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Science Fiction in South and North Korea: Reading Science and Technology as Fantasized in Cultures

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1 Introduction: Myth of Science and Science Fiction in Korea

In his foreword to *The Physics of Star Trek*, Stephen Hawking reflects on the value of science fiction for science:

> Science fiction like *Star Trek* is not only good fun but it also serves a serious purpose, that of expanding the human imagination. . . . There is a two-way trade between science fiction and science. Science fiction suggests ideas that scientists incorporate into their theories, but sometimes science turns up notions that are stranger than any science fiction.
>
> . . . Nevertheless, today's science fiction is often tomorrow's science fact. The physics that underlies *Star Trek* is surely worth investigating. To confine our attention to terrestrial matters would be to limit the human spirit (Krauss 2007: xi–xiii).[1]

This seemingly obvious comment on science fiction, however, loses its validity in South Korea, where even the global mega-hit *Star Wars* movies and *Star Trek* TV series have been poorly received. According to "All Time Worldwide Box Office Grosses," four of the seven *Star Wars* movies are ranked in the top 100 in the world, but only one, *Episode VII: The Force Awakens*, is included in the top 200 in similar Korean statistics, where its ranking is 147th (Box Office Mojo; Korean Film Council n.d.).[2] The *Star Trek* TV shows have an even poorer record in South Korea: not

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[1] Stephen Hawking himself briefly appeared in an episode of *Star Trek: The Next Generation* (Season 6, "Descent: Part 1"), playing poker with holographic figures of Isaac Newton and Albert Einstein and Mr. Data from the *Enterprise* crew.

[2] Box Office Mojo n.d, four of seven *Star Wars* movies are ranked in the top 100: *Episode VII: The Force Awakens* (2015) is 3rd; *Episode I: The Phantom Menace* (1999) 24th; *Episode III: The Revenge of the Sith* (2005) 53rd; and *Episode IV: A New Hope* (1977) 67th. *Episode II: Attack of the Clones* (2002), *Episode V: The Empire Strikes Back* (1980), and *Episode VI: Return of Jedi* (1983) are ranked 103rd, 148th, and 178th, respectively.

one of the six series had all its episodes aired by any South Korean TV broadcasting company.[3] Similarly, science fiction novels and short stories have neither been popular among the public nor seriously considered by the South Korean literary community.

Surprisingly, North Korea has offered more fertile ground for science fiction. Ever since the mid-1950s, the North Korean regime has supported writers not only to translate Russian science fiction into Korean but also to create their own stories. Kim Jong-Il actively and openly encouraged North Korean writers and filmmakers to produce more science fiction novels and movies from the early 1970s on. Science fiction became firmly rooted in the North Korean literary community and found a wide audience there.

The different receptions of science fiction in South and North Korea are surprising because the popular image of twenty-first-century South Korea is that of a prosperous, technologically advanced nation, while the image of North Korea is that of a poor, backward one. In fact, neither images of Samsung cell phones and Hyundai automobiles nor those of nuclear bombs and long-range missiles are reflected in South and North Korean science fiction, respectively. The popular idea that the advancement of science and technology can be related to the development and popularity of science fiction, as Hawking's word suggests, does not apply to either the South or the North Korean cases.

Before analyzing science fiction in South and North Korea, it is necessary to clarify the definition of science fiction. The entry "Definition of SF" in the *Encyclopedia of Science Fiction* indicates that there were more than three dozen interpretations of science fiction by different scholars and authors during the twentieth century (Clute 1993). Prestigious English dictionaries offer slightly different definitions, too. Among them I have chosen a standard but conservative definition from *The Oxford English Dictionary*: "fiction in which the setting and story feature hypothetical scientific or technological advances, the existence of alien life, space or time travel, etc., *esp.* such fiction set in the future, or an imagined alternative universe" (Oxford English Dictionary Online).

This article attempts to provide answers to the following questions: How are the two key ideas in the above definition—"science and technology" and "the future"—reflected in South and North Korean science fiction? How much and in what ways have different historical, social, cultural, and political environments influenced the development of science fiction in South and North Korea? What are the differences and similarities in South and North Korean science fiction? And what can we learn from the distinctive characteristics of science fiction in South and North Korea?

2 Science Fiction in South Korea

Science fiction was first introduced to Korea in the early twentieth century by Korean students in Japan, but neither the Korean literary community nor the general public started paying any serious attention to it until 1945 (Ko 2015). It was only after 1953, when the Cold War became acute on the Korean peninsula, that many Western science fiction classics were translated into Korean from Japanese translations of the

[3] The six TV series are *Star Trek: The Original Series* (1966–69), *Star Trek: The Animated Series* (1973–74), *Star Trek: The Next Generation* (1987–94), *Star Trek: Deep Space Nine* (1993–99), *Star Trek: Voyager* (1995–2001), and *Star Trek: Enterprise* (2001–5).

originals, mostly by relatively unknown writer-translators.[4] South Koreans have, however, considered science fiction to be for children or teenagers, not for serious adults, which has greatly restricted both its scope and target audience. Few science fiction novels, movies, TV series, or animations were created by South Koreans until the very end of the twentieth century.

