1. Introduction

According to the Fundamental Difference Hypothesis (FDH) of Bley-Vroman (1989, 1990), interlanguage grammars of adult learners differ from the grammars of native speakers in a number of fundamental respects. In particular, adults are claimed to lack domain-specific learning mechanisms, including Universal Grammar (UG). This is not meant to imply that learners necessarily fail to acquire subtle and abstract properties of the L2: where such knowledge is achieved despite a poverty of the L2 stimulus, the assumption is that it comes from the L1.

However, over the years it has been shown that L2ers are highly sensitive to subtle syntactic and semantic properties which are underdetermined by the L2 input and which could not have come from the L1 (see White 2003b for overview). For example, studies have demonstrated that L2 learners have unconscious knowledge of principles of UG, including Subjacency (e.g. White & Juffs 1998), Binding Principles (e.g. Thomas 1991), the Overt Pronoun Constraint (e.g. Kanno 1997), as well as interpretive principles relevant to the syntax/semantics interface (e.g Dekydtspotter, Sprouse & Anderson 1997; Dekydtspotter, Sprouse & Thyre 2001). Consequently, it is not at all clear that there is a fundamental difference in the domain of abstract syntax or at the syntax/semantics interface.

At the same time, it is clear that L2ers often exhibit problems in certain grammatical domains, including inflectional morphology and function words. L2ers often fail to produce morphology – or produce inappropriate forms – and this can be a long-lasting problem, resulting in fossilization (Lardiere 1998; White 2003a). In other words, there are clear differences between native speakers and L2ers in the morphological domain, which may or may not be fundamental. In this paper, I investigate article production in Mandarin-speaking learners of English. I will suggest that there are indeed differences between the behaviour of adult L2ers and native speakers but that these differences do not indicate a fundamental difference in the unconscious knowledge attained. Despite non-native article production, L2ers are sensitive to subtle semantic restrictions on article production, in particular to certain restrictions on the incidence of definite articles (Milsark 1977).

2. Articles and Definiteness Effects in English and Mandarin

The present paper is concerned with the acquisition of English articles by speakers of an L1 lacking articles, namely Mandarin. English articles encode a ±definite distinction, the being definite and a indefinite. The type of noun (count versus mass) is also a factor: indefinite mass nouns and indefinite plural count nouns can appear without articles, i.e. as bare nouns. In addition to the article system, English has a range of other determiners, including demonstratives, possessives, numerals, etc., some of which are definite and some indefinite (see below). The distribution of English articles is shown in (1). Examples involving singular count nouns are presented in (2). Crucially, these nouns cannot be bare, as shown in (2e). Hence, L2ers’ suppliance (or lack thereof) of articles in singular count noun contexts provides a particularly clear way of assessing interlanguage article use.
(1) *the*: definite count nouns (singular and plural), definite mass nouns
e.g. the book, the books, the furniture

*a*: indefinite singular count nouns

e.g. a book, *a* books, *a* furniture

∅: indefinite plural count nouns, indefinite mass nouns
e.g. books, furniture, *book

(2) a. I read a book.
b. I read the book.
c. I read that book.
d. I read my book.
e. *I read book.

In contrast to English, Mandarin has no definite or indefinite articles (Li & Thompson 1981). However, certain determiners are in the course of becoming grammaticalized as articles, according to some authors (S. Huang 1999).

A phenomenon related to definiteness is the so-called definiteness restriction or definiteness effect (DE) (Milsark 1977, and many others), which shows up in existential sentences. In the English existential construction known as *there*-insertion, indefinite DPs are required, while definite DPs are precluded. This affects articles and other determiners. So-called ‘weak’ determiners pattern with the indefinite article and are permitted in *there*-insertion contexts, whereas ‘strong’ determiners pattern with definites and are disallowed. Table 1 shows the distribution of English weak and strong determiners. The sentences in (3) provide grammatical and ungrammatical examples.

| Table 1. English weak and strong determiners |
|-------------------------------|-------------|
| Weak/indefinite               | Strong/definite |
| *a*                           | the         |
| *some, many, few, several, etc.* | *all, most, every, each, etc.* |
| cardinal numbers *(one, two, three, etc.)* | pronouns, proper names |
| zero articles *(with bare plurals, mass nouns)* | demonstratives, possessives *(this, that, my, his, her, etc.)* |

(3) a. There seems to be a fly in my soup.
b. *There seems to be the fly in my soup.*
c. There are some flies in my soup.
d. *There is every fly in my soup.*

There are, however, some well-known exceptions to the DE. When *there* is used deictically, it can be followed by a definite DP, as in (4a). Similarly, given a list reading, the DE is not observed, as in (4b). Finally, some apparently strong determiners can occur in existential contexts, provided that their meaning is in fact weak (or non-universal), as in (4c).

