



## Original Articles

## Can monolinguals be like bilinguals? Evidence from dialect switching

Neil W. Kirk<sup>a</sup>, Vera Kempe<sup>a,\*</sup>, Kenneth C. Scott-Brown<sup>a</sup>, Andrea Philipp<sup>b</sup>, Mathieu Declerck<sup>c</sup><sup>a</sup> Abertay University, Dundee, Scotland, United Kingdom<sup>b</sup> Institute of Psychology, RWTH Aachen University, Aachen, Germany<sup>c</sup> Laboratoire de Psychologie Cognitive, Aix-Marseille University and Centre de la Recherche Scientifique, Marseille, France

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## ABSTRACT

Bilinguals rely on cognitive control mechanisms like selective activation and inhibition of lexical entries to prevent intrusions from the non-target language. We present cross-linguistic evidence that these mechanisms also operate in bidialectals. Thirty-two native German speakers who sometimes use the Öcher Platt dialect, and thirty-two native English speakers who sometimes use the Dundonian Scots dialect completed a dialect-switching task. Naming latencies were higher for switch than for non-switch trials, and lower for cognate compared to non-cognate nouns. Switch costs were symmetrical, regardless of whether participants actively used the dialect or not. In contrast, sixteen monodialectal English speakers, who performed the dialect-switching task after being trained on the Dundonian words, showed asymmetrical switch costs with longer latencies when switching back into Standard English. These results are reminiscent of findings for balanced vs. unbalanced bilinguals, and suggest that monolingual dialect speakers can recruit control mechanisms in similar ways as bilinguals.

## 1. Introduction

Models of bilingual word production assume shared conceptual yet distinct language-specific lexical representations. For example, when wishing to express the concept ‘DOG’, English-German bilingual speakers have both the English lexical entry ‘dog’ and the German lexical entry ‘Hund’ at their disposal, and have to select one of them depending on the target language. A variety of experimental paradigms (e.g. Blumenfeld & Marian, 2011; Dimitropoulou, Duñabeitia, & Carreiras, 2011; Hermans, Bongaerts, De Boot, & Schreuder, 1998) have demonstrated that bilingual lexical access during comprehension and production is liable to cross-language influence. Two lines of evidence have specifically demonstrated the consequences of cross-language influence in word production: First, when cued to switch between languages during word production, bilinguals exhibit a language switch cost: they take longer to produce a word in one language after just having produced a word in the other language, compared to trials where the preceding word was produced in the same language (e.g. Meuter & Allport, 1999). Second, cognates, i.e. etymologically related words which have considerable phonological/orthographic overlap with their translation equivalent in the other language, are named faster than non-cognates (Costa, Caramazza, & Sebastian-Galles, 2000).

As we will briefly discuss below, most bilingual word production models explain these findings based on the assumption that the

bilingual lexicon contains distinct and separate lexical entries for each language, and that these entries are in some way tagged for language membership (but see Shook & Marian, 2013). This is in contrast to monolingual models of word production which instantiate a single lexical entry for each concept. However, in many situations monolinguals encounter considerable socio-linguistic variation through exposure to different varieties such as dialects, accents, sociolects or speech registers (e.g. Foulkes & Hay, 2015), and are able to flexibly switch between these varieties depending on the social context of the communicative situation. Although the question of whether two varieties constitute different languages vs. different dialects, or different dialects vs. different accents is a notoriously controversial one, there is agreement that dialects of a language are characterised by a considerable degree of lexical overlap that results in mutual intelligibility. Yet quite often individuals who are functionally bidialectal are identified as monolinguals by instruments that rely on self-report of linguistic knowledge, e.g. the widely used Language Experience and Proficiency Questionnaire (LEAP-Q; Marian, Blumenfeld, & Kaushanskaya, 2007), simply because those instruments do not include questions about non-standard variants of the respondents’ native languages. It is possible that flexible use of various socio-linguistic varieties such as dialects relies on mechanisms that are similar to the ones that underpin lexical access in bilinguals. If that is the case then strong qualitative distinctions between monolingual and bilingual models of word production

\* Corresponding author at: Division of Psychology, Abertay University, Dundee DD1 1HG, Scotland, United Kingdom.  
E-mail address: [v.kempe@abertay.ac.uk](mailto:v.kempe@abertay.ac.uk) (V. Kempe).

seem unwarranted, as bilinguals and bidialectal monolinguals might, in fact, not be fundamentally different in terms of the architecture of their lexicon and the mechanisms that underlie lexical access. To address this question, we asked in this study whether bidialectal monolingual speakers, who use an urban dialect of their native language, display language switch costs and cognate facilitation effects that are similar to the ones observed in bilinguals.

