotional disorders (Burns et al., 2013; Haaga, Dyck, & Ernst, 1991; Sethi, 2013; Spielmanns et al., 2013). However, proponents of CBT are in danger of taking for granted that in CBT the therapeutic process only depends on specific cognitive interventions that improve rational, reality-checking thinking (Leahy, 2012). Actually, little is known about the possible role of processes not exclusively focused on cognition within the CBT therapeutic process (Grant, Townend, Mulhern, & Short, 2010). Further research exploring

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components not focused on cognitive processes in CBT and their role in the CBT therapeutic process is required in order to advance understanding of the agents involved in therapeutic change and how they interact with each other.

In order to implement a preliminary exploration of this complex problem, this study aims to explore the role of standard CBT interventions using a model of therapeutic change that is able to describe the interplay between mental states that involve the activation of both abstract thinking and emotional arousal. A process model that could satisfy these requirements is the therapeutic cycle model (TCM; Mergenthaler, 1985; 1996; 2008), which is both a general model of therapeutic change and an operational method for conducting standardized exploration of the processes of change occurring either over the course of psychotherapy or at an individual session. The TCM identifies key moments in the psychotherapeutic process that may be measured in terms of level of emotional activation and/or abstract cognitive reflection (Benelli et al., 2012; Mergenthaler, 1996). According to the theory underpinning this model, a clinically significant moment is characterized by the simultaneous presence of high emotional activation and intense abstract thinking. In other words, key therapeutic change takes place when the patient processes his or her psychological problems in both cognitive and emotional terms, respectively called abstraction (AB) and emotional tone (ET) (Mergenthaler, 1985; 1996; 2008). The possible combinations of these two factors yield four emotion–abstraction patterns (EAP), as follows: relaxing (low ET and low AB), in which patients talk about material that is not manifestly connected to their central symptoms or issues; reflecting (low ET and high AB), in which patients speak using a high degree of abstraction and without intervening emotions; experiencing (high ET and low AB), in which patients find themselves in a state of emotional arousal; and connecting (high ET and high AB), in which patients find emotional access to problematic states and explore them from both an emotional and rational viewpoint.

The sequence of these four EAPs is called a “therapeutic cycle,” and its prevalence in therapy has been found to be positively associated with positive clinical outcomes in treatments of different orientations (Mergenthaler, 1996; 2008). The ideal sequence of a good therapeutic cycle includes relaxing, experiencing, connecting, reflecting, and relaxing again. In this sequence, a problematic situation is narratively recounted, critically examined, and emotionally appraised in a way that allows the connection of everything, leading to both emotional and cognitive insights (Mergenthaler, 1985; 1996; 2008). These cycles represent a particular kind of emotional and cognitive sequence, during which it is reasonable to suppose that much of the prepara-

tory work carried out at other times during the therapy come to fruition (Ribeiro, Ribeiro, Gonçalves, Horvath, & Stiles, 2012).

Previous research has shown that TCM is useful to investigate therapist–patient processes in psychodynamic-oriented therapy (Fontao & Mergenthaler, 2008; Lepper & Mergenthaler, 2008; Lo Verde, Sarracino, & Vigorelli, 2012; Mergenthaler, McCarthy, Mergenthaler, Schneider, & Grenyer, 2011). In addition, Nicolò, Mergenthaler, Pontalti, Semerari, and Catania (2000) and Molinaro (2013) applied TCM to CBT. As is widely known, CBT founding fathers—e.g., Beck (1964) and Clark (1986)—assumed in their clinical and psychopathological models that emotional disorders depend on rational biases of mental activity and that standard CBT interventions work by applying a rational thinking examination of these cognitive biases (Beck, 1964; Clark, 1986), while in a second phase, rational reframing influences emotional change (Beck, 2011). This hypothesis implies that standard CBT interventions may be correlated with a given phase of the TCM model. We hypothesized that cognitive assessment interventions would be significantly correlated to the relaxing TCM phases in which patients recount problematic episodes. Assuming that in the TCM model the reflecting phase approximates rational CBT reframing (Beck, 1964; Clark, 1986) while the connecting phase represents the second emotional/cognitive reframing that makes change stable (Beck, 2011), we hypothesized that cognitive disputing interventions are significantly correlated with the reflecting TCM phase in which the patient critically examines his or her problems mainly using intellectual reality testing. We also hypothesized that cognitive reframing is correlated with the connecting TCM phase in which the patient is able to use both cognitive and emotional processing. We had no specific hypotheses about the experiencing TCM phase, although it is plausible to hypothesize that the emotional involvement aroused by cognitive disputing could also relate this intervention to the expiring phase of TCM.