(4) a. Look, there's the soup ladle, on the table.
b. Do we have anything to complain about? Well, there's the fly in my soup …..
c. There may be every kind of insect in this soup. *(every=many)*

While Mandarin lacks articles, it does show some definiteness effects in existential sentences. The *you*-construction in Mandarin is the closest counterpart to English *there* insertion (C-T. J. Huang

---

1 Indeed, there are several determiners that have both a strong and a weak reading, for example, *some* and *many*. See Milsark (1977) for discussion.
1987). This construction is formed by adding the existential marker you (literally ‘have’) to the beginning of a regular sentence. The subject must usually be indefinite, as shown in (5) (examples from Huang), where it can be seen that when the determiner is yiben (‘one’) (i.e. weak) the sentence is acceptable, whereas when it is neiben (‘that’) (i.e. strong) the sentence is ungrammatical.

(5) a. you yiben shu zai zhuozi shang
   have one book at table top
   ‘There is a book on the table.’

b. *you neiben shu zai zhuozi shang
   have that book at table top
   ‘There is that book on the table.’

Mandarin also has exceptions to the DE, though the exceptions are different from those observed for English. In particular, the DE is not observed when there is an overt expression in topic position, as shown in (6), where it can be seen that a DP with a demonstrative zheben (‘this’) (strong) is acceptable:

(6) zheli you mei you zheben shu?
   here have-not-have this book
   ‘There is (a copy of) this book here.’

3. Recent accounts of L2 article production

It has long been observed that L2ers have problems with article acquisition, particularly if the L1 lacks articles (Huebner 1985; Robertson 2000; Thomas 1989; amongst many others). Two kinds of problems have been isolated: (i) omission of articles in obligatory contexts, as in (7a), and (ii) inappropriate substitution of one article for the other (typically, definite for indefinite), as in (7b). (A third problem – oversuppliance of articles in contexts where a bare noun is expected – will not be discussed here.) For both examples (from White 2007), the L1 is Mandarin.

(7) a. And she made phone call to someone.

b. She take the bath.

Recently, article errors have received a number of explanations, in terms of problems with syntactic (e.g. Leung 2001), phonological (e.g. Goad & White, in press) or semantic (e.g. Ionin, Ko & Wexler 2004) representation.

A syntactic account is offered by Leung (2001) who adopts a version of the Failed Functional Features Hypothesis (FFFH) of Hawkins and Chan (1997), according to which features which are not represented in the L1 cannot be acquired in the L2 or L3 (see also Leung 2005). Leung’s assumption (following Cheng & Sybesma 1999) is that Chinese lacks a [±definite] feature, hence that this feature should not be acquirable when the L1 (Cantonese) lacks the feature but the L2 (English) and L3 (French) require it. In fact, her results suggest that L2ers and L3ers are relatively successful in acquiring definiteness, although overusing indefinite articles in definite contexts, a result which differs from other findings, where the opposite is usually reported.

A phonological account of L2 spoken production of inflectional morphology and function words, including articles, is provided by the Prosodic Transfer Hypothesis (PTH) (Goad, White & Steele 2003; Goad & White 2004, 2006). According to this theory, production of functional material is constrained by the kinds of prosodic representations available in the L1 grammar. L2 learners are

---

2 In fact, the claim of the FFFH is that it is uninterpretable features that are affected in this way, not interpretable ones. Hawkins et al. (2006) argue that problems with definiteness are not predicted under the FFFH, because definiteness is an interpretable feature.

3 See Lardiere (2005) for a contrary view.
predicted to have difficulty in accurately producing functional morphology when the L2 requires a prosodic representation which is unavailable in the L1.

