Lack of musicality? Explaining anomalies in some senior Korean Christians’ hymn singing

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Abstract: This article launches an inquiry into the ways in which some senior Korean Christians sing Protestant hymns at a Korean church in Cleveland, OH. The majority of the church members sing hymns as they are written; several older members (aged 65 or over) born in rural Korea, however, systematically transform them. The older singers tend to turn any diatonic hymn into a pentatonic melody, lowering fa down to mi and pulling ti up to do. Drawing on a variety of disciplines such as music theory, psychology, ethnography, and cultural history, I propose categorical perception as a key to understanding melodic transformation. Even though the piano accompanist at the church—who is rigidly Western music oriented—criticizes the older singers for their lack of musicality, numerous psychological studies suggest that the older Korean singers transform the hymns, precisely because they are musically trained, albeit in regional Korean folk singing practices. My fieldwork at the Annual Hymn Competition and my interview with the preacher of the church reinforce the idea that categorical perception is not only existent but also strongly cultural.

Subjects: Asian Music; Cognitive Psychology; Ethnomusicology; Korean Culture & Society; Korean History; Korean Politics; Psychology of Music; Theory of Music

Keywords: categorical perception; chromatic; diatonic; hymn singing; Korean music; melodic transformations; pentatonic; regionalism

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PUBLIC INTEREST STATEMENT

The author has observed that some senior Korean-American Christians make curious melodic modifications when they sing Protestant hymns. They turn hymns based on the Western—seven-note—diatonic scale into melodies rooted in the Korean—five-note—folk tradition. This singing practice, unfortunately, has given the impression that they cannot sing hymns correctly as written and are, therefore, musically uncouth. The psychological concept of categorical perception helps reject such a claim: older members of the congregation sing in this unorthodox, yet intriguing, way not because they lack musicality but because they are musical—i.e. because they have internalized and effectuated the musical scales of their own culture.
1. Introduction

The present study focuses on the way in which some Korean Christians sing Protestant hymns at a Korean church in Cleveland, Ohio. My first visit to the church was made on Sunday, 28 September 2008. The church offered only one worship service a week, at 11 am on Sunday. I attended the service for 8 weeks. Singing seemed to play an important role in the service. Eight events out of 18 involved music. Table 1 shows the format of the Sunday service. Those highlighted in bold in Table 1 indicate that they were related to singing (except for the purely instrumental piano prelude). Singing was done either by choir alone (“Choir” in Table 1) or by choir and congregation together (“Together”). The choir consisted of about 30 people, and almost all of them had a strong background in Western music. The choir members convened twice a week to practice under the guidance of a well-qualified choral conductor. As I expected, the singing of the choir was excellent.

What interested me, however, was not so much the superb singing of the choir as the singing of the congregation—especially the unique singing of some older church members, two of whom were later identified as Sister Kim and Sister Park. Their singing was unusual in that they did not sing hymns as written in the hymnal but restyled them in rather interesting ways. How can we explain their transformation of songs for God? Is singing correctly a trivial matter, even though singing occupies a large part of the service? What is behind this garbled transmission of canticles? This study is interested mainly in providing answers to these questions.1

2. A closer look at Sister Kim and Sister Park’s hymn singing

As I have mentioned, some older members of the congregation, notably Sister Kim and Sister Park, did not sing hymns as they were written but transformed or distorted their melody, altering mostly the pitch but at times the rhythm as well. To be precise, they sang some hymns more or less as written, whereas they altered others, using the modal system of Korean folk song as a model. Being interested in their singing style, I consciously sat near them every Sunday. Curiously, their singing and the piano accompaniment did not always accord with each other. They nevertheless sang very loudly. The keys and meters of the 24 hymns sung at the service on Sundays from 5 October to 23 November 2008 are cataloged in Table 2.

| Table 1. The format of the Sunday service |
|------------------------------------------|
| **Prelude** | **Accompanist** |
| Silent Prayer | Together |
| Call to Worship | Presider |
| Invocation | Presider |
| **Hymn** | **Together** |
| Prayer | One of the Presbyters |
| The Lord’s Prayer | Together |
| **Choral Response** | **Choir** |
| Scripture Reading | Presider |
| **Anthem** | **Choir** |
| Sermon | Pastor |
| **Hymn** | **Together** |
| Apostle’s Creed | Together |
| **Offering** | **Solo Singing with Piano during Offering** |
| Doxology | Together |
| Closing Prayer | Pastor |
| **Hymn** | **Together** |
| Benediction | Pastor |

