The *ito* element
Unravelling the thread in kanji

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Abstract

This paper is the first exhaustive investigation of a single kanji component: the *ito* element. Although, this element generally refers to thread or textile, the study examined this relationship and found a strong relationship to silk, cocoons, and craft—particularly weaving. A surprising find was the connection to *dyeing/colour*, which might not be obvious to the average student of Japanese. Moreover, the *ito* element was investigated to reveal further secondary meanings. What emerged were the subcategories *time* and *tangle/unravel,* with the associated sense *emotional entanglement*. The findings of the study hope to inspire future research in the field of kanji components; creating new connections, links, ties and bonds.

Keywords: Japanese, kanji, radical, element, *ito-hen*, *ito*, thread, textile, learning.

Conventions

Romanisation

The modified Hepburn system will be used for all Japanese words.

Typographical conventions

Italics are used for Japanese words – except for the word kanji – which is used to such an extent that I believe it would hinder rather than help the reader. For kanji symbols themselves, the Japanese pronunciation will be written in parathesis and italicised, followed by the meaning of the kanji in English. For example, 木 (*ki*; tree).

Glossary

The order of the glossary is organised in order of significance, rather than alphabetically. This choice was made for the reader to better understand and connect the terms altogether.

kanji	the Japanese main writing system, adapted from the Chinese system of *hanzi*
hanzi	the Chinese writing system which was adapted to Japanese into kanji
Jōyōkanji	the official list of kanji which is issued by the Japanese Ministry of Education
hiragana	a phonetic writing system developed to complement kanji
katakana	another phonetic writing system developed to complement kanji
radical	"an intra-character component of kanji under positional constraint with semantic and/or phonetic cueing functions" (Ivarsson, 2016, p. 18)
element	the smaller components which kanji break down into
on-reading	the Chinese pronunciation of a kanji
kun-reading	the Japanese pronunciation of a kanji
ito	thread, often referring to silk thread which the kanji symbolises: 糸(*ito*; thread)

Radical vs element

The popular term *radical* is rather strict in its usage, which is discussed further in section 2.2. Most of the research mentioned in the paper is regarding radicals. Therefore, the background chapter (2) will mostly mention radicals. In chapter 3 – which is the study part of the paper – the term *element* is instead chosen to be more appropriate. This will be explained more in-depth in section 3.1. *Kanji component* is a synonym for element.

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1. Introduction

With this paper in Japanese linguistics, I aim to investigate the field of kanji components and their importance in learning kanji. It is a widely held view that kanji is one of the most challenging aspects of learning Japanese. Although there exist differences among languages which use the Roman alphabet, literacy is usually reached somewhere around the 1st to 3rd schoolyear (Aro, 2004, pp. 17–21). Japanese-speaking students, however, take 12 years in school to reach proficiency in the 常用漢字 (*Jōyōkanji*; kanji for common use; Paxton & Svetanant, 2013, p. 90). Due to the complexity and difficulty level of kanji, anything that can ease this process for the second language learners of Japanese is a possible helpful finding.

Kanji components can provide the reader with certain information regarding a single kanji. The terminology of radicals and elements in kanji can seem bewildering for the novice; it is difficult to speak about one without mentioning the other. Essentially, radicals and elements are both building blocks of kanji, i.e., components. How they function within the script will hopefully become clearer for the reader as they read chapter 2.

It would be a gargantuan task for this paper to cover all kanji components and their different meanings. Therefore, the paper starts with giving a brief overview of kanji and radicals, followed by a study and categorisation of a single element. The findings in the study could in turn hopefully be used to uncover hidden meanings in other kanji components.

The choice fell on the thread element *ito*, as it is one of the more common elements found in kanji. The main meaning of *ito* is thread. However, as the element is used in many kanji, I have noticed connections not directly referring to thread. And it is these tendencies I aim to investigate in this paper. Moreover, it is also a personal choice, as I have a background in textiles. It is with great interest I seek to find the way in which the thread element is used, weaving alternative connections between textile and Japanese text.

1.1. Structure of the paper

Chapter 2 introduces the Japanese writing system of kanji and how its smaller components can appear in the symbols. The structure of the radical is examined in depth to see its possible value for a learner in Japanese.

Chapter 3 consists of a study where the thread element *ito* is investigated. A quantitative study is performed where all *Jōyōkanji* with thread elements are examined and categorised depending on the meaning of that symbol. The results are presented and discussed in section 3.4. to see if there are any overarching patterns to be found.

Chapter 4 gives an overview of the paper and summarises the findings from the study.

2. Background

The aim of this chapter is to ensure the reader with background knowledge regarding kanji and how the radicals function in them. This serves to provide the reader with enough theoretical understanding around the broader field of radicals, to thereafter appreciate the subject in the following chapter: the thread element *ito*.

Radicals and elements are what kanji consists of. Therefore, this chapter begins with a description of kanji and the central function of the script. It will give a brief overview of its history and transition from use in Sinitic languages, to others like Japanese, and how the symbols can be categorised.

Section 2.1. and 2.2. explain how kanji can be divided into radicals and the information they can provide the reader with. Although radicals can be considered a significant part of learning kanji, there are features that can complicate the procedure, which are also discussed.

Section 2.3. deals with the subject of how kanji are traditionally taught, and how radicals could be implemented in this process. Different aspects of the radicals are presented and explored, including ways in which teaching kanji could be updated.

2.1. Introduction to kanji

The Japanese writing system has been described as "…maligned and praised by Japanese and non-Japanese alike as possibly the world's most complex orthography." (Gottlieb, 2007, p. 78). The reason for its complexity is largely due to the fact that four scripts are in use simultaneously: *kanji, hiragana, katakana* and *rōmaji*. Radicals – which are the subject of this chapter – are only a part of kanji. Therefore, the remaining three scripts will not be discussed further.

The Japanese writing system of kanji was imported and adapted from the Chinese script of *hanzi*; both *hanzi* and kanji translate to "Chinese character". Although revisions and alterations have happened during its time of use in Japan, the core function of *hanzi* and kanji remains the same: each character stands for a meaning or a concept, rather than being strictly phonographic, as the Roman alphabet is. A character can represent a word by itself, or different words by combination with other characters. For example, the kanji 言 (*koto*; to say) can in combination with 葉 (*ha*; leaf), produce the word 言葉 (*kotoba*; word, language), whereas some usages of kanji are injunction with *hiragana*, as for example 言う (*iu*; to utter). Although the script has both ideographic and logographic qualities, Ivarsson (2016, p. 33) best describes it as logographic.

2.1.1. Classification of kanji

The Chinese characters are commonly divided into four categories: pictographs, diagrammatic characters, semantic or logical composites and phono-semantic composites. Pictographs are, as the name suggests, words depicted by simple drawings of objects. This group mainly consists of simple nouns; for example 人 (*hito*; person) and 木 (*ki*; tree). The pictographic quality can be difficult to decipher since they have been simplified over the centuries, but the original symbols[1] show a standing person from the side and a tree with its branches respectively (Seeley et al., 2016, pp. 56, 64).

The second group, diagrammatic characters, consists of more abstract concepts which are difficult to convey drawings of real-life objects. For example, 本 (*moto*; origin) and 末 (*sue*; tip), where the pictograph of 木 is modified by marking the trunk and the treetop with an extra line (by extension these kanji also get additional meaning in 本 (*hon*; book) and 週末 (*shūmatsu*; week-end)). As shown, the pronunciation of kanji can also change depending on the context, which will be discussed further in section 2.3.1.

The semantic composites are symbols which merge kanji from the previous two groups to create new characters. For example, 休 (*yasu*; to rest), which is a combination of 人 and 木. The intended interpretation being a person resting under a tree (Seeley et al., 2016, p. 51).

The final category consists of kanji where one part is semantic and the other phonological. For example, 板 (*han*; plank), which combines the semantic part of 木 (*ki*; tree) with 反 (*han*; oppose) as the phonological part. These segments that kanji can be dissected into are the components or elements of kanji. The more common and important ones are referred to as *radicals* and will be discussed in the following section.

2.2. Introduction to radicals

As discussed above, radicals can provide the reader with the meaning of a kanji. Additionally, the way to look up a kanji in a dictionary is also determined via its radical. This radical together with the stroke number[2] of the kanji indicates where to find it in a dictionary. The difficulty arises with the fact that the radical of a kanji is not always evident (O'Neill & Yanada, 1966, p. 2). For example, the kanji 羅 (*usumono*; gauze) consists of three *elements*: net (罒), thread (糸) and bird (隹). Hypothetically, any of these elements could be the *radical*, but in this case, it is the net radical *amigashira* (罒). This provides little guidance to the learner, as one already needs to know the radical and how to write it before one can look up in

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[1] Many of the oldest symbols were carved in bone and used by the rulers of China in rites to predict the future (Seeley et al., 2016, p. 9).
[2] The number of lines required to draw a certain kanji.

a dictionary. However, modern computers make the task easier by being able to search the kanji via their pronunciation instead (Goddard, 2005, p. 204). Another method is to simply draw the symbol on a mobile phone.

This strict classification of kanji and their radicals is the reason for some scholars to avoid the term altogether; Seeley et al. (2016, p. 34) uses the term of *character elements* instead. The use of teaching via character elements will be discussed further in section 2.3.2.

Although, the function of using radicals for a lexical purpose might not be as crucial as in the past, they still possess other useful properties which will be discussed in the following sections.

2.2.1. Classification of radicals

There are 214 radicals in total. Depending on where they are found in the kanji, they are assigned a placement and a name, as shown in figure 1 below.