In the case of L2 English articles when Mandarin is the L1, we have argued that Mandarin lacks the prosodic representation required for English (Goad & White, in press). In particular, English articles are organized as free clitics, linking directly to the phonological phrase (Selkirk 1996), as shown in (8a). Other determiners (demonstratives, possessives, quantifiers, as well as the strong forms of articles) are stressed and so, by definition, form independent prosodic words (PWds); see (8b). In Mandarin, determiners are stressed (and tone-bearing), indicating that they form their own PWds; in other words their representation is as in (8c), similar to (8b) rather than (8a). As a result, learners omit articles altogether or resort to other representations to allow them to be produced.

(8) a. [the[böok]PWI]PPh
   b. [onePWd[böok]PWI]PPh
   c. [yi-ben]PWd[shù]PWI]PPh
   ‘one book’

Given that the prosodic representation of the English definite and indefinite article is identical, the PTH makes no predictions about article interpretation or substitution of one article for the other. A recent account which focuses on article overuse (rather than omission) is the Fluctuation Hypothesis (FH) (Ionin 2003; Ionin et al. 2004). According to the FH, L2 speakers whose L1s lack articles fluctuate between two settings of an Article Choice Parameter, dividing the English article system on the basis of definiteness (the realizing [+definite] and a [-definite]) or on the basis of specificity (the being [+specific] and a [-specific]). The FH predicts correct use of the in contexts that are semantically [+def, +spec] and correct use of a in contexts that are [-def, -spec]. Overuse of a is predicted in contexts that are [+def, -spec] and overuse of the in contexts that are [-def, +spec]. In a series of experiments involving written production tasks with speakers of articleless L1s, namely Russian and Korean, Ionin and colleagues show that these predictions are largely borne out.

None of these accounts have directly addressed the DE. The FFFH (as interpreted by Leung) would expect this effect not to be observed if L2ers are unable to acquire features not represented in the L1 and if definiteness is indeed lacking in Mandarin. The PTH will have nothing to say about the DE, given that it does not look at the semantic properties of articles, only their phonological representation. As for the FH, given that substitution errors are expected, this might suggest that L2ers will fail to observe the DE: if they overuse definite articles in place of indefinite, one would expect sentences like (3b) to be produced and to be judged acceptable. (On the other hand, some researchers suggest that the DE is actually a specificity effect (Enç 1989); if so, this might prevent DE violations regardless of which setting of the Article Choice Parameter is adopted.)

In fact, knowledge of the DE requires integration of a number of properties. Firstly, the feature [+definite] must be mapped or reassembled onto the English definite and indefinite articles (see Lardiere 2005, 2007). Then the learner must realize the effects of this mapping on a particular L2 construction (there-insertion), as well as realizing that other indicators of definiteness are also implicated. What little previous research there has been on the DE suggests that L2ers are sensitive to the English DE, even when the L1 lacks an article or articles. White (2003a), in a study of a Turkish speaker whose proficiency in English was advanced, reports no DE violations, even though the subject did make errors in article suppliance, in the form of omission. Lardiere (2005), in her study of a steady-state L2 speaker, Chinese L1, similarly reports no DE violations. These are both case studies and there are few studies of larger groups on the DE. One such study is reported by King et al. (2006) who found that Chinese speakers of low intermediate proficiency in English did not distinguish between DE violations and equivalent grammatical sentences in a grammaticality judgment task, nor were there any ERP effects. More advanced subjects did distinguish between DE violations and non-violations (and showed P600 effects). In the present paper, another study is presented, using a different methodology, which suggests that L2ers of intermediate proficiency are indeed sensitive to the DE.
4. Experiment

4.1. Methodology

The experiment involved 15 Mandarin speakers. All subjects were living in Canada and were tested there; average length of residence was 2 years (range 1 to 7 years). All of them had learned some English in high school in China but their main exposure to the L2 was subsequent to arriving in Canada as adults. Age range on immigration was 19 to 32; mean age of arrival was 26. English proficiency ranged from low to high intermediate, determined by means of a cloze test.