*Please stand.
Several terms in Table 2 call for some clarification. The symbol “υ” following a time signature in the Meter column indicates that the hymn begins with an upbeat. The “do in F” in the Key column is an abbreviation of the do-mode in F-pentatonic scale. This demands further explanation. Korean folk songs, called minyo, are either in the pyeongjo [p’yŏngjo] mode or in the gyemyeonjo [kyemyŏnjo] mode. Both pyeongjo and gyemyeonjo are based on the pentatonic scale comprising do-re-mi-sol, the difference between them being that pyeongjo is the sol-mode (sol-la-do-re-mi, where sol is the tonic) and gyemyeonjo is the la-mode (la-do-re-mi-sol, where la is the tonic), as shown in Figures 1(a) and 1(b). While the sol-mode and the la-mode were used for traditional minyo, the do-mode (do-re-mi-sol-la, where do is the tonic), illustrated in Figure 1(c), has been used since the mid to late nineteenth century for sinminyo [shinminyo], or new folk songs. In short, the “do in F” (the do-mode in F-pentatonic scale) in Table 2 refers to the scale of F-G-A-C-D. The “sol in D” (the sol-mode in D-pentatonic scale) would stand for the scale of A-B-D-E-$\sharp$.

Out of the 24 hymns, 21 were diatonic/major and three were pentatonic (see Table 2). Whereas Sister Kim and Park sang the three pentatonic hymns more or less as written, they altered all of the 21 diatonic hymns, transforming pitches in a rather systematic way: lowering fa down to mi, and pulling ti up to do. For example, even though Hymn 52 was written in D major, they sang it as if it were in the do-mode in D-pentatonic, or the scale of D-E-F-$\sharp$-A-B. The written score of the hymn and a transcription of what they sang are shown in Figures 2(a) and 2(b), respectively, for comparison. Altered notes are indicated by the symbol “↓” placed above them. The two sisters consistently substituted F-$\sharp$ (mi) for G (fa), and D (do) for C-$\sharp$ (ti). I hypothesize, therefore, that they have only five

### Table 2. Hymns sung at the Sunday service from 5 October 2008 to 23 November 2008

| Date  | Hymn No. | Key    | Meter | Hymn No. | Key    | Meter | Hymn No. | Key    | Meter |
|-------|----------|--------|-------|----------|--------|-------|----------|--------|-------|
| 10/5  | 50       | A major| $\frac{3}{4}$ | 188      | Eb major| $\frac{3}{4}$ | 195      | D major| $\frac{4}{4}$ |
| 10/13 | 52       | D major| $\frac{3}{4}$ | 338      | do in F | $\frac{3}{4}$ | 242      | Eb major| $\frac{4}{4}$ |
| 10/19 | 53       | D major| $\frac{3}{4}$ | 256      | Eb major| $\frac{3}{4}$ | 435      | Eb major| $\frac{4}{4}$ |
| 10/26 | 55       | Eb major| $\frac{3}{4}$ | 256      | Eb major| $\frac{3}{4}$ | 257      | C major| $\frac{4}{4}$ |
| 11/2  | 57       | Eb major| $\frac{3}{4}$ | 493      | do in F | $\frac{3}{4}$ | 359      | Eb major| $\frac{4}{4}$ |
| 11/9  | 9        | D major| $\frac{4}{4}$ | 30       | F minor| $\frac{3}{4}$ | 172      | Eb major| $\frac{3}{4}$ |
| 11/16 | 12       | F major| $\frac{4}{4}$ | 101      | do in F | $\frac{3}{4}$ | 353      | C major| $\frac{4}{4}$ |
| 11/23 | 13       | G major| $\frac{4}{4}$ | 306      | F major| $\frac{3}{4}$ | 307      | F major| $\frac{3}{4}$ |

Figure 1(a). The sol-mode (pyeongjo; traditional) in a C-pentatonic scale.

Figure 1(b). The la-mode or (gyemyeonjo; traditional) in a C-pentatonic scale.

Figure 1(c). The do-mode (modern) in a C-pentatonic scale.
different pitch classes in their conceptual system, which spontaneously converts the diatonic into the pentatonic, the Western into the Korean.