Figure 1. Equidimensionality of kanji characters
(From Kess & Miyamoto, 2000, p. 37)
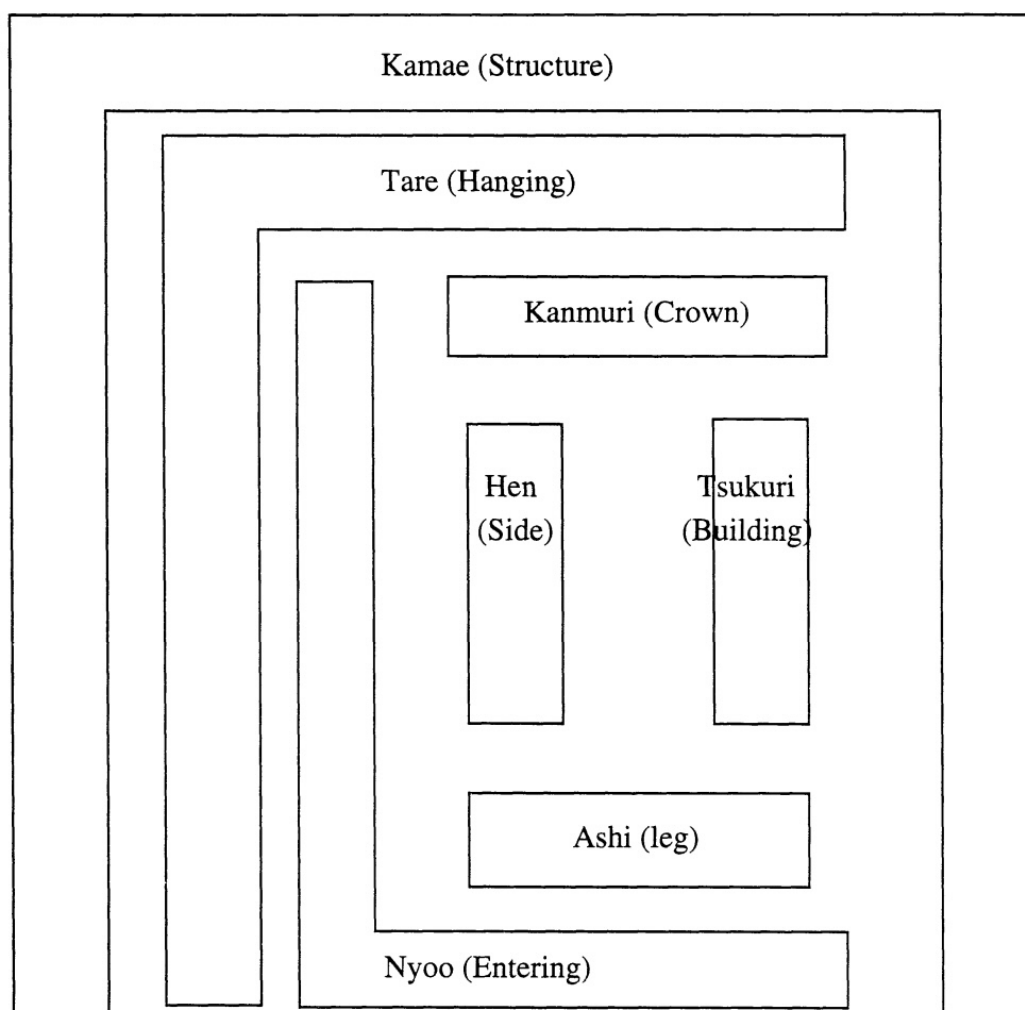
As shown in figure 1 above, there are seven positions where radicals can appear in a kanji. The amount and the different kinds of radicals and their semantic value vary, but they can provide a clue to the meaning of the kanji. For example, 雨 (*ame-kanmuri*; the kanji for rain in the crown position *kanmuri*) is often found in kanji regarding weather, 疒 (*yamai-dare*) indicates sickness or exhaustion, and the meaning of 囗 (*kuni-gamae*) is mostly regarding enclosure of some sort. However, there are many exceptions to these semantic rules which makes them less reliable to learners. The remainder of the chapter will give examples of radicals, their appearance in kanji and what the radical can offer the reader in terms of information.

2.2.2. Names and examples of radicals

The kanji mentioned in section 2.1.1.; 木 (*ki*; tree), 本 (*moto*; origin) and 末 (*sue*; tip) all share the same radical, which is the same as 木 (tree). In the case of kanji like 木 and 人 (*hito*; person), the radical for the kanji and the kanji itself is exactly the same.

The semantic composite character 休 (*yasu*; to rest) consists of the kanji 人 to the left and 木 to the right. The radical of this kanji is 亻 (*nin-ben*) literally translating to 'person to the side'. The remaining right part of the kanji is not called a radical, even though 木 is the radical in the first three examples (木, 本, 末). As mentioned in section 2.2., 木 could in this case be referred as an *element* of the kanji 休.

2.2.3. Variant forms and similar radicals with different meaning

The careful reader may have noticed that the kanji 人 altered its form when becoming the radical 亻 (*nin-ben*). That is correctly deduced, and this phenomenon is called *variant forms* (Klingborg, 2012, p. 7). Depending on where the radical is placed in the kanji (figure 1), the radical can change both form and name. For example, 人 also have another variant form when it is placed at the top of a kanji; it then turns into 𠆢 (*hito-yane*), which translates into 'person at roof'. To give another example, the kanji 水 (*mizu*; water) can change into the radical 氵 (*san-zui*) when it is placed at the left side of the character, whereas when it is placed at the bottom it is called 氺 (*shita-mizu*). *San-zui* and *shita-mizu* roughly translate into 'three water' and 'down water' respectively.

A phenomenon which could be described as the opposite of variant forms do also occur in certain radicals. For example, 月 (*tsuki*; moon), and 肉 (*niku*; flesh), both have the same appearance when they are located at the left side of the kanji: 月 (Seeley et al., 2016, p. 701). This is due to the simplifications of how they have been written over time, eventually morphing into the same shape. Consequently, similar radicals with different meaning, as well

as radicals with different variant forms, are something for the Japanese learner to be aware of in their study of kanji.

2.2.4. Radicals and the semantic relationship to kanji

Another significant aspect of radicals is how the semantic relationship between the kanji and its radical have shown to play a part in the retrieval[3] of kanji. This was demonstrated by Yamada and Takashima (2001, pp. 179-180), who showed test subjects a word in *hiragana*[4], and left it up to the participants to as quickly as possible name the radical of the kanji. The test result showed quicker responses when the semantic relationship was strong between the kanji and its radical. For example, the kanji 桜 (*sakura*; cherry tree) and 柄 (*gara*; pattern), both share the tree radical of 木 (*ki-hen*). The connection between the radical is stronger for the kanji for cherry tree compared to the kanji for pattern, resulting in a quicker retrieval time.

This could be a motivation to learn lesser-known secondary meanings of radicals and create stronger connections to kanji that use these secondary meanings. Furthermore, this could be an incentive to learn the radicals which share shape but differ in meaning discussed previously. For example, the kanji 脈 (*myaku*; vein) could be more difficult to learn if the radical is believed to be 月 (*tsuki*; moon), rather than the actual radical of 肉 (*niku*; flesh), as there is a semantic connection between 'vein' and 'flesh', but not between 'vein' and 'moon'.

The semantic connection between the radical 氵 (*san-zui*) and 糸 (*ito-hen*) and the kanji which utilises them, is the subject of Tamaoka's (2005) research. In the study (pp. 16–21), the test subjects were shown kanji and asked to group them together based on the radical and its meaning. The results showcased that the kanji with *san-zui* and *ito-hen* could be divided into three categories each. The first category for *san-zui* consisted of kanji that directly related to water and associated actions. For example, 汗 (*ase*; sweat), 泡 (*awa*; foam) and 泣 (*na*; to cry; p. 16). The second one was kanji which could be traced to water phenomena in nature, for example, 沈 (*shizu*; to sink), 浅 (*asa*; shallow) and 洞 (*dō*; cave; p. 17). The first category for *ito-hen* was kanji which directly related to thread or the making of textiles. For example, 綿 (*men*; cotton), 織 (*ori*; weaving) and 編む (*amu*; to knit). The second one was action words which related to thread in an abstract sense rather than concretely. For example, 締 (*shi*; to tighten), 繰 (*ku*; winding) and 縮 (*shuku*; to shrink). The third category was similar for both radicals, as it consisted of kanji where the semantic connection was perceived as so weak that it was difficult for the test subjects to see a connection at all. For example, 済 (*zumi*; to settle) and 法 (*hō*; law) in the case of *san-zui*, and 級 (*kyū*; class, rank) and 紀 (*ki*; era) in the case of

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[3] To be able to remember a kanji through its pronunciation.

[4] *Hiragana* is a script that is phonographic, providing the reader with the pronunciation of the word.

ito-hen. The result of the study shows a relationship between kanji and the semantic connection to radicals. This in turn could be interpreted as being of significance for learners of Japanese.

To conclude this section, radicals have shown that they hold various types of information regarding kanji and how to decipher them. The following sections will explore how this information could be used to support the learner of Japanese in their study of kanji.

2.3. Learning kanji with radicals

The official list of kanji which is issued by the Japanese Ministry of Education is called 常用漢字 (*Jōyōkanji*; kanji for common use) and consists of 2136 characters. These kanji are what a student in Japan is expected to master after graduating secondary school. The order in which the characters are taught is not by complexity or by their radical, but by frequency: i.e., how commonly they are shown in print and appear in daily life in Japan (Paxton & Svetanant, 2013, p. 90). This system is also close to how kanji is taught for second language learners of Japanese. In the sections that follow, the role of the radical will be investigated as well as how this could possibly update the way in which kanji is traditionally taught.

2.3.1. Radicals and their sound value

The history of the adoption of Chinese characters into Japanese kanji brought with it some complications regarding sound. With this import came not just the actual characters, but also words and pronunciations from different parts of China; resulting in most kanji having at least one Japanese reading 訓読み (*kunyomi;* kun-reading) and one – and in many cases several – Chinese readings 音読み (*onyomi;* on-reading). Which pronunciation is used depends on the context and is something that complicates the learning process of Japanese (Goddard, 2005, p. 200). Furthermore, the phono-semantic composite kanji which consists of a semantic part and a phonetic one, is by far the biggest group, representing 66% of the *Jōyōkanji* (Nomura, 1984, as cited in Ivarsson, 2016, p. 48). This type of kanji also happens to be the one that is the most difficult for students to learn. In a similar fashion to how kanji are traditionally categorised (see section 2.1.1.), Yamashita and Maru (2000, pp. 163–169) divided kanji into four groups and made their subjects rate how difficult the types of kanji were. Pictographs and semantic composites were rated the easiest, while the phono-semantic kanji were perceived as the most difficult to learn.