### 1.1. Language switch costs

One prominent method of studying bilingual lexical access during word production involves cueing bilingual participants to name digits or pictures in one or the other language. This language-switching task has been adapted from non-linguistic task-switching research (for a review, see Kiesel et al., 2010). Results typically show a cost associated with switching languages compared to producing words in the same language as in the previous trial; in unbalanced bilinguals, this cost tends to be greater when switching back into the more dominant language (e.g. Macizo, Bajo, & Paolieri, 2012; Meuter & Allport, 1999; Philipp, Gade, & Koch, 2007) while for balanced bilinguals, switch costs tend to be symmetrical across languages (Costa & Santesteban, 2004; Costa, Santesteban, & Ivanova, 2006). Language switching costs arise either through inhibition or through selective activation (for a recent review, see Declerck & Philipp, 2015a). For example, one influential model, the Inhibitory Control Model (Abutalebi & Green, 2008; Green, 1998), postulates that entries in the bilingual lexicon are tagged as belonging to one or the other language, and that in order to exercise language control and to prevent intrusions from the non-target language, the language schema encompassing all entries belonging to the non-target language needs to be inhibited while the target language schema remains active so that the associated lexical entries can be selected. Bilinguals who are highly proficient in both languages display symmetrical switch costs because the required levels of inhibition are proportional to the strengths of the representation of each language (Bobb & Wodniecka, 2013). Unbalanced bilinguals, on the other hand, display asymmetrical switch costs involving longer latencies when switching into the L1, a paradoxical finding that is assumed to reflect task set inertia because it takes longer to overcome the stronger inhibition that was required to block out the dominant language on previous trials.

An alternative account, the language-specific selection hypothesis (e.g. Costa & Caramazza, 1999; Costa & Santesteban, 2004; Roelofs, 1992), suggests that inhibition is not required to prevent non-target language intrusions, and that lexical selection operates only over those entries that belong to the target language. According to this account, selection thresholds can be set differently for each language enabling bilinguals to prioritise access to one or the other language without the need for inhibition (Costa et al., 2006; Poulisse, 1997; but see Declerck, Thoma, Koch, & Philipp, 2015). Under this account, language-specific selection occurs when lexical representations have been integrated into the lexicon and tagged according to language membership. Only when lexical representations are sufficiently novel will it prove necessary to inhibit the stronger language in order to produce words with relatively sparse lexical representations (Costa et al., 2006).

Regardless of whether the proposed mechanism that ensures language control is inhibition or selective activation, most models assume that language selection operates on the lexical level (but see La Heij, 2005, for a proposal of language selection on the conceptual level; and Declerck & Philipp, 2015a; Gollan, Schotter, Gomez, Murillo, & Rayner, 2014 for a proposal of language control at the phonological level). In these models, lexical entries are either tagged individually for language membership or connected to language nodes (Dijkstra & Van Heuven, 2002), to allow for the activation of language schemas that regulate competition between the lexical entries associated with the different languages. The question we are asking here is whether we can observe similar competition effects for lexical entries that belong to different

socio-linguistic varieties. How do individuals who frequently switch between the standard language and a local dialect perform context-appropriate lexical selection? To tackle this question we examine whether bidialectal speakers display a similar pattern of switch costs as bilinguals.

### 1.2. Cognate facilitation effects

Another prominent effect that provides insight into the structure of the bilingual lexicon is the cognate facilitation effect. Studies of bilingual lexical access have demonstrated facilitatory effects for interlingual cognates resulting in faster naming latencies for words that share phonological or orthographical features. Again, several proposals can account for this effect (see Costa, Santesteban, & Caño, 2005): One possibility is a cascading mechanism whereby cognates activate the lexical representation of their translation equivalent in the non-target language, and both entries then jointly activate the shared elements of their phonological form resulting in its greater activation compared to non-cognates who do not receive this additional activation (Costa et al., 2000). Another possibility is that activation on the segmental level is propagated back thereby activating both the target lexical entry as well as its translation equivalent, and both of these representations iteratively activate the segmental level thereby facilitating cognate production through an interactive process (Berndt, Hartsuiker, & Pickering, 2012). While it is beyond the scope of this study to adjudicate between these different studies, we simply note that both models presume language-specific lexical entries in the bilingual lexicon.

Recent studies have also described interesting interactions between the phonological overlap found in cognates and performance in the switching task: When cognates and non-cognates are presented in separate blocks, switch costs are smaller for cognates (Declerck, Koch, & Philipp, 2012), due to facilitation arising from the phonological co-activation of the non-target language cognates (Declerck & Philipp, 2015a). However, when cognates and non-cognates are mixed, switch costs in general, and the switch cost asymmetry in particular, tend to be larger for cognates (Christoffels, Firk, & Schiller, 2007; Filippi, Karaminis, & Thomas, 2014), although the specific locus of the inhibitory effect in this experimental set-up is not entirely clear. In the present study, we will therefore investigate language control during bidialectal picture naming for cognates and non-cognates presented in separate blocks. If both varieties are simultaneously active in bidialectals, we predict a general cognate facilitation effect as well as a reduction in switch costs for cognates.

### 1.3. Bilingualism vs. bidialectism

To investigate whether bidialectal monolinguals rely on the same underlying mechanisms of lexical access as bilinguals, we tested two types of bidialectal speakers – native German speakers residing in the Aachen area who, in addition to Standard German, spoke a local Low German dialect called Öcher Platt, and native English speakers residing in the Dundee area who, in addition to Standard English, spoke a local variety of the Lowland Scots dialect called Dundonian. Testing two different types of bidialectals with different native languages allows us to see whether the obtained results can be generalised cross-linguistically.

Our study is not the first to investigate lexical access in closely related varieties. Costa and colleagues (Costa & Santesteban, 2004; Costa et al., 2000, 2006) have investigated highly proficient bilinguals of two typologically related languages, Spanish and Catalan, and found symmetrical switching costs as well as cognate facilitation effects. Although Catalan has an 85% degree of lexical overlap with Spanish according to the estimate provided in the Ethnologue database (Lewis, Simons, & Fenning, 2016), which is at the threshold of what is considered mutually intelligible, its status differs considerably from that of

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