The next example, Sister Kim and Sister Park singing Hymn 101, illustrates a different type of melodic transformation. They did not alter any pitch this time probably because the hymn itself was not diatonic but pentatonic (to be more specific, the do-mode in F-pentatonic); instead, some rhythmic changes occurred. The written score of the hymn and a transcription of their singing are shown in Figures 3(a) and 3(b). They tended to accent the upbeats to m. 1 and m. 9—marked by the symbol “>” below the altered notes in the example—as if the hymn were in a usual $\frac{2}{4}$ with a downbeat beginning rather than in an anacrustic $\frac{3}{4}$. They were also inclined to double the duration of the second quarter notes of m. 4 and m. 12 (indicated by the symbol “○”) as though there were a fermata on those notes, and, as a result, they missed, or were tacitly coerced to miss, the third quarter notes of
m. 4 and m. 12 (i.e. the upbeats to m. 5 and m. 13): they finished the elongated second note in m. 4 or m. 12 and were about to sing the third quarter note in the same measure, yet their attempt was thwarted by the piano accompanist who already had begun to play m. 5 or m. 13. The pianist forced them to give up the third quarter note and to follow her correct rhythm. The symbol “×” is given to the notes the two sisters failed to capture.

Why did they alter the rhythm and add accents? We did not see these rhythmic and metric transformations in the previous example. I can offer one possible explanation. The critical difference between Hymn 101 and Hymn 52 is that the former begins with an upbeat and the latter does not. Korean folk songs scarcely ever commence with an anacrusis; likewise, Korean sentences rarely start with a weak beat. It is an article or a preposition that would make an anacrustic beginning natural and structurally appropriate, and the Korean language has neither of them. Perhaps Sisters Kim and Park did not like phrases beginning with an upbeat. This explains why they put an accent on the upbeat to m. 1 or m. 9; without it, the musical accent and the textual accent could not concur, and the text would make little sense to them. And they lengthened the second quarter notes in m. 4 and m. 12 because they would not want to have another phrase with an anacrustic beginning.7

As I mentioned earlier, their singing did not always go hand in hand with the piano accompaniment. The pianist, Mrs Lee, received a Bachelor of Music degree in piano performance from a prestigious university in Korea. Curious about her evaluation—a Western-trained musician’s assessment—of the two sisters, I was eager to interview her, but the interview did not take place until November 23
when an Annual Hymn Competition was held to celebrate Thanksgiving Day. I will discuss the Competition and the interview with Mrs Lee later in more detail. First, I will turn to categorical perception, since I believe that it is the key to understanding the sisters' melodic transformation of the hymns.

3. The categorical perception of pitch

Categorical perception refers to the phenomenon in which a “continuous region of physical variation” is recoded as a “discrete, labeled equivalence class” (Harnad, 1987, p. 4). It was first noticed with phoneme perception (Liberman, Cooper, Shankweiler, & Studdert-Kennedy, 1967; Liberman, Harris, Hoffman, & Griffith, 1957; Studdert-Kennedy, Liberman, & Stevens, 1963) and color perception (Beare, 1963; Boynton & Gordon, 1965; Ekman, 1963), and subsequently demonstrated for music (Burns & Ward, 1978; Howard et al., 1992; Locke & Kellar, 1973; Pastore, Schmuckler, Rosenblum, & Szczesiul, 1983; Siegel & Siegel, 1977; Zatorre & Halpern, 1979).

In their pioneering experiment, Locke and Kellar (1973) had 15 subjects classified as musicians and 11 subjects identified as non-musicians listen to block chords of three notes in which their middle notes were strategically varied: the outside pitches were always A4 (440 Hz) and E5 (659 Hz), with middle pitches from C5 (530 Hz) to C♯5 (554 Hz) in 4-Hz increments. The authors found that musicians heard almost all chords with middle notes above 546 Hz as an A-major triad, and almost all chords with middle notes below 542 Hz as an A-minor triad, while non-musicians' perception was not so much categorical as more or less continuous. These findings suggest that musicians, but not non-musicians, perceive musical triads categorically.

Similarly, a study by Siegel and Siegel (1977) indicates that musicians tend to perceive musical intervals categorically. They asked six trained musicians to judge 13 melodic intervals spaced in 20-cent (1/12 of a half step) increments, ranging from 480 cents (i.e. 20 cents below an equal-tempered perfect fourth) to 720 cents (20 cents above a perfect fifth). Although these 13 intervals were acoustically different from one another, participants typically used three—and only three—discrete numerical responses representing the three standard intervals of perfect fourth (500 cents), tritone (600 cents), and perfect fifth (700 cents); intervals varying between the two musically defined intervals—e.g. between perfect fourth and tritone, or between tritone and perfect fifth—were heard as either one or the other rather than in between the two. These findings reveal musicians' strong
propensity to rate musically deviant, out-of-tune stimuli as in tune and their poor ability to differentiate within a musical category.