Before the early 1990s, Han Nak-Won (1924–2007) was the only South Korean writer who had continuously published science fiction since 1959. Those who were teenagers in the 1960s or 1970s still remember his *Ireobeorin sonyeon* (*Lost Boy*), *Keumseong tamheomdae* (*Expedition to Venus*), *Byeoldeul choehu ui nal* (*The Last Day of Stars*), and *Sarajin haengeullaideo* (*Hang-Glider Disappeared*). Kim I-Gu, a South Korean novelist and literary critic, calls Han "the only science novelist in the history of modern Korean literature who devoted his whole life to the creation and writing of science fiction" (Han 2013: 544). Yet the South Korean literary community did not recognize Han because his work was published in teen or science magazines rather than in any major literary journals.[5]

The neglect of science fiction as a literary genre began to change slowly only in the mid-1990s, when some young Koreans began to write science fiction regularly. Since there was no magazine dedicated to science fiction and South Korean literary journals seldom published it, internet websites became important and useful crossroads where South Korean science fiction writers and readers could meet. Some online magazines, such as *Monthly SF Webzine*, *Mirror*, and *Fantastique*, emerged in the late 1990s but soon disappeared, largely due to a lack of popular interest and support (*ScienceBooks* 2013). Since the early 2000s, increasing numbers of science fiction books by Korean writers and new translations into Korean directly from Western sources have been published. Around the same time, government agencies such as the Korea Foundation for the Advancement of Science and Creativity began to award prizes for the best science fiction novels and to support the SF Screen Festival. *Crossroads*, the online magazine of the Asia-Pacific Center for Theoretical Physics, regularly publishes science fiction short stories. In 2013, *Azalea: Journal of Korean Literature and Culture* published English translations of six South Korean science fiction short stories in its "Special Feature" section (Shin et al. 2013). However, the number of Korean science fiction writers still remains very small—twenty at most—and the quality of their work does not meet the expectations of South Korean readers who are familiar with Western science fiction:

> Science fiction comprises only a small fraction of the whole [South Korean] literature market . . . [and] most science fiction in the market is translated from imported foreign works. One statistic indicates that 72% of science fiction books sold in online bookstores are translations from English literature, 10% each from French and Japanese works, and Korean science fiction consists of only 6%. . . . In short, Korean science fiction is barely surviving. (Park 2007)

[4] It was only in the 1990s that science fiction classics by Isaac Asimov, Robert A. Heinlein, and Arthur C. Clarke began to be systematically translated into Korean from the English originals. H. G. Wells and Jules Verne's classics were also translated from the original English and French versions into Korean from the 1990s on.

[5] In conservative South Korean literary circles, it has long been a tradition that only writers who publish their first works in selected literary journals or win one of few literary competitions are considered proper members of the literary community. Han Nak-Won did neither.

Fig. 1 The covers of four South Korean science fiction books published since 2000

As a result, even today, most large bookstores in Seoul have no separate section for science fiction.

What has restricted the development of science fiction in South Korea for so long? I would argue that two factors may explain this phenomenon: (1) Confucian tradition or prejudice against science and technology in South Korea, and (2) the lack of communication between science fiction writers and scientists/engineers.

First, the strong Confucian prejudice against science and technology has held back the development of science fiction in South Korea. Until the end of the nineteenth century, few Koreans paid serious attention to science and technology. Neo-Confucianism, the official ideology during the Chosun dynasty (1392–1910), emphasized the importance of the humanities and despised manual labor and non-Confucian learning (Chung 1989: 155). Only a few Korean intellectuals studied astronomy for calendar making and for its philosophical connection with the Confucian worldview, or wrote books on natural history, and their activities were usually considered to be marginal (Jeon 2011). A recent Korean history textbook nicely summarizes this point: "Education trained the cultivated generalists. There was disdain for the specialist and for technical training that prevailed into recent times. . . . Education was basically of a nonspecialized, literary nature, which has remained the preference of most Koreans" (Seth 2016: 148).

Although Confucian values such as emphasis on education, the meritocratic tradition, and the importance of the group over the individual contributed greatly to the rapid economic development of late twentieth-century South Korea (Vogel 1991: 92–101;

Kim L. 1997: 68–69, 72, 73, 204), this deeply rooted prejudice against science and technology has nonetheless continued. For example, until the late 1990s, engineering students were often ridiculed as *kongdori*, a disrespectful epithet for factory workers (Hong 2012: 260). In 1971 the founders of the Korea Advanced Institute of Science (KAIS) deliberately omitted the word "Technology" from its title because they feared that, otherwise, most Koreans would mistake this graduate-only institute for a vocational school (Kim and Leslie 1998).[6] The military governments between the early 1960s and the late 1980s made every effort to correct this prejudice so as to accelerate their twin goals of rapid economic development and a strong military (Han and Downey 2014: chaps. 3–5): Park Chung-Hee's government in the 1970s, for example, even promoted the slogan, *kwahak ipkuk* (科學立國, "A Country Built on Science") (Hong 2012: 263).