Method

Sample and Treatment

For this study, we examined the transcripts of the first 10 sessions of a standard course of CBT of G. R., a 30-year-old Italian male affected from adolescence by a panic disorder with agoraphobia (PDA), as defined by the DSM-IV (American Psychiatric Association, 2000). Clark’s standard CBT protocol for PDA has been shown to be highly effective with 70–80% of patients remaining panic-free at the 12-month follow-up (Clark et al., 1994; Clark et al., 1999). Therefore, PDA requires a strict implementation of a CBT

protocol and allowed us to use TCM to explore a highly standardized form of CBT.

Clark's standard CBT protocol for PDA includes 12 sessions. However, the good compliance and response of the client allowed the psychotherapist to implement the protocol in 10 sessions. Given that the psychotherapist applied the protocol from the beginning of the therapy, the first 10 sessions were totally focused on standard CBT treatment of PDA.

The psychotherapist carried out the diagnosis using the Italian version of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; Mazzi Morosini, De Girolamo, Bussetti, & Guaraldi, 2000; First, Spitzer, Gibbon, & Williams, 1997). A psychotherapist trained in cognitive therapy conducted the diagnostic interviews and applied Clark's CBT protocol for PDA (Clark, 1986). The therapist was 45 years old and had 15 years of clinical experience in CBT.

The diagnostic process revealed that G. R. had suffered two full panic episodes when he was 18 years old, at the beginning of his university studies. In the following years, he developed many avoidant behaviors in relation to traveling alone. In particular, he avoided using the car and subway alone in order to prevent a panic episode. Consequently, the current and exact diagnosis was agoraphobia with a history of past episodes of panic.

The therapy started in October 2008 and lasted about one-and-a-half years. The first 10 once-a-week sessions were focused on the implementation of the abovementioned Clark's standard CBT protocol for PDA (Clark, 1986). The client asked to attempt the therapy without using antidepressants. Given the condition of the client, the therapist (who is also a psychiatrist) agreed, although he reserved the right to suggest antidepressants in the absence of any clinical change. The client had no previous treatment.

Clark's standard CBT protocol for PDA included the assessment, disputation, and reframing of the underlying cognition as well as active encouragement toward behavior exposure to use transport unaccompanied (Clark et al., 1994; Clark et al., 1999). After the implementation of Clark's standard CBT protocol for PDA in the first 18 sessions, the therapy continued in a looser way, in which the therapist and the client treated more existential and general issues such as future projects, affective life satisfaction, and personal achievements. Given the extensive use of standard CBT techniques during the first phase of the therapy and the shared goal of the client and the therapist to implement standard CBT, we considered the first 10 sessions as a good case study for research on CBT interventions.

The therapist evaluated the symptoms again in January 2009 using SCID-1. Although still apparent, the agoraphobia was subclinical given that the criteria were insufficient for a full diagnosis. Specifically, the avoidant behaviors criterion was absent.

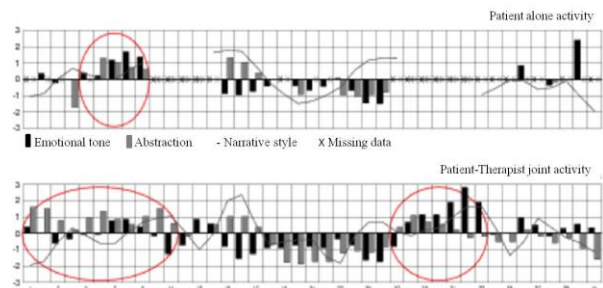


Figure 1. Graphic Representation of Sequences of EAPs in Session 1.

X = WB sequence; Y = standardized ET and AB activation values.

Instruments and Measures

We used cycle model software (CM) to apply the TCM to the transcripts of the psychotherapy sessions (Mergenthaler, 1998; 2003). In February 2010, during a two-day stay at Ulm University, Germany, the first author was trained by the TCM research team and received the Italian version software used in previous studies (Lo Verde, Sarracino, & Vigorelli, 2012; Mergenthaler & Gelo, 2007; Nicolò, Mergenthaler, Pontalti, Semerari, & Catania, 2000; Molinaro, 2013).

We calculated TCM values for all of the transcripts, which means that we explored the therapist-client dyad as a whole rather than focusing on either the client or on the therapist, given that we aimed to explore CBT interventions that intrinsically entail both the therapist's activating initiatives and the client's responses. In order to prepare the data for computer-assisted analysis via the CM, we divided session transcripts into units of analysis consisting of word blocks (WB) of at least 150 words. We defined the units of analysis solely on the basis of length without taking into account the content of the segments of text.