Burns and Ward (1978) also investigated the perception of melodic intervals by musicians, conducting six distinct yet interrelated experiments. In their first experiment, they had five trained musicians listen to intervals from the set of 21 different intervals, composed of the ratios separated by increments of 12.5 cents over the range from 250 to 500 cents and then identify each of the intervals by pressing an appropriately labeled button on a response panel as belonging to one of five interval categories of major second, minor third, major third, perfect fourth, and tritone. Their findings inform us that (1) all of the subjects were able to identify the intervals, consistently, as belonging to one of the five chromatic interval categories—strong evidence of categorical perception for musicians—and (2) longer response times were taken for intervals lying at or near category boundaries than for intervals located well within categories, suggesting that participants had maximum uncertainty about the identity of the interval in between the two categories. Through additional experiments, the authors show that categorical perception of musical intervals is based not on natural categories but purely on learned categories; in other words, categorical perception of musical intervals is a function of musical training.

Zatorre and Halpern (1979) conducted an experiment designed to explore categorical perception for harmonic intervals. Eight musicians and eight non-musicians serving as subjects were presented with 120 simultaneous intervals of eight different sizes where the lower pitch was invariably F4 (349 Hz) and the higher pitches ranging between A4 (415 Hz, which forms a minor third, or 300 cents, with F4) and A♮4 (440 Hz, forming a major third, or 400 cents, with F4), in about 14.29-cent—derived from 100 cents divided by 7—increments: 300, 314, 329, 342, 357, 371, 386, and 400 cents. Musicians were then asked to identify these intervals as minor or major thirds, and non-musicians as 1 or 2. The authors found that musicians fairly clearly identified two distinct categories, hearing 300–342 cents as a minor third and 371–400 cents as a major third. Non-musicians perceived the stimuli less categorically than musicians, using categorical labels less consistently. It should be noted that, although the identification function of non-musicians was not as sharp as musicians, the overall contour of the function of non-musicians was similar to that of musicians. As categorical perception exists “to a greater or lesser degree” rather than as “an all-or-nothing phenomenon” (Howard et al., 1992, p. 218), it is highly likely that categorical perception arises primarily through a process of learning.

To sum up, there is a good deal of evidence that pitches in chords and intervals are perceived categorically, especially by trained musicians, and that categorical perception is a primarily cultural—rather than natural—phenomenon, heavily influenced by experience and training.

4. The Annual Hymn Competition

The Annual Hymn Competition designed to celebrate Thanksgiving Day was held at 2 pm on Sunday, 23 November 2008. Seven teams, mostly named after Biblical figures, participated in the Competition. Table 3 shows the entry numbers and the names of participating teams, as well as the hymns they chose. I focused on two teams, Sarah (Entry No. 6) and Esther (Entry No. 7): Sarah, a group of 12 immigrant female members aged 65+ and married, sang Hymn 330 in A major; Esther, a female ensemble whose eight members were aged 65+ and widowed, sang Hymn 311 in gyemyeonjo (la-mode) in G-pentatonic with a downbeat beginning. Esther was of special interest, since our two sisters, Kim and Park, belonged to this team. These two teams as well as Abraham sang in unison, while the other teams sang in four parts (S-A-T-B).

Sarah’s singing was quite interesting. The group also transformed some notes. Figures 4(a) and 4(b) show the written and sung versions of Hymn 330. They could sing G (ti in A major), while they could not sing D♮ and A♮ (fi and di, respectively). In other words, they transformed the chromatic to the diatonic. A critical flaw in Sarah’s singing as a team was that almost half of the members did
not actually sing—they just stood there pretending; and, regrettably, their lip-syncing, without making real sonic contributions, was quite obvious.

It was with great delight that I listened to Esther sing Hymn 311 (Figure 5). It was auspicious that they picked a pentatonic hymn for the Competition, and, as one might expect, they sang in tune. Above all, Esther’s performance was lively and full of energy. They were chanting with merriment—it

Table 3. The entry numbers, the participating teams, and the hymns chosen

| Entry No. | Team | Hymn No. | Key   | Meter |
|-----------|------|----------|-------|-------|
| 1         | Joshua (immigrant M 45–64) | 487 | F major | 4/4  |
| 2         | Abraham (immigrant M 65+) | 461 | do in E | 6/8  |
| 3         | Bethel (grad. students + immigrant M/F up to 44) | 542 | Ab major | 6/8  |
| 4         | Junior high, Senior high, and College (M/F) | 234 | Ab major | 6/8  |
| 5         | Mary (immigrant F 45–64) | 543 | Ab major | 6/8  |
| 6         | Sarah (immigrant F 65+, married) | 330 | Ab major | 6/4  |
| 7         | Esther (immigrant F 65+, widowed) | 311 | la in G | 6/4  |

Figure 4(a). Hymn 330 as written.

Figure 5(a). Hymn 330 as written.
was unmistakable that they were truly enjoying themselves. All the members sang, and therefore the voice of eight people was much more powerful than that of Sarah’s 12.

