



## MAPPING MELODIC CONTOURS ON TAIJI DIAGRAM: TAIJIQUAN PHYSICAL AND PHILOSOPHICAL PERSPECTIVES IN ACTION

**Loo Fung Ying**

*Department of Music, Cultural Centre, University of Malaya, Kuala Lumpur, Malaysia.*

**Loo Fung Chiat**

*Department of Music, Universiti Putra Malaysia, UPM Serdang, Selangor. Malaysia.*

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### ABSTRACT

*Some authors present in their work general association between classic Chinese philosophies such as the theory of yin and yang, Taiji and Dao and their relevance in music. This study takes this step further in selecting one of the Chinese internal martial arts, taijiquan, a physical exercise that reflects the teaching of yin and yang as a foundation to explore its possible application to piano playing. This article highlights a new mind-body concept in phrasing and melodic contour analysis in piano playing by looking at the philosophy and movement of taijiquan. More precisely, the concept of yin and yang, and how that principle works in the enactment of melodic contour, will be discussed. Methods include employing a taiji diagram in delivering an analysis of melodic contour. The question of relating the diagram as a mind-map to actual audio-physical perspectives in piano playing will be considered.*

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**Keywords:** Taiji diagram, Taijiquan, Yin and yang, Melodic contour, Phrasing.

### INTRODUCTION

The philosophy of *taiji* and its theory of *yin* and *yang* has a history approximately 5000 years long. This ancient Chinese theory is believed to originate from the legendary emperor Fu Xi (2953-2838 BC) who designed the 64 hexagrams called *The Book of Changes (Yijing)* as a practice of divination; but the exact date and origin of the book is not known (Lee, 1970). *Taiji* is a philosophy that is structured and based on cosmic process (*ibid.*). Ni (1999) relates the teaching of *yin* and *yang* as a law of nature and humanity. *Taijiquan*, or *taiji* boxing, involves meditation and breathing with movement exercises based on the *yin* and *yang* theory. In the West health study in particular shows a growing interest in research in *taijiquan*. For example, the National Centre for Complimentary and Alternative Medicine (NCCAM) and Harvard Medical School Osher Research

Centre has carried out extensive research on *taijiquan* as a medical alternative. The application of *taijiquan* is widespread with studies of *taijiquan* and its effects in patients with chronic conditions (Wang *et al.*, 2004), tension type headaches (Abbott *et al.*, 2007), blood pressure (Yeh *et al.*, 2008), and osteopenic women (Wayne *et al.*, 2010) to name but a few; and such interdisciplinary research continues to grow.

In education study, researchers such as Hart (2004) and Chano (2012) investigate other means of learning such as employing the concept of contemplation where meditation is one of its strategies. In music, some authors have discovered possible linkage and similarities looking at the philosophy of *yin* and *yang* by referring to the principles of *Dao*.<sup>1</sup> Zhao (1999) in his book *The Dao of Piano Playing* looks into the philosophical perspectives in relation to the concept of piano playing; John M. Ortiz (1997) relates Daoism and music in the use of self-therapy; Stephen Cheng (1991) looks into an East-West approach in improving singing and speaking voice while Catherine David (1996), a French journalist and author, made analogies between the visual presentation of piano playing and *taijiquan* through her observation in both arts.

Loo (2010) and (Loo and Loo, 2012) looks into the philosophical connection between piano playing and *taijiquan*. In addition, Loo and Loo (2011) studied the relaxation technique in *taijiquan* in application to piano playing. Loo and Loo (2013) on the other hand examines *qi* flow in piano playing. However, there has yet to be any study looking at actually applying the philosophy of *Taiji* to phrasing in piano playing, in which a significant medium of study should be the diagram of *taijiquan* that is based on the principles of *yin* and *yang*.