One reason for the difficulty level of the phono-semantic kanji is a consequence of the import from China, bringing with it "a truly colossal degree of homophony" (Sampson, 1985, as cited in Goddard, 2005, p. 201). This is because the Japanese language has fewer

phonological categories than Sinitic languages, resulting in many homophones, particularly in two-kanji compounds (Tamaoka, 2014, p. 441).

Another reason for the difficulty of the phono-semantic kanji group has shown to be the inconsistency of the sound value of the phonetic radical; only 57.6% are completely consistent, 32.7% are partially consistent, and 9.7% are inconsistent (Ivarsson, 2016, p. 48). To clarify, this means the sound[5] that a radical has by itself in a kanji can change when it is in a phono-semantic composite. For example, 里 (*ri*; village) is pronounced the same as 理 (*ri*; logic); 毎 (*mai*; every) is partially pronounced the same as 海 (*kai*; sea); and 十 (*jū*; ten) is inconsistent in 針 (*shin*; needle).

Despite the irregularity of the phono-semantic kanji, many of the phonetic radicals are consistent, which is something that could be made use of in learning kanji. Toyoda et al. (2013, p. 262) have ranked the usefulness of the phonetic components, suggesting that some are worth memorising and others are not. Another aspect which could help the learning of kanji is the order in which they are taught, which will be discussed in the next section.

2.3.2. Learning kanji with character elements

As mentioned earlier, kanji are traditionally taught by frequency. However, Paxton and Svetanant (2013, p. 90) claim for "…JFL[6] students who have limited exposure to real Japanese, frequency is perhaps not the best criteria [sic] for ordering kanji."

One alternative method of ordering kanji could be via the elements they are made up of: starting with the simplest elements and building upon them, introducing more complex kanji. In certain aspects this is already the case, but the frequency method brings with it some peculiarities. For instance, the kanji which have been analysed earlier in this overview: 木 (*ki*; tree), 本 (*hon*; book) and 末 (*sue*; tip). 'Tree' and 'book' are both taught in the first grade, whereas 'tip' is not learnt until the fourth grade in Japan. One could argue that the first two words are that much more common, therefore it is logical to wait to learn the third one. However, Paxton and Svetanant (2013, p. 98) show that a more intuitive way could be to break down the kanji into elements and further explore kanji with similar elements. Furthermore, Yamashita and Maru (2000, p. 169) suggest that the meaning behind the elements plays a part in learning kanji as "despite the fact that semantic composites and semantic-phonetics are almost equally complex, subjects rated the former as easier to learn than the latter".

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[5] Regarding the phono-semantic composite kanji, the *on*-reading is usually the one discussed.
[6] Japanese as Foreign Language.

A scholar who has famously questioned the traditional method of teaching kanji is James Heisig. In his book series, 'Remembering the Kanji', he criticises the order and declares "We need a still more *radical* departure from visual memory." (Heisig, 2011, p. 2). His method is based on grouping together kanji by their elements, learning the characters through mnemonics in a specific system taught in the books. Worth noting is that these stories do not have to have anything in common with the actual history of the kanji character. Although the effectiveness of mnemonics is unclear (Rose, 2013, p. 989), there is no denying the popularity of his method with consumers (Paxton & Svetanant, 2013, p. 96). This could be an indicator that an update to the way in which kanji is being taught is desired by learners. In the following section, the semantic and etymological aspects of kanji which Heisig disregards will be discussed.

2.3.3. Etymology and kanji compounds

Etymology is the study of origin of words and how they have changed over time. In the case of Japanese and kanji, this can be particularly unclear. Still, I believe this is an aspect of learning kanji that is easily overlooked in research. Naturally, there are numerous kanji whose etymology is ambiguous, and scholars differ in their theories of the characters' origins. But there are also kanji that contain stories about old Chinese and Japanese culture even to this day. For example, the character 自 (*ji*; oneself) is originally a pictograph of a nose, as it is a custom in China and Japan of pointing to your nose when you are referring to yourself (Seeley et al., 2016, p. 83). Which in turn also can explain why it is located at the top of the kanji 鼻 (*hana*; nose; Seeley et al., 2016, p. 142).

Even though the focus of this paper is on dissecting kanji as characters, it is also important to consider the greater perspective; kanji are also used in words combined with other kanji. Shimizu and Green (2002, as cited by Paxton & Svetanant, 2013, p. 97) claim that an effective method of learning kanji is not through viewing them as separate entities, but through vocabulary in kanji compound words. For example, combining the kanji 口 (*kuchi*; mouth) with 入 (*nyū*; to enter) and 出 (*shū*; to exit) respectively, results in the words 入口 (*iriguchi*; entrance) and 出口 (*deguchi*; exit). Whereas if it instead is preceded by 人 (*hito*; person), the kanji compound becomes 人口 (*jinkō*; population), which could be interpreted as 'amount of mouths to feed'. Furthermore, there is a value in teaching kanji as vocabulary which is difficult to measure in just semantic or sound value. For example, 人間 (*ningen*; human being) – consisting of 人 (*hito*; person) and 間 (*aida*; interval, space) – which expresses the word human being as *the space between people*. Or perhaps, the intervals or spaces in life which makes us human.

I am aware that this is a complicated field, somewhere between linguistics, history, religion, and philosophy, but I believe there is potential to use this in combination with the other methods presented, in order to improve the way in which kanji is taught. As shown in this chapter, the meaning behind kanji and their elements play a part in learning the characters. If then, some of the kanji contain stories and wisdom about the language and culture, I believe there is a value in bringing this into the teaching of kanji.

2.4. Background discussion

This chapter set out to define and clarify the field of kanji components. An introductory explanation of kanji was given, following an in-depth description of radicals and how they appear in kanji. The semantic and phonologic connection between kanji and their radicals was presented, and how this could possibly update the traditional order in which kanji is taught. I have also considered utilising the etymology of the characters; possibly resulting in a deeper cultural experience of learning kanji.

The different methods of learning kanji depend on the learner and their disposition. However, this chapter showcases that whichever method one chooses, kanji components can be beneficial to learning and deciphering kanji. The following chapter consists of a study where the thread element *ito* and the kanji in which it appears are explored. The findings hope to aid the learner of Japanese, and contributing to update the way kanji is traditionally taught.

3. Study

This chapter begins with a description of the purpose of the study, followed by the methodology. The results are presented and discussed in section 3.3., which in turn are summarised in section 3.4.

3.1. Purpose and research questions

The specific object of this study was to examine the thread element 糸 (*ito*; thread). The purpose of this investigation was to explore the *ito* element, to see if it contains any secondary or connected meanings other than with textile, and if so, what those meanings could be. As the connection with textile is so strong, the textile group was also divided further in categories to highlight the specific textile techniques the *ito* element and the kanji refer to. The semantic connection between a kanji and its radical has shown to play a part in remembering and retrieving kanji (see section 2.2.4.). Therefore, I believe there is a value in uncovering these meanings, making them more visible to the Japanese learner.

Secondly, the various *ito* elements were divided up and named to see if they themselves contain any specific information depending how they appear in kanji.

As previously mentioned, the term *radical* is rather restrictive in its classification. For the purpose of this study, all kanji which contain thread elements have been assessed. This choice was made due to the fact that a kanji can include a thread element without it being the radical of said kanji. For example, the kanji 羅 (*usumono*; gauze) mentioned in section 2.2.; it contains an *ito* element, but it is the top part *amigashira* (罒) which is the radical of said kanji. Clearly, the *ito* element has a semantic connection to the word gauze. Therefore, the conclusion was made to examine all *ito* elements rather than just the *ito* radical.

The term 'the *ito* element', is used as an umbrella term to refer to and cover all kanji with thread components. The radical *ito-hen* was by far the most common find, and is therefore mentioned as a radical rather than an element.

The research questions were as following:

    i.   Does the *ito* element contain secondary or connected meanings other than with textile? And if so, what are they?

    ii.   What specific textile categories and crafts are most common?

    iii.   Does the various *ito* elements contain specific information?

3.2. Methodology

A quantitative method was used to investigate and categorise all the 2136 kanji in the 常用漢字 (*Jōyōkanji*; kanji for common use) to uncover how many of them contain *ito* elements. Data for the study were collected through Seeley's et al. (2016). 'The Complete Guide to Japanese kanji: Remembering and understanding the 2,136 standard characters.' This decision was made since it is not only based on a single researcher's theory, rather it features several etymologists and their opinion on the kanji and their origin. An additional reason being the comprehensiveness of the source material, which was a necessity, as the total sum of kanji amount to 2136 symbols. Harbaugh's (1998) dictionary of Chinese characters was also used for cross-referencing.

The 101 kanji including *ito* elements found in the study were listed in an Excel spreadsheet. A main- and a subcategory were assigned to enable for more connections and groups to be made and analysed. These categories were conceived by me, based on the etymologists' explanations (Seeley et al., 2016). The various thread elements were named and divided into subsections, depending on where the thread part could be found within the kanji. The purpose of this being to highlight if there were any connections to be made with the appearance of the thread element and the meaning of the kanji (see section 2.2.1. for location and examples of radicals). Furthermore, it was marked if the element had a semantic or phonological meaning and what the *on*-yomi and *kun*-yomi for the kanji were. Lastly, the etymological explanation was also noted if it was of interest. In case of the etymology being particularly convoluted, the category of said kanji would be marked as *vague*. See table 1 for the different factors examined (the appendix includes a complete list of all the kanji found and analysed).