Which team won Sarang (Love), the first prize? Sarah. The judging committee’s ruling was beyond comprehension to me: albeit not necessarily the best, I thought, Esther should be judged a cut above Sarah. Esther won the second prize, Somang (Hope). Bethel, who sounded almost like a professional choir, was awarded the third prize, Mideum [Midŭm] (Faith). It may be considered courteous to pay respect to older people by endowing them with higher prizes. But why Sarah over Esther? To answer this question, we should better understand the constituents of the judging committee. There were four members in the committee, two clergymen and two musicians: Rev Kim (minister), Mr Kim (preacher), Mr Sohn (choir conductor), and Mrs Lee (pianist). I imagine that the latter pair might have more say on musical matters, such as evaluating people’s singing, than the former.

At about 1:30 pm of the Competition day, I had a telling conversation with Mrs Lee, which might help contextualize the questionable judging decisions.

Cha: Have you ever noticed that some people, say, Sister Kim or Sister Park, sing hymns inaccurately?

Lee: Oh, you noticed that? Of course, I notice it every time. It’s so annoying. Seriously. Some people. Personally, I have nothing against them, but sometimes they are driving me crazy. As far as hymn singing is concerned, they are incurable.

I would like to point out that Mrs Lee’s reaction reminds us of the Western missionaries’ disparaging remarks in the late nineteenth century on Chinese people’s inability to sing the Western tunes: “it is only with the greatest difficulty that the average Chinaman can learn even one of our tunes” and “if you don’t want good tunes spoiling, never choose one that cannot be played entirely on the black keys of the piano” (Charter & DeBernardi, 1998, p. 93). Our dialog went on.

Cha: Have you tried to, um, “cure” them?

Lee: Well ..., my answer is yes and no. No, because I haven’t take the time to practice with them. But yes, because, as per Mr. Sohn’s request, I make a very hard touch on the notes they would mess up so that those notes would sound fortissimo. However, they seem never to be aware of the blunders they make.
Cha: What do you think? Is there any pattern in their distortion of the notes?

Lee: I think, they change any song to “Arirang.”¹¹ I don’t like it. I don’t like it at all.

Cha: Why not?

Lee: I hate pentatonic music.

Cha: You don’t like Korean music? I mean, traditional Korean music.

Lee: Nope. I think we should not sing pentatonic songs, especially in church.

Cha: What did you say? There are pentatonic songs in our hymnal.

Lee: Yeah, it’s true. But I don’t understand why they are there.

Cha: Would you elaborate?

Lee: Five is a bad number. It is because ten is the perfect number, and five, which is only a half of ten, is imperfect. Seven is a good number. Number seven stands for the Holy Spirit.

Cha: According to what? The Bible?
Lee: Yes, the Bible.
Cha: I am positive that you love twelve-tone music because Jesus had twelve disciples...

Would it not be possible, then, that Sarah defeated Esther because the former sang a “Holy-Spiritual” song based on a scale of “seven” notes and the latter sang an “imperfect” song of “five” notes?12

5. In place of conclusion: regionalism, culture, and categorical perception

Unfortunately, I did not have the opportunity to interview Sister Kim or Sister Park, so I am unable to offer a well-founded answer to the question “What is behind their transformation of the diatonic to the pentatonic?” I nevertheless can make a hypothesis, derived from what I learned during the interview with Mr Kim.

Cha: Why don’t Sarah and Esther meet together? Is the married/widowed distinction that important?
Kim: I am not sure, but whether she is married or widowed is no more than a red herring. The real cause, I believe, is regionalism.
Cha: What do you mean?
Kim: The members of Sarah are from Gyeongsang [Kyŏngsang] province, whereas the members of Esther are from Jeolla [Chŏlla] province. In fact, it hardly matters whether they are married or widowed.

The two regions in question, Gyeongsang province (the southeastern part of the Korean peninsula) and Jeolla province (the southwestern part), are geographically divided by the Sobaek Mountain Range, which conveniently serves as a natural borderline between the two provinces, as shown in Figure 6. We should note, however, that regions are not just geographically defined but also—and perhaps more importantly—politically created: “Even regions that seem most natural and inalterable are products of political construction” (Hemmer & Katzenstein, 2002, p. 575). In South Korea, for example, voters have a quite strong tendency to support political parties associated with their own region of origin, irrespective of where they currently reside (Kim, 2013), and this kind of voting behavior is the most conspicuous in Gyeongsang and Jeolla provinces (Kim, 2011).13 Similarly, Esther and Sarah do not get along simply because—despite the fact that they live in the same area and share numerous experiences such as age, gender, native country, and naturalization—they came from different provinces. It is unfortunate but understandable that they would not unite.