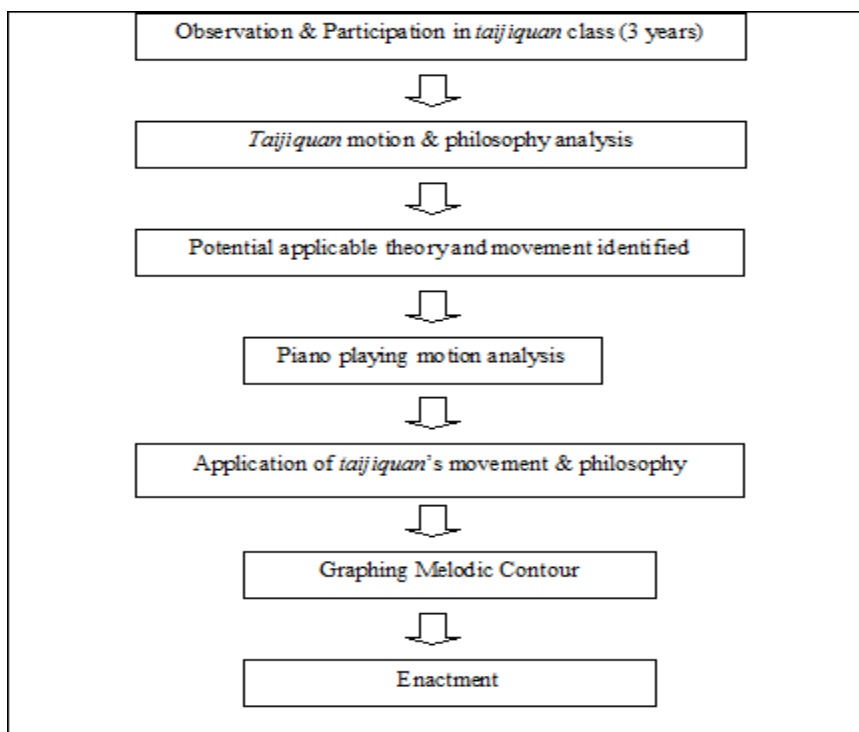
The present study is divided into a few key stages (see Fig. 1). The first step is to study the internal martial art itself. The practice of *taijiquan* involves simultaneous study of its philosophy and its movement. This is because all *taijiquan* movements are based on the philosophy of *taiji*. The second stage is identifying the various theories and movement of *taijiquan* that are applicable to piano playing.

At the same time, piano playing movement is analysed. The last stage is the outcome of synthesised theory from *taijiquan* applied to the mind-body connection in piano playing. In this particular article, the focus is enactment of phrasing according to melodic contour (see Fig. 1). The importance of the *yin* and *yang* theory lies in its key focus of attaining ‘naturalness’ and ‘balance’ derived from constant changes (Bennett, 1978). This will be the focal point of this paper, discussing three aspects: an analytical framework of melodic contour based on the *taiji* diagram, enactment, and its audio perspective.

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<sup>1</sup> ‘The Path’ or ‘The Way’ is a Chinese philosophy accredited to Lao Zi. The *yin* and *yang* principles explain and govern facts of life, where every matter has its cause and effect according to the law of nature.

Figure-1. Study Chart



## TAIJIQUAN THEORY AND MOVEMENT

In *taijiquan*'s enactment, the transition from one movement to another, or the execution of a series of movement is continuous and smooth due to circular movements (see (Kan and Lam, 1992). Circular movement in *taijiquan* is termed as 'silk-reeling' technique, referring to the silkworm's cocoon. The attainment of continuity in movement is called *li duan yi bu duan* (力断意不断), translated as 'a halt in force but not in the intention,' meaning mental intent and awareness is continuous even at the release muscular contraction.

Four factors contribute to the attainment of *li duan yi bu duan*: 1) circular movement, 2) mental intent, 3) comprehension of the *yin* and *yang* in movement and 4) balancing between the *yin* and *yang*. In the course of our practice in *taijiquan*, we found these factors to be remarkably applicable to phrasing continuity and connecting phrases in music. However, before going deeper into the context, more details of *taijiquan*'s movement principles should be made clearer.

