

## Circular Forms in Aleksis Kivi's Texts

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### Abstract

In this paper, I identify and analyse regular geometric forms that appear in nineteenth-century Finnish author Aleksis Kivi's texts. His characters and his narrators exemplify these forms to the reader. The characters' environments are geometrically described, mapped and constructed in *Seven Brothers*, and geometric figures also exist in several of Kivi's novels, plays and poems. Circles are the most common of these figures. Thus, I concentrate on expanding and converging regular geometric forms that connect to circles.

### Introduction

Geometric forms exist in the world and in stories, but they are not often formally researched in literature. As an example of research on geometry in literature, Juliet McMaster analyses the circle-like and ball-like character forms in British author Charles Dickens' *Pickwick Papers*. When the nineteenth-century Dickens uses round character figures contrasting with long, thin and bending figures [12: 595–600], his texts resemble the texts of later nineteenth-century Finnish author Aleksis Kivi, whom I research here. Numerous small circles and round figures resembling Dickens' work appear in Kivi's texts, giving background to structured geometrical circles in scenes.

Kivi was a forerunner in writing long-lived fiction in the Finnish language, and his texts are influential in Finnish literature and culture. In addition to his 1870 novel *Seven Brothers* [1]<sup>1</sup> – in which structured geometrical forms construct scenes – Kivi wrote plays and poems during the late 1850s–1860s, some of which were published during his lifetime. Kivi's novel *Seven Brothers*; non-translated plays *Eriika* and *Selman juonet*; the poems *Eksynyt impi* and *Kaunisnummella* [3] and the English translation of the poem *Elfland* [2: 54–57]<sup>2</sup> are included in the research corpus due to their textual geometry.

Kivi's texts offer clear possibilities in research on textual geometry. Although Kivi is known as an author of fine literature, and not one of academic success<sup>3</sup>, impressionistically, some geometric features have been seen in Kivi's texts. Paavo Elo refers to mathematics in Kivi's texts when describing psychological circles around characters as well as periods of characters' lives as widening circles [4: 159, 272–27]. Aarne Kinnunen describes the novel's brothers' social spheres as widening [7: 186]. Kaarlo Marjanen [11: 40–41] describes scenes and plots symmetrically around specific reference points. He describes the reader's view as rising to a bird's-eye level and even to a cosmic perspective.<sup>4</sup> In this paper,

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<sup>1</sup> *Seitsemän veljestä* in Finnish. I present the original Finnish names and quotes in the footnotes for all of the translations that I cite.

<sup>2</sup> *Lintukoto* in Finnish.

<sup>3</sup> School was described as hard for Kivi (birth name: Alexis Stenvall) because of economic reasons. He came from a rural family of tailors. After graduating from high school, he began studying at the History-Language Department at the University of Helsinki at the age of 22, but he concentrated on writing literature [14: 108–110].

<sup>4</sup> Longitudinal circles, the cyclical nature of time marked by the sun (dawns, rises and sets), as a plot device are outside the scope of the present paper. Several researchers, including Elo [4: 272], describe the circularity of the brothers' lives, the sun and time. Elo [4: 272] and Marjanen [11] claim that the seven brothers' life circles widen as their lives progress. While Marjanen [11] sees *Seven Brothers* as symmetrical, Tarkiainen sees the last chapter as dividing the brothers' lives into different paths [14: 471].

I examine how regular and stabile geometric forms as circles construct pictures of characters' environments in Kivi's texts. I focus on circles — the most common geometric forms in Kivi's texts. I analyse other geometric forms as well, including lines, squares and cubes, but only in connection to the circles.<sup>5</sup> In the next section, I introduce constructed circles in Kivi's texts. Then, I investigate square-centred expanding and converging circles. Finally, I introduce cube-centred and quadrangular-centred circles and polygons.

### Expanding and Converging Circles

Circles either expanding or converging appear repeatedly in Kivi's texts. This structure is visible in the poem *Elfland*—the home of birds—in which J.V. Lehtonen [9: 21–25] describes how the narrator's view of the isle focuses inward and on the inner surrounding figures. As V. Tarkiainen [14, 333] writes, the narrator's visual perception of circles converges as eternally young maidens and young men enjoy a circular dance on the isle [2: 54–57, 3], and they joyfully sail in rows 'around the isle' [Lehtonen 9: 25]. The sailing inhabitants sit pairwise on their swan boats [2: 54–57]. Moreover, the circularity of their route resembles brother Eero's suggestion to dance in a ring in *Seven Brothers* [1: 198]<sup>6</sup> as well as the furious dance of the goblins when they encircle a lost maiden in the darkening forest in *Eksynyt impi* [3].