Since General Park Chung-Hee (who was from Gyeongsang province) seized power in 1961 in a coup, a disproportionate number of people from the Gyeongsang area have been appointed to high posts in government and other offices—creating a system of patronage based on cronyism—while those from the Jeolla region have been excluded (Kim, 2013). The Park Chung-Hee government utilized a series of Five-Year Economic Development Plans,14 through which development loans and capital were invested heavily in Gyeongsang province, turning the region into a triumphantly industrialized center. As a consequence of this uneven regional development policy set up by the military regime, the Gyeongsang area became a stronger political and economic powerhouse in Korea than ever, while Jeolla province remained politically alienated and economically stagnant (Kim & Son, 1997; Park, 2008). Table 4, adapted from Table 2.1 in Kim (2011, p. 33), summarizes the regional cleavage between the two provinces in terms of the distribution of power and wealth.

The cultural difference between the two provinces is tremendous. Gyeongsang province has been successfully westernized, while Jeolla province is still famous for its preservation of traditional food, art, and, above all, music. Since 1962, the government of South Korea has officially designated some 120 Important Intangible Cultural Properties for preservation, of which 18 musical artifacts originated in Gyeongsang or Jeolla province. It is suggestive that, out of those 18, 12 are from Jeolla,15 while only six are from Gyeongsang.16 Indeed, anyone who seeks to experience authentic Korean traditional music such as pansori [p’ansori] (epic storytelling through song) and sanjo (suite for a solo melodic instrument and a drum) should visit Jeolla province (Howard, 2006). Hypothetically, Sister
Kim and Sister Park were exposed only to the culture of Korean traditional music and did not encounter diatonic music during their formative years and, therefore, they were disposed to have only five steps within an octave. On the other hand, the members of Sarah might have easily come across the Western diatonic music, as they were from Gyeongsang province, the far more westernized and modernized region.

Following this line of reasoning, Sister Kim, Sister Park, and other members of Esther are an excellent example of what Burns and Ward (1978) found: “individuals in a given culture learn the scales of their culture from experience, not because of any innate propensity of the auditory system for specific intervals” (p. 466). The different singing styles of Esther and Sarah make it evident that there is no such thing as a natural or pre-cultural category. As Mrs Lee explicitly addressed her complaints to me in the aforementioned conversation, it may be true that the two sisters are “incurable.” However, that does not mean that they are amusical; on the contrary, they are highly trained musicians who have a “strong tendency to rate out-of-tune stimuli as in tune” (Siegel & Siegel, 1977, p. 405). In other words, they could transform the diatonic hymns into the pentatonic ones, precisely because they are musically trained, or enculturated. They should not be objects of disdain of any

| Gyeongsang province | Jeolla province |
|---------------------|----------------|
| Central in power    | Peripheral in power |
| Industrial areas    | Agricultural areas |
| Rich                | Poor |
| Westernized/modernized | Traditional |
sort. They are old, and there are not many of them: they are seriously at risk of extinction. Let us stop for a moment and ponder over it: how many people in the world possibly have the ability to transform any song into an “Arirang”?

For future research, the ultimate test of the hypothesis presented here could be carried out by conducting ethnographic fieldwork at various churches located in the two provinces of Korea over an
Extended period, so as to increase the sample size, thereby securing statistically more significant evidence, and to have an array of in-depth conversations and interviews both with hymn singers who transform melodies and with those who do not, thereby obtaining more detailed information on the musical experience and socioeconomic background of each group, for insight into the role of culture and environment played in category learning and formation. Such supplementary research activities may lead us toward a fuller understanding of the complex relationships between categorical perception, training, and sociocultural criteria, and, more broadly, between music, science, and culture.17