An elicited production task was designed for the experiment. Subjects were audio-taped describing a sequence of 63 pictures telling a story about an evening in the life of a woman. They were taped using a SONY PCM-M1 DAT recorder; the data were subsequently transcribed and were coded for determiner use.

4.2. Results

We first examine article supplience in general, focusing on singular count nouns, since these provide obligatory contexts for articles. The task yielded many DPs with singular count nouns (ranging from 99 to 262 per subject). On average, each person produced 135 singular count noun contexts for articles (as opposed to other determiners) (range: 60 to 218). Figure 1 reports on supplience of articles in such contexts.

Figure 1. Article supplience in singular count noun contexts (in %)

---

4 DPs containing adjectives are excluded, in order to concentrate on the relationship between the article and adjacent noun.

5 In fact, the majority of nouns produced were singular count nouns. Mass nouns and plurals were eliminated from the main analysis, as were singular count nouns which do not require a determiner, for example, the second noun in a conjunct or nouns occurring in isolation, such as self-corrections. Exact repetitions of the experimenter were also excluded.
The majority of articles were unstressed, in other words, phonologically targetlike. At the same time, all subjects produced stressed articles in contexts where this was phonologically inappropriate, ranging from 2 to 43%. Omission of articles was also found, ranging from 3 to 38%. As Figure 1 shows, no subjects achieve a level of (phonological) accuracy higher than 70% in their DPs. Clearly then, their performance differs from that of native speakers. As discussed in Section 3, Goad and White have argued elsewhere that performance on L2 English inflection, including articles, reflects prosodic differences between the L1 and L2, which make it difficult for learners to construct appropriate L2 prosodic representations. Omission and stressing are both consistent with attempts to circumvent the L2 prosodic representation, omission because it avoids the need to represent articles altogether. When overt articles are produced with stress, these are syntactically appropriate but phonologically inappropriate, suggesting that learners have adopted a strategy which allows production of overt articles by means of the representation appropriate for Mandarin (and English) determiners, as in (8b) or (8c). (See Goad and White, in press, for further details.)

Overuse of articles is reported in Table 2, in percent. According to the FH, overuse of definite should be restricted to [+specific] contexts and overuse of indefinite should be restricted to [-specific]. Given the fact that the experimenter and subject were looking at the same set of pictures, so that most nouns turned out to be [+specific], there are few [-specific] contexts to consider. If the majority of DPs produced are [+specific], there is no motivation for overuse of a, according to this theory. Indeed, substitution of indefinite articles in definite contexts was infrequent (4% or less for almost all subjects). Substitution of definite articles for indefinite was somewhat higher (10% on average), consistent with the FH.

Table 2. Overuse of indefinite and definite articles (in %)

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M19</th>
<th>M20</th>
<th>M14</th>
<th>M4</th>
<th>M3</th>
<th>M7</th>
<th>M5</th>
<th>M10</th>
<th>M2</th>
<th>M21</th>
<th>M15</th>
<th>M6</th>
<th>M22</th>
<th>M16</th>
</tr>
</thead>
<tbody>
<tr>
<td>% the for a</td>
<td>6</td>
<td>16</td>
<td>19</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>12</td>
<td>11</td>
<td>15</td>
<td>11</td>
<td>7</td>
<td>9</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>% a for the</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>

These subjects are clearly not native-like in general article use, with some phonologically and some semantically inappropriate article production. We turn now to examine their suppliance of articles in there-insertion contexts, in order to see whether or not they are sensitive to the DE. Since subjects were free to describe the pictures as they wished, there was no way to ensure that there-insertion constructions were produced. A total of 149 there-insertion sentences were found, with an average of 10 per person (ranging from 1 to 33, with the exception of two subjects who produced no instances at all). Note that the there-insertion analysis is not restricted to singular count noun contexts, in order to investigate the incidence of grammatical bare nouns (only possible with mass nouns and plural count nouns).