Marjanen [11: 26–27] describes landscape views in *Seven Brothers* as widening circles and radii that expand infinitely and timelessly.<sup>7</sup> Elo presents 'a law of widening peripheries' in both specific scenes and in general in *Seven Brothers* and in the play *Canzio*. He explains the law using a water metaphor: a stone dropped into water creates wider rings around the centre until a new centre in the periphery substitutes the former, enclosing all of the previous circles. With a geometrically differing metaphor, he constructs the plot as a string of wooden discs [4: 275, 345]. Elo finds these centres with widening rings in five parts of *Seven Brothers* (i.e. in certain chapters: the beginning of I, the end of I–IV, V–XI, XI–XIII and XIV). These rings intensify from the beginning to the end, while the viewpoint transitions from the earth to the sky and eternity [4: 270–271]. He identifies the first episode of *Seven Brothers*, in which six of the brothers steal eggs during their childhood and escape into the forest, as the first transition from the centre to the periphery [4: 271, 274, 298]. At first, the moving rows of villagers searching for the runaway brothers resemble the sailing rows in *Elfland*. When the brothers' mother and villagers approach the runaways, they encircle the brothers 'as angels', describes Elo [4: 270–275]. Kinnunen explains how the brothers imagined a peace in which God protects them and angels surround them, which turns out to be a trap when the tired and angry villagers encircle them [7: 149–150, 163]. This circle might be seen as an allegory as well as a parody: a figure of a converging circle of villagers forming around brothers that encircle a fireplace.

Expanding circles can be seen when the Impivaara hut catches on fire. As young adults, the seven brothers escape village society into their backwoods, Impivaara, and construct a hut there. The hut has a rectangular floor plan of 30 x 18 feet. While almost half of the hut was initially reserved for the domestic animals and sauna, the brothers' living area can be calculated to be about 15 x 18 feet, which is close to the measurements of a square [1: 119]. Unfortunately, a disastrous fire occurs during their very first Christmas after they build the hut. The narrator shows the reader how the burning fire forms harmonic and regularly expanding circles in its first moments; however, the brothers do not notice the fire in time. The narrator presents the figure of the expanding circle as follows: 'As a circle of the surface of the water

<sup>5</sup> Right-angled crossroads probably exist in Kivi's texts. The oldest brother in *Seven Brothers*, Juhani, describes a crossroads in the town of Turku as an angle in Finnish: 'seistessäni kadun kulmalla' [3], or 'as I stood there on the street corner' [1: 115]. Triangles seem to be non-existent.

<sup>6</sup> 'Let's join hands and dance', suggests Eero [1: 198]. In Finnish, the figure of a ring is clear: 'EERO. Iskekäämme käsi käteen ja veljesrinkiä tanssikaamme, loiskikaamme' [3].

<sup>7</sup> Marjanen lists at least 12 views from a high place in the novel. He uses the word 'pyöröjä' [11] of Kivi's language. Some nineteenth-century Finnish geometry books use the same word of circles.[ 5:8, 6: 10]

spreads evenly in all directions from the center, so the bright ring of fire expanded steadily over the floor' [1: 137].<sup>8</sup> When the circle of fire expands in Impivaara, it fills the square-like living area and spreads beyond the hut. The figure of a circle expanding out of a square repeats in later scenes as well.

Expanding and converging circles are seen during the search for the lost brother Simeoni. Searching for a lost or a beloved character is a repeating theme in Kivi's texts. A lost character tends to walk around in nature. In Kivi's poem *Kaunisnummella*, a mother searches for her lost child, who walks in circles outside in the darkening night and ends up back where he started [3]. In *Seven Brothers*, Simeoni — the middle-born brother who fears encountering his brothers after an unlucky trip to Hämeenlinna with his brother Eero<sup>9</sup> — escapes into the forest from the perimeter of the yard at Impivaara. The narrator describes how searching for him causes the reader's view to widen. When hearing about Simeoni's misery, Juhani is the first to search for him — the five brothers soon follow.<sup>10</sup> Kivi's characters and narrators do not derive geometric forms as Euclid does [5: 6]; instead, they show them to themselves and to the reader. The picture of the landscape widens as a graphic figure as each of the searching brothers walks outward in different directions from the hut. They search for him in nearby areas on the first day and then widen their search in the following two days. This corresponds to how the brothers' mother and the villagers searched for the six runaway brothers when they were children — in wider and wider areas. These structures correspond to Elo's [4] 'law of widening peripheries'.