Table 1. Categorisation of kanji with *ito* elements (an excerpt)

Kanji	Meaning	Element	Main	Sub	Sem	Pho	On	Kun	Etymology
絹	silk	ito-hen	textile	silk	X		ken	kinu	–
紅	crimson	ito-hen	textile	dye	X		kō, ku	kurenai, beni	–
絶	cease, end	ito-hen	time	ends	X		zetsu	tae, ta	–
緊	tight, tense	ito-shita	vague	tie	X		kin		–

The study then carried out this investigation of all *Jōyōkanji* including *ito* elements. This also bears to mention is the main difference to the research of Tamaoka (2005). Whereas Tamaoka included 30 kanji with the radical *ito-hen* in their work, the aim of the present study was to expand on this categorisation by including not just *ito-hen*, but all *Jōyōkanji* with thread

elements and thus examining groupings that may not have been present in Tamaoka's sample. As previously mentioned, 101 kanji were found and analysed. Besides the expressed focus of the present study, the following categorisations differs from Tamoaka's in such a way as their focus was the three levels of connection between kanji and *ito-hen*, whereas my interest lies in categorising *how* kanji connect with their thread components, to see if any patterns, themes, or subgroups were to be discovered.

However, there are also many similarities to be found in the research of Tamaoka (2005). The results from the present study will be analysed and compared to Tamaoka's in the results and discussion section 3.3.

3.2.1. Limitations to the study

The study is limited to the human error, as some kanji with thread elements could have been missed in the study. Those potential mistakes are completely my own and I take full responsibility for these errors. Moreover, as a student of the Japanese language myself, currently I am only aware of about half of the *Jōyōkanji.* Therefore, I might overlook certain kanji and their underlying meanings. For example, in the result of Tamaoka's study (2005), one of the results was a small group of kanji with *ito-hen* connected to gender. The example of 紳 (*shin*; sire, belt) was given. The associated meaning of gender between certain kanji and their element is a connection which has gone unnoticed in this research. This lack of knowledge regarding kanji is something that is a limitation to the present study.

Furthermore, there were many kanji with unclear etymology which were placed in the *vague* category, which consists of kanji where the etymology is particularly obscure. This categorisation – like all categorisation of kanji in the present study – have been formulated by me. Although, the categorisation is based on the etymologists' reasonings (Seeley et al., 2016), it is still my personal judgement.

To continue with the study, the kanji in the *vague* category were still assigned a main- and subcategory. It might be too absolute to describe the etymology of a kanji as purely clear or not, rather this is something that could be placed on a scale instead. The kanji with vague etymology are a limitation to the present study, and it is for future research to determine the usefulness of these kanji.

3.3. Results and discussion

The results will be presented and discusses in three parts; first the main categories will be presented, followed by the subcategories, and lastly the various *ito* elements. The results will be followed by a summary and suggestions for further research in section 3.4.

3.3.1. The main categories

Firstly, the present study found 101 kanji with *ito* elements, amounting to 4.7% of the *Jōyōkanji*. This is comparable to the 60 kanji (3.08%) with the radical *ito-hen* examined in the study of Tamaoka et al. (2002, as cited in Tamaoka, 2005, p. 18). Further, the elements were divided into main categories and subcategories as can be seen in table 2.

Table 2. The main categories and subcategories of kanji with *ito*-elements

Kanji with *ito*-elements	Main category	Subcategory
糸	**Rope**	Bind/Tie
		Bundle
		Cord/Rope
		Cut
		Hang
		Join/Link
		Line
		Tangle/Unravel
		Thin/Fine
	Textile	Bind
		Cocoon
		Colour
		Cotton
		Craft
		Dye
		Silk
	Time	Back
		Ends
		Lineage
		Join/Link
		Youth

Except *ito-hen*, the various elements which were found and named in the study were: *ito-shita* (bottom of the kanji), *ito-middle* (appearance could vary, but somewhere in the middle of the kanji), *ito-gashira* (an adjacent version of *ito*; 幺), *ito-kei* (another adjacent version of

ito; 系), and non-*ito* (kanji which once included thread elements, but have been lost in revisions). The distribution of the different elements was as following:

Table 3. Number of kanji with *ito* elements

ito-gashira	9
ito-hen	55
ito-kei	5
ito-middle	9
ito-shita	8
non-ito	15
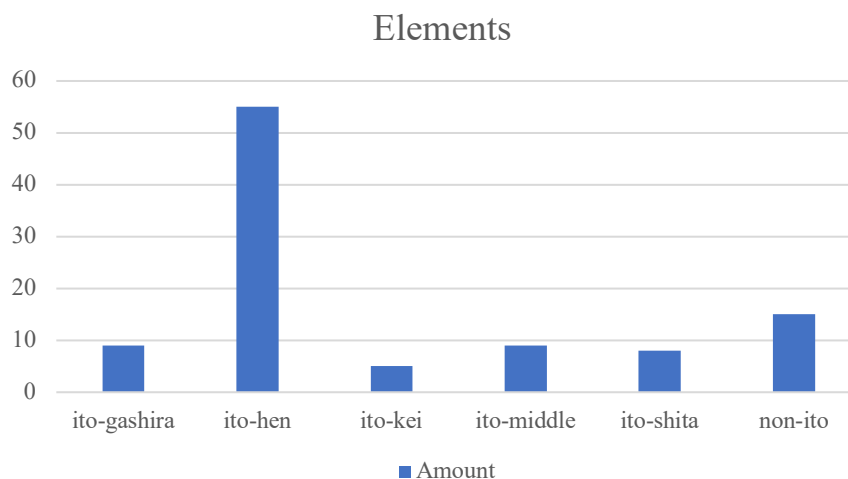
Elements

As shown in table 3, the radical *ito-hen* appears significantly more than the rest of the elements. The result is comparable to the 60 *ito-hen* found in the study of Tamaoka et al. (2002, as cited in Tamaoka, 2005, p. 18). The present study found 55 kanji containing *ito-hen*. The difference in number can be attributed to the fact of categorisation of elements. Tamaoka et al. includes the likes of 索 (*saku*; rope), and 紫 (*murasaki*; violet) in their study, as it is the official radical (ibid). Whereas the current study instead names these kanj for *ito-shita*, as they are found in the bottom of the sign rather than to the left (which is the norm for *ito-hen*). The table below illustrates the proportion of the main categories which the elements were categorised under:

Table 4. Main semantic categories of kanji with *ito* elements

Rope	10
Textile	30
Time	9
Vague	52

Main categories
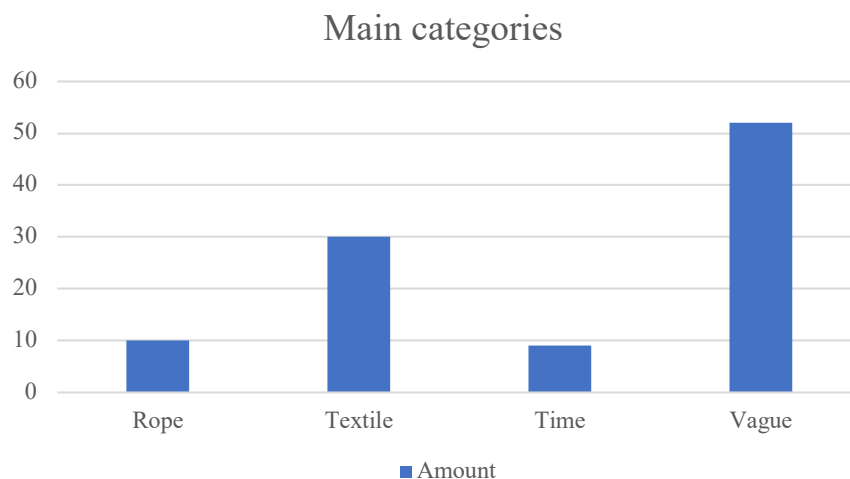
What is striking about the figures in this table is that most of the elements contain convoluted etymology which makes it difficult to analyse. The *vague* category consisted of 52 kanji (51%), which stands out as a surprisingly high number compared to the similar study of Tamaoka (2005) introduced in 2.2.4. In their study a similar category was produced, but only 8 kanji (26.6%) were placed in this category (p. 20). The result could be interpreted as the radical *ito-hen* having a stronger connection to the semantic meaning of their kanji, compared to the rest of the *ito* elements, which might have a weaker bond (which is also confirmed in section 3.3.6.) This is a limitation of the present study, and something for future research to be aware of and take into consideration. Although it is difficult to judge how helpful the kanji with *vague* connection to their *ito* element is for a student of Japanese, a decision was made to give these kanji a subcategory so they could still be analysed from a different perspective. This will be further discussed in the following sections.

If the *vague* category is disregarded, the second largest group is the kanji connected to *textile*. This result is not significant but will be of more interest when the subcategories are analysed to reveal the different connections to textile in section 3.3.4. Which will aim to give the answer to the study's second research question.

The last categories are *rope* and *time*, which together combine to 19 kanji (18.8%) of the kanji. This is comparable to the second category from the study of Tamaoka (2005). This category consisted of kanji relating to action words with associations to thread in an abstract sense rather than concretely (p. 20). Comparably, this category consisted of 8 kanji (26.6%), which is a similar result for both studies. What is striking from the present study is the high number of kanji which fell under the *time* category: 9 kanji (8.9%). This figure stands out as an unusually high percentage of an element which is mostly described in terms of thread and textile. This finding could be seen as a secondary or connected meaning to thread, which was the aim of the first research question. The possible beneficial aspect for the learner of Japanese and how this could be tested will be discussed in section 3.4.

3.3.2. The subcategories

The main categories and their corresponding subcategories will be presented in alphabetical order. The first category being *rope*, followed by *textile*, and lastly *time*.