The CM uses word lists (Mergenthaler, 1998; 2003) that are organized in terms of the thematic categories of ET and AB. The CM analyzes the texts by measuring the frequency of occurrence of each of the words listed in its dictionaries for each WB. The software then generates a graphic representation of the psychotherapy sessions from which researchers may identify the mentioned EAPs and therapeutic cycles (Fig. 1). EAPs were a combination of z-scores of ET and AB. We set the following thresholds: (a) relaxing: $z(ET) \leq 0$, $z(AB) \leq 0$; (b) reflecting: $(ET) \leq 0$, $z(AB) > 0$; (c) experiencing: $z(ET) > 0$, $z(AB) \leq 0$; and (d) connecting: $z(ET) > 0$, $z(AB) > 0$ (Gelo & Mergenthaler, 2012).

In addition, the software provides quantitative measures of the levels of ET and AB to be used in further statistical analysis. In turn, these levels can be analyzed in terms of average scores that can be correlated with the type of CBT intervention.

We used the Comprehensive Psychotherapeutic Interventions Rating Scale (CPIRS; Trijsburg et al., 2002) to provide a standardized evaluation of the

cognitive interventions that took place during the sessions. The CPIRS is an evaluation scale used to measure the prevalence of interventions in psychotherapy using a presence/absence dichotomous scale (Trijsburg et al., 2002). The scale includes descriptors of 76 types of psychotherapeutic intervention. The scale allows the assessment of interventions used in different forms of therapy, including CBT. We only used the 13 items in the cognitive therapy section of the CPIRS. Furthermore, we collapsed the 13 cognitive interventions identified by the CPIRS into three main categories: assessment, disputing, and reframing. Thus our assessment category comprised the following CPIRS items, all focused on the detection and exploration of cognitive contents: recognizing cognitive themes (item 31); recognizing the relationship between thoughts and feelings (item 32); recording and reporting cognitions (item 33); exploring personal meanings of thoughts (item 34); recognizing cognitive errors and biases (item 35); and identifying underlying cognitive assumptions (item 36). Our disputing category comprised the following CPIRS items, all focused on the work of critical analysis of the cognitive contents: distancing from beliefs (item 37); examining available evidence (item 38); prospective testing of beliefs (item 39); and realistic consequences (item 41). Our reframing category comprised the following CPIRS items, all focused on the work of elaboration and implementation of new and more functional cognitive contents: searching for alternative explanations (item 40); adaptive/functional value of beliefs (item 42); and practicing rational responses (item 43).

The inter-rater reliability (calculated between three independent judges and via joint probability of agreement) for each intervention was 0.88 (assessment), 0.76 (disputing), and 0.83 (reframing).

Procedures

First, the three abovementioned independent judges classified the interventions that took place during the sessions into the three categories derived from the CPIRS of cognitive intervention outlined above: assessment, disputing, and reframing. Each of the three judges implemented this nominal coding of the sessions separately. We also analyzed the 10 sessions using CM software to evaluate whether each of the WBs was a therapeutic (part of a therapeutic cycle) or non-therapeutic (not part of a therapeutic cycle) moment and to identify the EAPs present in the transcripts.

Data Analyses

We analyzed the data using logistic regression and chi-square analysis. We implemented logistic regression to assess whether the association between the quantitative values of the therapist–client dyad EAPs (inde-

pendent variable) and the absence/presence of each of the three CBT interventions (dependent variable) was significant.

We implemented chi-square analysis to assess whether there were significant differences in the occurrence of therapeutic interventions between the therapeutic and non-therapeutic WBs of the session transcripts.

Given that TCM is able to analyze the cognitive-emotional modalities of both patient-only and patient–therapist activity, we chose to implement two sets of analyses: one on patient-only activity and the other on the joint activity of patient and therapist.

Results

Patient-Only Activity

The CM program classified 246 WBs as falling outside the therapeutic cycles (for brevity, non-therapeutic WBs) and 76 WBs as forming part of the therapeutic cycles (for brevity, therapeutic WBs). Cognitive assessments occurred significantly more frequently within therapeutic WBs than within non-therapeutic WBs (Fig. 2). In fact, 53.9% of the therapeutic WBs contained cognitive assessments versus 26.4% of the non-therapeutic WBs ($\chi^2 = 19.920$; $p < .001$).