The narrator describes how the search forms expanding circles and radii. The narrator clearly shows the reader how each of Simeoni's six brothers simultaneously walk straight outward from the Impivaara hut that forms the centre of an expanding circle. The brothers shout for Simeoni, and their shouts and the echoes of their voices continue to travel outward.<sup>11</sup> When the brothers proceed farther into the forest, the narrator asks the reader to draw a line connecting the outer points of their shouts to form a circle. This expanding circle has six radii at regular distances, like six spokes from a wheel hub:

Early in the next morning, they set off on their mission. Impivaara was the point from which six men set out on paths like spokes from the hub of a wheel. A clamor now arose, in which shout swallowed up shout and echo chased echo through the endless depths of the forest. The din receded even further and the wheel expanded hugely. Had you been standing on the crest of Impivaara, you would have traced the rim of the wheel by drawing a line from shout to shout. So they journeyed, each on his own course [1, 225].<sup>12</sup>

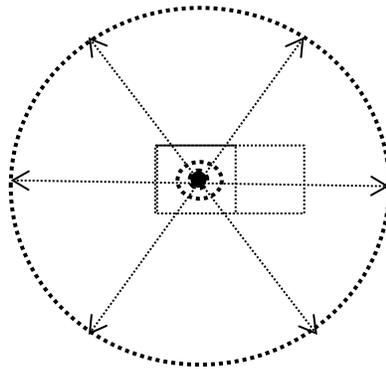
<sup>8</sup> 'Niinkuin rinki veden pinnalla leviää tasan ja nopeasti kaikkialle, niinmyös tulen kirkas pyörö yhä suureni laattialla' [3].

<sup>9</sup> Researchers have identified different brothers as the most central character of *Seven Brothers*. Unlike others, Elo places Simeoni at the centre of a circle and divides his brothers, situating them on opposite sides of the ring [4: 276]. As a series from oldest to youngest, Simeoni is in the centre, followed by Juhani, the twins Tuomas and Aapo, the twins Timo and Lauri and Eero [1: 15].

<sup>10</sup> 'Määrättiin nyt yleinen etsiminen ympäri metsiä. Jokaisen veljeksistä tuli lähteä ulos yksin ja eri suuntaa kohden, ja hänen, joka pakolaisen saavuttaisi, piti saattaa se kotia, astua ylös Impi-vaaran vuorelle ja, puhaltain koivutorvea, ilmoittaa asia muille' [3].

<sup>11</sup> Väinö Linna [10: 27] sees repeating echoes as a spatial element, and Kinnunen [7: 110] emphasises the duration of the echoes.

<sup>12</sup> 'Varhain seuraavana aamuna läksivät he retkellensä. Impivaaran pirtti oli se piste, josta kuusi miestä kuin sädetä pyörässä kävi kaikkialle ulos. Alkoi nyt meteli, jossa huuto nieli huudon ja kaiku kaikua ajeli äärettömien metsien helmassa. Mutta yhä kauemmas poistui pauhu ja valtaisesti laajeni pyörö. Ja tämän pyörön sinä sait, jos seistessä Impivaaran harjulla ja kuuliellessa huutoja etäällä ympärillä, vedit viivan huudosta huutoon. Niin samosivat he kaikkialle, retkeilivät kukin suuntaansa kohden' [3].



Centre: Simeoni after he has been brought to the Impivaara hut. He stares at his brothers encircling him.

Small circle around the centre: Simeoni's six brothers staring at Simeoni.

The square around Simeoni and his brothers is ca. 15 x 18 feet. Almost half of the floor area in the Impivaara hut is timbered, while the rest of the hut is for domestic animals [1: 264]. The total area of the hut is 30 x 18 feet [1: 119, 149].

Rectangle: the whole Impivaara hut.