The prejudice against science and technology seems to have weakened by the end of the 1980s as heavy industry based on these became the mainstream economy in South Korea, only to revive in the early 1990s with the new civilian governments and the rise of stronger nationalism. The leaders of the civilian governments between 1993 and the present have paid lip service to the development of science and technology and have increased the budget for research and development (R&D), but their true concern has lain elsewhere—in ideological struggle over the past and the present. When the newspaper *Joong Ang Ilbo* and the online newspaper *Daedeok Net* conducted a survey in the summer of 2012, the majority of South Korean scientists and engineers pointed to the deep-rooted social and cultural "discrimination" toward science and technology as the major obstacle blocking the development of science and technology in South Korea (*JTBC* 2012).[7] In November 2016 a senior sociologist, Song Bok, concluded his article on how to reform the conservatism in South Korea as follows: "We must discard the [old] idea that only *munkwa* (文科, humanities generalists) can rule the country. In other words, the idea that only those who major in humanities, social sciences, or law can rule the country must be abandoned now" (*Chosun Ilbo* 2016b).

The Confucian tradition also remains in Koreans' strong interest in the past and neglect of the future. Confucianism primarily supports the status quo, and its ideal society, or utopia, lies in the past, not in the future. The Chinese characters for the idea of "the future"—未來 *weilai*—introduced by Buddhists in China in the sixth century, did not mean a specific point in the linear time line, as in the West. The new meaning of "the future," based on modern Western science and philosophy, began to spread in East Asia only in the nineteenth century, probably through Japan.[8] Among East Asian countries, Korea has kept the strongest and most consistent Confucian tradition for more than five hundred years: consequently, even in the twenty-first century, Korean people care more about their past than their future. This unique, strong preference for the past can be easily found if one visits any Korean bookstores or movie theaters, watches television, reads newspapers, or converses with Koreans.

[6] The word *technology* was only added in 1981 when renaming the institute KAIST.

[7] Discrimination toward science and technology was chosen as the largest obstacle (68%). The second largest (36%) was the poor research environment.

[8] The alternative Chinese characters, 將來 *jianglai*, had been more frequently used, but this term only indicated the near future.

An interesting incident occurred in the summer of 2014, when *Myeongryang* became a blockbuster movie: the descendants of an officer who is depicted as a traitor in the movie sued the director and the screenwriter, arguing that the film wrongly harmed their ancestor's honor (*Hankook Ilbo* 2014).[9] Similar controversies and lawsuits over historic figures in the distant past are ongoing, while neither responsible government agencies nor leading companies present any serious plans for the future.[10] For most Koreans, an event that happened four hundred years ago is more real and important than what may happen forty years from now. Likewise, ideas of "exploration," "voyage," and "frontier," which appear often in science fiction but rarely in the Confucian classics, are as foreign as the idea of any long-term "future" to most South Koreans even today. If South Koreans do not have any positive images of science and technology and are also not familiar with ideas such as exploration or the future, how can they be expected to produce or appreciate science fiction?

The second factor that has restricted the development of science fiction in South Korea is the fact that there has been virtually no communication between scientists/engineers and the literary community. The barrier between these "two cultures" in South Korea has been so high and solid that even close friendships or family ties have proved unable to surmount it. South Korean writers and screenwriters do not know how to describe scientists and engineers in their work simply because they do not understand what these people do. South Korean scientists and engineers have done little to popularize science and technology, due to their belief that this is irrelevant to their business. For most twentieth-century South Korean scientists and engineers, science and technology meant contributing to economic development or raising the nation's pride, not imagining future technology or chatting with writers (Han and Downey 2014: chaps. 4–5). But, without such interaction or dialogue with scientists/engineers, how could South Korean writers produce interesting and serious science fiction?

Further elucidating these factors, I provide here a preliminary assessment of recent South Korean science fiction. This not only supports the above claims but also reveals some distinctive characteristics. First of all, South Korean science fiction is not very futuristic. Most works describe the very near future, one or two generations beyond the present; very few deal with society in the far-distant future. Most characters are Koreans, and most settings are somewhere in Korea, such as Seoul. South Korean writers' favorite subjects for science fiction are actually present-day issues such as environmental pollution or conglomerates' dominance in the economy and society. For example, in Djuna's *Ajik eun sin i aniya* (*Not Yet a God*), the monstrous LK conglomerate (a fictional Korean conglomerate that reminds readers of the LG conglomerate in the present) tries to capture and control people with telepathic power in a future Korea where human relationships and the social and education systems have changed little from the present day (Djuna 2013).

[9] The movie, whose English title is *The Admiral: Roaring Currents*, depicts a heroic sea battle in which the famed Korean admiral Lee Sun-Sin defeated the invading Japanese fleet in 1597. It became the most watched movie in South Korea by August 2014, and that record is still held.

[10] For example, a retired board director at Samsung Electronics told the author that most board members at Samsung Electronics are not interested in the future more than three to five years beyond the present. If necessary, they are ready to study and copy what American or Japanese electronics companies are preparing.