In our observation and participation in *taijiquan*, circular movement is found to be one of the core factors that allow the attainment of smooth interchange between the *yin* and *yang* without stagnation, thereby delivering continuity. The principle is well illustrated in the *taiji* diagram. Studying the diagram (see Fig. 2), the general principle of solidity and emptiness should first be

identified referring to the *yin* (black entity) and the *yang* (white entity).<sup>2</sup> Two aspects of the *yin* and *yang* rotations that later on will be referred in its application to melodic contour are:

- the *yin* rotation begins in solidity and then moves gradually to emptiness
- the *yang* rotation begins in emptiness and then moves gradually to solidity

Looking deeper into the philosophy, solidity and emptiness is governed by the notion of '*in yang there is yin; in yin there is yang.*' The concept states that in the occasion of *yang* there is always a small portion of *yin* and vice versa for the *yin* entity. This is symbolised in the *taiji* diagram where the portion coloured white representing the *yang* encloses a smaller black circle of the *yin* and vice versa. The diagram denotes that extremity is avoided.

Applying this philosophy in action is to look at the state where no relaxation is of complete passivity and no muscular contraction is of complete activity. How is this achieved? By following the theory of '*in yang there is yin,*' muscular contraction (*yang*) should not be in its extreme maximum form that causes stiffness; at the same time, a smaller degree of relaxation (*yin*) should be present, or more appropriately, it means the presence of flexibility. On the other hand, in the rule of '*in yin there is yang,*' the stage of relaxation (*yin*) should consist of a smaller amount of alertness and muscular readiness (*yang*), and should not be in the form of total release of muscular contraction that results in sloppiness.

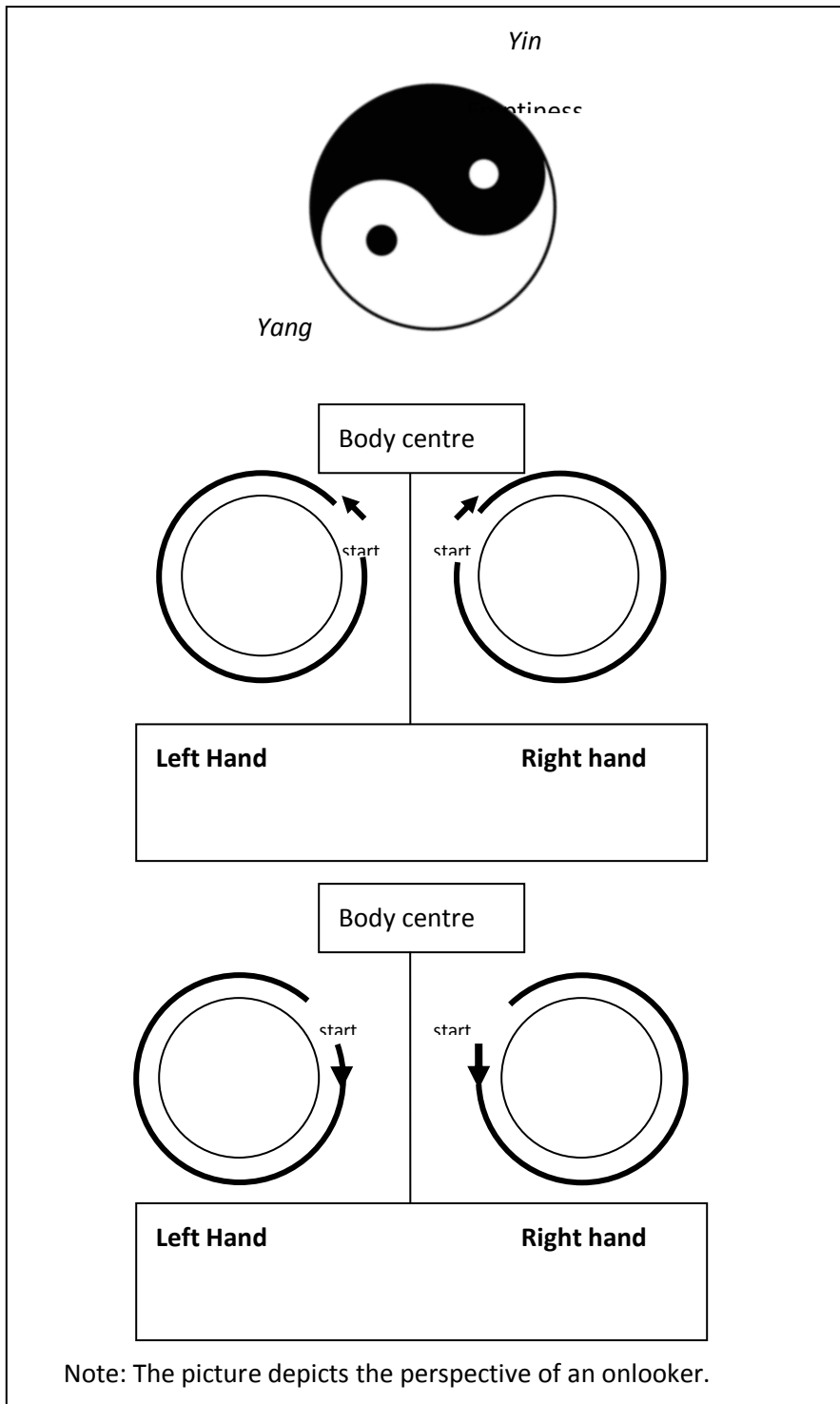
The above are the factors observed and studied in order to attain smoothness and pliancy in motion in which we found potential for a new vocabulary in a piano pedagogical sense. While practising the *yin* and *yang* rotation by using the left or right hand, or both hands (usually performing the opposite where if one is in solidity and the other hand will be in emptiness), an experienced practitioner will demonstrate pliancy and smoothness of the circular motion. On the other hand, we observed that inexperienced practitioners who do not comply to the principle of *yin* and *yang* often deliver awkward circles without continuity where limbs usually looked floppy. Smoothness and pliancy is attainable only when there is no stagnation: when force (solidity) is carried out without stiffness while a release of muscular contraction (emptiness) does not result in sloppiness.