The arrows from the centre to the big circle: the brothers and their shouts when they search for Simeoni.

Big circle: this connects the brothers' shouts.

**Figure 1:** *The search for Simeoni in Seven Brothers.*

When Juhani finds Simeoni, he brings him back to their home at Impivaara, which the brothers had rebuilt in the same size and form after the disastrous fire [1: 226, 147]. Stepping aside from the Impivaara hut's centred circle, Juhani calls the remaining searchers home by blowing a birch horn on Impivaara Mountain. The sound of the horn spreads in every direction until it reaches the five searching brothers. Their voices, in turn, reach Juhani: 'The echo sped afar in all directions, soon answered by happy voices from east, west, north, and south, weak and fading voices from the eternal twilight of the distant blue woods' [1: 226].<sup>13</sup> The brothers eventually appear at the hut and encircle Simeoni. They stare at Simeoni, who stares back at them. The narrator describes Simeoni staring at his brothers like an eagle-owl, which is known for its characteristic circular eyes; however, Simeoni's eyes are not described directly as being circular here [1: 226–227]. Marjanen [11: 28] describes the widening, converging, narrowing and bird's-eye views as adding rhythm to the novel's structure.

The search for Simeoni happens when nearly three-fourths of the *Seven Brothers's* pages have taken place. [1: 225–226]. Marjanen [11: 37, 41] claims that the scene on Hiisi Rock and the brothers' yells there—described in more detail in the following section—takes place in the exact middle of *Seven Brothers* by considering either the number of pages or chapters. He sees the Hiisi Rock as a central point in the novel's symmetrical, circle-like and sculptural construction. The geometric figures of these scenes have a resemblance to one another, although the circle figures and the radii at the Hiisi rock are rougher, and several polygons connect to the circles.

### Hiisi Rock: A Cube, Polygons and Rotating Circles

As usual, the novel's themes appear in variations in Kivi's other texts. A figure of a circle and a quadrangular can be seen in the story *Eriika*, in which ten rowan trees surround her home as a remembrance of the Ten Commandments. These trees are planted to form an allegory that gives stability to human life, but the story leaves it unclear whether the trees form an exact circle. The figure of an apparently quadrangular farmhouse inside a circle in *Eriika* provides a geometrical connection to the scenes of the *Seven Brothers*. [3]The play *Selman juonet* introduces a scene in which spruces surround a

<sup>13</sup> 'Etäälle kohden kaikkia ilmoja kiiriskeli kaiku ja kohtapa kuului iloisia vastauksia idästä, lännestä pohjosesta ja etelästä, kuului riutuen ja heikeästi sinimetsien ikuisen kaukaisesta hämärästä' [3].

spring that has a rock in it [3]. This rock bears a minor resemblance to the cubic, erratic Hiisi Rock (i.e. the demon's rock), which is surrounded by a meadow, in *Seven Brothers*. Both of the stones are central scenes. In the novel, the brother Aapo relates the history of the Hiisi Rock: a demon threw this quadratic rampart stone from Lapland to its current place at Häme in an attempt to kill the shooter of his beloved deer. The boulder flew in a high arc, eventually acting as a gravestone for the hunter.<sup>14</sup>

He [a prince of Hiisi] flew into a terrible rage, tore a huge block of [quadratic] stone from the castle wall and sent it flying high in the air toward the Bowman in the wilds of Häme. With a rush and a roar, the enormous stone flew in a high arc to the dome of the sky and sank down toward the day again. Square on the Archer's head fell the stupendous weight, burying the man beneath it forever [1: 166–167].<sup>15</sup>

The Hiisi Rock becomes a central scene for these seven brothers when their neighbour Viertola's 33 feral bulls chase and encircle them<sup>16</sup> on this nearly cubic stone, which almost looks like a square if viewed from above:

Barely had they [the seven brothers] mounted the rock when they were surrounded by a milling herd of beasts bellowing and pawing the ground. This rock, the men's refuge, was nearly a square, a six-foot-high craggy block that stood in the woods some three hundred paces from the meadow [1, 165].<sup>17</sup>

The cubic stone is about to become the brothers' gravestone — they remain trapped on it, starving, for three days and nights [1: 149–196]. At last, the brothers pass a bottle of liquor around, rolling it between their hands, when Juhani urges them to each take a swig and then place the bottle on the ground and spin it. These motions can be seen as circles — an image that is clearer in Finnish: '*Juhani*. ... But bring out the pewter bottle, toss of a good swig, and start it going around. We could stand a little bucking up' [1: 165]<sup>18</sup>. A bit later, Juhani repeats the demand: '*Juhani*. ... But open your pack, Lauri, and let's drink go around' [1: 174].<sup>19</sup> While the brothers' positions might not form an exact circle, the route of the bottle could be interpreted as an irregular polygon.