Results on there-insertion are given in Table 3, from all subjects combined, and relevant examples are given in (9). It can be seen that subjects indeed observe the requirement that the DP in an existential there construction must be indefinite. Several things are noteworthy: the indefinite article is the most frequent form (50%), as in (9a), followed by weak quantifiers (such as some) (see 9b) and numerals (9c). Some cases involve legitimate bare DPs (i.e. with mass nouns or plurals) (as in 9d). Taken together, these indefinite and weak forms constitute 88% of DPs in there-insertion contexts, strongly suggesting that the DE is being observed. (The fact that there are number errors with verbal agreement, for example in (9a) or (9d) is irrelevant to the issue of definiteness.) There are also some cases (10%) where articles are missing from singular count nouns, making it impossible to tell whether they are definite or indefinite (see 9e). Crucially, use of definite DPs is practically non-existent, (9f)

---

6 M15 produced numerous stressed articles. These were invariably followed by a pause or filler and have been excluded from the analysis. See note 7.

7 Other productions, including substitutions of other determiners in place of articles (produced by two subjects), as well as pauses or fillers after articles (produced by most subjects), have been omitted from the analysis. Hence, the numbers illustrated in Figure 1 do not add up to 100%.
being one of the few examples produced. Only 2% of all DPs are incorrectly definite, and there are no cases at all of strong determiners in this construction. Occasional cases of grammatical deictic *there* (as in 9g) and list *there* (as in 9h) were also found.

### Table 3. Determiner types in *there*-insertion contexts

<table>
<thead>
<tr>
<th>Determiner Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indefinite articles</td>
<td>75 (50%)</td>
</tr>
<tr>
<td>Weak quantifiers</td>
<td>31 (21%)</td>
</tr>
<tr>
<td>Cardinal numbers</td>
<td>17 (11.5%)</td>
</tr>
<tr>
<td>Zero articles (bare plurals, mass nouns)</td>
<td>8 (5%)</td>
</tr>
<tr>
<td>Zero articles (singular count nouns)</td>
<td>15 (10%)</td>
</tr>
<tr>
<td>*Definite articles</td>
<td>3 (2%)</td>
</tr>
<tr>
<td>*Strong quantifiers</td>
<td>0</td>
</tr>
<tr>
<td>Total <em>there</em>-insertion contexts</td>
<td>149</td>
</tr>
</tbody>
</table>

(9)  
(a) There is a woman with two kids (M16)  
(b) There is ambulance coming too (M6)  
(c) There is her neighbour, Mary (M19)  
(d) There are a woman with two kids (M16)  
(e) There are some pens (M5)  
(f) There are three persons in front of the museum (M14)  
(g) There is yellow clothes (M15)  
(h) There is ambulance coming too (M6)  
(i) There is the police car coming (M1)  
(j) On the receipt there are the date and there are the amount (M2)  

One possibility that needs to be eliminated is that the suppliance of articles and determiners in *there*-insertion contexts mirrors suppliance in DPs in general. In order to investigate this, three subjects (M2, M15, M19) who each produced more than 20 cases of *there*-insertion were chosen for further analysis. Figure 2 presents their suppliance of the relevant article and determiner types overall with singular count nouns, whereas Figure 3 presents the results from *there*-insertion.

#### Figure 2. Proportions of articles/determiners in singular count noun contexts (in %)

---

*Context suggests that (9f) is indeed an ungrammatical *there*-insertion rather than a grammatical deictic form.*
A comparison of Figures 2 and 3 demonstrates quite clearly that there-insertion contexts differ from other contexts for these speakers: (i) indefinite articles predominate over definite in cases of there-insertion, whereas definite articles are more common than indefinites in general; (ii) weak determiners are found in there-insertion contexts but rarely in other contexts; (iii) strong determiners show the opposite pattern, being more common in contexts not involving there-insertion. Combining definite articles with strong determiners (both definite) and indefinite articles with weak determiners (both indefinite), one can see that in general these subjects produce more definite DPs than indefinite. When they produce there-insertion, on the other hand, they produce only indefinite DPs, as required by the DE. It is important to note that this is true for both M2 and M19, whose overuse of definite articles in indefinite contexts was 15% and 16% respectively. In other words, despite this overuse in general contexts, there is no overuse in cases involving there-insertion.