Second, South Korean science fiction seldom pays serious attention to new, imaginary science or technology. There are very few descriptions of spaceships, submarines, or high-tech weapons. For example, South Korean writers often employ the idea of an "ansible" (a fictional machine capable of instantaneous or superluminal communication) in order to skip any detailed explanations of communication methods between Earth and far-distant planets. Genetic engineering and biotechnology are popular subjects in the twenty-first century, but there are neither new ideas nor detailed explanations of them. Instead, many science fiction works are about psychic or ghost-related experiences. Djuna's story "Daerijeon" ("Proxy War") is a perfect example of all these characteristics: Korean characters in this short story become the avatars of aliens who are very far from Earth but who communicate with them through an ansible, and they fight other avatars who are connected to different aliens from elsewhere in the universe—in action that takes place in a suburb of Seoul (Djuna 2007a).[11]

Third, there are very few expeditions to outer space, under the sea, or other countries. In South Korean science fiction, space aliens come to Korea more often than Koreans go into space to meet them. Even when Koreans do go into space, the space travel usually ends very quickly and the main story concentrates on what happens after they arrive at specific planets or places. Very few stories have been written about undersea expeditions. More familiar is the idea of going back to the past to change Korea's history. Bok Geo-Il's popular six-volume series *Yeoksa sok ui nageune* (*Drifter in History*) describes such time travel (Bok G.-I. 1991–2015). When his time machine goes on the blink, a late twenty-first-century Korean pilot accidentally arrives in late sixteenth-century Chosun Korea. There he introduces modern ideas and systems, such as capitalism and a postal service, and eventually establishes an ideal society on a small scale. He also prepares the country for the Japanese invasion of 1592.

Fourth, most South Korean science fiction describes the future in pessimistic terms. The rapid development of biotechnology, computer science, and artificial intelligence usually brings disastrous results (Djuna et al. 2016). Robots or androids in the future are often depicted not as friends of humans but as a serious threat to them. Science and technology are not expected to solve social problems, such as the huge disparities between rich and poor, but rather to exacerbate them. All this reflects South Korean writers' and readers' ignorance of science and technology and their fear of the future. This ignorance and fear was apparent in the real world when AlphaGo, an artificial intelligence program, defeated a star Korean Go player 4–1 in a 2016 match: most South Korean newspapers took the outcomes to predict a dark future in which artificial intelligence and robots will steal humans' jobs or even threaten their lives (*Hankook Ilbo* 2016; *Hankyoreh* 2016).

Additional analysis of South Korean science fiction strengthens the above four points. *Eolteoneotibeu deurim* (*Alternative Dream*, 2007) is a collection of science fiction short stories previously published in the online magazine *Crossroads* (Bok G.-I. et al. 2007). Of its ten stories, seven are set in Korea, one in the underworld, and two elsewhere on Earth. Specific names of streets and buildings in present-day South Korea describe locations in the twenty-third century, when the rich and powerful

[11] In computing, online games, and science fiction, an avatar is the graphical representation of a person or character in a computer-generated environment, especially a character that represents a user in an interactive game or other setting and can move about in its surroundings and interact with other characters.

extend their lives forever by exchanging their bodies for new ones (Shin 2007). Eight of the ten stories have Koreans as main characters. Two stories deal with space aliens whose contact with Earth brings confusion and chaos. Three stories are about the negative impacts of bioengineering in the near future. The title story, "Eolteoneotibeu deurim," deals with psychic power in which dreams and reality are mixed, leading to an apocalyptic end (Kim D.-S. 2007). There is not a single story about space travel in this volume.

The twenty stories in this collection's two sequels, *U, Robot* (2009) and *Mokgyeok-dam, UFO neun eodiseo oneunga* (*Eyewitness Accounts: Where Do UFOs Come From?* 2010), are also typical of South Korean science fiction (Djuna et al. 2009 and 2010). In both books, nine of the ten stories have Koreans as the main characters. These Koreans not only struggle to survive in a future Korea but also enjoy traditional Korean foods such as kimchi, seafood stew, and grilled pork belly and even drink soju (a popular distilled spirit); highly advanced robots and androids behave just like ordinary Korean children and teenagers, yet there are no detailed explanations about how they are constructed; and the characters' language and slang are almost the same as those heard in Korea today. There is not a single story in either book that describes a hopeful future thanks to advances in science and technology.

Among the handful of twenty-first-century South Korean science fiction writers, Djuna is the most famous, prolific, and popular.[12] She has published more than four dozen short and medium-length science fiction stories. Compared to other South Korean science fiction stories, hers are generally better written and more interesting. It is therefore no wonder that she is often selected as a representative of twenty-first-century South Korean science fiction writers, along with Bok Geo-Il.[13] However, most of her works remain not very futuristic, are Korea-centered, have few descriptions of imaginary machines, involve the misuse of psychic powers, and have a very pessimistic view of the future.