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Notes
1. I first observed melodic transformation of this sort at a Korean church in Philadelphia back in 1996. On a related note, Chanter and DeBernardi (1999) report that the Western missionaries found the Western hymns and the indigenous musical practice in China “at odds” as early as 1880s (p. 86).
2. A pentatonic scale is any collection of five notes per octave in ascending or descending order of pitch. In the narrow sense of the term, however, it refers to a scale exemplified by the pitch collection C-D-E-F-G-A and its transpositions and modes.
3. The two most commonly used systems for Romanization of Korean are the modified McCune-Reischauer Romanization of Korean and the New Romanization of Korean. The government of South Korea proclaimed the New Romanization as the official system in 2000. In this article, I transcribe Korean proper nouns by the New Romanization followed by the modified McCune-Reischauer in brackets when they appear for the first time; and, thereafter, in the New Romanization only.
4. In general, the made of a miyono is determined by the final note.
5. See Sheen (2002) for sinminyo and the process of re-Koreanization of songs.
6. A diatonic scale is an ordered collection of seven pitch-classes, whose octave is composed of five whole steps and two half steps. The major scale—the set C-D-E-F-G-A and its transpositions—is one of the most common diatonic scales.
7. Some other factors might have contributed to Sisters Kim and Park’s performance error (or performance expression, to put a positive spin on it). Measure 4 is at the end of the first system, and m. 12 at the end of the third system; and both measures are metrically incomplete, with only two beats notated. In such a situation, even those who are accustomed to Western music could make the same mistake as the two sisters’. Moreover, m. 8 and m. 16 actually have fermatas in similar locations, which might affect the performance of m. 4 and m. 12 as well. As far as I remember, however, Sister Kim and Sister Park definitely stood out in a crowd.
8. See Howard et al. (1992) for a methodologically more refined follow-up study.
9. Howard et al. (1992) assessed categorical perception of triads for 32 listeners differing greatly in musicianship. They report that the extent of categorical perception varies in a graded manner: categorical perception was strong in the most musical listeners, non-existent in the least musical listeners, and moderate in an intermediate group. Their findings corroborate the notion that categorical perception arises primarily through a process of learning.
10. The term “chromatic” in this context denotes the use of notes that do not belong to the given diatonic scale by means of accidentals.
11. “Arirang” is the best-known, most popular, and most widely disseminated Korean folk song. See Howard (2002) for the history of “Arirang” and other Korean folk songs.
12. There was the opportunity for me to interview Mr Kim on the same day. His position was remarkably different from Mrs Lee’s. According to him, a hymn is any song that praises God and/or contributes to the fellowship between members of the congregation; whether a song is written in pentatonic or diatonic is of little importance. To him, a song acquires the status of hymn in terms of its function rather than of its compositional attributes.
13. Regionalism in South Korea is best captured in the much maligned term jiyegam jangjeol [chıyakkamjıong], or regional animosity: a sentiment characterized by prejudice and discrimination against a specific region (Kim, 2013). It is a deep-seated, comprehensive feeling of antagonism toward a region, developed through political, economic, social, and cultural factors; and the most ferocious jiyegam jangjeol of all is the one between Jeolla and Gyeongsang provinces. Mutual antipathy between these two provinces is arguably an ancient problem (Lee, 1998), dating back to the Three Kingdoms period (from ca. 57 BC to AD 668) when Korea was divided into Goguryeo [Koguryo], Baekje [Paekche], and Silla [Shilla]. Jeolla province and Gyeongsang province belonged to Baekje and Silla, respectively—they had been two different kingdoms, rather than two different regions of the same country, until Silla conquered Baekje in 660. Prejudices based on historical construction of hostility between the conquered and the conqueror were inherited through the Goryeo [Koryo] dynasty (935–1392) and the Joseon [Chosón] dynasty (1392–1910) (Kim, 2013), most of the time Jeolla province marginalized and Gyeongsang province privileged. Such inequality carried over into the twentieth century.
14. For Korea’s Five-Year Economic Development Plans, see Cho (1994).
15. The 12 musical artifacts from Jeolla province are pongsiri (Property No. 5; North and South Jeolla Provinces), gandersulsullae [kanggersulsullae] (No. 8; South Jeolla Province), Iri nongak (No. 11-iii; North Jeolla Province), Imsil Pilbong nongak [Imshil Pilbong nongak] (No. 11-v; North Jeolla Province), Gurye jansu
nongak (Kanye chansu nongak) (No. 11-i; South Jeolla Province), Namdo deulnorae [Namdo tŭlnorae] (No. 51; South Jeolla Province). Jindo sissumgyot [Chindo sissik-mung] (No. 72; South Jeolla Province), Jindo dasiraegi [Chindo tasiraegi] (No. 81; South Jeolla Province), Wido tibaenori [Wido tibaenon] (No. 82-iii; North Jeolla Province), Gurye hyangje julpungnyu (Kurey hyangjei chulp'ungnyu) (No. 83-i; South Jeolla Province), Iri hyangje julpungnyu (Iri hyangje chulp'ungnyu) (No. 83-ii; North Jeolla Province), and salpuri chum [Salp'uri ch'um] (No. 97; North and South Jeolla Provinces and Gyeonggi [Kyonggi] Province). See Howard (2006).