**Figure 3. Proportions of articles/determiners in there-insertion contexts (in %)**

<table>
<thead>
<tr>
<th></th>
<th>M2</th>
<th>M15</th>
<th>M19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indefinite articles</td>
<td>50</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Definite articles</td>
<td>50</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Weak determiners</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Strong determiners</td>
<td>40</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

5. Discussion

While it is clear that the L2ers investigated here ‘know’ the DE, treating there-insertion constructions in a native-like way despite non-native performance on articles in general, the source of this knowledge is not so obvious. Is there a poverty of the stimulus for the DE, implicating UG, or are there other potential sources of knowledge of the DE?

On the one hand, it would appear that acquiring knowledge of the DE constitutes a learnability problem, implicating UG (possibly universal semantic properties in this particular case). In most contexts, definite and indefinite articles are interchangeable (albeit with a corresponding change in interpretation), as shown in (10). In other words, much of the input will suggest that definite and indefinite DPs can occur in similar contexts, which happens not to be the case for existential constructions. The learner, then, has to discover that something that is typically allowed is in fact disallowed in a limited context, which is usually taken as a classic poverty of the stimulus situation.

(10) a. The book is on the table.
    b. A book is on the table.
Furthermore, although Mandarin does exhibit definiteness effects, these are not identical to those in English: in particular, the presence of an overt topic appears to neutralize the DE. In addition, since Mandarin lacks articles, L2ers will not be able to rely on the L1 to determine exactly how the DE plays out in L2 English.

On the other hand, one possibility suggested by Robert Bley-Vroman (personal communication at GASLA) is that the DE is easily learnable on the basis of statistical frequency in the input. In other words, learners will hear lots of sentences with ‘There is a …’ and few sentences with ‘There is the…’ and, as a result, will be able to induce the need for the indefinite article in there-insertion contexts. In support of this proposal, a check of the British National Corpus reveals that expressions with ‘There is a …’ are almost 10 times as frequent as expressions with ‘There is the…’ (15,306 cases versus 1558). Note, however, that expressions with ‘There is the …’ are found in the corpus – not DE violations but exceptions like those in (4) – and that expressions like ‘There is one…’ (949 cases), ‘There are some…’ (1572 cases) are as infrequent as ‘There is the…’, if not more so, suggesting that L2ers’ performance on the DE does not simply reflect the input received. A related proposal is made by Trenkic (2007) who suggests that ‘There is a …’ can be memorized as a chunk on the basis of frequency in the input. Again, this seems unlikely to be the whole explanation, given the different types of DPs that the L2ers produce, as well as the fact that many of them exhibit appropriate plural agreement (there are ...) (e.g. (9b) and (9c)), suggesting productivity.

Another possibility relating to input is suggested by Boping Yuan (personal communication at GASLA) who observes that English instruction in China specifically addresses there-insertion and that the requirement for an indefinite article is taught. Again, this may provide an explanation for the predominance of the indefinite article in the L2ers’ there-insertions but not for the variety of other grammatical weak determiners or absence of strong determiners.

In conclusion, it may not be possible to determine on the basis of the data reported here which of the above factors led to successful acquisition, or whether a combination of factors is involved. It does seem to be the case that L2ers are very successful in this area of article use, in contrast to other properties of articles which are not necessarily mastered. Indeed, there is no reason to assume that the claim for differences between L2ers and native speakers must be an all-or-nothing claim; L2ers will not necessarily have difficulties across the board. Learners might be (fundamentally) different in one domain and fundamentally similar in another. In this paper, I have followed Goad and White (in press) in assuming that there are indeed differences between L2ers and native speakers in terms of prosodic representation of articles, with consequences for realization of morphology. At the same time, there is little or no difference in terms of article interpretation (definite vs. indefinite) or in the consequences of a [± definite] feature for the grammar of existential constructions.

Acknowledgments

Thanks to the following research assistants: Wid Al Bayaty, Erin King, Moti Lieberman, Cornelia Loos, Jen Mah, Mizuki Mazzotta, Corinne McCarthy, Luisa Meroni, Monika Molnar, Jen Morehouse, Adèle-Elise Prévost, Chen Qu and Mari Umeda, as well as to Shabana Ali for her artistic skills. This research was funded by grants from the Social Sciences and Humanities Research Council of Canada (SSHRC) and from the Fonds québécois de la recherche sur la société et la culture (FQRSC).

References