In Djuna's *Yong ui i* (*The Teeth of the Dragon*, 2007), for instance, the major character is a teenage girl whose spaceship has crashed on a mysterious planet in deep space (Djuna 2007b). The sole survivor of the crash, she has a compelling psychic power: she can read the mind of any living being and can also communicate with ghosts and zombies. The story is about her struggle to survive by sometimes fighting the evil ghosts or spirits on the planet and sometimes using them for her own benefit. There are very few descriptions of space travel, spaceships, or high-tech weapons. In many respects the story can be categorized as fantasy rather than science fiction. The overall tone is very dark, and much more apocalyptic than futuristic per se.

In 2014, two interesting events that were closely related to science fiction occurred in South Korea. The first was the surprising popularity of a Hollywood science fiction movie, *Interstellar*. By the end of the year, South Korea was the third largest market for *Interstellar* in the world, surpassed only by China and the United States (Korean Film Council n.d.).[14] The South Korean media offered a remarkably consistent analysis of

[12] Djuna also writes fantasy and movie reviews. No one knows his/her real identity, but it is commonly accepted that Djuna is a female.

[13] Bok Geo-Il has published several works of science fiction since the early 1990s. South Korea's main literary circle, however, seems to be very critical of both Bok Geo-Il and Djuna (Bok D.-H. 2008).

[14] Eventually, *Interstellar* became the third most-watched film in 2014 in South Korea, behind *Myeong-ryang* and *Frozen*, and the fifteenth most-watched film in South Korea of all time.

the success of *Interstellar*, namely, that South Korean parents' obsession with education and the frequent scenes of paternal love in the movie were the two keys to *Interstellar*'s popularity there (*Hankyoreh* 2014).[15] The other interesting event was that a science-fiction-only publisher closed down on 6 July 2014. Bulsae (Phoenix) launched in September 2013 and had published seven science fiction books. Yet the company could not sell enough copies to stay afloat: it needed to sell at least 1,000 copies of each book but only sold an average of 500–600 copies, demonstrating the harsh reality for science fiction in South Korea even in the 2010s (*Kyunghyang Shinmun* 2014).

3 Science Fiction in North Korea

As a recent study, *The Northern Region of Korea: History, Identity, and Culture*, suggests, the northern part of Korea has long differed from the southern.[16] The division of the Korean peninsula, after its sudden liberation from Japanese colonial rule on August 15, 1945, only consolidated these differences. The United States occupied South Korea for three years and did little to help develop science and technology in the region. The Soviet Union occupied North Korea for the same period and paid a lot of attention from the outset to introducing science and technology. Kim Il-Sung, the North Korean dictator from 1945 to 1994, was the prime mover of this development. He emphasized the importance of science and technology as early as October 1946, stating, "Without well-trained scientists and technocrats no country can either be economically independent or build a new society. The reason the Soviet Union became a world power lies in the fact that it possessed abundant and well-trained scientists and engineers" (Kim I.-S. 1979: 495). The influence of the Soviet Union on North Korean science and technology became stronger after the end of the Korean War in 1953. The slogan "Learn from the Soviet Union" frequently appeared in North Korean science journals such as *Chosun kwahakwon tongbo* (*Proceedings of the Chosun Academy of Science*) and *Suhak kwa mulli* (*Mathematics and Physics*) in the 1950s and early 1960s. North Korea sent its best young scientists and engineers to the Soviet Union for advanced training, and they contributed greatly to the rapid development of science and technology in North Korea during the 1960s (Kim G.-B. 1997).

Following the Soviet Union's example, Kim Il-Sung's regime not only supported North Korean writers to translate Russian science fiction into Korean but also encouraged them to write their own science fiction during the 1950s and 1960s. Since the Soviet Union referred to science fiction as "science fantasy," North Korea faithfully adopted the new name. Dafna Zur's recent article, "Let's Go to the Moon: Science Fiction in the North Korean Children's Magazine *Adong Munhak*, 1956–1965," clearly illustrates both "the wide influence of Soviet bloc cultural production and the circulation

[15] One parent said, "After watching *Interstellar*, my son, a fifth grade elementary school student, asked me to purchase a telescope or take him to an astronomical observatory. He became interested in science. I believe that the movie served my son's education well" (*Hankyoreh* 2014).

[16] All eleven chapters in the book indicate that the northern part of Korea had developed its own distinctive identity and had been relatively open to foreign cultures during the late Chosun dynasty. For the summary, see Kim S. J. 2010, "Introduction: Thinking through Region."

of ideas about space travel, scientific innovation, and the environmental reform in the region" as well as North Korea's independent efforts (Zur 2014: 327–28).