3.3.3. The rope category

The first subgroups to be explored are the ones concerning the main category of *rope*. For the reader, the distinction between *ito* (thread) and *rope* might be unclear. Similarly, to Tamaoka

(2005), these kanji have meanings regarding actions associated with thread. The subcategories and their distribution were as following:

Table 5. Subcategories for kanji relating to rope

Subcategory	Confident	Vague
Bind/Tie	3	7
Bundle	0	1
Cord/Rope	3	1
Cut	2	2
Hang	0	4
Join/Link	0	5
Line	0	2
Tangle/Unravel	1	9
Thin/Fine	0	3

Rope: subcategories
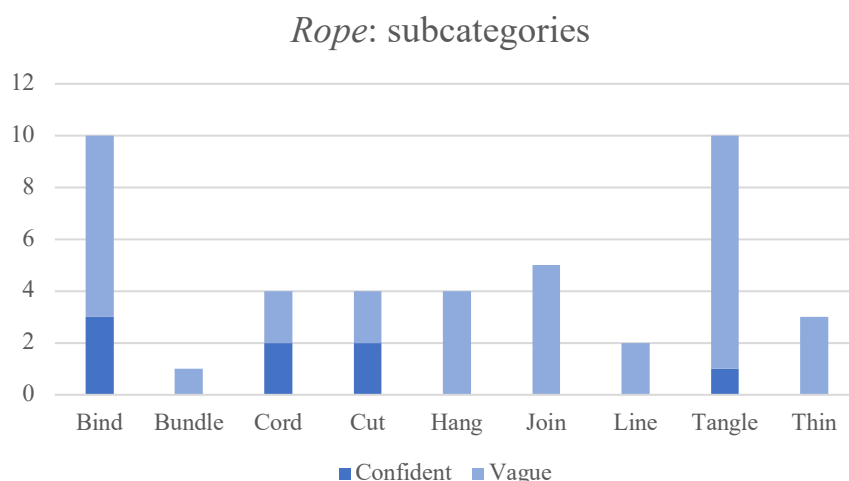
The names of the subcategories in the bar chart were shortened to one-word titles compared to the ones seen in table 5. This decision was made to increase the readability of the chart. As can be seen from the table above, the figures which stand out are the subcategories *bind/tie* and *tangle/unravel*, with both categories containing 10 kanji (23%) each. The former subcategory tends to be more physical in its meaning, for example, 維 (*i*; to tie, rope) or 縛 (*shiba*; to bind, to restrain). Whereas the *tangle/unravel* category have a tendency to deal with entanglement in a more abstract sense. For example, 絡 (*raku*; entwine, connect) and 紛 (*fun*; confusion, go astray). Interestingly, the kanji 恋 (*ren*; love, beloved) once included the radical *ito-hen*, and still does so in *hanzi*: 戀 (*luán*; to love). The etymology of "i] 'heart connected', ii] 'heart entangled', or iii] 'heart drawn to'" could explain the connection between the *ito* element and emotional entanglement (Seeley et al., 2016, p. 637). This could be considered a potential secondary meaning of the *ito* element, which was the aim of the first research question.

However, the *tangle/unravel* subcategory – and the *rope* category as a whole – consist of a majority of kanji with vague etymology. Tamaoka (2005, p. 22) made a similar deduction with their third group of kanji, where the "meaning has moved away [own translation]". Therefore, the benefit to the student of Japanese is unclear and will be further discussed in section 3.4.

The rest of the subcategories are evenly distributed and are all actions associated with thread in an abstract way. As previously mentioned, this is a group which also was a part of Tamaoka's study (2005, p. 20). A category which stands out to the reader might be the subcategory *cord*, as the main category is already *rope*. The etymology of this small group consists of kanji which specifically mentions cord or rope making. The two concrete ones are 綱 (*tsuna*; cord) and 縄 (*nawa*; rope). And the two more vague ones are 索 (*saku*; search, rope) and 組 (*kumi*; assemble, braid). The semantic connection could be questionable for the latter kanji, as the meanings today are more often regarding associations/grouping/assembling. But the etymology describes the kanji as "…cords made of threads put together" (Seeley et al., 2016, p. 90) and the categorisation being "braid/plait" (Harbaugh, 1998).

3.3.4. The textile category

The second main group to be examined is the *textile* category. As the *ito* element is a pictograph of a silk thread, the connection to textile is evident (Seeley et al., 2016, p. 29). Nevertheless, the connection in *how* they connect to textile aims to answer the second research question. The distribution of the subcategories can be seen in the table below:

Table 6. Subcategories for kanji relating to textile

Subcategory	Confident	Vague
Bind	2	0
Cocoon	4	1
Colour	3	3
Cotton	1	0
Craft	11	5
Dye	2	4
Silk	5	4

Textile: subcategories
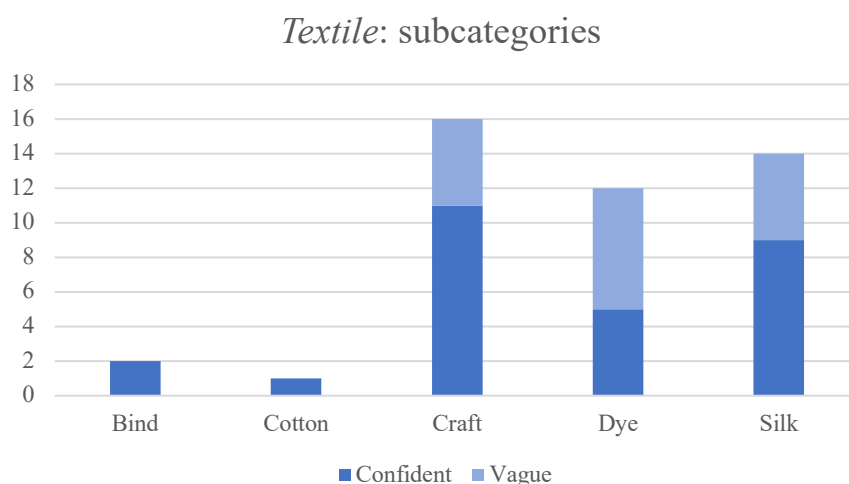
The subcategories of *cocoon* and *silk* were combined, as well as *colour* and *dye*. The corresponding categories were believed to be similar enough in meaning to warrant a combined count in the chart. The three subgroups of *craft*, *dye* and *silk* reported equally, roughly around a third each. The *craft* and *silk* categories showcased a similar connection to silk, either to silk production or the making of fabric through textile craft (predominantly weaving). For example, 織 (*ori*; to weave), 緯 (*nuki*; horizontal, weft) and 機 (*ki*; loom,

machine) in the case of *craft*. And for example, 績 (*seki*; achievement, to spin), 繰 (*ku*; to reel, to turn) and 納 (*nō*; obtain, supply) in the case of the *silk/cocoon* subcategory. The etymology of the latter kanji is somewhat convoluted, but nevertheless it relates to wet silk thread (Harbaugh 1998), with "obtain; supply" as associated meanings (Seeley et al., 2016, p. 295). The strong connection to silk and silk production could be an incentive to teach these textile kanji together with a brief introduction to silk production to strengthen the semantic connection for students of Japanese. This will be discussed further in section 3.4.

Lastly, what stands out is the textile category the most might be the subcategory *dye*— which registered almost as high as *craft* and *silk*. The semantic connection between the *ito* element and *colour*, might not be as evident as previously shown in the *craft/silk* groups. This also correlates with the number of vague kanji which were registered in the *dye/colour* subcategory. Hopefully the present study can highlight these abbreviated meanings and make them useful for a student in Japanese. Some of the examples in the *dye/colour* group were 紅 (*kō*; crimson), 緑 (*midori*; green) and 純 (*jūn*; purity). The latter kanji is one containing a vague connection, where the etymology mentions "beautiful impurity-free silk" (Yamada, 1975, & Katō, 1985, as cited in Seeley et al., 2016, p. 280) and by extension "color without impurities" (ibid). Similarly, a few kanji which related to *dye/colour* was also included and grouped together in the study of Tamaoka (2005, pp. 19–20). However, the test subjects were native Japanese speakers, and it could be questioned if non-native learners of Japanese would make the same association. How this could be tested and introduced in a classroom setting will be discussed further in section 3.4.

3.3.5. The time category

Finally, the last main group to be explored is the *time* category and its subcategories:

Table 7. Subcategories for kanji relating to time

Subcategory	Vague
Back	1
Ends	4
Lineage	4
Join/Link	1
Youth	1

Time: subcategories
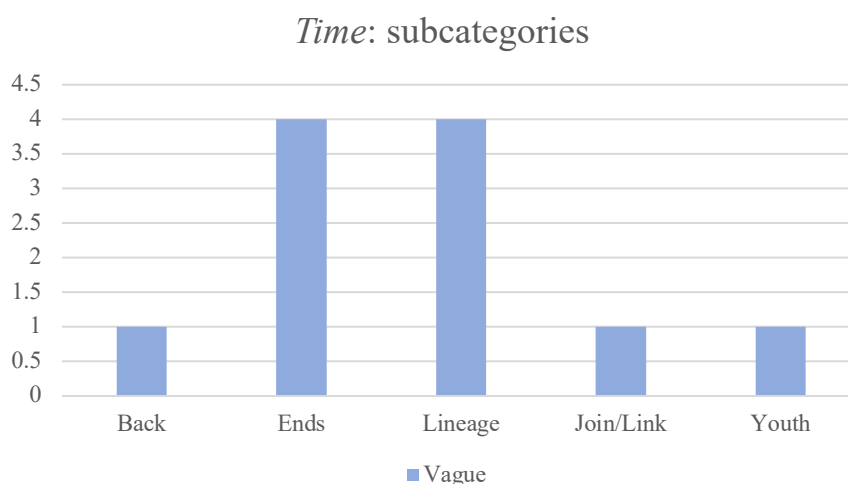
As can be seen from table 7, the figures which stand out are the subcategories of *ends* and *lineage*, amounting to 4 kanji (36%) each. For example, 終 (*shū*; to end, finish) and 緒 (*shō*; beginning, cord) in the subcategory of *ends*. This subgroup refers to both *time* and the *ends* of a thread. In the case of *lineage*, a couple examples are 系 (*kei*; lineage, system) and 孫 (*son*; grandchild, descendant). The element, *ito-kei*, for the last two kanji also represents an interesting find regarding elements which will be discussed in section 3.3.6.

However, as this category is rather small compared to the other main categories, the purpose of dividing them to smaller subsections might not be of value for the learner of Japanese. Instead, it might be more efficient to present this group as thread kanji with an overall association to *time*.