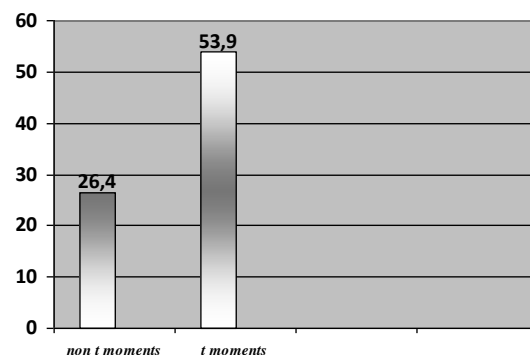


Figure 2. Occurrence of Cognitive Assessment Interventions During Patient-Only Non-Therapeutic WBs and Therapeutic WBs.

In contrast, interventions involving the disputing of existing beliefs and the reframing of alternatives were equally distributed across therapeutic and non-therapeutic segments and in any case were relatively infrequent. Specifically, disputing was present in 7.9% of therapeutic WBs and in 8.5% of non-therapeutic WBs, while reframing was present in 2.6% of therapeutic WBs and in 5.7% of non-therapeutic WBs. Neither of these differences was statistically significant ($\chi^2 = .970$; $p > .05$; $\chi^2 = .117$; $p > .05$).

In addition, logistic regression revealed that the patient's cognitive assessment activity predicted higher prevalence of phases of reflecting of the

EAPs [OD = 1.123; CI = 95% p < .001].

Patient–Therapist Joint Activity

The CM program classified 173 WBs as falling outside of the therapeutic cycles and 149 WBs as falling within the therapeutic cycles. Cognitive assessments featured in 34.7% of non-therapeutic WBs and 38.3% of therapeutic WBs; challenges to existing beliefs took place in 34.7% of non-therapeutic WBs and 38.3% of therapeutic WBs. None of these differences were statistically significant ($\chi^2 = 2.585$; $p > .05$; $\chi^2 = 1.913$; $p > .05$).

In contrast, there was a significant difference regarding the occurrence of the reframing of cognitive alternative interventions. In fact, these interventions featured slightly more frequently in therapeutic WBs than in non-therapeutic WBs (Fig. 3). Specifically, 21.5% of the therapeutic WBs contained instances of reframing as opposed to 13.9% of non-therapeutic WBs; this difference was moderately significant ($\chi^2 = 3.222$; $p < .05$).

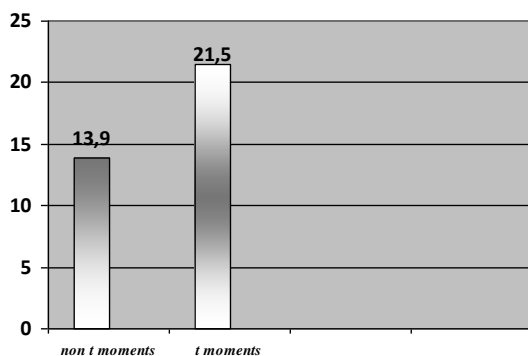


Figure 3. Occurrence of Reframing of Alternative Interventions During Joint Patient–Therapist Non–Therapeutic WBs and Therapeutic WBs.

Logistic regression revealed that joint patient–therapist disputing interventions significantly predicted phases of experiencing of EAPs [OD = 1.345; CI = 95%; $p < .05$], as did reframing interventions [OD = 1.811; CI = 95%; $p < .05$].

Summary of Results

In patient-only activity, cognitive assessment interventions were significantly more present in therapeutic WBs and were significantly associated with the prevalence of reflecting phases of EAPs. In joint patient–therapist activity, cognitive reframing interventions were significantly more present in therapeutic WBs and were significantly correlated with phases of experiencing of EAPs. There was another significant correlation between cognitive disputing interventions and phases of experiencing of EAPs in joint patient–therapist activity.

Discussion

The CBT psychopathological model assumes that emotional disorders are related to cognitive biases that can be uttered in a reflective and self-defining language (Beck, 1964, 2011; Clark, 1986). The aim of this paper was to test the hypothesis that CBT disputing interventions can significantly predict the reflecting TCM phase in which the patient critically examines his or her problems mainly using intellectual reality testing, while cognitive reframing predicts the connecting TCM phase in which the patient is able to use both cognitive and emotional processing.

Our findings regarding cognitive assessment intervention could be interpreted as a confirmation that the process of the elicitation of irrational beliefs, at least on the part of the patient only, is related to a high abstract and low emotional lexicon and reflective EAPs, and, consequently, it is plausible to implement activating mental functions related to abstract cognition. These results are also confirmed by another research study that used both CPIRS and TCM and found similar results. In fact, Molinaro (2013) found that “cognitive interventions that are primarily related to the analysis of the patient’s thoughts and their relationship with the affective experience, are positively associated with high levels of Abstraction, Emotional Tone, and positive Emotional Tone in the patient’s response” (p. 99).