Euclid describes a square encircled tightly by a circle. The length of the perimeter of a circle is estimated by positioning the polygons so that they touch the circle both from the inside and the outside. By increasing the number of angles, the polygons limit toward the circle [6: 107–112, 122–123]. This phenomenon is visible at Hiisi Rock in two ways. Firstly, as a consequence of the bottle being passed around, the drunken brother Lauri sees Hiisi Rock from his egocentric perspective as rotating clockwise around him 'from east to west', while the surrounding woods rotate in the opposite direction: 'Spin, stone, from east to west, and whirl woods from west to east. Yahoo!' [1: 176].<sup>20</sup> Lauri exclaims that the stone, 'the brothers' castle', will rotate around like a mill stone that will fling the brothers to their deaths: 'Let our prison spin like a millstone and throw seven hard-luck boys to the bulls' [1: 176].<sup>21</sup> When the square

<sup>14</sup> I.e. Marjanen [11] Kinnunen [7].

<sup>15</sup> 'Silloin julmistui hän hirmuisesti, tempasi linnansa muurista suuren neliskulmaisen kivimöhkälehen, sinkautti sen korkealle ilmaan, lentämään kohden joutsimiestä Hämeen saloissa. Voimallisella pauhulla ja huminalla kiiti ankara kivi, valtaisessa kaaressa halkaisten pilvien tuulisen maailman. Kohosi se ylös taivaan kumuun, vaipui alas taasen, vaipui päivään päin, ja juuri ampuniekän pääläelle putosi summaton paino, haudaten miehen allensa ijankaikkiseksi' [3]. *Seven Brothers* loses the quadratic form [1: 166–167].

<sup>16</sup> Ahlqvist cit. [8: 242], Niemi [13: 99–103].

<sup>17</sup> 'Tuskin olivat he ehtineet kivelle, niin jo temmelsi heidän ympärillään juhtalauma, myristen ja kuopien maata. Ja tämä kivi, miesten turvapaikka, oli melkein neliskulmainen, syllän korkea kallionkappale, ja seisoi korvessa noin kolme sataa askelta ahon reunalta' [3].

<sup>18</sup> 'JUHANI. . . . Mutta saatappas tinapullos esiin, kumauta siitä aika naukki ja sitten pane se vierimään ympäri. Nyt tarvitsee sydän vähän vahvistusta' [3].

<sup>19</sup> 'JUHANI. . . . Mutta aukaiseppas konttisi, Lauri, ja käyköön ympäri yksi kumaus' [3].

<sup>20</sup> 'Pyöri, kivi, idästä länteen, ja, metsä ympärillämme, lännestä itään pyöri! Heleijaa!' [3].

<sup>21</sup> 'Myllyn kivenä pyöriköön linnamme ja viskatkoon elukkain saaliiksi seitsemän onnetonta poikaa' [3]. Elo [4: 296] describe Lauri's words psychologically as an erupting volcano.

rotates, its angles can be seen in different places. In this visual, the number of angles increases to the circle's limits. Lauri's egocentric and human-centric view inside the circle and the square corresponds to Leonardo da Vinci's fifteenth-century *Vitruvian Man*, a man touching and determining the sizes of a circle and a square with his limbs [15].