It should be noted that the connection between thread and time is not something that is unique to the Japanese language. For example, Ingold (2008) have performed extensive research in the subject, where he charts the relationship between thread (or line), language and *time* (pp. 1–5). Thread is explained to be "among the most ancient of human arts, from which all else was derived, including both building and textiles" (Semper, 1989, as cited in Ingold, 2008, p. 42). Ingold showcases that human language is intertwined with meanings related to thread; even the word *intertwined* itself derives from thread. However, kanji being a particularly visual orthography, the traces of thread elements are a visible aspect of kanji, i.e., not just as Roman letters spell out *twine* but as a small pictograph of thread. Highlighting the abbreviated meanings of *ito* with *emotional entanglement*, *dye/colour* and *time*, aim to clarify this connection and help the learner of Japanese in their kanji quest.

Before finishing this section, the attentive reader might have noticed that the total sum of kanji investigated only amount to 99. This is due to a couple of kanji which were so semantically weak they were difficult to label under any subcategory. Those two kanji were 潔 (*ketsu*; clear, pure) and 畿 (*ki*; capital (place)).

3.3.6. Element information

The final aspect which was investigated were the various elements themselves. As previously mentioned, the terms presented in section 3.3.1., were used for the nameless elements and were then marked if they had a semantic or phonological value. See table 8 below:

Table 8. Semantic and phonetical value in the *ito* elements

	Element value	
Element	**Semantic**	**Phonetic**
ito-gashira	7	7
ito-hen	54	1
ito-kei	4	4
ito-middle	7	6
ito-shita	6	2
non-ito	11	7
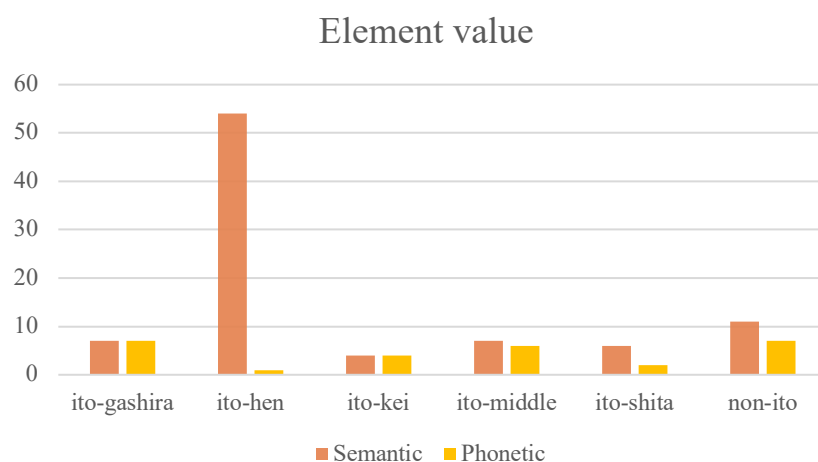
The most apparent result to emerge from the data is how the radical *ito-hen* almost completely registered for its semantic value. This is consistent with previous research regarding radicals and the phono-semantic composite kanji introduced in section 2.3.1. Ivarsson (2016, p. 46) explains how the kanji in this group often consists of a semantic radical to the left, and a phonetic element to the right. The left-hand side radical has no phonological value, whereas the right-hand side one can have a phonological value and an abbreviated semantic value. For example, 絹 (*kinu*; silk) which includes *ito-hen* to the left, with the right-hand side representing "…(orig. insect type) as semantic and phonetic with associated sense 'pale yellow', thus 'pale yellow silk thread/cloth'; later 'silk'" (Seeley et al., 2016, p. 268). This is also why the total number amount to 116 kanji, rather than the 101 kanji which were analysed.

Disregarding *ito-hen*, the semantic and phonological value were spread rather evenly across the rest of the elements. As previously mentioned, the vague etymology questions the usefulness of the subcategories, particularly when the elements are in such small quantities. However, the result show that many of the elements possess both semantic and phonological value. For example, *ito-kei*, which consists of the kanji 系 (*kei*; lineage, system) and also reported the most in the *time* category. Phonologically it is the same in 孫 (*son*; grandchild, descendant) and 遜 (*son*; humble, modest), and for 系 (*kei*; lineage, system) and 係 (*kei*; involvement). Interestingly enough, the common kanji for the names of prefectures in Japan 県 (*ken*; prefecture) once included *ito-kei*. Similarly to the kanji 懸 (*ken*; attach, worry), which have a trace of both 県 and said *ito-kei*. This also explains why the two kanji share the pronunciation of *ken*.

As previously mentioned, many of the *Jōyōkanji* are phono-semantic; often composed by a left-side radical which is semantic, and an element to the right which is phonological. Still,

the present study showcases that there might be some semantic overlap between the radical and the phonetic element, as they both can contribute with semantic value. However, in certain kanji it is difficult to judge if the phonetic element is used purely for its sound value, or if it also contributes with a semantic value. For example, 機 (*ki*; loom) consist of the radical 木 (*ki-hen*) to the left and the phonetic component 幾 (*ki*; how many) to the right. Although, the latter include the *ito* element within the sign, it could be used purely for its phonological value to create the kanji 機, rather than its connection to textile. Similarly, the previously mentioned *hanzi* 戀 (*luán*; to love) consists of the radical 心 (*xīn*; heart) at the bottom, and 絲 (*luán*; tie together) on the top. While the *ito* element has a strong connection in the latter, it might just be used phonetically in the former.

Even though the present study has concerned itself with dissecting kanji to its smallest pieces to decipher a meaning, it is also important to remember that they sometimes are just a miniscule part of the script. For example, the element *ito*-middle which were part of the symbols above, might have a thin or non-existent connection to thread—rather the *ito* element is here purely used in a larger phonetic component, with no semantic connection to thread.

Nevertheless, as many of the elements reported both semantically and phonologically, it showcases that the elements themselves can have a value. This is an aspect which can get lost, considering most of the research focuses on radicals rather than elements. Hopefully, the potential value of the kanji elements will be uncovered in future research. The findings and the study as a whole will be summarised in the following section.

3.4. Summary and further research

In summary, what emerges from the results reported here are firstly the subcategories of *time* and *tangle/unravel*. The latter could in turn be connected to *emotional entanglement*. These findings aim to answer the first research question regarding secondary meanings in the *ito* element. However, these two groups indicated a high number of kanji with *vague* etymology. Therefore, the usefulness to the student of Japanese could be in question. This group could be considered too abstract to understand the connection to thread. Although, there might not be a clear-cut answer whether a kanji has a vague etymology or not. Rather, the *vagueness* – or etymological usefulness – could instead be placed on a scale. These secondary meanings could be tested together with a similar methodology to Tamaoka (2005), to determine their usefulness to the student of Japanese.

The textile category on the other hand, showcased a strong semantic connection between the *ito* element and its kanji. Furthermore, the proportions of the different textile connections were examined and revealed the subcategories of *craft*, *silk* and *dye*. Among them, *dye/colour*

stands out as a surprising and potential useful finding. This result was the aim of the second research question, regarding which textile crafts are the most common in the *ito* element.

Lastly, the various *ito* elements were investigated. The most common element – the radical *ito-hen* – shows how it is solely used for its semantic connection rather than phonologically. This result is consistent with previous research (Ivarsson, 2016, p. 46). The *ito-kei* element was investigated and showed both semantic and phonologic value. Although being a rare element, it is still a hopeful find for further research to be made in the field of elements.

To expand on these findings, it would be recommended to examine their usefulness in a classroom environment. As a suggestion, one test group would take the usual kanji lessons, whereas another test group would receive lessons where the secondary meanings of the *ito* element would be introduced (*emotional entanglement; time*). Furthermore, the process of producing fabric from silk thread – unreeling cocoons, weaving, and dyeing – could also be taught. The introduction could be done in a similar fashion to how Lindqvist (1989, pp. 215–226) explains the silk production in relation to the kanji in the *textile* category. The two test groups would then undergo the same test to determine any difference in learning the kanji and their meaning.

As previously mentioned, an aspect to take in consideration is the vagueness of the etymology of many of the kanji. A possible comparison could be made between the more abstract *rope* and *time* categories, and the more concrete *textile* one. Which could determine if these abbreviated meanings of the *ito* element is beneficial for the learner of Japanese.

Furthermore, the *ito* element is far from the only kanji component referring to textile. For example, 布 (*fu*; linen, cloth) and 袋 (*fukuro*; bag, pouch) contain the common cloth element 巾 (*haba*; cloth). Whereas the etymology of 経 (*kei*; pass, sutra, longitude) includes *ito-hen* and the right element originally depicting a loom, thus representing "vertical threads on loom" (Seeley et al., 2016, p. 221), and 任 (*nin*; duty, entrust) contains a spindle (Seeley et al., 2016, p. 248). These are textile references which could potentially be studied as a whole subject, or further investigations of the separate elements. Similarly, the methodology could be used with elements unrelated to textile, finding other connections, themes, and correlations in kanji. It would be interesting to see what future research could unravel in kanji.

4. Conclusion

This paper set out to investigate and explain the field of kanji components. It achieved this by first introducing the broader field of kanji, followed by how radicals function within the script. The subsequent study performed an exhaustive investigation of the thread element *ito*.

The result of the study revealed two subcategories of secondary meaning: *time* and *tangle*. Additionally, the interrelationship between the textile kanji and silk was confirmed, whereas the *dye/colour* subcategory was a more surprising find. Furthermore, the radical *ito-hen* confirmed its position as a semantic radical, whereas many of the other *ito* elements showcased that even the phonetic components can have some semantic effects.

The result of the study hope to inspire further investigations in the field of kanji, weaving together language, history, and texture; tracing human interaction and the stories we leave behind. Or "following the red thread", as the Swedish idiom simply says.

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Appendix

The complete Excel spreadsheet of the 101 kanji which were found and analysed.