However, it was Kim Jong-Il (1941–2011) whose active and continuous involvement in the production of science fiction accelerated its growth. His first mention of science fiction came in 1966, when as a middle-ranking party member he gave a speech to encourage the activity of the Youth Organization: he argued that publications for youth should include not only books on political ideology but also those on natural science, Korean history and culture, science fiction, and more (Kim J.-I. 2009: 191). By the early 1970s, he had emerged as the potential heir to his father and was also deeply involved in the cultural and propaganda business. As the unquestioned authority in North Korea on literature, movies, and plays from the early 1970s on, his interest in and encouragement of science fiction played a critical role in its rapid rise. This became even clearer when Kim was officially appointed his father's successor in 1980 and finally inherited the dictatorship in 1994. Hwang Jeong-Sang's *Gwahak hwansang munhak changjak* (*Writing Science Fantasy Literature*) illustrates how deeply Kim had influenced North Korean science fiction since the 1970s.[17] This book of literary theory was intended to teach North Korean science fiction writers how to apply Kim's ideas to their future works by providing them with Kim's words on the subject and their proper interpretations. For example, North Korean writers can find Kim's ideas or even specific guidelines for science fiction in his own words (Hwang 1993):

> Without science fantasy, in other words, without the power of imagination based on the present, we can't either envision science in the future or rapidly develop science now. (10)
>
> If we publish more books on science fantasy, it will not only greatly help the development of science and technology but also make our teenagers have more scientific imagination. (24)
>
> We should not imagine how to block the Bering Strait in order to change the climate and develop the economy. We instead should imagine how to convert tidelands on the west coast into arable land for economic development, or how to dig up valuable minerals from the bottom of the West Sea [Yellow Sea]. We should invent Chosun [Korean] imagination. (92)
>
> [Science fantasy] animation should neither directly mention the Party's political principles nor deal with the revolutionary traditions. (331)
>
> We should not just translate foreign science fantasy novels but produce our own science fantasy that reflects our conditions. To do so, North Korean writers should study contemporary science and technology, and also publishers should possess a lot of knowledge about science and technology. (357)

Kim Jong-Il also praised specific science fantasy works (Hwang 1993):

> Some years ago I read *Byeolnara ro kaja* (*Let's Go to the Star*), *Sokdo reul wihan tujaeng* (*The Struggle for Speed*), and other books that described space and space travel. They were very interesting. (95)

[17] Hwang, who published several science fiction novels during the 1970s and 1980s, defined science fiction thus: "Science fantasy is a unique literature genre where human life in the future is described. It is an important field to educate people with anticipation for a rosy future and the spirit of love" (1993: 7).

> *Nemejida ui unhaeng* (*Nemejida's Route*) is about astronomy and is good for teenagers. Astronomy is an interesting field of science that investigates infinite space and includes many unsolved problems. . . . A science fantasy novel like *Nemejida ui unhaeng* must be read by all. (226)

It is quite predictable how deeply Kim Jong-Il's detailed comments such as these have influenced North Korean writers' future works. No South Korean president has ever mentioned a science fiction novel or movie in public as Kim did. Instead, many of them often watched and praised Korean movies that describe old Korean traditions (such as the film *Seopyeonje*) or that tell the story of the famed Korean admiral Lee Sun-Sin (such as the film *Myeongryang*).[18]

Analysis of North Korean science fiction reveals characteristics that differ markedly from those of South Korean science fiction. First of all, North Korean science fiction describes the future in an optimistic way. Highly advanced robots or androids are often portrayed as a serious threat in South Korean science fiction, but not in the North. Instead, science and technology always assist in the solutions to difficult problems or in the welfare of humanity. Examples include the following scenarios: a North Korean antigravity machine successfully holds a huge airplane up in the air when it is doubly threatened by a lack of fuel and a bomb threat (Li G.-C. 2004); North Korean engineers develop both a geothermal power plant and an atmospheric circulation power plant over the sea to solve energy problems (Han 2005); a great earthquake is predicted in a South American country and prevented by a group of North Korean scientists armed with a new theory and a new high-speed underground drilling ship (Li G.-C. 2006); and vast numbers of fish are transferred directly from sea to land by an artificial tornado generated by a huge lens on a space station (Shin 2011).

Second, North Korean science fiction writers pay close attention to the accuracy of contemporary science and technology as well as to new, imaginary forms. Hwang Jeong-Sang's 1993 book of literary theory emphasized this point several times, stating that "science fantasy without proper science and technology content is not worth discussing" and that "[science fantasy] writers must, first of all, possess a wide range of scientific knowledge and know the current situation of the world scientific community" (Hwang 1993: 11, 66). As a result, there is no mention of psychic powers, avatars, or ghosts in North Korean science fiction: instead, brainwaves amplified by a specific scientific instrument, for example, are used to explain long-range communication (Li G.-C. 2009). This emphasis on the accuracy of science and technology, however, has had two deleterious effects on North Korean science fiction: (1) it often bores readers who are not necessarily interested in long explanations about radioactive isotopes or the distance between Earth and a far-distant star, and (2) it has restricted North Korean writers' imaginations, since they are not allowed to use more radical ideas to suggest totally new, nonexistent technology (such as an ansible or a warp drive) but have to imagine more plausible scientific theories or devices based on present-day science and technology.

[18] *Seopyeonje* (1993) is about the tragic life of a female Korean traditional singer in the mid-twentieth century. By the end of the year it became the first South Korean movie to attract more than a million viewers. Both the incumbent president (Kim Young-Sam) and the next president (Kim Dae-Jung) watched and praised the movie highly. Similarly, *Myeongryang* (2014) was watched by many leading politicians, including incumbent President Park Geun-Hye, all of whom lauded the movie.