Secondly, the bottle's route from one hand to the next can be interpreted to form an irregular polygon, and the bulls surrounding the rock forms another irregular polygon.<sup>22</sup> Seven pairs of circular eyes stare out from the stone that assumes a circular form in Lauri's perception. The 33 bulls surround the brothers [14: 470, 11: 41] like an army, staring at them. [8, 242], [13: 99–103] The gazes both outward from and toward the stone form radii. If the bulls had surrounded the Hiisi Rock in a regular circle formation, the geometrical figure (of a square, circles and radii viewed from above) would resemble the search for Simeoni. However, because the brothers on the stone and the bulls surrounding it are moving, the resultant figure is less geometrically exact. The inexact circles resemble the dancing in rings in *Eksynyt impi*. The brothers' voices shouting for help spread outward, eventually reaching the ears of their neighbour Viertola's overseer; but they get no help. [1: 174].<sup>23</sup>

They bawled out in unison with all their might, so loudly that the rock and the ground under and around it trembled. Even the startled bulls retreated a few paces. . . . Five long shouts they shouted; the forest roared and the echoes ranged far afield. . . . [1: 169].<sup>24</sup>

Marjanen describes the brothers' screams for help at Hiisi Rock as a central turning point in the brothers' lives [11: 37–41, 51–53]. He concludes that such a strong symmetrical structure is needed to give form for the associative imagination [11: 39–40].<sup>25</sup>

Eventually, while the drunken Lauri sleeps on the stone, the other six brothers' bullets spray outward from the rock and kill the bulls. Afterward, they walk down and outward from the stone. The brothers, who previously created a circle-like pattern by rolling the bottle on Hiisi Rock square, now move outward. Both the bullets and walking brothers form radii from the stone, similar to the figure they created when searching for Simeoni, but in irregular directions from the central stone. Their circle expands outward from the square. The brothers slaughter the bulls, eat and rest encircling a campfire away from the stone while the sun is setting. Thus, the Hiisi Rock scene consists of almost a cube- or square-form stone surrounded by several circles, rough circles or irregular polygons and radii-like movements both outward and toward the stone. As Juhani stepped aside from the Impivaara-centred circle to call his brothers home from their search for Simeoni, his cheeks ballooned when he blew the apparently round-mouthed birch horn until the echo spread concentrically over the quarters and reached his brothers' ears. The brothers' shouts reached back to Juhani and they gathered in the original centre inside the Impivaara hut. [1: 226] Similarly, the Hiisi Rock scene concludes with the image of a smaller ring just outside the stone [1: 164–196]. These deviations from the main circle correspond to Elo's law of widening peripheries, but on a local scale.

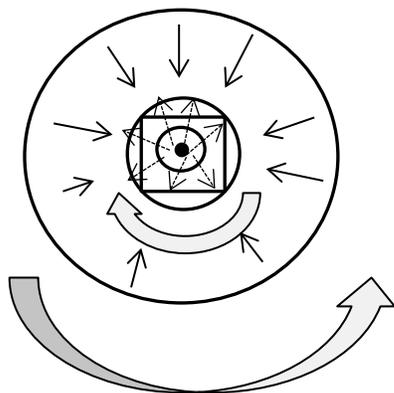
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<sup>22</sup> The sinister bulls surrounding Hiisi Rock and the goblin dancing around the character 'eksynyt impi' could be interpreted as forming irregular polygons [1: 164–196].

<sup>23</sup> 'korottivat he äänensä taas, huutaen kaikki yht'aikaa. Ehti kaiku Viertolan voudin korvaan, koska hän käyskeli riihimäellä, mutta hän ei käsittänyt huudon tarkoitusta' [3].

<sup>24</sup> 'Huusivat he miehissä kaikin voimin ja yht'aikaa, että kivi ja maa sen alla ja ympärillä järehti, ja vavahtaen karkasivat härjätkin jonkun askeleen kivistä pois. . . . Huusivat he viisi pitkää huutoa, ja metsä pauhasi ja kauas kiiriskeli kaiku' [3]. Marjanen [11: 37–38] argues that the brothers' cries for help are the central point of *Seven Brothers*.

<sup>25</sup> Marjanen [11: 40–41] emphasises the structural symmetry of *Seven Brothers*. However, Marjanen notices that the turning point of the varied plot has been contested. It has been generally agreed upon that the development in the brothers' lives continues, and several other events in the story further develop their lives.



Square: the cubic Hiisi Rock from above.

Inner circle: a bottle of liquor passes from hand to hand.

Central spot: the drunken Lauri.

A small circle encircling the square forms when the square rotates around itself in Lauri's drunken view. A clockwise arrow indicates the direction of the stone's rotation.

A big circle encircles the small one at a 300-foot distance. Woodlands surround the big circle. The counterclockwise arrow shows the direction of the woodland's rotation, as Lauri sees it.