Employing this theory and then going on to apply it to piano playing in terms of phrasing involves three stages: 1) Creating a visual mind-map of the melodic contour based on the *taiji* diagram, 2) Relating *taiji* as a philosophical guide in exploring muscular contraction and release and 3) Executing dynamic and directional change for the purpose of phrase shaping.

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<sup>2</sup> Here 'solidity' and 'emptiness' refer to muscular contraction and release.

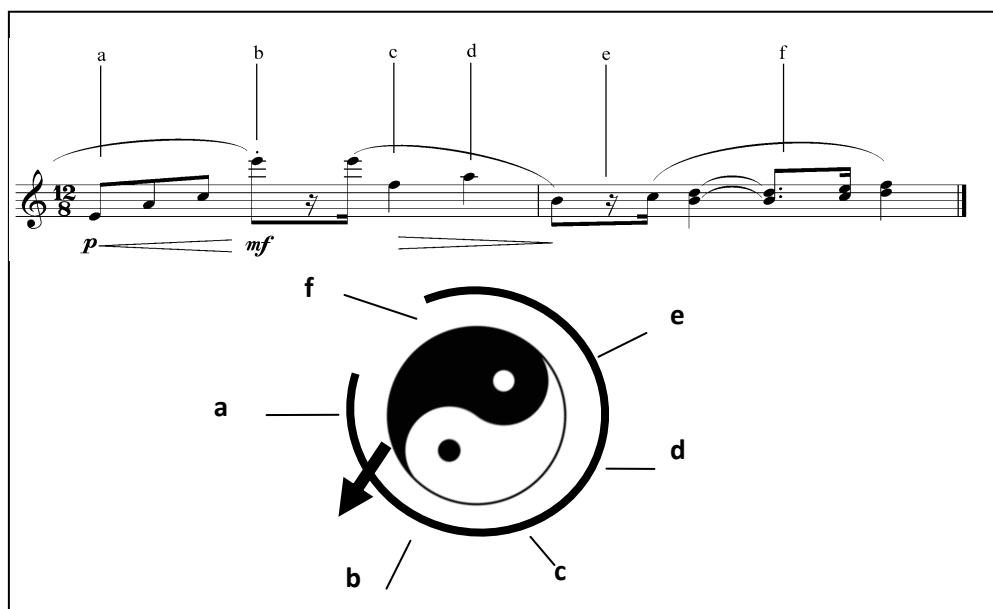
**Figure-2.** Yang and yin rotations



## ANALYSIS AND DISCUSSION

As a synthesis of our findings, below are two musical excerpts as examples to show the outcome of this study. A variety of direction is derived from the basic *yin* and *yang* circles. As for application, we derive what we call ‘circular imagery’ in phrase shaping. In both examples, the melodic contour is divided into sections and is labelled so that the corresponding section of the *taiji* diagram below it can be identified. The direction of the circle on the outer rim of the *taiji* diagram denotes which form of circle is chosen. By using the *yin* and *yang* theory the melodic contour is identified, whether in a state of solidity or emptiness, which in a physiological sense refers to muscular contraction and release. Analysis of the progression of movement shows changes from one state to the other between the *yin* and *yang* entities. The first example is the application of a *yin* circle (refer to Fig. 2) as a suggested mind-map for melodic contour analysis and phrasing. Approaching this graph involves three steps: 1) comprehension of the symbolic representation of the chosen melodic contour, 2) physical experience of the *taijiquan* circle, and 3) mind-body process in action (executing the phrase on the piano). Looking at the graph, the phrase is labelled as starting from ‘a’ to ‘f’ in accordance with the *taiji* diagram (see Fig. 3). In this example, the *yin* is chosen based on the dynamic markings progressing from a smaller temporal fragment in emptiness to solidity. As the dynamic decrease, the melodic contour from ‘d’ to ‘f’ following the *taiji* diagram returns to emptiness.

**Figure-3.** Single yin rotation: Prokofiev’s Piano Sonata no.3 Op.28 (bar 16-7)



To approach the physicality of the *taijiquan* circle as a second step, and to realize the same effect of enactment and its force and release in the above melodic fragment, executing the *yin* circle of

*taijiquan* may be ideal. A step by step guide would be: by using the right hand in executing a *taijiquan yin* circle that moves outwards from the lower part of the body centre, and gradually arriving at the top (in front of the eyes) and return to the starting point of the circle. This should be done with the centre of the body as an axis. More precisely, movements in *taijiquan* originate from the centre to the periphery. This is a similar idea to that stressed by piano pedagogue Abby Whiteside (1961). Such practice results in a linkage of the whole body in action where the body centre becomes an axis. Nevertheless, it is emphasized in *taijiquan* where by doing the opposite is considered as faulty in all *taijiquan* movement. Therefore, hand movements should not be done independently but, with involvement of the whole body.<sup>3</sup> A pianist if inexperienced in *taijiquan* can practise the circle a few times by referring to the diagram in Fig. 2. In addition, a beginner should try to imagine the centripetal force created by circular motion such as that of a roller coaster ride. In other words, the movement should be governed by a frame of reference, which is the orbit of the circle. The circular motion is acted on an axis, which in *taijiquan* belongs to the waist as the core controller of motion (Loo, in press). Velocity should then go naturally with force generation and release that is held by the axis and following the rules of *li duan yi bu duan*. In other words, even when the hand reaches at the higher end of the circle in emptiness, it should not be completely relaxed, but governed by the rule of ‘*in yin there is yang*.’