16. The six musical artifacts from Gyeongsang province are Jinju nongak [Chinju nongak] (No. 11-i; South Gyeongsang Province), Hahoeye byolesingut t'alanori [Hahoe yŏlshingut t'al'nori] (No. 69; North Gyeongsang Province), Donghae yonshingut [Tonghae yŏnshingut] (No. 82-i; Busan), Nat'ans. Music Perception: An Interdisciplinary Journal, 10, 205–220. http://dx.doi.org/10.2307/4028560

Kim, V. (2011). The politics of coalition in Korea: Between institutions and culture. New York, NY: Routledge.

Kim, J.-G., & Son, J.-Y. (1997). Rural-urban disparity and government policies for rural development. In D. L. Lindauer, J.-G. Kim, J.-W. Lee, H.-S. Lim, J.-Y. Son, & E. F. Vogel (Eds.), The strains of economic growth: Labor unrest and social dissatisfaction in Korea (pp. 123–153). Cambridge, MA: Harvard University Press.

Lee, G.-Y. (1998). Hongguk seongeowa jieokjuui [Elections and regionalism in Korea]. Seoul: Oreum.

Liberman, A. M., Harris, K. S., Hoffman, H. S., & Griffith, B. C. (1995). The discrimination of speech sounds within and across phoneme boundaries. Journal of Experimental Psychology, 51, 379–388.

Liberman, A. M., Cooper, F. S., Shankweiler, D. S., & Studdert-Kennedy, M. (1967). Perception of the speech code. Psychological Review, 74, 431–461. http://dx.doi.org/10.1037/h0020279

Locke, S., & Keilar, L. (1993). Categorical perception in a non-linguistic mode. Cortex, 9, 355–369. http://dx.doi.org/10.1016/S0010-9452(73)80035-8

Park, B.-G. (2008). Uneven development, inter-scalar tensions, and the politics of decentralization in South Korea. International Journal of Urban and Regional Research, 32, 40–59. http://dx.doi.org/10.1111/j.1173-0020.2008.23.issue-1

Postore, R. E., Schmuckler, M., Rosenblum, L., & Szczesniak, R. (1981). Duplex perception with musical stimuli. Perception & Psychophysics, 28, 353–260.

Sheen, D.-C. (2002). Some westernized aspects in Korean folk songs. In N. Hesselink (Ed.), Contemporary directions: Korean folk music engaging the twentieth century and beyond (pp. 76–95). Berkeley, CA: Institute of East Asian Studies, University of California.

Siegel, J. A., & Siegel, W. (1977). Categorical perception: The groundwork of cognition and discrimination, and selective adaptation of simultaneous musical intervals. Perception & Psychophysics, 21, 399–407.

Studdert-Kennedy, M., Liberman, A. M., & Stevens, K. N. (1961). Reaction time to synthetic stop consonants and vowels at phoneme centers and at phoneme boundaries. The Journal of the Acoustical Society of America, 35, 1900. http://dx.doi.org/10.1121/1.2142747

Zatorre, R. J., & Halsper, A. R. (1979). Identification, discrimination, and selective adaptation of simultaneous musical intervals. Perception & Psychophysics, 26, 384–395.

Harnad, S. (1987). Psychophysical and cognitive aspects of categorical perception: A critical overview. In S. Harnad (Ed.), Categorical perception: The groundwork of cognition (pp. 1–25). New York, NY: Cambridge University Press.

Harned, C., & Kotz, J. P. (2002). Why is there no NATO in Asia? Collective identity, regionalism, and the origins of multilateralism. International Organization, 56, 575–607. http://dx.doi.org/10.1111/00208102760199890

Howard, K. (2002). Korean folk songs for a contemporary world. In N. Hesselink (Ed.), Contemporary directions: Korean folk music engaging the twentieth century and beyond (pp. 149–172). Berkeley, CA: Institute of East Asian Studies, University of California.

Howard, K. (2006). Preserving Korean music: Intangible cultural properties as icons of identity. Burlington, VT: Ashgate.

Howard, D., Rosen, S., & Broad, V. (1992). Major/minor triad identification and discrimination by musically trained and untrained listeners. Perception & Psychophysics, 52, 95–103. http://dx.doi.org/10.3758/BF03213586

Locke, S., & Keilar, L. (1993). Categorical perception in a non-linguistic mode. Cortex, 9, 355–369. http://dx.doi.org/10.1016/S0010-9452(73)80035-8

Park, B.-G. (2008). Uneven development, inter-scalar tensions, and the politics of decentralization in South Korea. International Journal of Urban and Regional Research, 32, 40–59. http://dx.doi.org/10.1111/j.1173-0020.2008.23.issue-1

Postore, R. E., Schmuckler, M., Rosenblum, L., & Szczesniak, R. (1981). Duplex perception with musical stimuli. Perception & Psychophysics, 28, 353–260.