Kanji	Meaning	Radical	Head	Sub	Seman	Phon	On-yomi	Kun-yomi	Etymology
糸	thread	ito (hen)	Textile	Silk			shi	ito	Single thread (probably silk). Distinguish from 絲 ('threads joined together.') The related element 幺 'fine thread(s), end of fine thread' has 'small, young' as extended meanings.
絵	picture, painting	ito-hen	Textile	Craft	X		kai	e	'thread' to represent initially a meaning such as 'embroidered pattern', but later more broadly to include drawings or pictures in general.
楽	music	non-ito	Vague	Cocoon					
後	behind, after	ito-gashira	Time	Back	X	X	go, kō	nochi, ushiro	('fine threads, small') as phonetic with associated sense 'go along/go back/backwards'.
細	slender, fine	ito-hen	Vague	Thin, fine	X		sai	hoso, koma	thread' as semantic and X (CO originally a pictograph of a skull or fontanelle) as phonetic
紙	paper	ito-hen	Textile	Craft	X		shi	kami	Before paper appeared , texts in China were written on various materials, the closest to paper being silk.
線	line	ito-hen	Textile	Thin, fine	X		sen		
組	assemble, braid	ito-hen	Rope	Cord	X		so	kumi, ku	…giving 'cord made of threads put together'. https://zhongwen.com/: braid, plait
級	rank, grade	ito-hen	Vague	Line	X		kyū		
係	involvement	ito-kei	Vague	Join/Link	X	X	kei	kakari	系 855 ('joined threads') as phonetic with associated meaning 'link up'.
県	prefecture	non-ito	Vague	Hang		X	ken		Traditional form… has 系 as phonetic with associated meaning 'hang'.
終	end, finish	ito-hen	Time	Ends	X		shū	o	…show a lenght of string with knots at or near ends, so by extension 'end'.
緑	green	ito-hen	Textile	Dye	X		ryoku, roku	midori	Verdigris is a blueish-green coating which comes out of copper and forms on its surface
練	refine, train	ito-hen	Textile	Silk	X		ren	neru	…which referred to a process of bringing out the gloss in silk thread, and was also applied to the product, i.e. silk fabric woven with glossed thread. The meaning was then modified from 'work/process silk thread'.
関	barrier, connection	ito-ito	Textile	Craft	X	X	kan	seki	Yamada considers that 丱 'treadle on a loom' was connected by cords to the upper parts and this probably gave rise to 'connection' as an extended sense.
紀	chronicle, start	ito-hen	Time	Ends	X		ki		Yamada treats the sense 'record, chronicle' as loan usage, but alternatively it may be extended usage on the basis on the thread on continuity in an account or record.
機	loom, device, occas	ito-middle	Textile	Craft	X	X	ki	hata	Basically loom, but a lot written…
給	supply, to bestow	ito-hen	Textile	Cocoon	X		kyū	tama	This involved quickly joining up broken silk threads from cocoons in the silk manufacturing process, and so 'supplement, make up (a deficiancy)' evolved as an extended use.
結	bind, join, fasten	ito-hen	Textile	Bind	X		ketsu	musu, yu	Either interpretation gives 'tie knot in thread/rope' and by extension the more generalized 'join up'…
辞	word, resign	non-ito	Vague	Tangle	X	X	ji	ya	(two hands unravelling tangled thread), the latter taken by Katō and Yamada as phonetic with associated sense 'regulate, make judgment', but can alternatively be regarded as both phonetic and semantic, with sense 'unravel' extended to 'regulate'.
続	continue, series	ito-hen	Time	Join/Link	X		zoku	tsuzu	売 211 ('sell') as phonetic with associated sense 'join, link', to give overall meaning 'join up broken thread'; sense ectened through generalization to 'join up, continue'.
孫	grandchild, descen	ito-kei	Time	Lineage	X		son	mago	Mizukami: 'link, join', and provisional overall meaning 'those who follow after children', i.e. grandchildren. Mizukami also notes several other proposals… 玄 / 幺
変	change, strange	non-ito	Vague	Tangle	X	X	hen	ka	(CO, original meaning: 'thead becomes tangled') as phonetic with associated sense 'knock over and turn into something different'. Subsequently the sense 'strike/knock over' was omitted and, to give the generalized meaning 'change'. 'Strange' may be seen as an extended sense.
約	promise, approx.	ito-hen	Vague	Bind	X		yaku		By extension, it acquired meanings such as 'reduce, contract, bring together', and then abstract meanings such as 'make agreement' and 'summarize'. (One notes the similar use of the figurative concept/term 'binding' in English with regard to agreements and promises.)
経	pass, sutra, longitu	ito-hen	Vague	Craft	X		kei, kyō	he, ta	…to give 'vertical threads on loom'; by extension, also abstract senses such as 'connecting thread (figurative)', 'pass, elapse', 'longitude'. 'Thread' led to extended meaning 'line of reasoning' (Katō).
潔	clean, pure	ito-shita	Vague			X	ketsu	isagiyo	CO originally meaning 'correct, proper')
件	item, matter	non-ito	Vague	Craft	X		ken	kudan	牛 (NJK, originally 'lead cow by a rope'; by extension, 'be pulled/bound'.
織	weave	ito-hen	Textile	Craft	X		shoku, shiki	o	
績	achievement, spin	ito-hen	Textile	Cocoon	X		seki		(Katō and Yamada consider 'thread' here to be hemp thread) ???
絶	cease, sever, end	ito-hen	Time	Ends	X		zetsu	tae, ta	…The sense was then generalized to 'cut, sever', and by extension 'end'.
素	element, base, bar	ito-shita	Textile	Silk	X		so, su	moto	Yamada gives a useful view regarding the overall semantic progression for this graph, namely 'white silk', generalized to 'white', then to 'plain' and 'raw material'; 'element' may be regarded as coming within the same semantic spectrum.
総	whole, total	ito-hen	Vague	Bundle	X		sō	sube	…as phonetic with associated sense 'bundle together', to give 'put thread into a bundle/ball', extending to all/total.
率	ratio, rate, %	ito-middle	Vague	Craft	X		sotsu, ritsu	hiki	OBI nad bronze forms show rope (taken to be hemp rope) and bits of hemp thread; the seal form shows these together with some sort of tool or device for making the rope. 'Command' and 'rate' may be regarded as loan usages.
断	decline, judge, cut	non-ito	Rope	Cut	X		dan	koto, ta	>'cut threads'> generalized sense 'cut', then extended senses as 'decisive' and 'refuse'.
絶	sever, cut off	ito-middle	Rope	Cut	X		dan	koto, ta	
続	overall, supervise	ito-hen	Time	Lineage	X		tō	su	(Ogawa says 'long thread/sequence'), to give 'beginning; thread/sequence'.
編	edit, knit, book	ito-hen	Textile	Craft	X		hen	a	
綿	cotton	ito-hen	Textile	Cotton	X		men	wata	
系	lineage, system	ito-kei	Vague	Lineage	X	X	kei		Shows to lengths of thread joined up by hand, thus 'join threads'; generalised to 'connect; be attached'.
絹	silk	ito-hen	Textile	Silk	X		ken	kinu	…and CO 口 (orig. insect type) as semantic and phonetic with associated sense 'pale yellow', thus 'pale yellow silk thread/cloth'; later 'silk'.
紅	rouge, crimson	ito-hen	Textile	Dye	X		kō, ku	kurenai, beni	工 125 (originally a type of tool probably an ax-head, also 'work') as phonetic with associated sense 'pink'. Qui suggests etymology of 紅 is more complex, indicating diversity of opinion over etymology.
磁	magnet, porcelain	ito-middle	Vague	Colour	X	X	ji		口 (NJK; original meaning 'threads dyed twice' or 口 (NJK; original meaning: 'abundant vegetation shoots').
縦	vertical, selfish	ito-hen	Vague	Line	X		jū	tate	
縮	shrink, reduce	ito-hen	Vague	Tangle	X		shuku	chiji	…'untangle', giving 'untangle thread' (Tōdō, Yamada), or i] 'shrink', giving 'thread/cloth shrinks' (Ogawa).
純	purity	ito-hen	Textile	Colour	X		jun		…'beautiful impurity-free raw silk' (Yamada, Katō), or ii] 'thick, impurity-free', giving '(silk) cloth with tufted edges hanging down heavily' (the tufts were white, and hence the extended sense 'color without impurities').
納	obtain, supply, stor	ito-hen	Vague	Silk	X		nō,na, natsu	osa	内 207 ('inside') as phonetic with associated sense 'become wet', giving 'wet thread'; meanings such as 'obtain; supply' tend to be regarded as loan usages… https://zhongwen.com/ wet silk
幼	infancy, childhood	ito-gashira	Time	Youth	X		yō	osana	幺 29 ('delicate/fine thread'; originally, pictograph of two fine threads intertwined [Mizukami]) as phonetic with associated sense 'small, tiny', giving weak in strenght', and by extension 'very young'.
乱	disorder, riot	non-ito	Vague	Tangle	X		ran	mida	Extremely convoluted… 'deformed, twisted'… focus is on tangle/untangle thread.
縄	rope, tie, fiber	ito-hen	Rope	Tie	X		i		…in Shuowen , further defined as the ropes for pulling the hood or cart or carriage.
緯	horizontal, weft	ito-hen	Textile	Craft	X		i	nuki	…thus 'thread that surrounds (the vertical thread)', i.e. 'horizontal woof'.
縁	edge, relation, ties	ito-hen	Vague	Craft	X		en	fuchi	Shirakawa says 'embroidered edge'.
緩	loose, easy, slack	ito-hen	Vague	Tie	X		kan	yuru	…giving 'tie thread loosely'.
幾	how many/much	ito-middle	Vague	Craft	X	X	ki	iku	…taken as 'cord attatched to loom treadle'…
畿	capital (place)	ito-middle	Vague			X	X	ki		幾 1181 ('how much, how many') as phonetic with associated sense 'near, almost'
斜	entwine, examine	ito-hen	Textile	Craft	X		kyū		CO 収 898 'twist, make rope' (original OBI form depicts two vines or similar connecting) as semantic and phonetic, giving 'twist, plait'.