It is interesting to stress that this cognitive activation is solely observable in patient-only activity. We interpreted this result by proposing that patient–therapist joint activity entails interpersonal aspects that are emotionally laden and, consequently, not related to cognitive and abstract interventions.

The most clinically significant differences between joint patient–therapist activity and patient-only activity were that in the joint activity the reframing of cognitive alternatives was associated with therapeutic WBs, while in patient-only activity cognitive assessments were associated with therapeutic WBs. Disputing was balanced between therapeutic WBs and non-therapeutic WBs. This seems to suggest that cognitive assessment is an activity that is therapeutic when observed in the patient alone, probably corresponding to an activity of self-awareness and reflection, while the therapeutic component of reframing is typically a joint activity of the therapist and patient together.

Cognitive disputing and reframing are related to the experiencing phases of EAPs and to patient–therapist joint activation. This suggests that these interventions are more related to an emotional and interpersonal activation (Gelo & Mergenthaler, 2012; Voutilanen, 2012) and that cognitive disputing and reframing would imply not only abstract reflection, but also emotional arousal. In fact, ab-

stract reflection alone is plausibly a fallacious strategy to solve problems and difficulties, given that in figuring out strategies to overcome negative events people need to use not only verbal and abstract thought but must also use visual imagery (Schonpflug, 1989). Patients affected by emotional disorders, including PDA, tend to perceive emotional activation as difficult to manage because it stimulates negative emotions and somatic anxiety. Thus, people affected by an intolerance toward negative emotions, such as anxiety disorder subjects and PAD individuals, tend to use abstract thinking to suppress the emotional features of panic and anxiety (Borkovec, 1994). In other words, cognitive elaboration without emotional activation would not allow the patient to access the emotional experiences needed for successful habituation and extinction. A negative reinforcement spiral ensues with the experience of worry because worry replaces the aversive and fearful images with less disturbing, less somatically activating verbal linguistic activity. Thus, while abstract thinking alone may be similar to a sort of cognitive avoidance strategy, a good therapeutic change adds emotional and interpersonal engagement to reflective cognition. Also, this result parallels the similar work of Molinaro (2013), who found that cognitive interventions are associated with the integrated connecting pattern of TCM.

In conclusion, the paper suggests that in standard CBT, pure cognitive interventions are not the only present and working therapeutic mechanisms. The therapeutic process is a complex event involving cognitive, emotional, experiential, and interpersonal elements. In this sense, we may conclude that pure cognitive interventions are not the sole therapeutic moments but represent outcomes from the ongoing therapeutic process: a sort of reaping of the benefits (Lepper & Mergenthaler, 2007; 2008). At such moments, patients enhance insight abilities that enable them to cope with problematic situations, in both emotional and cognitive terms (Paris, 2010; Schauenburg, Schussler, & Leibing, 1991).

Limitations

In order to simplify the analyses in this study, we chose to use the TCM, only selecting WBs of 150 words, regardless of content. This is a clear limitation of the study. In the future, it would be preferable to replicate the study by extending the therapeutic phases identified by the TCM model beyond a single block.

We only focused on the first 10 psychotherapy sessions that the therapist implemented according to Clark's standard CBT protocol for PDA (Clark et al., 1994; Clark et al., 1999). In the future, it would be intriguing to explore the subsequent and less symptom-focused phases of the treatment.

Clearly, a limitation of this research is the fact

that it only examined the cognitive psychotherapy sessions of a single case. Single case studies have their strengths and limitations: they can help us understand complex inter-relationships, show the processes involved in causal relationships, and facilitate rich conceptual/theoretical development (Hodkinson & Hodkinson, 2001a). On the other hand, their abundant data are not suited for readily understandable analysis and their results are not generalizable, at least not in the conventional sense (Hodkinson & Hodkinson, 2001b). However, they can be transposed beyond the original sites of study and can corroborate provisional hypotheses and truths (Hodkinson & Hodkinson, 2001a).

On the basis of the preliminary data obtained in this study, follow-up research could usefully be conducted by examining samples of CBT therapies to analyze the cognitive interventions present before the onset of a therapeutic cycle—as defined by the CM—to identify the types of cognitive interventions that may promote the occurrence of, and facilitate access to, therapeutic cycles.

Of course, the strength of the findings about the non-cognitive components of CBT is questionable. The TCM cannot exhaustively account for the complexity occurring in the therapeutic process under examination. For example, TCM considers emotion only at the lexical level, while it overlooks prosodic and nonverbal emotive realizations.

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doi: 10.1093/acprof:oso/9780199730735.003.0011

Submitted April 10, 2013

Revision accepted December 13, 2014

Accepted March 28, 2015