Arrows moving outward from the square: the seven brothers stare at the bulls, yell for help, and eventually, six of the brothers shoot the 33 bulls.

Arrows inward: the bulls stare at the brothers and prevent the brothers from escaping.

**Figure 2:** *On Hiisi Rock in Seven Brothers.*

### Expanding and converging moves at Jukola

The figure of a stone surrounded outward and inward moves is repeated in the last chapter when the older Simeoni, now living with Juhani's family, rests 'on the hearthstone' [1: 304]<sup>26</sup> at Jukola. This stone seems to form a central place in his later life. Traditional Finnish stoves and timber houses around them are often quadrangular, but the exact forms of the ones at Jukola are not told. The stone certainly contains an edge: Simeoni's 'hair hanging down over its edge' attracts Juhani's young girls to 'yank at his wretched hair' [1: 304].<sup>27</sup> Simeoni does not appreciate either himself, minors or animals. The demands of the hungry girls cause him to temporarily step down from the stone and threaten them and the family dogs with a 'weapon, the sooty birch limb' [1: 304–306] so that at first 'the scamps darted out of the house' [1: 304]<sup>28</sup> and then the dogs had to escape to the snowy and windy yard for a long time. So the hungry girls and dogs move away from their uncle on the central stone, but the need of food and warmth leads them back. These moves might not form regular radii. The violence, the expanding and converging moves, and the man on the stone in the centre construct a smaller figure that resembles the huge scene at Hiidenkivi. [1: 165–196, 304–306] After the girls have fallen asleep, Simeoni sets God as the central character [1: 306], which connects the scene with the allegorical rowan trees in *Eriika* [3] and with the God-centered image during six brothers' childhood runaway [1: 18–20, 3, 4: 270–275, 7: 149–150, 163]. Simeoni's prayer expands gradually from himself on the stone to cover the girls, the house, and even the people on earth, forming a worldwide circle. 'He prayed for himself, for the little ones in the bed, and for all the people on the earth. Then he lay down on his bellowed hearthstone' [1: 306]<sup>29</sup>

<sup>26</sup> 'tulitakan kivellä' [3]

<sup>27</sup> 'uskalsivatpa he [girls] lopulta iskeä kyntensä äijän kurjaan tukkaan, joka riippui tulitakan reunalla.' [3]

<sup>28</sup> 'pakenivat he [dogs] viimein ulos Simeonin nokisen asean, koivuisen haarun alta.' [3] after the girls had escaped out earlier 'Silloinpa vilkkasivat veitikat tuvasta ulos,' [3].

<sup>29</sup> 'Hän [Simeoni] rukoili itsensä puolesta, noiden pienten puolesta tuolla vuoteella ja vieläpä kaikkein ihmisten puolesta maan piirin päällä. Siitä kallistui hän lepoon rakkaalle kivellensä,' [3] The Finnish expression of the earth has a circle form here.

## Conclusion

Kivi's texts include well-described geometric forms that reveal the author's ability to adopt geometry in his writing. Mostly, Kivi uses circles, but, for example, radii, polygons and cubes also exist in connection with the circles. His characters and narrators organise their views of their environment by imagining the environment in geometric forms. These geometric forms construct and explain the characters' narrow environments in several scenes. In addition to small regular circles, special places in nature, houses and some walking routes are described as geometric figures. These places are described via circles and squares that form central areas in several scenes. These scenes involve regular circles that expand and converge. These constructions can be found in several of Kivi's poems [2, 3], but they are most organised and visible in *Seven Brothers* [1]. The search for Simeoni and the imprisonment on Hiidenkivi in *Seven Brothers* [1] are mapped as geometric figures for the reader—the characters and the narrator show how the scenes are comprised of circles, radii, squares and cubes. Expanding and converging circles construct scenes, and a square moves in such a way that its outer corners form a circle. By increasing the number of angles of the polygon, the size of the circle is limited. Irregular polygons can be found in the text, and a circle or an irregular polygon emerges from the squares. The burning Impivaara hut and what happens around old Simeoni at the Jukola hearthstone vary these scenes. These scenes are drawn as geometrical figures in the landscape, and some of them have clear allegorical divine connection. In addition to the longitudinal arcs of circles, these circular forms seen from above give a view to Kivi's works, especially to his novel *Seven Brothers*.

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