To describe the formation of the above melodic contour in accordance with a *taiji* graphic would be to emphasise that the model is entailed by and subsumed under the dichotomy of *yin* and *yang*. Therefore, three results emerge that in following the graph in enactment and the comprehension of *yin* and *yang* refers to:

- Relaxation and force (physical)
- Emptiness and solidity (mind-body connection)
- Decrescendo and crescendo (audio)

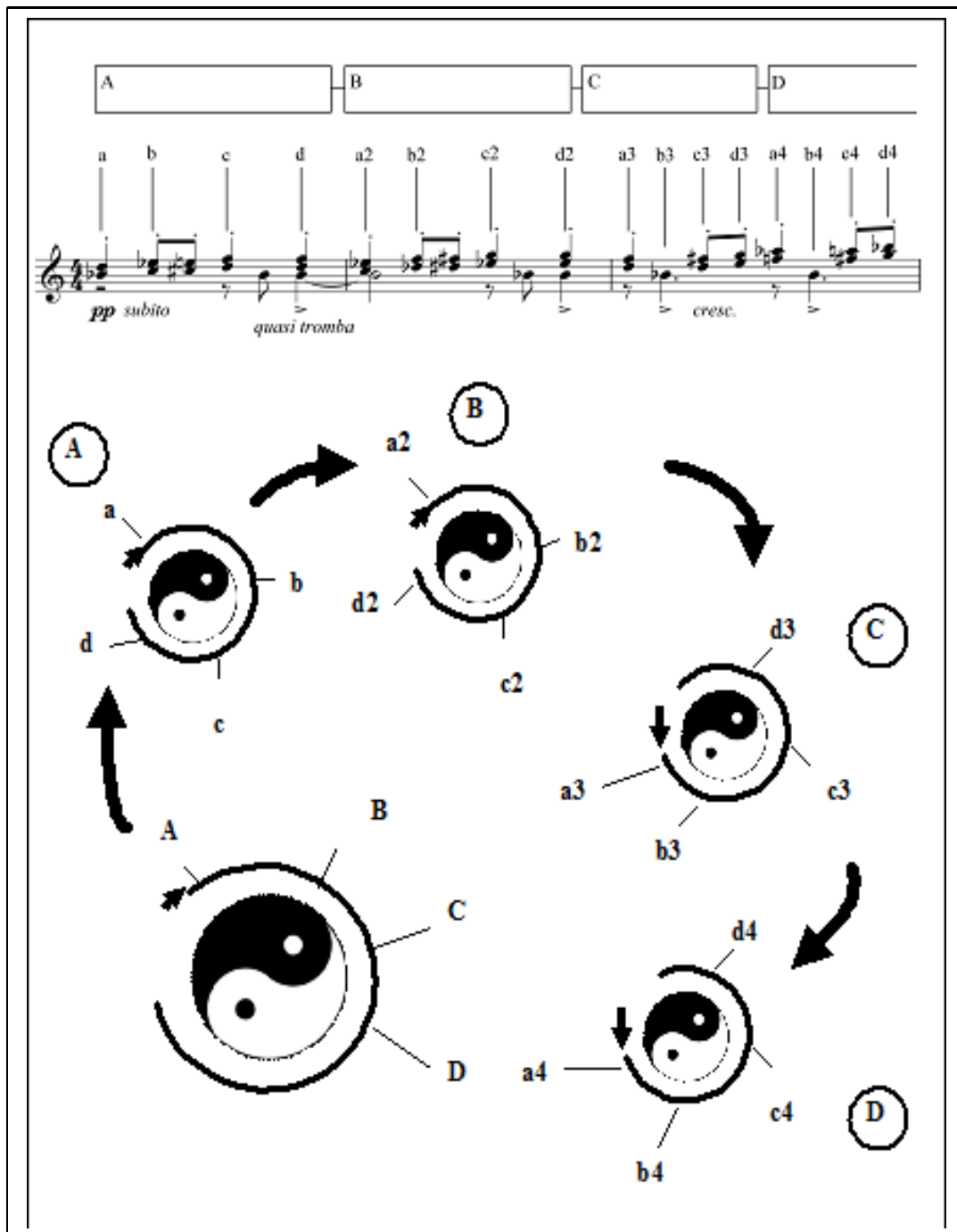
Thus, looking back at Fig. 3, enactment of the melodic phrase should consist in identifying the contour and its placement in *yin* and *yang*, then going on to applying movement that abides by the rules of *taiji* philosophy. The results should be a smooth change of force and release and the phenomenon is found to reflect the example of the centripetal force created by a roller coaster ride, except that space and speed is controlled accordingly. To give another example of a more complex form of melodic contour, the next excerpt shows the building of a longer phrase with a number of smaller contours within a bigger *taiji* diagram. This is symbolised by a few *taiji* diagrams over a larger one. Figure 4 presents the case of a division of a few shorter melodic contours within a longer one. In addition, directional change after two *yang* rotations is present. The larger *taiji* diagram is labelled with capital letters to represent the intended direction of the phrase. However, within the phrase itself, there are changes between solidity and emptiness in the physicality of force deliverance, divided to sections A, B, C, and D. Therefore, the phrase is subdivided into four smaller *taiji* diagrams that begin with two *yang* circles followed by two *yin* circles, showing the