Fig. 2 The covers of four North Korean science fiction books published in the late twentieth century (above) and two short stories from *Chosun Munhak*, North Korea's most prestigious literary journal (below)

Third, many North Korean science fiction stories deal with expeditions to deep space, different countries, or the depths of the sea. Space travel has been a popular subject since the early 1960s, and many short- and medium-length space-travel novels have been published since then. Undersea adventure and the exploitation of marine resources are also popular subjects of North Korean science fiction: for example, North Korean scientists and engineers are sent to an African nation to build an undersea factory using high-tech robots in *Dugae ui hwasal* (*Two Arrows*) (Park 1989), and a cartoon book, *Kkoma gwahakjadeul ui manneung tamheomseon* (*Kid-Scientists' Almighty Expedition Ship*), was published in the 1980s to stimulate North Korean children's interest in marine science (Seo 1980). In short, North Korean science fiction encourages an adventurous spirit in its readers far more than does its South Korean counterpart.

Fourth, there is a strong emphasis on specific political agendas such as patriotism, a utilitarian view of science and technology, socialism over capitalism, and some selected Korean traditions. Even though no actual names of North Korean leaders are ever mentioned in any works, North Korean science fiction has faithfully served to strengthen the party ideology since its very beginning. Both love of the "motherland" and a utilitarian view of science and technology are stressed in almost every work of North Korea science fiction, as the following two quotes indicate:

> Wait! Though science knows no country, all Korean scientists have the belief that we have a true motherland. All our knowledge and talent are for our motherland. (Li G.-C. 2000)

> Han Se-Ung told Su-Ryeon, ". . . A scientific theory, however important or beautiful it is, is useless if it is not practically useful or cannot contribute to the nation's economic development. . . . I have believed that our nation needs such scientists who can contribute directly to economic development through their research." (Park 1993)

Analyses of three works of North Korean science fiction support these points. *Saebyeol unseok tamsadae* (*The Expedition to the Origin of the New Meteor*) has been a popular science fiction novel in North Korea (Anonymous 1979).[19] Published in 1979, the novel describes space travel to discover the origin of a new kind of meteor. Five North Korean teenagers discover a strange meteor whose density is about 1 million kg/m^3: the heaviest element on Earth (osimium) is only 22,570 kg/m^3, and even the sun's density is less than one-tenth the density of this meteor. North Korea then decides to send an expedition to search for the origin of the mysterious meteor, using a high-tech rocket that travels at almost the speed of light. The teenagers who first discovered the meteor visit the launch site and, by accident, become the expedition team. They carefully study the various possibilities and decide to head to Sirius B in the constellation Canis Major (the Great Dog), which is about 8.7 light years away, but later change course for Sagittarius, located near the center of our galaxy. They overcome many difficulties, discover the source meteor (whose density turns out to be 2 million kg/m^3), and bring a sample (whose mass is 200 million tons) to a space station near Earth. Though they spend only three years and 199 days in space, almost twenty-two years have passed on Earth when they return. The whole story is interesting enough for readers to overlook its inclusion of long details about scientific facts and repeated emphasis on the utility of science and love of motherland.

Pureun isak (*Green Ear of Rice*), by contrast, describes how North Korean scientists utilize various marine resources in the future (Hwang 1988). This novel depicts a team of North Korean scientists who develop a method to breed a new kind of rice, which has an effective anticancer component, on the ocean floor. They not only solve the major technical problem of lifting the ocean floor up near the surface but also resolve various difficulties in planting, raising, and protecting the precious anticancer plants under the sea. The team members overcome all these obstacles and troubles with their typical unselfish collectivism, love of motherland, and zeal to improve their nation's economy. These attitudes and ideologies move "Stevenson" (probably an American who has come to Korea for advanced training in marine science) to abandon his Western individualism, saying, "The development of science does not always depend on either material means or a long tradition. The most important thing is the noble idea of noble scientists. As a result, the center of science today is neither the United States nor Europe, but Korea" (Hwang 1988: 277).

"651ho Hangro" ("Course No. 651") was published in 2000 in the North Korean literary journal *Chosun Munhak* to celebrate the fifty-fifth anniversary of the Workers' Party of Korea (WPK) (Li G.-C. 2000).[20] In that short story, a female North Korean scientist discovers an asteroid in the asteroid belt that contains 30 billion tons of rare minerals. To simplify transportation between the asteroid and Earth, she proposes moving the asteroid near to Earth and making it Earth's second moon. Although a villainous American scientist, who is supported by NASA, does everything he can to steal the asteroid, the female scientist prevails, with help from a patriotic North Korean male scientist. This is another perfect example of North Korean science fiction in the new century, properly emphasizing both patriotism and the utility of science and technology.

[19] The author of the book is not given. It may be the product of a group of writers rather than a single writer.

[20] Besides "651ho Hangro," three poems and two short stories were also selected in the same issue to celebrate the party's fifty-fifth anniversary.