緊	tight, compact, ten	ito-shita	Vague	Tie	X		kin		…'pull straight', to give 'pull strings/thread straight' (Gu), 'pull strings/thread tight' (Ogawa) or 'bind tight' (Sch
繰	reel, turn	ito-hen	Textile	Cocoon	X		sō	ku	CO 口 as phonetic with associated sense on one view as i] 'navy blue' (Ogawa, Shirakawa), then through extension or loan 'reel thread'. Tōdō takes extended sense as 'draw from surface', thus 'draw off thread from cocoon surface'.
渓	valley, gorge	non-ito	Vague	Bind	X	X	kei	tani	口 (originally, 'bound slave': see Note below) as phonetic with associated sense 'caught, entangled'…
継	inherit, follow, join	ito-hen	Vague	Cut	X		kei	tsu, mama	Katō takes i] to signify joined threads, and seems to take ii] to show repetition. Shirakawa, however, takes 口 (facing right, as here) as 'cut threads', as does Gu.
鶏	chicken, hen, cock	non-ito	Vague	Bind	X	X	kei	niwatori	口 ('bound slave': see 1632) as phonetic with associated sense taken variously as i] 'topknot', giving bird with crest feathers' (Katō), or ii] 'join up, connect', giving 'bird which is kept on a rope, thus giving 'chicken fowl' (noted by Mizukami), or iii] 'warn', giving 'bird which lets humans know of the arrival of dawn' (noted by Mizukami). Alternatively 口 is treated as being purely onomatopoeic in function, giving 'bird which makes sound like (early Chinese) "ke" (noted by Mizukami and also followed by Shirakawa).
繭	cocoon	ito-middle	Textile	Cocoon	X		ken	mayu	Silk cocoon
顕	manifest, visible	non-ito	Vague	Silk	X		ken	arawa	It is generally agreed that the components are 日 'sun' 66 and 絲 ('silk thread'; the bottom strokes in 口 are an abbreviation deriving from 絲 and not to be confused with /火8), but while one analysis takes 口 as 'silk thread drying in the sun' (Gu), another treats as 絲 'silk thread', standing here for 'silk floss', with 日 'sun' as phonetic with associated sense 'tangled', giving 'small cocoons left in silk floss' (Katō).
懸	attach, worry	ito-kei	Vague	Hang	X	X	ken	ka	…depicts a head hung upside down from a tree as punishment and warning, but was borrowed to write a near-homophone meaning 'feel anxious'.
幻	illusion, magic	ito-gashira	Vague	Craft	X		gen	maboroshi	One view takes this as a depiction of weaving shuttle reversed (予 425; later written 杼 [NJK], and links the graph to a word-family in early Chinese meaning 'turn around, send back', giving 'return weaving shuttle (on loom)'. This is the view of Katō, but taking the graph rather originally showing a shuttle inverted seems equally (if not more) valid as interpretation, based on comparison of the seal form of 幻 with that for 予, and this appears to be the view of Ogawa, who takes the original meaning as 'bring out colors in woven fabric' and by extension 'change'. Mizukami lists two alternative meanings: i] 'push back weaving shuttle with left hand', and ii] 'ends of fine/short thread (幺 29) move indistinctly and are hard to see'. The latter interpretation leads to extended meaning such as 'change, deceive, illusion'.
玄	occult, black	ito-gashira	Vague	Dye	X	X	gen		Several other commentators see the sense 'black' deriving from an original projected meaning of 'dyed black thread for 玄 (Gu, Shirakawa).
弦	(bow)string	ito-gashira	Vague	Hang	X	X	gen	tsuru	玄 1297 (originally depiction of twisted threads, now meaning 'occult, black') taken in one view as phonetic with associated sense 'attach, hang', thus giving 'attach to both ends of bow', i.e. 'bowstring' (Katō).
舷	ship's side, gunwal	ito-gashira	Vague	Hang	X	X	gen	funabata	…as phonetic, probably with associated sense 'attach, hang' as with 弦 1298 'strings', giving 'boat parts attached/hanging', i.e. 'gunwales, sides of boat'.
絞	strangle, wring	ito-hen	Vague	Bind	X		kō	shi	…giving 'fasten by entwining cord (or similar) around.
綱	cable, line, cord	ito-hen	Rope	Cord	X		kō	tsuna	(Tōdō) 'hard, straight rope/cable'.
紺	dark blue, dye	ito-hen	Textile	Colour	X		kon		Has 糸 29 'thread', and 甘 1139 ('sweet') as phonetic with associated sense 'including red' (Katō). Shuowen explains 紺 as 'dark blue tinged with red'.
索	rope, search	ito-shita	Vague	Cord	X	X	saku		twist fibers and make rope'
紫	purple	ito-shita	Textile	Colour	X		shi	murasaki	此 (NJK 'this'; see Note below) as phonetic with associated sense 'mixed randomly, unevenly', giving 'thread of (colors) mixed randomly/unevenly, here primary color blue mixed with red giving secondary color 'purple'.
滋	luxuriant, rich	ito-middle	Vague	Dye	X	X	ji		Convoluted but basically: 'thread dyed twice' / ' abundant shoots of vegetation'
慈	love, pity, affection	ito-middle	Vague	Dye	X	X	ji	itsuku	Convoluted but basically: 'thread dyed twice' / ' abundant shoots of vegetation'
繁	imperial seal	ito-hen	Vague	Silk	X		ji		…is typically taken to be based on a pictograph of a spinning decive for winding thread onto, though Mizukami notes an alternative view which takes it as a seal with a handle having cords attached.
湿	damp, moist, humi	non-ito	Vague	Cut		X	shitsu	shime	Similarly convoluted as 湿…typically taken to mean 'cut threads'
緒	beginning, end	ito-hen	Rope	Ends	X		sho, cho	o	Beginning on length of thread; by extension, senses such as 'connection' also.
紹	introduce, inherit	ito-hen	Vague	Join/Link	X		shō		Either way, overall original meaning sense is 'join threads'
縄	rope, cord	ito-hen	Rope	Cord	X		jō	nawa	…'twisted fibers'
紳	gentleman, belt	ito-hen	Textile	Bind	X		shin		i] 'long sash to extend around the waist' (Mizukami, Tōdō), or ii] 'sash to wear to straighten body posture (Mizukami). Shirakawa, by contrast, takes the associated sense 'bundle/put together', thus giving 'sash to bring garments together'.
繊	fine, slender	ito-hen	Vague	Thin, fine	X	X	sen		The overall original meaning of 繊 is 'fine textured silk/fabric'; this then became generalized to 'fine, slender'.
繕	repair, mend	ito	Textile	Craft	X		zen	tsukuro	giving 'make good with thread, repair' (Katō); originally, no doubt, with reference to clothing, but then in a broader sense.
遜	humble, modest	ito-kei	Vague	Lineage	X		son	herikuda	孫 565 ('descendants, grandchildren') as phonetic with associated sense seen in one view as 'retreat, be humble/compliant', thus, walk in retreat (Mizukami).
綻	rip, unravel, torn a	ito-hen	Vague	Unravel	X		tan	hokoro	定 371 ('fix, establish') as phonetic with associated sense taken either as i] 'appear on outside', giving 'be ripped and appear on outside' (referring to lining of garment becoming visible) (Tōdō), or ii] 'be cut, snap', giving 'be rent apart, ripped; unravel' (Ogawa).
繊	fine, minute, exact	ito-hen	Vague	Thin, fine	X		chi		fine, detailed', giving 'fine texture', and then 'fine, detailed.
畜	livestock	ito-gashira	Vague	Colour		X	chiku		Alternatively, the top element is taken to be 玄 'black', giving 'grow crops in rich black soil' (Tōdō).
蓄	accumulate, store	ito-gashira	Vague	Dye		X	chiku	takuwa	A different view takes 畜 as phonetic with associated sense 'soak skeins in pot of dye', giving 'accumulate' (color from plant dyes).
締	tighten, bind, tie	ito-hen	Vague	Bind	X		tei	shi	…all giving 'bind with thread' as the overall meaning'
縛	bind, tie, restrain	ito-hen	Rope	Bind	X		baku	shiba	bind with thread/cord'
繁	profuse, rich, comp	ito-shita	Vague	Tangle	X		han	shige	become entangled, giving 'cord made of intertwined threads'
蛮	barbarian	non-ito	Vague	Tangle	X		ban		Confusingly, depending on the associated sense, overall meaning is taken as either 'unravel tangled thread', or 'thread becomes tangled'
紛	confusion, stray	ito-hen	Vague	Tangle	X		fun	magi	giving 'thread becomes seperated, tangled thread'; by extension, 'be confused'.
縫	sew, stitch, embroi	ito-hen	Vague	Join/Link	X		hō	nu	giving 'join (fabric) with thread'.
紡	spin (yarn)	ito-hen	Textile	Craft	X		bō	tsumu	…'join together', giving 'combine fibers to make thread' (Ogawa).
網	net, network	ito-hen	Vague	Join/Link	X		mō	ami	…'mix, intertwine', giving, 'net made of intertwined/interwoven material'.
紋	crest, pattern	ito-hen	Textile	Pattern	X		mon		文 was used increasingly to mean 'writing', and when the meaning 'pattern' was intended this was indicated by adding 糸 29 'thread' as determinative to give 紋.
綱	dark, obscure, faint	ito-hen	Vague	Colour	X	X	yū	kasu	…associated sense 'black and unclear, dim', giving, 'burning fire produces smoke and blackened effect' (Mizukami
羅	gauze, net, include	ito-shita	Vague	Silk	X		ra		Bird net' and 'gauze (especially silk gauze)'are extended senses, and so too is 'include'.
絡	entwine, connect	ito-hen	Rope	Join/Link	X		raku	kara	i] 'entangled', thus 'silk thread becomes entangled' (Katō), or ii] 'be intertwined', giving 'wind/twist (something) round' (Ogawa), or iii] 'link across', giving 'link two sides with thread' (Tōdō).
累	accumulate, involv	ito-shita	Vague	Join/Link	X		rui		accumulate, follow one after another', giving 'join together'. 'Involved' is extended sense.
恋	love, beloved	non-ito	Vague	Tangle	X		ren	koi	i] 'heart connected', or ii] 'heart entangled', or iii] 'heart drawn to'.

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