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<sup>3</sup> In *taijiquan* the concept is call *yi dong wu you bu dong* (when one entity moves, everything else moves together) referring to total body involvement in movement (see Loo, in press).

changes of solidity and emptiness at each juncture of the phrase. In addition, to represent continuity, a melodic contour builds upon the *yin* and *yang* circles should be imagined as a continuous curvy line (see Fig. 5).

**Figure-4.** Finer division including directional changes in rotation: Excerpt from Prokofiev's Piano Sonata no.3 Op.28 (bars 211-13)





**Figure-5.** Continuous circular line: Excerpt from Prokofiev's Piano Sonata no.3 Op.28 (bars 211-14)

Figure 5 illustrates the changes from solidity to emptiness and vice versa in smaller and bigger dynamic scales. The *crescendo* and *decrescendo* with the ascending and descending contour of each smaller-to-bigger melodic fragment is labelled by the curve. The *taiji* diagram in this figure symbolises the direction of building the dynamic from the *yin* to the *yang* portion.

## CONCLUSION

The above excerpts with the *taiji* diagram illustrate how *taijiquan* rotation can also be used as a vehicle for phrasing besides employing it as a physiological technique of movement. Moreover, from the above exploration, visualising the curved shape that characterizes the spiral technique of silk-reeling force also helps to develop a sense of continuity in movement. Gu (2006) mentions that most other martial arts consist of vertical and horizontal movement whereas *taijiquan*'s silk-reeling technique delivers round, attached and continual curved motion. The characteristic of attachment developed through the spiral technique assists not only in providing awareness of a circular continuity, but also helps to develop a sense of flow from the whole body to the fingertips in piano playing.

What Gu mentioned as attachment is identical to the axis in a centripetal force. Making an analogy with physics, an imagery axis (waist or inner body) and an orbit as the frame of reference, together with a visualization of the momentum and inertia, can be used to visualize the force and relaxation while executing circular motion as a mental guide for phrasing. Awareness of and sensitivity towards the application of force and release is also increased by involving the whole body in action during piano playing.

To summarize, *taijiquan*'s circular movement can be viewed as a concept that is inextricably linked to both psychological and physiological concerns. The study has complexified the simple binary of the *yin* and *yang* as a method in application to melodic contour analysis. The circular contour somehow provides an impetus in the enactment of a linear melodic line. However, all melodic shape in this method will be pre-determined as circular so as to conform to the rounded shape of the *taiji* diagram. This may be questionable given the malleability of melodic styles. It is of course difficult to generalize about the extent to which melodic type or style the *taiji* melodic graph is applicable, however, the above study shows basic applicatory methods of thoughts in terms of mind-body connection, enactment, and philosophical thought in phrasing which may present as a new vocabulary in a piano pedagogical sense.

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