It is no wonder that the author of this story, Li Geum-Cheol, is the most prolific and popular science fiction writer in North Korea today. One drawback is the story's sexist tendency: a heroine is rescued from trouble by a selfless and heroic male.

Science fiction has continued to flourish in North Korea in the twenty-first century. *Chosun Munhak*, the most prestigious literary journal in North Korea, began to publish science fiction regularly from 2000. Though the number of science fiction stories published there remains relatively small, this was nonetheless a big step. Science fiction is now treated in North Korea as a serious literary genre and is expected to contribute directly to making North Korea the "science and technology power, knowledge and economic power" of the world (Li C. 2012: 53). Nothing similar is occurring in South Korea. The South Korean mainstream literary community still neglects science fiction, and few South Koreans expect science fiction to play an important role in South Korean society and culture.

4 Discussion

Science fiction can serve as a meaningful indicator of how science and technology are viewed in a society. This is especially true for South and North Korea, where unique historical, ideological, and cultural environments have directly influenced the development of their science fiction.

Despite many differences, science fiction in South Korea and that in the North have at least three characteristics in common. First of all, they share the wide gap between the images of science and technology that they depict and the realities of life in South and North Korea. Twenty-first-century South Korea is a world economic power, exporting cellphones, semiconductors, sophisticated chemicals, ships, and automobiles all over the world.[21] In 2013 South Korea surpassed Israel as the world's most R&D-intensive country, spending 4.3% of its GDP on research and development (OECD 2014). As a result, science and technology are often considered to be firmly rooted in South Korean society and culture; yet the reality is quite different. Although South Korean science and technology began to attract the world's interest at the beginning of the twenty-first century, a so-called "crisis in science and technology" started there at the same time and has continued. Fewer and fewer young Koreans want to study science or technology, and the quality of both undergraduate and graduate students in science and engineering at top universities has declined dramatically (*Sciencetimes* 2006; *Yonsei Chunchu* 2007; *Sisa News Times* 2012). Worse, recent surveys indicate that the majority of scientists and engineers at universities and research institutes would leave South Korea permanently if they could find suitable jobs abroad (*Joong Ang Ilbo* 2012).[22] A report from the Samsung Economic Research Institute predicts that South Korea will lack at least 90,000 highly trained scientists and engineers by the year 2020 (Bae et al. 2012). All these facts suggest that there is a wide and

[21] According to the World Bank and the International Monetary Fund, South Korea is ranked as the thirteenth largest economic power in the world (*Statistics Times* 2015).

[22] A survey by the *Joong-Ang Ilbo* and the *Daedeok Net* indicated that 72 percent of respondents would like to leave South Korea. A similar survey in 2016 showed that 80 percent of researchers at government research institutes were ready to leave South Korea (*Chosun Ilbo* 2016a).

clear gap between the outward image (such as rankings and numbers) of South Korea and the real situation there. The not very futuristic, adventurous, or technology-centered science fiction of South Korea thus reflects both this gap and South Koreans' disinterest in science and technology.

A very different gap between the images and realities of science and technology exists in North Korea. Those images have been very positive since 1945. Scientists and engineers are frequent characters in North Korean movies and literature, and North Korean dictators have officially and openly encouraged science fiction. However, science fiction (or popular images of science and technology) has also been used to justify the nation's political ideology and to mesmerize North Koreans by providing them with false hope about the future. Science and technology in North Korean science fiction have thus served as a convenient panacea for economic, social, and even political problems while failing to solve economic difficulties in reality. Since at least the 1990s, there has been not simply a gap but an abyss between the rosy future depicted in North Korean science fiction and the reality of life in North Korea. How could the regime ask North Koreans to read science fiction while most of them were suffering from continuous famine and malnutrition?

Second, both South and North Korean science fiction pay too much attention to nationalism. Almost all the major characters are Koreans, regardless of whether they are dealing with situations in the future (as in South Korean science fiction) or traveling into deep space or to foreign countries (as in North Korean science fiction). These characters also enjoy traditional Korean foods, speak Korean slang, spout Korean proverbs, and remember past stories that only Koreans would understand. There is almost no South or North Korean science fiction to date in which Korean characters cooperate with other races or with space aliens as equal members of a wider, universal society. Rather, as one story has it, it will be up to a Korean linguist in the future to successfully decipher and translate complicated alien messages into Korean and thereby save the Earth (Lee 2007).

And last, neither South nor North Korean science fiction gives much thought to the far-distant future. Despite their brilliant success in high-tech industry, South Koreans generally assume that the future will not be so different from the present, just as South Korean science fiction describes the future as a repetition of the present. North Korean science fiction describes a future society in which all North Koreans will live happily due to the development of science and technology. However, the social, political, and even cultural factors in these stories are the same as those found in present-day North Korea.

Science and technology cannot develop in a society where people are much more concerned with the past and the present than with the future. Unless both Koreas focus on the future and endeavor to solve the contradictions between the images and the realities of science and technology in their respective spheres, it is doubtful that either South or North Korea will continue developing its science and technology in the future as quickly and successfully as in the last half century.

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